



SECTORAL CHECKLIST

for preparation and inspection of a safety report

UNECE convention on the transboundary effects of industrial accidents & the EU Directive 96/82/EC (SEVESO II) by a consistent Checklist system



Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety

**Umwelt
Bundes
Amt**
For our Environment



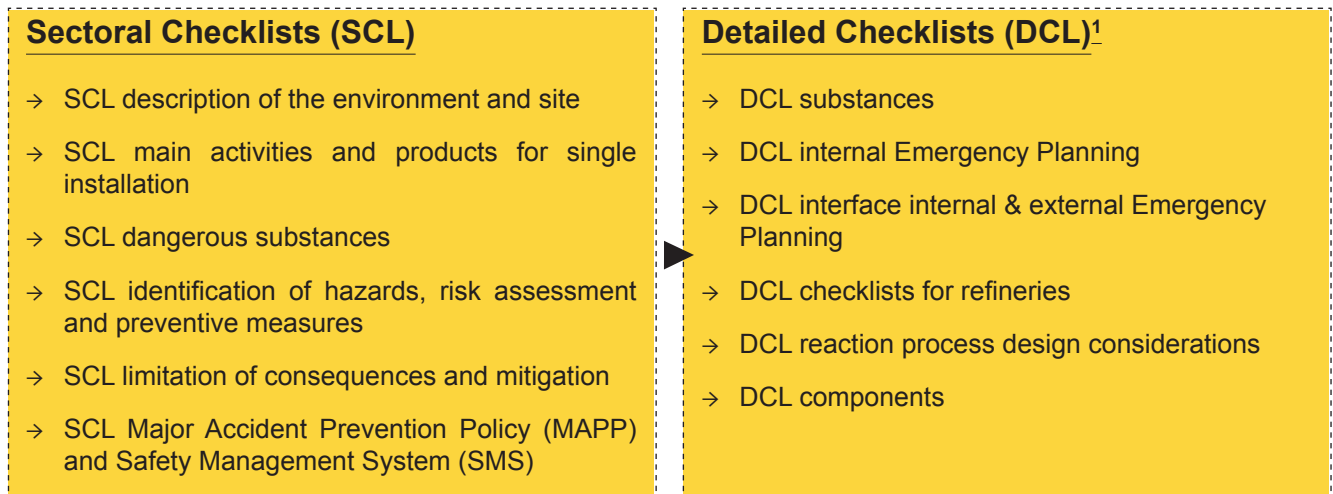
UNECE Convention on the
Transboundary Effects of
Industrial Accidents

**Assistance
Programme**

Introduction to system of checklists

To support the preparation, auditing and inspection of Safety Reports a hierarchical system of checklists was developed as presented in figure 1.

Figure 1
System of checklists for assessment of a Safety Report



Presented document represents different sectoral checklists (SCL) that give an overview on all safety performances, expressed by the simple yes/limited/no evaluation system. Detailed description of findings and comments are summarized at the end of every SCL.

The system of checklist is preferably used in a single electronic document, which allows an easy switch between the checklists, guidance text and literature.

¹ The number of DCL can be extended accordingly to the need of the investigator.

To involve several experts at the same time, it is recommended to split up the document according to the different areas, e.g. description of substances, SMS, risk assessment, etc. This procedure is possible because:

- SCL's are short and comprehensive;
- SCL's address a limited area;
- SCL's can be performed by sectoral specialists (share workloads); and
- SCL's can be evaluated separately according to similar topics (not to compare apples and pears).

In the open literature there are several references to other checklist methods, which follow other principals as given in the "SEVESO-world". Those systems give within their limits also valuable information on the safety record of the objects investigated. As good examples are mentioned:

- The Belgium Metatechnical Evaluation System M.E.S.¹; or
- Checklist of the German Federal Environmental Agency especially designed for installations handling substances, which are dangerous for the environment².

1 <http://www.employment.belgium.be/WorkArea/showcontent.aspx?id=6642>

2 <http://home.arcor.de/platkowski/Raffinerie/Site/>

Evaluation system for the sectoral checklist

For inspection and surveillance purpose it is useful to evaluate accuracy of the information presented in the SCL throughout on-site inspection. The SCL includes six chapters that contain questions to be answered (see figure 1). All questions are organized in three categories, so-called “3-Cs”:

Complete, Correct and Credible.

The rationale behind splitting the questions among the “3-Cs” is:

- Under “complete” questions will verify the presence of the required, essential information that a safety report should contain; and
- Under “correct” and “credible” will go questions that would be used to verify the ones in complete (to cross-check them).

Example

Q: Are the accidental scenarios described in the safety report?

**Note: Would this question go under “Complete”?*

Clarification: In order to understand whether these scenarios are calculated correctly or in a credible way, detailed knowledge of accident models is needed. Therefore a question is also asked under “Credible” – are the parameters given to calculate the scenarios by another party (following the approved accidents model)?”. If such information is available, the author of the Safety Report shows confidence in his/her own assumption/calculations.

Every question under “3-Cs” should be answered as yes, limited or no. For the evaluation purposes following principles should be applied:

- For every “no” checked, the Safety Report **would not be acceptable**, and should be immediately returned to operator for additional work;
- For every “limited” checked, the Safety Report **would still be acceptable**, but will need further clarification.

It should be noted that some of the “complete” and “correct” questions might need to be verified during the on-site inspection. Furthermore, it might occur that some questions are not applicable for certain type of installation. For example – a passive storage facility without any pipes will not have any piping and instrumentation drawings (as requested under the question 2.7). In such a case, the evaluator should immediately pass to the next question.

This checklist system has been prepared within a project “Joint inspection for Croatia, the former Yugoslav Republic of Macedonia and Serbia” on the evaluation of safety reports under the UNECE Convention on the Transboundary Effects of Industrial Accidents which was **implemented with funds of the Advisory Assistance Programme for Environmental Protection in the Countries of Central and Eastern Europe, the Caucasus and Central Asia provided by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety and managed by the Federal Environment Agency.**

Sectroal checklists (SCL)

1



No. | Reviewed item | Example

1. SCL description of the environment and site

1.1 SCL description of the environment

COMPLETE			Yes	Limited	No
1.1.1	Is the general description of the region provided?	Maps/drawings which show site and surrounding like roads, water ways, rails, settlement, harbors, airports. It is recommended that these are topographic maps of an adequate scale considering the impact range of the major accidents identified. The scale of the maps should be indicated.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1.1.2	Is the description of the land-use situation provided?	Residential areas, recreational areas, traffic routes, factories, agriculture, forests, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1.1.3	Are the special sensitive sites both manmade and natural identified?	Hospitals, schools, conservation areas, monuments, protected sites.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1.1.4	Are potential natural hazards described?	<ul style="list-style-type: none"> • Riverine flooding, flash floods from sealed surfaces, mudslides • Seismic events (volcano, earthquake, tsunami), subsidence • Tornado, storm • Avalanches, snow, ice 	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CORRECT					
1.1.5	Is the description of the land-use situation up to date?	New traffic routes, settlements, sports facilities, industry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1.1.6	Does the described potential natural hazard correspond with the given maps/information for the site?	<ul style="list-style-type: none"> • Near rivers - flooding • Seismic events - local information by authorities • Mudslides, subsidence - geological information • Storm - meteorological information 	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1.1.7	Does the Safety report contain adequate meteorological and geological, hydrological and hydrographic data?	As the natural environment of an establishment may present potential hazard sources, influence the development of an accident, and be affected by the consequences of an accident, data will be needed for the description of the relevant environmental factors. In general this includes meteorological data such as, for example average and maximum indices on precipitation (rain, snow, hail),	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

		thunderstorms, lightning, humidity, fog, frost, winds (direction, speed), stability classes, maximum and minimum recorded temperatures and geological, hydrological and hydrographic site data such as general geological context type and conditions of the ground/underground.	
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CREDIBLE

1.1.8	Are the natural events in the past and their effects reviewed?	<ul style="list-style-type: none"> • Maximal flood in the past (e.g. 100 years) • Failure of supply depending on snow/ice • Earthquakes • Damage of buildings/installations by storms 	<input type="radio"/> <input type="radio"/> <input type="radio"/>
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1.2 SCL description of the site

COMPLETE

1.2.1	Is a detailed site plan provided?	Showing buildings, roads, installations, tanks	<input type="radio"/> <input type="radio"/> <input type="radio"/>
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1.2.2	Are the main activities carried out on site described?	<ul style="list-style-type: none"> • Process flow diagram (or Process Block diagram) • Description of loading, unloading, storage, production, pipelines 	<input type="radio"/> <input type="radio"/> <input type="radio"/>
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1.2.3	Is the technical infrastructure described?	<ul style="list-style-type: none"> • Main storage facilities • Process installations • Location of relevant substances and their quantities • Relevant equipment (including vessels and pipes) • Utilities and services (supply with electricity, steam, coldness, nitrogen, water, natural gas, handling of waste water/gases, Incoming raw materials, outgoing products) • Means of access and egress • Control rooms, offices and other occupied buildings which could be vulnerable in a major accident 	<input type="radio"/> <input type="radio"/> <input type="radio"/>
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1.2.4	Is the list of safety critical systems and equipment enclosed?	<ul style="list-style-type: none"> • Tanks, vessels, pumps, piping • Flares, catchment areas • Safety valves, control/alarm instrumentations 	<input type="radio"/> <input type="radio"/> <input type="radio"/>
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CORRECT

1.2.5	Does the listed safety critical systems and equipment correspond with the qualifying criteria?	<ul style="list-style-type: none"> • Critical tanks/vessels are identified by mass • Critical pumps/piping are identified by flow • Flares, catchment areas are identified by relevance for outflow • Safety valves, instrumentation are identified by relevance for containment integrity 	<input type="radio"/> <input type="radio"/> <input type="radio"/>
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1.2.6	Are the activities of other companies on the site described?	Working, production, storage, handling of hazardous substances	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CREDIBLE					
1.2.7	Are the distances from other industrial, commercial, agricultural or sensitive facilities given?	<ul style="list-style-type: none"> • Maps include named objects and scales • Tables of objects/distances are comparable with given maps 	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1.2.8	Are the threshold criteria for safety critical systems and equipment defined?	Criteria according to relevant regulation for flow, mass, safety function	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

SCL 1 acceptable?

EVALUATION of SCL 1 - Summary

Sectroal checklists (SCL)

2



No.	Reviewed item	Example	Evaluation		
2. SCL main activities and products for single installations					
COMPLETE					
2.1	Is the technical description of the installation provided?	Operating temperature/pressure/flow/level, rotational speed/power, explosion protection of equipment, relevant qualitative and quantitative information on energy and mass transport in the processes i.e. material and energy balances, <ul style="list-style-type: none"> • In normal running • In start-up or shut-down periods • During abnormal operations 	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.2	Are the operating procedures for the safety of important installation defined for normal and abnormal operations?	<ul style="list-style-type: none"> • Description of process based on named devices • Description of action by staff depending on alarms • Description of automatic action by the process safety system • Description of actions by the emergency shut down system 	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.3	Is the process control concept described?	Range for normal operation, alarm values, process control concept (e.g. the defined Safety Integrity Level (SIL) of the safety critical systems and equipment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.4	Are the protective systems described?	<ul style="list-style-type: none"> • Automatic depressuring system (Blow down), flare system/ flare stack, pressure relief valves (blow-off place – often the place where the substance dissipates into the atmosphere after (incorrect) opening of a pressure relief valve (e.g. the easiest available place)), emergency shut-off, over-fill protection/level control, fire protection (sprinkler, deluge, hydrants, foam, CO₂, powder), • Fire and Gas detection 	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CORRECT					
2.5	Are the design standards of the equipment included in technical description?	Specifications of the materials, design temperature/pressure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.6	Does the technical plant design for the safety important installation comply with substances and operating conditions?	<ul style="list-style-type: none"> • Materials are resistant against substances • Normal operation range is within the technical design 	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2.7	Are diagrams available which display equipment and process flow?	<ul style="list-style-type: none"> • Detailed piping and instrumentation diagrams (P&ID's) for the safety important installation • Less detailed process flow diagrams (PFD) which allow to understand how the process works 	<input type="radio"/> <input type="radio"/> <input type="radio"/>
CREDIBLE			
2.8	Are documents about the classification of instrumentation available?	Showing process to compare result of risk analysis and quality of instrumentation	<input type="radio"/> <input type="radio"/> <input type="radio"/>

SCL 2 acceptable?

EVALUATION of SCL 2 - Summary

Sectroal checklists (SCL)

3

No.	Reviewed item	Example	Evaluation		
3. SCL dangerous substances					
COMPLETE					
3.1	Is the inventory of hazardous substances, which are present under normal conditions provided?	CAS number ¹ , chemical name, quantity, state	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.2	Is the maximum quantity or production of hazardous substances, which are present under accidental conditions provided?	CAS number ¹ , chemical name, quantity, state, production rate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.3	Is the indication of the hazards, both immediate and delayed from man/population and the environment provided/highlighted?	Flammability, explosiveness, toxicity, bioaccumulation, water risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CORRECT					
3.4	Are the Material Safety Data Sheet (MSDS) for all hazardous substances and mixtures available?	Manufactured, used, stored	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.5	Does the Material Safety Data Sheet (MSDS) contain physical, chemical and toxicological characteristics?	<ul style="list-style-type: none"> • Chemical/IUPAC name, CAS number¹, EC number and/or Index number according the CLP Regulation • Physical and chemical characteristics (e.g. physical state, melting point, freezing point, boiling point, flash point, flammability, auto-ignition temperature, solubility, decomposition temperature) • Toxicological characteristics (e.g. acute toxicity, skin corrosion, mutagenicity, carcinogenicity, reproductive toxicity, specific organs toxicity, aspiration hazard) • Environmental toxicity characteristics (e.g. environmental toxicity, persistence and degradability, bioaccumulative potential, mobility in soil) 	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

¹ Only CAS number required by the Directive, for some of the substances there could be various CAS numbers.

CRECIBLE

3.6	Are the appropriate end-points for toxic substances for human beings and environment according their classification given?	<ul style="list-style-type: none"> • Acute Exposure Guideline Levels (AEGLs) • Emergency Response Planning Guidelines (ERPG) • Immediately Dangerous to Life and Health (IDLH) values/ concentrations • Threshold Limit Value (TLV) • Lethal Concentration 50 (LC50,) – is the concentration of a chemical which kills 50% of a sample population • Effective Concentration 50 (EC50) is the concentration of a chemical which doesn't kills but shows other defined effects on 50% of a sample population • Water risk index (could be calculated by "H" sentences of GHS) 	<input type="radio"/> <input type="radio"/> <input type="radio"/>
3.7	Are the relevant data to calculate physical effects and chemical reactions provided?	Vapour pressure, vapour density, relative density, heat of combustion, range of explosibility, potential exothermic reactions, calorimetric data, sensitivity on mixing with other chemicals/ingredients/catalysts, composition of combustion gas	<input type="radio"/> <input type="radio"/> <input type="radio"/>

SCL 3 acceptable?

EVALUATION of SCL 3 - Summary

Sectroal checklists (SCL)

4



No. | Reviewed item | Example

4. SCL identification of hazards, risk assessment and preventive measures

COMPLETE			Yes	Limited	No
4.1	Is the adopted approach for the applied risk analysis described and does it correspond to the national requirements, if defined?	<ul style="list-style-type: none"> • Definition of the different categories of frequency • Reference to data bases and/or generic data • Models for calculation and representation of the consequences • Values (end points) for accidental loads (explosion loads, heat radiation, toxicity, etc.) 	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.2	Does the risk analysis (RA) cover the entire facility?	<ul style="list-style-type: none"> • The entire site or on a specific part of the plant, or on hazards associated with a certain operations • Risks to human beings, assets and the environment • Considering external impacts (landslide, flooding, earthquake) • Which area/activity is the most hazardous and how is this considered 	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.3	Are the accidental scenarios described, including the criteria and the process of their selection?	<p>The selection of major accidental scenarios shall include:</p> <ul style="list-style-type: none"> • Major accidents identified in the Risk Analysis • Accidental events that appear in the Risk Analysis without being identified as major accidents, as long as they represent separate challenges to the emergency preparedness • Events that have been experienced in comparable activities • Acute pollution • Temporary risk increase, e.g. lifting/transportation activities 	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.4	Is the probability of the major accident scenarios assessed?	Deterministic or probabilistic, qualitative or quantitative values	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.5	Does the Safety Report contain a detailed description of the possible internal causes that might lead to an accident scenario?	<ul style="list-style-type: none"> • Failure by humans (e.g. mal operation) • Failure by equipment (e.g. seals, pumps, venting valves) • Failure by process control (e.g. sensors, wiring, control system) • Failure by supply (e.g. electrical energy, inerting systems) 	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.6	Does the Safety Report contain a detailed description of the possible external causes that might lead to an accident scenario?	Critical wind speed, lightning, high tide	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4.7	Are the anticipated consequences of a major accident described in the Safety Report?	<ul style="list-style-type: none"> • Concentration of toxic substances at next population • Heating of containments by heat radiation • Demolition of installations by pressure peaks 	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.8	Is it outlined which measures have been implemented for loss prevention of the identified major accidents?	Process control, firefighting, double-walled containments, gas detection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.9	Are the endpoints for toxic effects, heat radiation and pressure peaks described?	<ul style="list-style-type: none"> • Acute Exposure Guideline Level, Level 2 (AEGL – 2) • Emergency Response Planning Guidelines, Level 2 (ERPG – 2) • Maximum heat radiation for persons without special clothes over a long time – 1.6 kW/m² (other examples – e.g. API 521/ISO 23251). • 0.1 bar as a pressure peak who can destroy stonework 	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.10	Is the physical and chemical behaviour under normal conditions of use described?	Reactivity, stability, conditions to avoid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.11	Have the potential undesired side reactions and products been identified?	Possibility of hazardous reactions, incompatible materials, compatibility matrix of the hazardous substances, hazardous decomposition products, thermal unstable substances, self-decomposition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

CORRECT

4.12	Do the assumptions inside of the described scenarios fit the reality?	Parameter of scenarios compare with equipment data like flow/pressure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.13	Is the calculation of the scenario dimensions done by approved models?	Models described within national/international regulations or literature	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.14	Does the probability of the major accident scenarios comply with the preventive measures?	Context between heaviness of accident and classification of preventing installation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.15	Are the choice of limitations for toxic effects, heat radiations and pressure peaks given?	<p>If both available - why ERPG-2 instead of AEGL-2 or otherwise</p> <ul style="list-style-type: none"> • Sensitivity of installations or humans under influence of heat radiation • Sensitivity of installations or humans under influence of pressure peaks 	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4.16	Are the assumptions for presence of possible victims understandable and reasonable (ref. to scenarios)?	Probability of presence at train/bus stations, on roads etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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CREDIBLE

4.17	Is the used applied risk analysis consistent?	Approached method is used for all identified critical installations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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4.18	Are the accident parameters given to calculate the scenarios by another party?	Wind speed, released mass, diameter of burning pool, mass within a cloud of explosive material	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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SCL 4 acceptable?

EVALUATION of SCL 4 - Summary

Sectroal checklists (SCL)

5



No.	Reviewed item	Example	Evaluation		
5. SCL limitation of consequences and mitigation			Yes	Limited	No
COMPLETE					
5.1	Is the description of the equipment in the plant to limit the consequences of major accidents provided?	<ul style="list-style-type: none"> • Devices for limiting the size of accidental releases (scrubbing systems, water spray or water curtain, emergency flair systems, etc.) • Vapour screens, emergency catchpots or collection vessels, emergency shut-of valves • Automatic shut down systems • Emergency venting including explosion panels • Inerting systems • Equipment for removal of contaminated soil and other material • Booms and skimmers for spillages to water • Temporary storage arrangements e.g. portable storage tanks, for the contaminated material 	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.2	Are the organization, responsibilities and procedures for emergency response described?	<ul style="list-style-type: none"> • Activation of warnings and alarms for site personnel, external authorities, neighbouring installations, and where necessary for the public • Identification of rescue routes, escape routes, emergency refuges, sheltered buildings, muster points and control centres • Provision for shut-off of processes, utilities and plants with the potential to aggravate the consequences 	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.3	Is the plan for training and information for personal and emergency response crews provided?	Evacuation exercises, first firefighting training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.4	Is the external equipment to limit the consequences of major accidents described?	Equipment of external firefighters	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.5	Is the activation of external emergency response and co-ordination with internal response described?	<ul style="list-style-type: none"> • Mutual aid agreements with neighbouring operators and mobilization of external resources • Resources available on-site or by agreement (i.e. technical, organizational, informational, first aid, specialized medical services, etc.) • Exercises or coordination with local external fire brigade 	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

CORRECT

5.6	Does the equipment of emergency response crews compare with potential hazards?	<ul style="list-style-type: none"> • Alcohol-resistant firefighting foam if needed • Water shields against dispersion of gas clouds or heat radiation • Flow rate and availability of water for firefighting 	<input type="radio"/> <input type="radio"/> <input type="radio"/>
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CREDIBLE

5.7	Has the identification of installations, which need protection or rescue intervention been done?	<ul style="list-style-type: none"> • Cooling of installations against heat radiation • Plans for evacuation of buildings 	<input type="radio"/> <input type="radio"/> <input type="radio"/>
5.8	Are the elements necessary for drawing up the internal emergency plan (contained in questions under "Complete") provided?	There should be a summary of the Items under "complete", which is part of the Safety report, or the operator has to have a proof that he has supplied the authorities with such an information	<input type="radio"/> <input type="radio"/> <input type="radio"/>

SCL 5 acceptable?

EVALUATION of SCL 5 - Summary

Sectroal checklists (SCL)

6



No. | Reviewed item | Example

6. SCL Major Accident Prevention Policy (MAPP) and Safety Management System (SMS)

6.1 Major Accident Prevention Policy (MAPP)

COMPLETE			Yes	Limited	No
6.1.1	Does the MAPP exist as a written document?	The MAPP should be a written document. It should be complete and proportionate to the major accident hazards.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CORRECT					
6.1.2	Does the senior management show commitment to the MAPP, e.g. through signature	The MAPP should be signed by the senior management in order to guarantee that it will be implemented throughout the establishment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CREDIBLE					
6.1.3	Has the MAPP been communicated to the workforce?	In order to guarantee the implementation of the MAPP and the commitment of the workforce onsite, the MAPP should be communicated to the employees, subcontractors and any third party, undertaking activities on the site. This should be documented in an adequate way. The credibility of this documentation should be validated through e.g. interviews with the people on the site, checking the availability of the MAPP in the workplaces, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.1.4	Is the MAPP communicated to contractors and third parties undertaking activities on site?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6.2 Elements of SMS

COMPLETE					
6.2.1	Is the organisation of the facility documented, the process safety related units roles and responsibilities clearly identified?	There should be a complete documentation, which clearly links the process safety (major accident hazards) to the roles and responsibilities of the personnel on all levels. This should be visualized by the means of e.g. an organizational diagram	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2.2	Have processes for identifying and monitoring the process safety requirements on personnel and their roles and responsibilities been developed?	There should be working procedures, which completely describe how are safety requirements identified and monitored and how the corresponding roles and responsibilities distributed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6.2.3	Have processes for the identification of hazards and assessment of their risks been defined?	In order to have a fit and proper risk assessment procedure you have to have a complete set of processes for hazard identification and assessment of their risks. This should include definition of the scope of application, people responsible for initiating and carrying out the risk assessment, frequency of execution, follow-up activities, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2.4	Have processes been defined for the communication of the results from hazard identification and risk assessment?	In order to be able to take into account the risk assessment in the management system, there must be procedures that ensure complete incorporation of the results of the risk assessment in the management of change, maintenance, operation, purchasing, etc. processes. The procedures should involve the management at all levels in the establishment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2.5	Do processes exist for addressing changes in documents as a result of changes?	The management of change procedures should ensure that planned and implemented changes are fully taken into account in the complete range of management, technical and administrative documents, such as operating procedures, plans and drawings, telephone lists, safety report, SDSs, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2.6	Do processes exist for developing internal emergency plans?	The internal emergency plans have to be developed within a procedure that completely takes into account the major accident scenarios, the responsibilities of the personnel, as defined by the MAPP and the SMS, the management of change procedures, the risk assessment results, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2.7	Do processes / procedures exist for training / drills related to the internal emergency plan?	The procedures for emergency drills and testing of the internal emergency plan should be complete and with defined frequency, scope, responsibilities, involved persons, functions. They should be reviewed and the results should be used when updating the emergency plan and the MAPP/SMS.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2.8	Are there complete processes and procedures in place for monitoring compliance with defined requirements?	The processes and procedures for monitoring should completely define the reporting formats (regular reporting/ log books/journals, etc.), procedures (alarm monitoring by supervisors, work discipline monitoring, etc.), tools (Checklists of regular (shift / daily / weekly) and control measures ("walk round" visits by management).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2.9	Does an accident reporting mechanism exist?	The establishment should have a procedure for accident (and near miss) reporting, which should be complete and define the reporting formats and practices, incl. protection of reporting employees, investigation procedures, assessment of the reports, communication and follow-up.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6.2.10	Is a process defined for regular audits?	There should be a procedure for auditing which would completely define the kind of audits performed (internal and/or external), the frequency for their execution, the responsibilities and the persons involved.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2.11	How does senior management review the MAPP and the SMS?	The system for review and update of the MAPP and the SMS should completely define the process of reviewing, the frequency of the review, other circumstances that would trigger a review, involvement of the personnel on all levels, the communication to other actors and follow-up.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

CORRECT

6.2.12	Are the qualifications and training requirements for all process safety related activities defined and documented?	In the Safety report there should be a description of all safety related activities (Annex II). For all such activities there should be a training programme that guarantees a certain level of qualification of the personnel involved. These persons should also receive regular refresher training and additional training when changes are implemented.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2.13	Is a training programme for attaining and maintaining competence and skills related to process safety developed and executed?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2.14	Have processes and procedures been adopted to systematically eliminate hazards and mitigate risks?	There should be written procedure(s) for these aspects of the SMS. They should identify the issues of concern, personnel responsible on all levels, tools and documents.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2.15	Have processes and procedures been established to define "normal operation" - (operating envelope)?	There should be written procedure(s) for these aspects of the SMS. They should identify the issues of concern, personnel responsible on all levels, tools and documents.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2.16	Are processes and procedures established to report deviations from "normal operation"?	There should be written procedure(s) for these aspects of the SMS. They should identify the issues of concern, personnel responsible on all levels, tools and documents.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2.17	Do processes and procedures exist for carrying out maintenance, repair and inspection activities?	There should be written procedure(s) for these aspects of the SMS. They should identify the issues of concern, personnel responsible on all levels, tools and documents.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2.18	Does a "Permit to Work" system exist?	There should be a written procedure describing how the "Permit to Work" system is implemented.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2.19	Does a process exist for the "MoC"?	There should be a written procedure for the management of change aspects of the SMS.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6.2.20	Are responsibilities for initiating, approving permitting and approving a change defined?	It should be within the procedure for the management of change and face the aspects detailed in the question.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2.21	Do processes exist for addressing training and communication as a result of changes?	It should be within the procedure for the management of change and face the aspects detailed in the question. It should be complementary and not contradictory to the training procedures.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2.22	Do processes / procedures exist for communicating the internal emergency plan to contractors / third parties on site?	There must be a procedure that outlines the communicating process of the internal emergency plan to workers/third parties/contractors. It should clarify the information disseminated, the training required, how is the training verified/ followed up.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2.23	Do processes / procedures exist for communicating the internal emergency plan to off-site emergency responders?	There must be a procedure that outlines who is responsible for communicating the internal emergency plan to offsite emergency responders, how often this should be done and when the information has to be updated. Additional issues that have to be clarified within are the communication channels used and cooperation in case of an accident.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2.24	Are processes / procedures in place to deal with deficiencies identified by monitoring activities (including closing out)?	There should be a follow-up procedure for deficiencies identified during monitoring activities. It has to clearly indicate persons responsible, competencies and follow-up procedures, up to discontinuing the operation of an installation or parts thereof.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2.25	Is there an internal communication / reporting system to allow employees to communicate about process safety deficiencies or improvements?	Employees should be able to communicate their opinions and findings on the safety of the installation they work in. this should be done in a systematic way, therefore a procedure must exist.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CREDIBLE					
6.2.26	What are the criteria for carrying out a risk assessment	The MAPP and the SMS should adequately and credibly demonstrate that a systematic and consistent approach is implemented, based on a sound scientific and technical principles, which identifies areas that represent a major accident hazard, such as e.g. HAZOP, HAZID, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2.27	For which activities does a "Permit to Work" system exist?	The MAPP and the SMS should credibly demonstrate that for activities that could influence the risk of major accidents (e.g. hot works, electrical works, demolition works, etc.) a work permit is required that takes into account the hazards and risks entailed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6.2.28	Is a “change” clearly defined within the management system and is a “safety relevant change” clearly defined in the SMS?	The procedures for management of change should have adequate definitions for “Change” and “Safety relevant change”. These definitions should credibly demonstrate that all safety related changes undergo a process of evaluation and adoption in order to control risks of major accidents.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2.29	Does the MoC process link to the hazard Identification and risk assessment processes?	The MoC procedures should credibly demonstrate that for the changes foreseen proper hazard identification and risk assessment are performed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2.30	Do accident reports feed back into risk assessments?	There should be a credible proof that the SMS requires that accident and near misses reports are taken into account when performing or reviewing the risk assessment of the establishment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2.31	Are Performance Indicator Data collected on “activities” – Leading indicators, and “outcomes” – Lagging indicators?	The performance indicator data have to be adequate to the activities onsite, the major accidents hazards and the SMS. All the relevant processes and responsibilities should be credibly clarified in the MAPP and the SMS.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2.32	How are the results from audits followed up?	The MAPP and the SMS should credibly demonstrate that relevant and adequate procedures for reporting, feedback and follow-up of the audits are introduced and that there is credible link to the other processes in the SMS, such as for instance MoC, Risk assessment, communication and training, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.2.33	How are Performance Indicator Data; • Collected • and used?	Performance indicator data should be collected, processed and used in a consistent and systematic way that allows operators to identify deficiencies in the MAPP and SMS and to ultimately increase the safety level. The MAPP and the procedures in the SMS should demonstrate that this requirement is met with credible and relevant documents or procedures.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

SCL 6 acceptable?

EVALUATION of SCL 6 - Summary



Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety

**Umwelt
Bundes
Amt** 
For our Environment

UNECE Convention on the
Transboundary Effects of
Industrial Accidents

**Assistance
Programme**

