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Checklists for surveying and assessing industrial plant handling materials and substances, which are hazardous to water

№ 15

Temporary closure of enterprises

For our Environment

Umwelt Bundesamt

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Temporary closure of enterprises

by

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Recommendations of the International River Basin commission for temporary and long-term closure of industrial plant

Sphere of activity:

The recommendations are valid for the dangerous industrial objects, if they fall within the definition of the following directives and international agreements:

- SEVESO II
- UNECE – convention about industrial accidents
- UNECE – convention about water bodies

Determination:

Temporary closure („preservation“) - this is a decommissioning of technical industrial facilities in order to again put into operation such industrial facility within a maximum of 3 years.

Long-term closure („liquidation“) - this is a final decommissioning of technical industrial facilities.

Recommendations:

1. Closure plan

a) Develop the "Action Plan to ensure environmental sefety" (closure plan) not only for temporary, but also for long-term closure.

b) During the plan development it is necessary to consider, that:

- It will not cause adverse environmental impacts and other threats, will not cause significant harm and significant burden on public facilities and other plants adjacent to this plant or any land area adjacent to this plant;
- Existing components and waste are properly disposed and harmlessly utilized or destroyed without harm to the welfare of mankind, and
- The corresponding guarantee is ensured in case of temporary closure, as well as for the restoration of the plants' functions and plant territory up to the stipulated status (at the long-term closure);

c) Before undertaking any work on temporary or long-term closure of industrial plants – to agree with a competent state authority on surveillance the Closure Plan, which covers following recommendations:

2. Parts of the plant

2.1 Temporary closure

a) Parts of the plant that is temporarily closed and which were containing in the past or present time substances hazardous for water – must be drained, decontaminated and if necessary inactivate with a substance not hazardous to water (e.g. water or nitrogen);

b) At closing temporarily - all piping must be separated from storage tanks and cisterns and tightly flanged;

c) At temporary closure, devices showing leakage and cathode installations against corrosion must be remaining in exploitation and be under control;

d) Parts of the plant that are temporarily closed – must be protected against illegal use;

e) At the temporarily closed industrial sites it is unacceptable to store barrelware with substances hazardous to water. If this is impossible/not cost effective for the temporary closure – it is necessary to comply with the relevant recommendations of international river commissions. These warehouses with barrelware should not be considered as a closed industrial facility;

f) Parts of the plant, that is temporarily closed and located at areas prone to floods, should be protected in accordance with international river commissions' recommendations for flood protection;

g) Before restoration of the previously temporarily closed plant – it should be inspected in accordance with the recommendations of river commissions.

2.2 Long-term closure

a) Empty, clean and decontaminate plant parts, which will be closed for a long term period of time and which were containing either in the past or presently substances hazardous to water;
b) Parts of a plant, closed for a long time, - to work out in reverse way. If it is not possible / not profitable, then cleaned parts of plant should be closed and marked to prevent illegal use;
c) All barrelware with substances harmful to water during long-term closure – should be sent for recycling, dispose duly to avoid further storage of such barrelware.

3. Polluted area

a) To check, whether the soil is contaminated;
b) If the soil is visibly contaminated, then take corresponding measures on restoration and safety measures;
c) At areas with contaminated soil and also subjected to floods – follow additionally recommendations "Study and definition of wastes left non-utilized in areas prone to floods".

4. Sewage

a) Clean sewage at closing industrial plants;
b) Ensure that at closing the plant, the waste water will not be able to reach sewage system. If it is impossible to guarantee at temporary closure – use further a treatment facility for waste waters.

Checklist for monitoring recommendations implementation

General data about plant status

Type of the enterprise / industrial plant .....

Which water hazardous substances were or are at present: (see the Checklist 1):

.....
.....
.....
.....

Term of temporary closure?

❒ Short-term (under 1 year) — This Checklist is applicable

❒ temporary (under 3 years) — This Checklist is applicable

❒ long-term (above 3 years) — This is not a temporary closure. It is necessary to use a Checklist for the long-term closure.

Status of enterprise at the moment of inspection:

❒ Temporary closure is not done
❒ Temporarily closed: .....
❒ Was closed long time ago (above 3 years)

Is there any treatment facility available?

❒ No ❒ Mechanical ❒ Biological

Note:

0. Time terms

0.1. Does the user of the plant have any intention to start operating the plant within the maximum three years?

❒ Yes ❒ No → Checklist is finished (no any periodical closure)

❒ Action ❒ No action

Note:

Examples of actions:
Short-term:
- The plant should be closed for a long period of time, if there is no any intention to make it operational again within three years;
- To undertake an inspection – use recommendations and the Checklist 16 „Long-term closure".

1. Closure plan

1.1. Was the closure plan developed?

❒ Yes ❒ No → further 2

❒ Action ❒ No action

Note:

1.2. Was the risk factor evaluated?

❒ Yes → further 1.3 ❒ No → further 1.4

❒ Action ❒ No action

Note:

1.3. Does the risk assessment reveal any fact that any enterprise or a land area located near to the plant may cause a danger?

❒ Yes →1.3.1 ❒ No →1.4 .

1.3.1. What kind of danger?

- Harmful impact on environment (eg.soil and water pollution) ❒ yes ❒ no
- Other danger (eg.danger of landslide, release of substances) ❒ yes ❒ no
- Violations (complaints) ❒ yes ❒ no

❒ Action ❒ No action

1.4. Does the closure plan say, that available components and wastes were:

Duly and harmlessly utilized ❒yes ❒ no ❒ not applicable

or

liquidated without causing any harm to wellbeing of humanity ❒ yes ❒ no ❒ not applicable

1.5. Does the closure plan say, that the plant territory is provided with due safety?

❒ Yes ❒ No ❒ Not applicable

❒ Action ❒ No action

Note:

1.6. Competent state body on supervision of the Plan to Closure a plant

Agreed ❒ yes ❒ no

Approved ❒ yes ❒ no

❒ Action ❒ No action

Note:

1.7. Was the Closure Plan implemented?

❒ Yes, fully ❒ Yes, but partly ❒ No

❒ Action ❒ No action

Note:

Examples of actions:

Short-term:

- To prepare plans and documentation similar to plants and agree them with specific conditions.
- To examine a plant and undertake a primary estimation of the danger capacity – risk evaluation (to record substances the Checklist 1 „Substances“ is suitable)
- Marking of temporarily closed plants.

Medium-term:

- Safety (construction and/or repair of safeguarding, lockbars at dangerous industrial objects / to weld if needed).

Long-term:

- Development and use of the approved Plan on Closure.

Determination of the real risk

Was the sub-point of recommendations implemented?

Yes	Partly	No
❒	❒	❒
RC=1	RC=5	RC=10

2. Parts of plant

2.1. Were the parts of the plant storing substances hazardous to water emptied in duly manner, degassed and inactivated in case of necessity (eg. With water or nitrogen)?

Parts of the plant	Substance	m³	WRC	Emptying		Degassing		Inactivated		Note
				Yes	No	Yes	No	Yes	No	

❒ not applicable (e.g. If there no parts of the plant)

❒ Action ❒ No action

Note:

2.2. Were all the pipes separated from reservoirs and cisterns?

❒ Yes, fully ❒ Yes, but pertly ❒ No

❒ Action ❒ No action

Note:

2.2.1. Were the split pipes tightly flanged?

❒ Yes ❒ No ❒ Not applicable

❒ Action ❒ No action

Note:

2.3. Are there at the industrial plant any devices showing leakage and/or cathodic protection against corrosion?

Devices showing leakage ❒ yes ❒ no ❒ not applicable

Cathodic protection against corrosion ❒ yes ❒ no ❒ not applicable

❒ Action ❒ No action

Note:

2.3.1. Are these devices used?

❒ Yes ❒ No ❒ Not applicable

❒ Action ❒ No action

2.3.2. Is the work or functioning of these devices being controlled?

❒ Yes ❒ No ❒ Not applicable

❒ Action ❒ No action

2.3.3.It is possible to react on the alarm signal made by these devices?

❒ Yes ❒ No ❒ Not applicable

❒ Action ❒ No action

Note:

2.4. Are the closed parts of the plant protected against illegal use?

❒ Yes ❒ No ❒ Not applicable

❒ Action ❒ No action

Note:

2.5. Were all the barrelware (vats, containers and others) with substances hazardous to water sent for recycling and duly utilized in a qualified manner?

❒ Yes ❒ No ❒ Not applicable

❒ Action ❒ No action

Note:

2.6. Are the industrial facilities protected in areas prone to flooding, according to a Checklist 11 - flood protection?

❒ Yes ❒ No ❒ Not applicable, because this is not a flood zone

❒ Activity ❒ No action

Note:

2.7. Is it taken into account that when <u>re-commissioning</u> of the plant, which was before closed temporarily, it is necessary to restore this industrial facility in accordance with recommendations of the River Commissions for industrial facilities ready for operation and verify compliance with the recommendations by the method of Checklists?

❒ Yes ❒ No ❒ Not applicable

❒ Activity ❒ No action

Note:

Examples of activities:
<u>Short-term:</u>

- Empty, remove gasses and if necessary inactivate these containers and pipes with the help of a firm, specialized in this;

- The barrelware with substances harmful to water is to be sent for recycling or disposed according to all the rules. If it is impossible, the barrelware must be stored at the operable barrelware storage.

Medium-term:

- Use the activities from the Checklist 11;
- Organize monitoring over control of leakage of cathode protection against corrosion and measures in case of any accident;
- Pipes should be separated from containers and tightly flange.

Determination of the real risk

Was the subitem of recommendation implemented?

Yes	Partly	No
❒	❒	❒
RC=1	RC=5	RC=10

3. Polluted areas

3.1. Is there a detailed study (risk assessment) of soil at the plant being in the process of closure or already closed?

❒ Yes → 3.1.1 ❒ No → 3.2 ❒ Not applicable

❒ Activity ❒ No action

Note:

3.1.1. Do these studies confirm that the industrial plant does not cause any danger?

❒ Yes (no any danger) ❒ No (danger) →3.2 ❒ Not applicable

❒ Activity ❒ No action

Note:

3.2. Were any measures taken to restore and any security measures to prevent release of substances hazardous to water?

❒ Yes ❒ No ❒ Not applicable

❒ Activity ❒ No action

Note:

3.3. Is the industrial plant located outside of the area prone to flooding?

❒ Yes→ 4 ❒ No → 3.3.1 ❒ Not applicable

❒ Activity ❒ No action

3.3.1 Were the polluted areas evaluated when taking into account the Checklist "Examination and determination of threats caused by the waste left over not inactivated in areas prone to floods"?

❒ Yes ❒ No ❒ Not applicable

❒ Activity ❒ No action

Note:

Examples of activities:

Short-term:

- Estimated inventory (examination) of an immovable property with a specialist in this area;
- Check for any seepage water leaking out to a water body.

Medium-term:

- Use the Checklist "Examination and determination of threats caused by the waste left over not inactivated in areas prone to floods"
- Drains for seepage water and measuring in phases.

Long-term:

- To do a risk assessment → precaution measures / on restoration in compliance with the plan on restoration and safety, which was agreed with the authorized organization for restoration and safety.

Determination of a real risk

Was the sub-point of the recommendation implemented?

Yes	Partly	No
❒	❒	❒
RC=1	RC=5	RC=10

4. Sewage

❒ related ❒ not related → the Checklist is finished

4.1. Was the sewage inspected before closure for any residual capacity of substances hazardous to water?

❒ Yes → 4.1.1 ❒ No→ 4.2 ❒ not applicable

❒ Activity ❒ No action

Note:

4.1.1. Was the residual capacity of substances hazardous to the sewage water determined?

❒ Yes ❒ No

❒ Activity ❒ No action

Note:

4.2. Was the sewage cleaned following all the rules before closure?

❒ Yes ❒ No ❒ Not applicable

❒ Activity ❒ No action

Note:

4.3. Is it determined that after the duly executed closure, the waste water does not leak out?

❒ Yes → the Checklist is finished ❒ No → 4.3.1 ❒ Not applicable

4.3.1. Is it clarified, that they cannot reach the sewage system?

❒ Yes → the Checklist is finished ❒ No→ 4.3.2 ❒ Not applicable

4.3.2. Is the sewage system in the reliable to exploit status?

❒ Yes ❒ No ❒ Not applicable

4.3.3. Is the waste water treatment plant operable and suitable for their treatment?

❒ Yes ❒ No ❒ Not applicable

❒ Activity ❒ No action

Notes:

Examples of actions:

Short-term:

- Estimated inventory (examination) at the plant of all the areas, where substances hazardous to water were transshipped for storage.

Medium-term:

- Prevent flow of rainwater into the sewage system for industrial wastewater stocks;
- Application of the Checklist 6 "Waste Water" for the systematic inspection of the plant.

Long-term:

- Treatment undertaken following all the rules and closure of sewage system.

Determination of the real risk

Was the sub-point of the recommendation implemented?

Yes	Partly	No
❒	❒	❒
RC=1	RC=5	RC=10

Summary on the Checklist:

Subpoint of the recommendation	Possible risk category	Risk Category (RC)
1	1 / 5 / 10	
2	1 / 5 / 10	
3	1 / 5 / 10	
4	1 / 5 / 10	

Average **R**isk of the **C**hecklist **(ARC)**