Inventory of PCB containing equipment as a basis for systematically management of POPs/PCBs

PCB Management Elements

- Identification of PCBs
- Operation, Monitoring, Maintenance and Repair
- Stocktaking, Record Keeping and Retention
- Phasing-out and Replacement
- Decommissioning
- Packing
- Transportation
- Storage
- Disposal/Treatment
- Identification and Remediation of PCB contaminated sites

Most important

Inventory

Purpose of Inventory

To obtain data related to the:

- quantity,
- concentration, and
- condition of the PCB-containing equipment

The first and crucial stage for proper PCB management which influences on planning of all follow-up phases related to the: usage, handling, storage, decontamination, and elimination.

PCB containing applications

Inventory

- Due to the dispersive uses, the inventories will never be complete
- The more accurate the inventory is the easier, better, and more precise disposal or remediation plans can be developed.

During the inventory taking we should always bear in mind that these substances are hazardous and by developing good inventories, the protection of the human health and the environment could easier be reached.
What are the possibilities for cross-contamination, i.e. reviewing the working practices through checking the company’s data and interviewing the responsible persons regarding the topping-up and maintenance (what kind of oil was used, whether unknown oil was used, whether drained oil from phased-out transformers was used for topping-up and filling in some other equipment, what is the way of storing and usage of the used oil?)
Based on the evaluation of the inventory result for unidentified transformers (type and year of production) and also the results from the cross-contamination assessment, the transformers for sampling shall be defined.

For example, if the transformers were produced after the year of ban of the PCB and if there is evidence within the owner or the maintenance company that the transformers were topped-up with non PCB oil, than these transformers can be classified as non PCB. Also, snap check could be done by random sampling and analyzing few transformers in order to confirm the company evidence.

But taking into consideration that in most cases there is no such evidence in the company, most probably each transformer would be sampled and analyzed.
Sampling of phased-out transformers

Sampling of phased-out transformers

Sampling of phased-out transformers - wipe samples

Sampling of phased-out transformers - porous materials

Detailed inventory - sampling

Detailed inventory - sampling
Identification - Screening and GC verification

Labeling of the identified equipment

The purposes of labeling are:
- to provide immediate identification of PCB equipment and PCB wastes;
- to alert company officials that the labelled equipment or waste requires special handling and disposal considerations;
- to alert personnel to the presence of PCBs in the event of an emergency, spill, leakage, or disposal and dismantling;
- to assist company, and government officials in maintaining PCB inventories; and
- to assist with record keeping.

The proper labeling of in-service PCB equipment will ensure that it is correctly identified when it enters the waste stream. The PCB label also alerts people to the presence of PCBs in the equipment and assists in inventory control while in-service and later, during handling, storage, and disposal.

Labeling

Database
Database - Web application

Data base -estimation-

Estimated quantities of PCB transformers in EVN

<table>
<thead>
<tr>
<th>Analyzed</th>
<th>With PCB</th>
<th>%</th>
<th>Weight (t)</th>
<th>Weight (t)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td>Oil</td>
</tr>
<tr>
<td>923</td>
<td>62</td>
<td>5/12</td>
<td>94</td>
<td>20</td>
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</table>

<table>
<thead>
<tr>
<th>Estimation (quantitative)</th>
<th>With PCB</th>
<th>%</th>
<th>Weight (t)</th>
<th>Weight (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td>Oil</td>
</tr>
<tr>
<td>7032</td>
<td>472</td>
<td>6/72</td>
<td>716</td>
<td>152</td>
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<table>
<thead>
<tr>
<th>Estimation (qualitative)</th>
<th>With PCB</th>
<th>%</th>
<th>Weight (t)</th>
<th>Weight (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td>Oil</td>
</tr>
<tr>
<td>7002</td>
<td>29/7</td>
<td>4/22</td>
<td>430</td>
<td>96</td>
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<table>
<thead>
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<th>With PCB</th>
<th>%</th>
<th>Weight (t)</th>
<th>Weight (t)</th>
</tr>
</thead>
<tbody>
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<td></td>
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<td>4/44</td>
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<td>104</td>
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Rationalization

- Should the country import (purchase or rent) the technology or due to the low quantities the PCBs should be exported?
- Is long term storage a feasible option, i.e. to dispose when a cheaper option is available?
- What kind of treatment technology to use based on the feasibility study (dechlorination, solvent washing, autoclaving, incineration)?

These questions must be framed within the concept of environmentally sound management, minimization of the transboundary movements, sustainability and economic considerations, and also consistent with the national plans and programs.

It may not be possible to satisfy all the requirements, e.g. it is sustainable to have the technology in the country, but due to the small quantities it is not economically payable, or due to the bad working practices, mentality and absence of regulation additional environmental problems could be produced.
Data base
-prioritization-

Data base
-prioritization-

Data base
-prioritization-

Data base
-prioritization-

Data base
-prioritization-

Reporting on PCBs as of 2010  Reporting on PCBs as of 2014