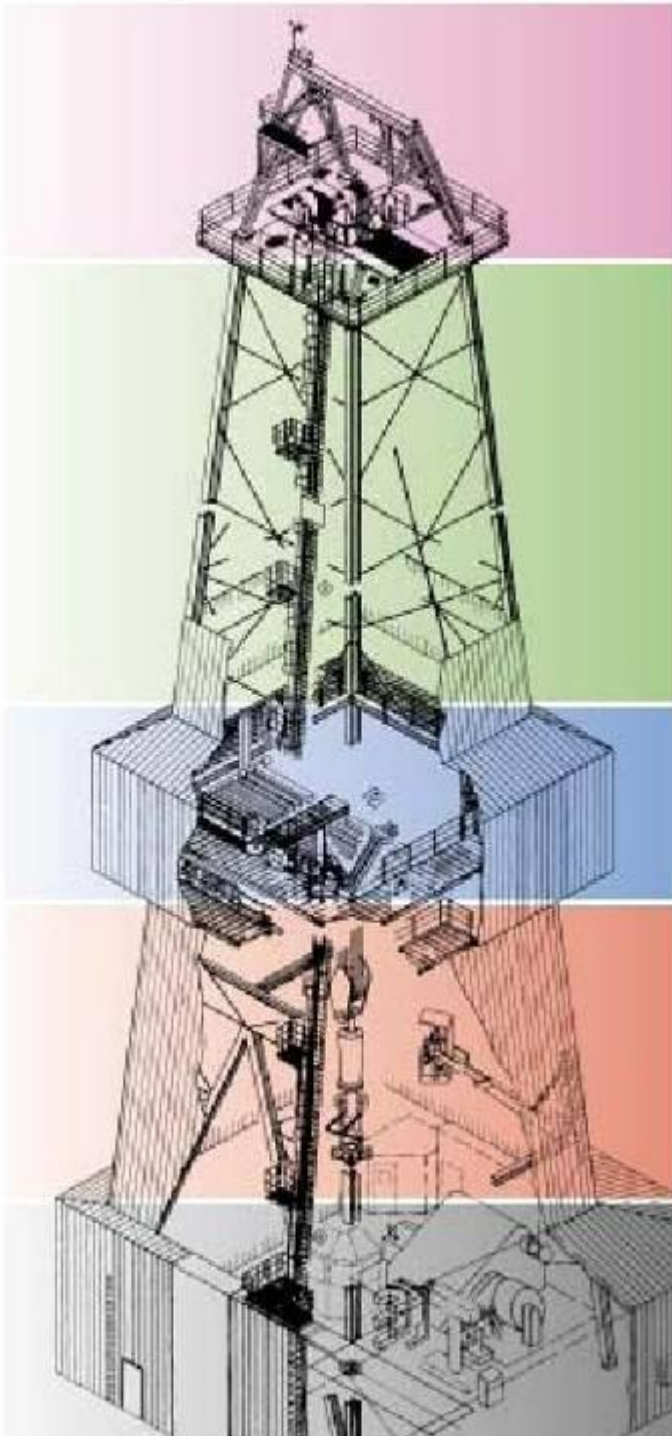


# Functional requirements for establishing visualised inspection systems: (Picture books)



## 1. Drilling areas must be divided into zones

### Standard derrick

Examples of defined zones:

- Crown block level
- From crown block to derrickman cabin
- From derrickman cabin up to and including finger board
- From finger board to drill floor
- Travelling assembly (block, dolly, DDM and elevator)
- Derrick installed pipe handling systems

You may then move on to the BOP deck, pipe deck, MPA, etc. Choose areas of the right size to limit the number of pages in each book around 40, as the lamination makes them quite thick. Colours are recommended to define the various levels.



**A ram rig has slightly less equipment and does not normally need a colour for each of the derricks can be used and for example a separate book on the ram cylinders with sheaves.**

**2. Check lists must be made for each inspection spot which has a reference number to the pictures. It must be possible to print the check lists on paper for signature.**

**3. It must be clearly described which equipment to check during drilling and what leads to a stop of the operation.**

**4. A list of priorities must be made for the checking frequency. For example, mobile equipment should be checked more frequently than fixed equipment.**

**5. Start the books with an overall picture followed by detailed pictures.**

**6. Insert overview drawings of for example a the top drive and pipe handling equipment with a number referring to specific, useful pictures.**

**7. Use pictures and arrows with explanatory text frequently.**

## **8. Equipment that needs to be checked on each level (minimum):**

- Lanterns and wind gauge.
- Search lights and lighting fixtures.
- Cameras.
- Hang-off liner and blocks with padeyes (snatch blocks and guide blocks).
- Small pieces of equipment such as speakers and switch boxes.
- Cabinets and doors.
- Cable trays and pipelines.
- Railing and gateways.
- Ladders and stairs.
- Grating and grating clamps.
- Cable trays and pipelines.
- Wind walls and structure.
- Guide-rails.
- Stand pipes and vent lines.
- Cabins (for example derrick man's cabin) and work platforms.
- Tackles, rails, traverse carriages, etc.
- Crown block and fast line sheaves, etc.
- Finger board.
- Belly board.
- Loop fastening points and hose loops.
- Escape line.
- Personnel baskets and personnel lifts equipment on monorails.
- Fast line guide with blocks.
- Balance weights for rig tongs.

### **• Travelling assembly and pipe handling**

Pipe handling both in the derrick and on the pipe deck must be checked.

Focus on securing spades and mobile parts of the grip head, as they are particularly exposed.

### **• Mobile equipment**

Check all cranes, skid systems, deck cranes and similar.

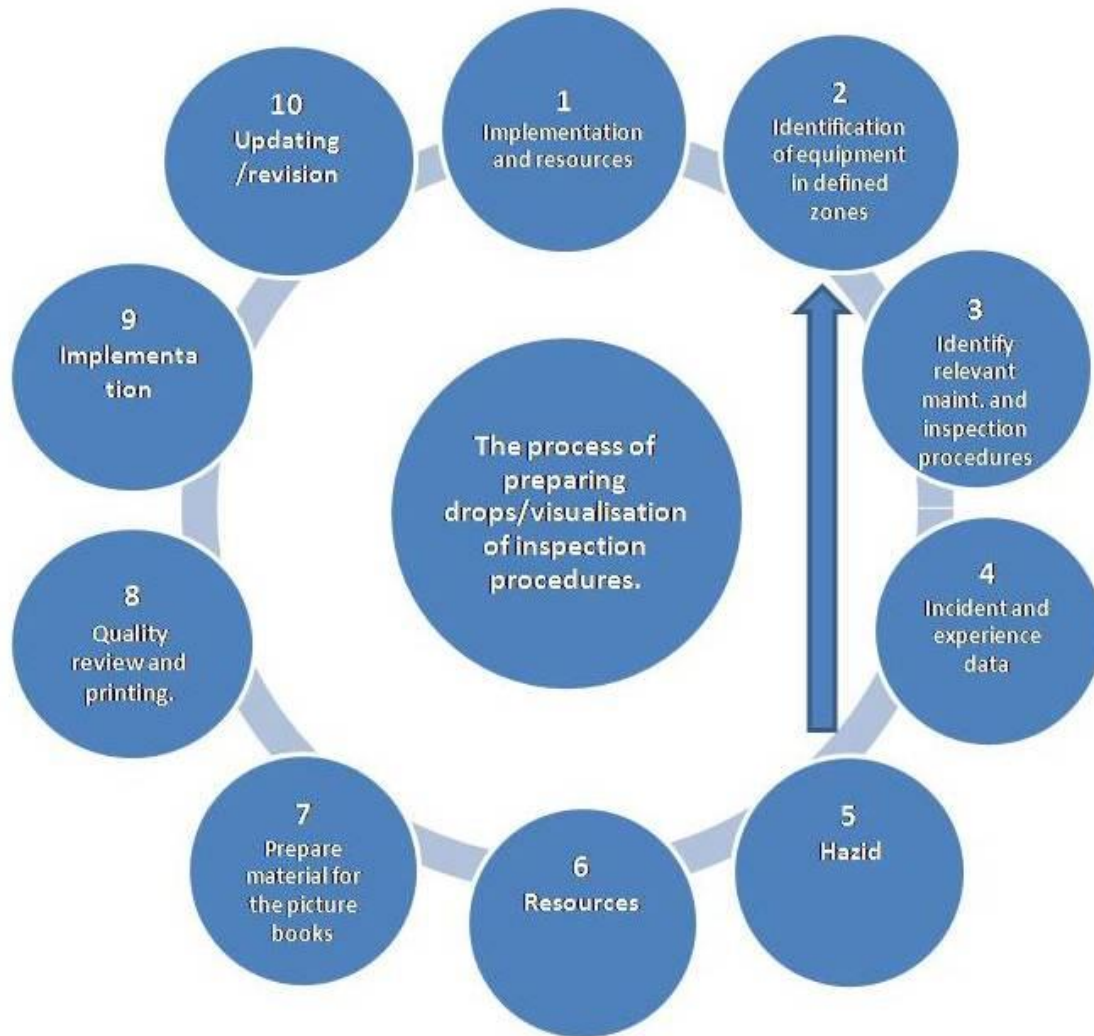
- On mobile rigs the compensator system must be checked.

All blocks and equipment for the pod liner, BOP etc.

All blocks for winches and mobile parts in the moon pool.

- **On the ram rig the ram cylinders, wires and blocks must be checked.**

## Quality circle



## The process of preparing drops visualisation of inspection procedures.

<p><b>1. Implementation and resources</b></p>	<ul style="list-style-type: none"> <li>• Have all resources for project execution been allocated and approval obtained?</li> </ul> <p>Responsibility: Equipment owner</p> <ul style="list-style-type: none"> <li>• Have sufficient personnel with relevant experience been chosen to carry out items 2 to 5?</li> </ul> <p>Responsibility: All</p>
<p><b>2. Identification of equipment in defined zones</b></p>	<ul style="list-style-type: none"> <li>• Perform zonation of relevant areas.</li> </ul> <p>Responsibility: All</p> <ul style="list-style-type: none"> <li>• Description of all relevant equipment in the zones.</li> </ul> <p>Responsibility: Equipment owner</p>
<p><b>3. Identify relevant maintenance and inspection procedures</b></p>	<ul style="list-style-type: none"> <li>• Present all relevant procedures for the defined equipment in item 2</li> </ul> <p>Responsibility: Equipment owner</p>
<p><b>4. Incident and experience data</b></p>	<ul style="list-style-type: none"> <li>• Present all relevant incident and experience data. <ul style="list-style-type: none"> <li>○ Incident reports</li> <li>○ Safety alerts</li> <li>○ Maintenance bulletins</li> <li>○ Etc.</li> </ul> </li> </ul> <p>Responsibility: Equipment owner</p>
<p><b>5. Hazid</b></p> <ul style="list-style-type: none"> <li>• If it is necessary to divide the area in smaller parts, several hazids must be carried out.</li> </ul>	<ul style="list-style-type: none"> <li>• Personnel and skills requirements for reviewing procedures and incidents, as well as user experience, must be ensured.</li> </ul> <p>Responsibility: All</p> <ul style="list-style-type: none"> <li>• Decision <ul style="list-style-type: none"> <li>○ Have items 2, 3 and 4 been completed in such a manner that the work may continue?</li> <li>○ Is another review starting from item 2 required?</li> </ul> </li> </ul> <p>Responsibility: Equipment owner</p> <ul style="list-style-type: none"> <li>• Establish necessary requirements for monitoring and auditing</li> </ul> <p>Responsibility: Equipment owner</p>
<p><b>6. Resources</b></p>	<ul style="list-style-type: none"> <li>• Resources and personnel required for work onboard <ul style="list-style-type: none"> <li>○ Information collector</li> <li>○ Others <ul style="list-style-type: none"> <li>▪ Equipment expert</li> </ul> </li> <li>○ Rig personnel <ul style="list-style-type: none"> <li>▪ Derrick man</li> <li>▪ Roughneck</li> <li>▪ Crane operator</li> <li>▪ Rig mechanic</li> <li>▪ Others</li> </ul> </li> <li>○ Estimate of the number of hours required</li> </ul> </li> </ul> <p>Responsibility: Equipment owner and information coordinator</p>
<p><b>7. Prepare material for the picture books</b></p>	<ul style="list-style-type: none"> <li>• Photography, recording and establishing check points for the equipment</li> </ul> <p>Responsibility: Information collector</p>
<p><b>8. Quality review and printing.</b></p>	<ul style="list-style-type: none"> <li>• Clarify personnel and skills requirements. <ul style="list-style-type: none"> <li>○ The books must be subject to hands-on control by equipment experts.</li> </ul> </li> </ul> <p>Responsibility: Equipment owner and information collector</p>
<p><b>9. Implementation</b></p>	<ul style="list-style-type: none"> <li>• User review with information on supervision requirements etc.</li> </ul> <p>Responsibility: Equipment owner</p>
<p><b>10. Updating/revision</b></p>	<ul style="list-style-type: none"> <li>• Establish a system that ensures proper procedures for recording errors, defects and improvement/updating proposals.</li> <li>• The books must be updated in accordance with the requirements stated in item 5.</li> </ul> <p>Responsibility: Equipment owner</p>

**Examples of how to use overview pictures, arrows and picture text.**

**No 14. Platform / Cameras / Flood lights**

- Check fastening points.
- Check safety wire, fastening point for camera and motor control components.



**No 16. Hose saddles**

**SB**

- Check pad-eyes for SWL.
- Check that all shackles are secured with split-pins.
- Check condition on the rollers. Check that all bolts are tight and secured.
- Check that saddle is verified with this years color.



**No 15. Service loop**

- Check clamps and condition on safety chain.
- Check that hoses are without damages.
- Check that shackle and fastening point is secured.



**No 17. Vent line**

- Check that clamps are tight, look for damages.



**Synergi, enterprises of competence and DO inspection reports will be useful tools for the preparation of the check list.**