HTM-02 Forebyggende vedligehold

Region Syddanmark
Nyt OUH

Bjarne Brisson

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Hvad gør vi i dag i DK?

Gå sammen to og to og snak om følgende:

- Har I en nedskreven testplan for forsyningskilderne og alarmsystemerne
- Har I "Emergency kit" klar? Hvor tit tester I det?
- Har I særlige procedurer (arbejdsgange) inden der arbejdes på anlæg for medicinske gasser? Hvad?
- Hvornår har I sidst simuleret et tørløb? Hvad skete der?
- Hvad foretager I jer med hensyn til forebyggende vedlighold?

EN/ISO 7396-01 (og HTM-02)

- Der skal udarbejdes en ”Operational Management Document”
  - Kontrol af dokumenter og logs
  - Træning og kommunikation
  - Emergency management
  - Change management
  - Permit to work
  - Preventive maintenance
  - Reparationer
  - Forsyningsledelse
  - Lagring og styring af flasker
  - Indkøb af medicinsk udstyr
  - Contractor management

EM – Executive Manager
OM – Operations Manager
AE - Authorising Engineer (MGPS)
AP – Authorised Person (MGPS)
CP – Competent Person (MGPS)
QC – Quality Controller (MGPS)
DNO – Designated Nursing Officer (MGPS)

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- En ”Contractor” som skal arbejde på medicinske installationer skal igennem en udvælgelses proces, hvor de beviser deres kunnen inkl. deres nøglepersoner
  - Det er AP’ens ansvar at indsamle dokumentation på CP’ens kompetence
  - AP skal gennemføre lodde prøve (og teste denne)
  - C’s PM skal have udd./træning i PMM (dvs. uddannet som AP)
- Der skal forefindes en udd./træningslog over de enkelte medarbejdere. (re-certificering hvert 3. år)
- AP’en kan bortvise en montør, hvis AP’en finder at evnerne ikke er tilstrækkelige

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- Intet arbejde (heller ikke undersøgelse af udtag) bør foretages uden en arbejdstilladelse fra AP
- AP skal foretage monitering af vedligeholdelsesarbejdet (audit)
- Contractor skal selv have alt nødvendig måleudstyr og sørge for at
- Arbejdstilladelsen skal altid være ”signed off” af AP inden contractor forlader sygehuset.

- Tidsintervallet imellem service, beror på en faktisk vurdering af brug og vigtighed af den enkelte komponent/anlæg (AP)
  - Daglig/ugentlig/kvartalsvis/årlig
  - Der skal være checklister, som definerer opgaverne
  - Definition af ”Examine, test, check”
- Cryo-installationer (tanke og rørinst.) skal fortages af specialister
- Der skal være en ”indbygget” test mulighed, således at alle typer af alarmer kan testes
- Der skal foreligge en testplan
- ”Emergency supply kits” skal testes hver kvartal + årligt
  - Har vi det? Testes udstyret?

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Automatic manifold maintenance tasks

10.143 Before proceeding with these tests, correct operation of the ERM should be confirmed as described above. Replacement, full, in-date cylinders should be immediately available.

10.144 Relevant staff should be advised of possible alarm indications.

10.145 All manifolds should be able to supply gas with or without an electrical supply. Individual manifolds, however, may differ in the way in which this is achieved and the alarm conditions that will show in the event of a power failure. Local variations should be noted for future reference, as it is not normal to test the manifold under power failure conditions.

1. Confirm that the ERM has full cylinders attached, that its cylinder/header-isolating valves are in the correct position, and the ERM isolating valve is **open**.
2. Close the primary (automatic) manifold isolating valve **slowly** and ensure that the ERM output pressure (line pressure) is maintained before proceeding with the primary manifold tests.
3. Close all cylinder valves on both banks and observe the control panel cylinder pressure gauges. There should be no pressure drop. A pressure drop at this stage will necessitate investigation, including a check of the safety valve(s) as in item (4) of the "Manual ERM maintenance tasks" at paragraph 10.142.
4. Reduce downstream pressure and then close up the leak. (A leak can be created via the test point or commissioning valve. For manifolds without a commissioning valve or test point, it will be necessary to crack open a union on the outlet regulator/pipeline.)
5. On the left-hand bank, momentarily open the nearest cylinder valve to the control panel (just sufficient to repressurise the panel and force the manifold into "left bank running" mode) and then re-create a small leak downstream of the final regulator(s). Open one cylinder on the right bank momentarily to clear the right bank "empty" lamp, and then close its valve.
6. Let the pressure drop until changeover occurs, and record: a. changeover pressure (that is, to right bank) – compare this with the manufacturer's data; b. correct operation of manifold panel and alarm system indicators, that is, on the manifold panel: • left bank "running" lamp will extinguish; • left bank "empty" lamp will illuminate; • right bank "running" lamp will illuminate; • control panel alarm status indicators and main alarm panel indicators will show "change cylinders", accompanied by an audible alarm on the main alarm panel.
7. Mute the alarm at the panel.
8. Let the pressure continue to fall, noting the pressure at which the manifold indicator shows "low" (yellow) on the right bank and at which both the alarm status and main alarm panel indicators show "change cylinders immediately". This will also be accompanied by an audible alarm. Mute this alarm at the panel.
9. If the pressure is falling only slowly, there will be time to test the NRVs in the tail-pipes on the left bank by disconnecting them and listening for leaks.
10. Reconnect the cylinders and, on the right bank, open the cylinder control valve nearest to the control panel.

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- Hvorfor skal vi lave forebyggende vedligehold på medical-installationer?
  - Det er jo bygget til at kunne holde i mange år
  - Kan vi ikke bare reparere når det bryder sammen?
- Hvorfor skal vi opbygge et ”stort” organisatorisk og administrativt system
  - Ansvar ansvar ansvar
    - Vi i Danmark er nødt til at ”step up”
  - MDR 745 – det kan blive en administrativ tsunami der rammer os

- Risiko vurdering – Har I det? Får I den ajourført hvert år?

Følg Nyt OUH

Region Syddanmark
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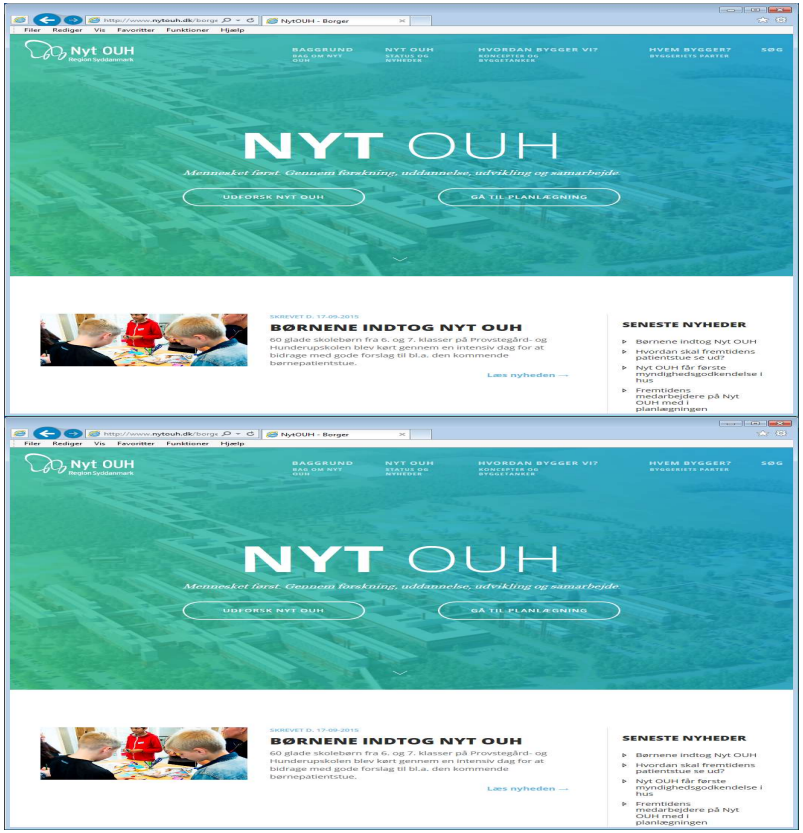
BYGHERRE
BYGHERRERÅDGIVER
TOTALRÅDGIVER



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