INCREASING THE VEOC PRODUCTION RATE

Dedicated Meeting
January 29 2020

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Current Status at MCAP

- 4 production ‘lanes’ set up at MCAP, see right
- At the moment, maximal two production lanes are in use at any given point in time
  - Which lane is used depends on VEOC type
    - ORCA lanes (left) are shorter, ARCA lanes (right) are longer

- Current production rate:
  - ~1 VEOC/1.5 weeks -> roughly 30 VEOCs per year
  - That sets the maximum DU production rate to 30 DUs per year
VEOC Production Relies on Two Special Machines

PE welding machine
(Widos design, German company)

Oil-filling machine (Nikhef design)
## KM3NeT ORCA Long Term Planning

<table>
<thead>
<tr>
<th>Time</th>
<th>Milestones</th>
<th>ORCA (DOM int.rate, BM int.rate, DU int rate)</th>
<th>Total ORCA DUs built</th>
<th>ARCA (DOM int.rate, BM int.rate, DU int rate)</th>
<th>Total ARCA DUs built</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan.2020</td>
<td>• Start of the continuous production</td>
<td>31DU/y, -</td>
<td>13DU/y, 6</td>
<td>26DU/y, 18BM/y, 25DU/y, 2</td>
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<tr>
<td>Mar.2020</td>
<td>• Double the VEOC int.rate (approx. 60/yr)</td>
<td>31DU/y, -</td>
<td>13DU/y, 6</td>
<td>26DU/y, 38BM/y, 25DU/y, 6</td>
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<tr>
<td>Jan.2021</td>
<td>• Strengthen the ORCA team (25DU/y)</td>
<td>31DU/y, 25BM/y, 25DU/y, 14</td>
<td>26DU/y, 38BM/y, 30DU/y, 24</td>
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<tr>
<td>Sept.2023</td>
<td>• All ORCA DOMs completed; ORCA teams switching to ARCA.</td>
<td>- 258M/y, 25DU/y, 83</td>
<td>57DU/y, 38 BM/y, 38DU/y, 99</td>
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<tr>
<td>Jan.2025</td>
<td>• ORCA Building Block completed. ORCA teams switching to ARCA.</td>
<td>- - 117 (1BB)</td>
<td>57DU/y, 63BM/y, 60DU/y, 156</td>
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### ORCA: long-term target of 25 DUs/yr  
### ARCA: long-term target of 38 DUs/yr

Current VEOC production rate of 30/yr needs to go to 63 ORCA+ARCA DUs (i.e. VEOCs)/yr  
We need to double the VEOC production rate!
What is Needed to Double the VEOC Production Rate?

• At MCAP, space and manpower is not a show-stopper:
  • MCAP has expressed interest in hiring new people to double the VEOC production rate
  • The production lanes are ready to go

• We need a new oil-filling machine (~25k€) and welding machine (~50k€)
  • Note that this is also a much needed investment in order to reduce the risk of losing the entire VEOC production when either machine breaks!

• We need to decide who will pay for these machines and the next VEOC orders…