**TG Edge&Divertor**

**Subgroup Fueling & Exhaust**

**H exhaust proposal discussion**

**16.03.2022 from 1002 to 1100**

**Attendees:**

Thierry, CP, Georg, Stylianos, Dieter, Dirk, Volker, Juri, Christos

**Agenda:**

Sub-Divertor particle balance – Dirk

CVP and other exhaust proposals - CP

**Discussion:**

**Sub-Divertor particle balance**

Thierry: Always list all 3 gauge pressure AEI/AEP/AEH. From the plasma side AEI and AEP are a good comparison, as they have the same distance from the strike line. For particles removed AEH and AEP are a good comparison, as they sit at the connection of the pumping duct to the plasma vessel and we have good S\_eff estimates.

Georg: Question is not why AEP is high, but why AEH is low.

Volker: Source argument, that we need a larger neutral source to get into a viscous flow regime.

Georg: Areas for the simple particle balance are effective areas for the gaps and not the actual gap size. How would we determine the gap surface area?

Stylianos: From the already performed DIVGAS simulations it has been observed that when the Incoming neutral flux through the pumping gap is of the order of 10^20 then the flow regime in the sub-divertor is expected to be free molecular (collisions could be neglected). As Long as the Incoming flux increases by one or even two orders of magnitude, namely 10^21 and 10^22, then the neutral-neutral collisions in the sub-divertor start to become important and the expected flow regimes are respectively transition and viscous. The presented by Dirk incoming fluxes are of the order 10^20 and therefore the assumption of a ballistic particle flight, fits quite well.

**CVP and other exhaust proposals**

Dieter: Will TMP calibration be combined with CVP calibration? No, TMP calibration and pumping speed estimates will be presented by Georg next week.

Volker: CVP characterization should be done at 3 different pressures. If this can be done in one discharge it could possibly reduce the number of dedicated discharges.

Dirk: Is the cryo regeneration of individual elements possible? Can individual cryo modules be turned on and off independently? – CP: Should be do-able butt needs to be tested. Therefore likely an OP2.2 proposal.

Dirk: The effort regarding regeneration time should be indicated. This is currently estimated at 1-2 h but needs to be confirmed with Sven.

Dirk: Closing the gate valves to the TMP’s should be done without the CVP running to de-couple the effects.

Thierry: Questions regarding recycling on metal walls, as the heat shield is typically not a recycling surface. CP confirmed that these are areas that did see some deposition in the past. This experiment will be done piggy back.

Dirk: Duration of discharge and density should be given. This will allow to decide if it can be included in a segmented discharge or if an entire dedicated discharge is needed.