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Comment #1: The Department of Ecology must require Gravel Mine General Permit holders to provide proof of water rights/permits for all consumptive uses of water at all gravel mines. Gravel mines are potentially large water users. A water right/permit serves as the only definitive means whereby a Growth Management Act (GMA) entity such as Thurston County can determine whether water is physically and legally available for the regulated mine. The Department of Ecology is the only entity with authority to make this determination - and the GMA entity must rely on that determination. Without such a requirement, the GMA entity may independently determine that mine consumption exceeds supply – but would then have no legal authority to regulate water use. The GMA entity could attempt to regulate industrial activities via permitting – but the mine can argue that exceeds County authority, in our case. Ecology must fill this void with a clear requirement for proof of a water right/permit.

Comment #2: The Department of Ecology must require that all consumptive uses of water be calculated for gravel mines seeking Gravel Mine General Permits, including evaporative losses, then issue water rights/permits where consumption exceeds *de minimus* or otherwise exempt quantities. We seek to correct the current critical absence of evaporative losses from Ecology calculations of mine consumption. In addition to other water uses, mines often create large open-water ponds that allow large quantities of water to evaporate. The existence of the mine pond is due solely to industrial activity regulated in RCW Chapter 90, and it provides an economically beneficial use for mining. For example, in our County: one proposed new 50-acre mine pond evaporating 29 inches (2.42 feet; actual from Puyallup Pan Evaporation Station) of water annually would generate: [Evap_annual] = [50 x 43560 x2.42 / 43560] = 121 acre-feet of water (approximately). Based on a typical pan-evaporation curve from the Desert Research Institute (DRI; https://wrcc.dri.edu/Climate/comp_table_show.php?stype=pan_evap_avg) the typical reported July pan evaporation rate in Puyallup Washington (Station: PUYALLUP 2 W EXP STN) from 1931-1995, is about 5.61 inches (0.4675 feet) so that the instantaneous average equivalent groundwater withdrawal rate in July from a groundwater well would be about [Q_{gpm}] = [0.4675 * 50 * 43560 * 7.48 / 31 / 1440] = 170 gallons per minute (gpm), approximately. It is difficult to imagine Ecology allowing a groundwater withdrawal in Thurston County for an industrial user consuming 121 acre-feet annually at a peak rate of 170 gpm *without a permit* - yet this is currently the practice. This scenario is potentially exacerbated by expected Climate Change scenarios forecast by the University of Washington Climate Impacts Group. Ecology must begin full-water accounting and permitting of water rights for all mine consumptive uses, including a reasonable inclusion of climate change effects.

Comment #3: The Department of Ecology must require that groundwater levels, streamflows and water quality be routinely evaluated with a Hydrogeologic Study of potential risks, with monitoring if

justified. If justified by actual site uses and conditions, monitoring of water flows and water quality should be required within a reasonable distance from the mine.