



FISH PASSAGE CENTER

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MEMORANDUM

TO: Michele DeHart

FROM: Tom Berggren

DATE: May 15, 2006

RE: Projections of transport proportions under gas cap spill

As requested by the Hydro Group at the Wednesday May 10 planning meeting, I have run the scenario with spill to the 2004 BIOP specified gas cap levels of 60 kcfs at LGR, 30 kcfs day and 50 kcfs night at LGS, and 45 kcfs at LMN. Flows at 85, 100, and 125 kcfs are used and since gas cap volumes are fixed volumes, the proportion transported will increase as flows decrease. The SPE levels (spill:powerhouse odds) assumed are 3:1 at LGR and LMN for yearling Chinook, 3:1 at LGR and 6:1 at LMN for steelhead, and 1:1 at LGS for both species. A diel passage of 70% night and 30% day for smolts is assumed at LGS, which with the higher gas cap spill at night gives an overall spill percentage at LGS of 51.8% at 85 kcfs, 44.0% at 100 kcfs, and 35.2% at 125 kcfs. With the later initiation of transportation on April 20 at LGR, April 25 at LGS, and April 30 at LMN, we assume 8% of yearling Chinook and 4.5% of steelhead passed before transportation began in 2006 (based on passage index timing distribution of past 10 years). The resulting runs show the following:

Species	Flow	Transport	Only Spill
Chinook (yearling)	85	0.512	0.351
Steelhead	85	0.475	0.396
Chinook (yearling)	100	0.596	0.256
Steelhead	100	0.559	0.299
Chinook (yearling)	125	0.684	0.162
Steelhead	125	0.651	0.200

Increasing spill to gas cap levels will not provide a 50% transportation level except when flows are low around 85 kcfs. At the higher flows the transport percentage increases, reaching over 65% at 125 kcfs. Spilling the highest percentage of flow at the first project (LGR) only passes more fish downstream for collection and transportation at LGS and LMN. With higher SARs generally occurring on smolts transported from LGR than from LGS and LMN, it appears

the only feasible method to achieve a 50% transportation maximum would be with curtailment or reduction of transportation at those two sites.