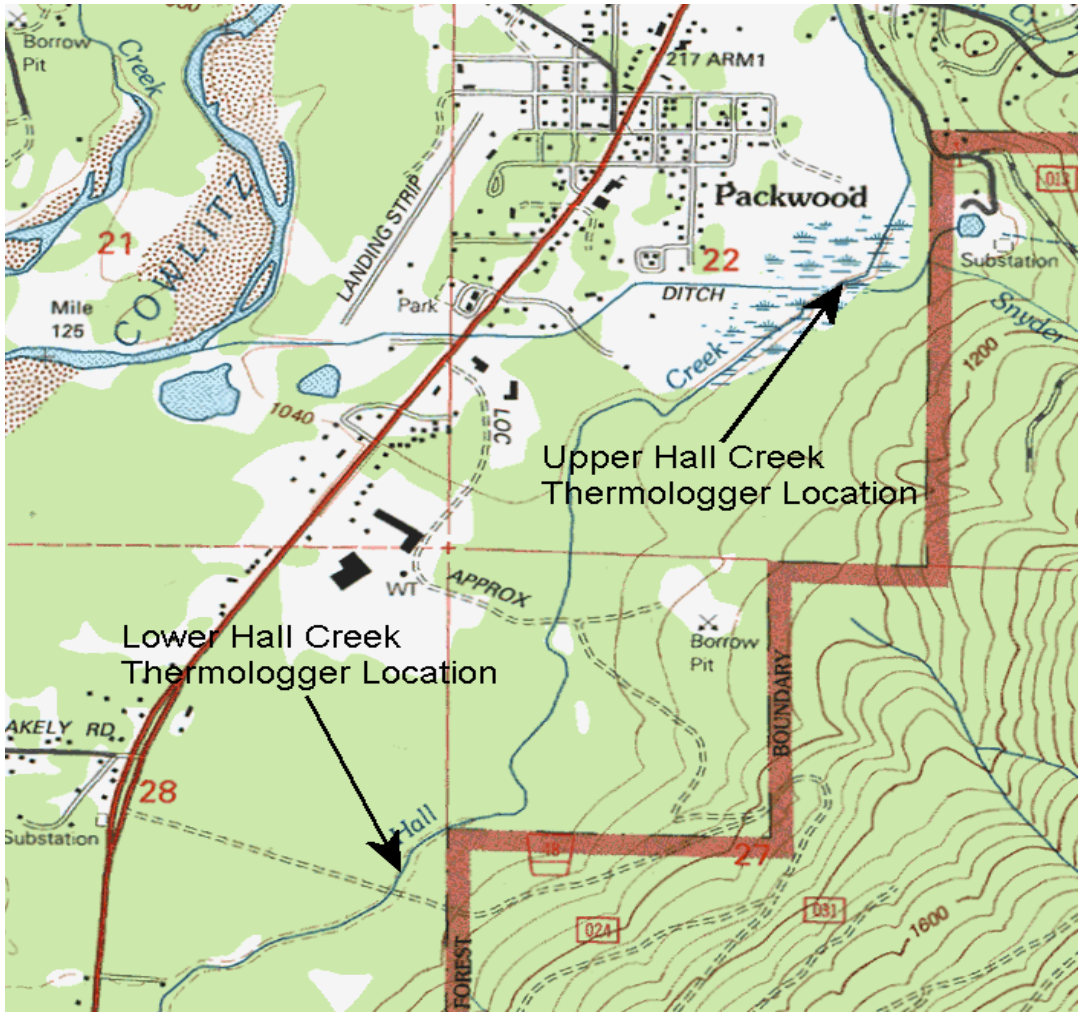
Discharge of Tailrace Water to Hall Creek
Assessment of Temperature Effect



- Limited temperature data for Hall Creek
- Monitored 9/22 – 10/1 2007
- Daily Max for period
- 10.1°C - 15.5°C

Water Temperature Criteria for Hall Creek

- core summer salmonid habitat
- (7-DADMax) is 16^{o}C
- When background temp < criteria, then max incremental temp increase=28/(T+7) with all human sources < 0.3^{o}C
- 1.52^{o}C max allowable increase for Sept ‘07 monitoring period
- Up to 7 cfs discharge from tailrace possible
- Allowable increase would be smaller in July-august

If Hall Creek 7DADMax< 16°C

- Simple mass balance analysis

$$\frac{(T1 * Q1) + (T2 * Q2)}{(Q1 + Q2)} = T3$$

  - Assume Hall Creek 10 cfs at 14°C
  - Tailrace 20.95°C august max temp
  - In August, <2.3 cfs discharge to meet incremental increase

If Hall Creek 7DADMax naturally > 16°C

- If naturally warm, then <=0.3°C cumulative increase allowed, which riparian reduction has already caused.
- No discharge from tailrace in summer unless Hall Creek is warmer than tailrace

Summary

- The discharge of relatively warm tailrace water into Hall Creek during July through mid September would likely result in exceeding the water quality standard for temperature.

- A discharge of up to approximately 6 cfs in the latter half of September may be feasible without exceeding the 16^{o}C water quality criteria for temperature.

- Other issues with depositing supplemental water into Hall Creek include:
    - Increased turbidity levels
    - Potential for stranding as a result of fluctuating water levels in Hall Creek