

INTER-OFFICE COMMUNICATION

TO: Jeb Love  
FROM: Jon Scherschligt  
DATE: September 20, 1977  
RE: Effluent limitations for Grand Junction

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We have attempted to clarify some of the confusion surrounding the necessary level of treatment for the Grand Junction area.

We used the Colorado River basin plan as the basis of our analysis:

1. Low Flow, Colorado River
  - Grand Valley to Redlands = 385 cfs
  - Redland to State Line = 725 cfs
2. Toxic level of total ammonia = .4 mg/l NH<sub>3</sub>-N
3. Background ammonia = .1 mg/l NH<sub>3</sub>-N
4. Expected ammonia from well operated secondary treatment plant = 15 mg/l NH<sub>3</sub>-N
5. In-stream toxic level of NH<sub>3</sub> = .02 mg/l NH<sub>3</sub>-N

The basin plan concluded that at 4.75 MGD discharge at the existing plant, nitrification beyond secondary treatment was not necessary. We verified this conclusion, and went on to analyze the maximum plant size at the Redlands site which could be accommodated at secondary treatment without ammonia removal or nitrification. Since the Redlands Canal return flow contributes nearly the same flow as is in the river at that point, 340 cfs, the maximum secondary plant size is about the same as the existing plant, 4.6 MGD. In addition, we looked at the various ammonia levels which would be required at a downstream plant larger than 4.6, assuming that the existing plant is loaded at 4.75 MGD and is producing a 15 mg/l NH<sub>3</sub>-N effluent. The table below illustrates this:

<u>Redlands plant size</u>	<u>concentration of ammonia</u>
4.6 MGD	15.0 mg/l NH <sub>3</sub> -N
6.0 MGD	11.4 mg/l NH <sub>3</sub> -N
7.0 MGD	9.8 mg/l NH <sub>3</sub> -N
8.0 MGD	8.6 mg/l NH <sub>3</sub> -N
10.0 MGD	7.0 mg/l NH <sub>3</sub> -N
12.0 MGD	5.9 mg/l NH <sub>3</sub> -N
25.0 MGD	3.0 mg/l NH <sub>3</sub> -N