



Total GRU Consumptive Use Permits = 7.9 Million Gals/Day.

GRU Consumptive Use Permits Total CU Permits $1.4 + 6.5 = 7.9$ Million Gallons per day.

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On 8/24/2018 12:08 PM, Brown, Thomas R wrote:

Harold , Sorry for the confusion. The million gallons would be for a 24 hour period running the plant at 100 MW/ hr or 2400 MW total production for the day. Permits allow for up to 1.4 million gallons per day at Deerhaven Renewable and up to 6.5 million gallons per day at the Deerhaven unit 1&2. Respectfully, Tom Brown

On 8/24/2018 2:55 PM, Brown, Thomas R wrote:

Harold,

While GRU is permitted to utilize up to that amount of water per day at the Deerhaven complex, we don't come anywhere near that amount. The average annual system load for GRU is 228 MW/hr. A significant portion of that power comes from the Kelly combined cycle plant down town. GRU's summer time peak loading is around 410-420 MW max. The past few days, the maximum generation has been just under 400 MW. So during the hours at maximum load, GRU would be using water at an approximate rate of 160,000 gal/hour. Only $\frac{1}{3}^{\text{rd}}$ of the electric produced at the Kelly Plant is produced by the steam turbine section of the plant. So the total water usage per MW is less at this facility. Without laying out all the calculations, assuming an average system load of 220 MW and adjusting for the reduced water consumption at the Kelly combined cycle plant, the average daily GRU water consumption used for generation would be approximately 1.8 million gallons per day.

The facilities at Deerhaven are zero discharge facilities. All process water is either evaporated or utilized to condition ash by product.

Thank you for providing the link to the report. As an aside, I worked at the Keystone generating facility cited in the report back in the 1980's as well as Penelec's other big stack units. As a private pilot, I spent many hours flying over the region. I never saw the plume rise much over a 1,000 feet above the towers. There was always a breeze in the mountains that dissipated the plume. I did a quick calculation of the numbers cited in the report. Their estimates for water consumption of 18,000 GPM for 2,200 MW equates to 490 gal/MW. This is comparable to GRU's number of 444 gal/MW.

Respectfully,

Tom Brown

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