WATER CALCULATIONS

** These water calculations are to show examples. For specifics, please see the enclosed "Impact Calculations For A Hog Concentrated Animal Feeding Operation" by Dr. William J. Weida. Remember that his paper is in US gallons. **To figure out Imperial gallons, divide by 1.2**.

The proponent will talk about using much less water than they will actually use. Your provincial agency will probably show the same figures; unfortunately, they are not accurate. We have also sent the actual application form from Alberta Environment for water usage, just to show the differences.

Sample calculations based on 6000 finishing hogs with an average weight of 150 lbs.

According to Alberta Environment:

1 finishing hog will use 1.5 gal/day
1 sow farrow – finish will use 20 gal/day
1 weaner (15-50 lbs) will use 0.5 gal/day

Therefore: 6000 finishers X 1.5 = 9000 gal/day or 3,285,000 gal/year

These pigs must have very good drinking habits, not spilling any, and be very environmentally conscious to use such little water. Remember, this is just drinking water. It does not include any other usage.

** *This 1.5 gallons is what is needed to simply keep the average hog on all four legs. However, it assumes that this water is fully consumed and not wasted. Hogs play with their water supply A LOT. Studies have shown that they waste more than they drink. This wastage is clearly not included in this figure or the figures that the proponent gives. Modern watering devices are supposed to cut this wastage considerably, but this is not proven.*

Other sources say:
Drinking water

1 sow farrow – finish will use 31.97 gal/day or ll,669 gal/year
1 finishing hog will use 2.9 gal/day of drinking water or 1,058 gal/year

Therefore: 6000 X 2.9 gal/day = 17,400 gal/day or 6,264,000 gal/year

Flushing Water

****As excreted, hog waste contains about 10% solids. For most land application, hog waste is diluted to 5% solids.**

1 sow farrow – finish 124.77 gal/day or 45,541 gal/year

Finishing pigs excrete about 1 cubic foot of waste per day per 1000 pounds of animals. Assuming a mean weight of 130 lbs, each finishing pig excretes an average of .13 cubic foot of waste per day.

Thus, 6000 finishing pigs excrete an average of 780 cubic feet of waste per day.
6000 X .13 cubic feet = 780 cubic feet/day X 365 = 284,700 cubic feet/year.
1 cubic foot is equal to about 6.25 gallons; the undiluted volume of waste is about 1,779,375 gal/year. To dilute this waste to 5% solids, another 1,779,375 gallons of water must be added.

Therefore: total water usage at each 6000 finishing pig site is likely to be:

Drinking water	6,264,000 gal/year
Flushing/Dilution water	3,558,750 gal/year
Total	9,822,750 gal/year

*** The real heavy usage will come from the methods of waste handling (flushing vs. scraping) and waste application (injection will require dilution to a level of solids that is 50% of that excreted). This is where the real water usage adds up. Less water will be used if using a scraping/pit method rather than a flushing/lagoon system.*

*** If anyone tries to say that these sources are American and therefore do not apply up here in Canada, let them know that all calculations have been changed to Canadian gallons and that Canadian hogs are not any more environmentally-friendly than their American counterparts. Pigs use the same amount of water no matter what their nationality.*

Lisa (Bechhtold) and Carol (Hougen)
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