

## Victoria Boyne

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**Subject:** FW: Flow measurements at Marsh Station Road

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**From:** Brian Powell [<mailto:Brian.Powell@pima.gov>]  
**Sent:** Monday, December 01, 2014 11:51 AM  
**To:** Chris Garrett; 'Vogel, Mindy S -FS'; Julia Fonseca  
**Cc:** Melissa Polm  
**Subject:** RE: Flow measurements at Marsh Station Road

Chris-

You are correct that we did not provide that information; a good catch on your part. I wish we had included it, but here it is.

**LN Marsh Station flow = 5.3207635 + 0.3457827\*Depth to Water: Cienega Well (ft)**

Keep in mind that this is an annual average and the critical low flow (June) is captured by the following equation:

**LN Marsh Station flow = 7.5698307 + 0.4751229\*Depth to Water: Cienega Well (ft)**

Brian Powell  
Program Manager  
[Pima County Office of Sustainability and Conservation](#)  
201 N. Stone Ave, 6th Floor, RM 629  
Tucson, AZ 85701  
P: 520.724.6440  
F: 520.243.1610  
E: [brian.powell@pima.gov](mailto:brian.powell@pima.gov)

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**From:** Chris Garrett [<mailto:cgarrett@swca.com>]  
**Sent:** Monday, December 01, 2014 11:17 AM  
**To:** Brian Powell; 'Vogel, Mindy S -FS'; Julia Fonseca  
**Cc:** Melissa Polm  
**Subject:** RE: Flow measurements at Marsh Station Road

Thanks very much Brian—those streamflow data look to be incredibly useful for the analysis.

I do have one technical follow-up question, with respect to the Powell et. al. 2014 report titled “Impacts of the Rosemont Mine on Hydrology and Threatened and Endangered Species of the Cienega Creek Natural Preserve”. (Dated July 14, 2014)

At this time, as we work through the information provided over the last 6 months, we may be incorporating some part of the analysis you conducted, particularly what is shown in Figure 1 of that report. What is missing from the text, however, is the actual regression formula that describes the relationship between depth to groundwater in the Cienega Well and streamflow at Marsh Station (or to be more precise, natural log of streamflow). This relationship is definitely of interest. Can you provide the regression formula that represents the relationship shown in Figure 1?

I apologize if I missed it somewhere in the text. I noticed you had included the regression formulas for the wetted extent, so it's possible you have it in there for streamflow as well and I just missed it...

Thanks again for your help

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