

**From:** [Reagan, Steve](#)  
**To:** [Fernandez, Juliette](#); [Barnes, Michelle L CIV USARMY CESPL \(USA\)](#); [\(b\) \(6\),](#); [Nguyen, Brandon SPB](#); [Range, Brent K](#); [\(b\) \(6\), \(b\) \(7\)\(C\)](#); [Radke, Bill](#); [Harden, Tasha](#)  
**Subject:** Groundwater Level Logger  
**Date:** Tuesday, June 2, 2020 10:40:25 AM

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All,

Here are the recommendations I received by our Hydrologist regarding a groundwater level logger.

Install groundwater level logger in the main NWR well.

This could be a down-hole logger, such as [InSitu RuggedTroll](#) (or similar). These hang in the well using aircraft cable (1/32") and as the logger is unvented, it needs barometric pressure correction using an [InSitu baro logger](#) (or similar). The baro logger can be placed in a protected location (shed, building, etc.) within a few miles of the well.

We could also be a [wellhead mounted logger, such as WellIntel](#) (the [photo in this link is actually one of the units installed in a former ag irrigation well in the Delaware Basin, TX](#) to monitor effects of GW extraction for hydraulic fracturing; the price really varies depending on units etc.). Data are uploaded via cellular modem to [an analytics dashboard](#), which the refuge manager and others could have access to. This option is best if, in the case of the main NWR well, a pump is installed which precludes (or at least complicates) the installation of a down-logger because the WellIntel sensor does not intrude into the well itself -- only "pings" record water level from a sensor mounted on the wellhead.

Steve

Steven Reagan  
Deputy Regional Chief - National Wildlife Refuge System  
500 Gold Ave SW, Room 4236  
PO Box 1306  
Albuquerque, NM 87103  
(505)248-6645 (office)  
(505)238-4355 (cell)