

**This report covers Suma Jayma's first attempt at using the water-well drilling rig unassisted after excellent training by drillers from Texas and Chile. It is their third well. Way to go!**

## **REPORT ON WELL DRILLING IN THE COMMUNITY OF CONTORNO CENTRO, CHAÑUJAGUA ZONE**

**DATE: May 2 to May 7 2014**

### **LOCATION OF THE COMMUNITY:**

The community is situated in the Department of La Paz, Ingavi Province, First Section, Community of Contorno Centro, Chañujagua Zone.

### **DESCRIPTION OF THE COMMUNITY**

The Chañujagua zone sits at an altitude of 3,860 meters above sea level.

The main access to the community, located 15 kilometers from the city of Viacha is on a paved road with a 2 km. dirt road detour (Chañujagua). The majority of the inhabitants walk for an hour and a half from Viacha to their homes and some take a minibus that goes between Viachaa nd Villa Curva.

There is a primary school in the community which provides classes up to 5th grade to approximately 18 students. After primary school, students must travel to Viacha to continue their studies.

The villagers of Chañujagua earn their livelihood through agriculture, primarily potato, quinoa and barley farming as well as raising sheep and cows.

The topography is generally flat with some rises. The soil contains lime and is also rocky in places.

The median annual temperature is 9.6° C. The coldest months are June and July with a median temperature of 0.7° C. The highest temperatures occur in December with median temperatures of 20° C.

Typical housing in the community is made of adobe, straw and metal roofing. Communal service activities include maintenance and improvements of the roads, interfamily support and others. Both Spanish and Aymara are spoken.

## **WATER FLOW FROM THE WELL**

The flow of water was measured with a compressor pump of 1” diameter and was 0.97liters/second. The static level from the base to water level is 3 meters; the dynamic level is the same as the static as it did not drop during pumping.

## **BUDGET**

### **Municipality of Viacha**

Initially donated 12 tubes of PVC E-40 and 150 liters of diesel.

Following completion of the drilling they will reimburse US\$2,000 to cover the drilling costs.

Note- The municipality told us they don’t have the money now in their budget but they will redo it and later pay Suma Jayma in at least 3 to 4 months.

### **Contorno Centro Community, Chañujagua Zone**

Supplied the unskilled labor (assistants for the drilling), food for 6 days of work, guarding the rig at night.

### **Suma Jayma**

Supplied technicians for the drilling, the drilling rig, bentonite and additives.

## **WELL DRILLING DETAIL**

### **1. How many bags of bentonite were used in the Project to prepare the “mud”?**

Three batches of “mud” were mixed during the drilling as detailed below:

<b>Nº</b>	<b>D E T A I L</b>	<b>C/BENTONITE</b>	<b>C/ADDITIVE</b>
1	The “mud” for the first drill was made with 4 bags of bentonite, 400 grams of Ezmud, 1 kilo of Quit Gold Trol and for the second well we used 4 bags of bentonite, 1 kilo of Quit Gold Trol, 400 grams of Ezmud After 48 meters in depth the viscosity dropped to 45 seconds and we added 1 more bag of bentonite.	9 bags bentonite	800 gr. Ezmud 2 Kg Quit Gold Trol
	TOTAL BENTONITE	9 BAGS BENTONITE	
	TOTAL EZMUD	800 Kg. DE EZMUD	
	TOTAL QUIT GOLD TROL	2 Kg. Quit Gold Trol	

Note- We used only 400 grams of Ezmud (this is to help expel the cores), later we added 1 Kilo of Quit Gold Trol (this serves to seal the walls in sandy spots)

**2. : “Mud” viscosity**

Nº	D E T A I L	TOTAL VISCOCITY
1	In the first “mud” preparation: with the bentonite we reached 42 seconds and with 400 gr. of Ezmud we reached 59 seconds	59 seconds

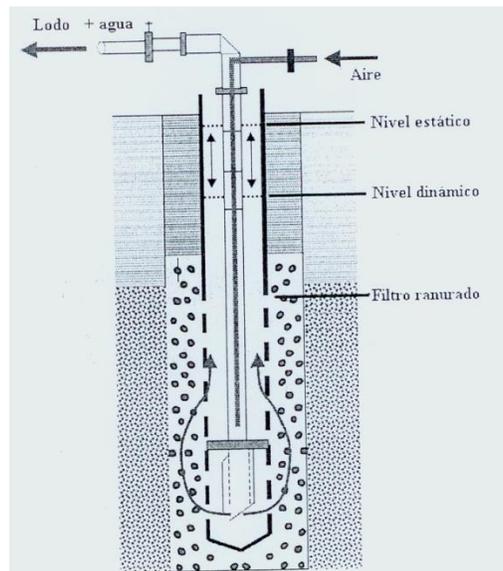
Note- Three “muds” were mixed because the terrain was difficult to drill. According to Enrique, the SmarDrill technician, “muds” should be changed depending on wether ther is a lot of sand or the viscosity drops alot. It was a good lesson to drill in El Alto where the terrain contains a lot of sand and gravel.

**3. Diagram showing depth of gravel around the sieve; cement seal from the top to what depth to keep out surface water, freatic layer, the depth at which you found water.**

See the attached detail of the drilling of the well.

**4. Work days**

The drilling began on Friday, May 2nd and was completed on Tuesday, May 3rd. On Wednesday the compressor was used to clean the well.



Total work days on drilling = 5

Total work days cleaning well = 1

Total work days drilling and cleaning = 6

## **5. Bing or Google Earth map showing well location**

Upon Request

## **6. The drilling experience**

While drilling we had problems with the packing of the Keli (the square bar which revolves during drilling) which we resolved by increasing the rubber so that the “mud” would not leak.

Another problem we had was when we raised the tower the hydraulics did not work well (because the hydraulic liquid was low)

Another problem was a “mud” leak in one of the “mud” pump’s pistons, we took it apart put a rubber cap on it and fixed it.

There was a break in the “mud” hose which we temporarily fixed by cutting out a piece and replacing it (as happened with the well in Palcoso where Dale broke the hose)

But it was good to face these challenges; it was worth it because we are learning a lot more about the rig and what needs to be maintained.

We have one request, if you could send us a 2 ½” diameter hose to connect to the Keli.

[Click here to see photos.](#)