

**PETRO - TECH**  
**PERUANA S.A.**

INTER OFFICE MEMORANDUM  
 GEOSC - 321- 02

To: Pedro Alarcón  
 From: Yuliana Monforte  
 Date: November 15, 2002  
 Subject: Potential Evaluation of Wells nearby Wells with production higher than 100 BOPD

2016-26

## SUMMARY

Nearby wells from wells with production higher than 100 BOPD were reviewed and evaluated in order to identify if there are potential workovers to be done to enhance their production.

In the block Z-2B there are fourteen wells that are producing with rates higher than 100 BOPD. The good behavior of eight wells is basically related to gas injection response, four wells are new wells drilled and two were workover with good results.

As conclusion, it can be stated that nearby wells around wells with production higher than 100 BOPD are already opened in the same productive sands; in some cases recommended program jobs are confirmed in nearby wells, in other cases not significant potential have been found.

## EVALUATION BY AREA

### Peña Negra Area

Eight wells produce more than 100 BOPD each one. Seven of these wells have been identify as wells that have good response to gas injection projects, being six wells related to Cabo Blanco injection projects and one to a Mogollón injection project. The remaining well is a well that was workover recently.

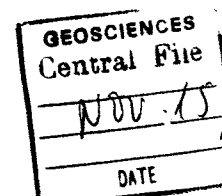
Wells nearby PN8-8 (576 BOPD).- Well PN8-8 produces from Cabo Blanco fm. and is responding to the injection done in well PN8-10. Well PN8-8 is located in the same reservoir with PN8-23 that also produces from Cabo Blanco. No other well is located in this reservoir. However, well PN8-24 is located in a block that is aside and the interval 3720' - 3665' in the Cabo Blanco has not been opened. A Workover has been proposed for perforating this interval.

Wells nearby PN2-4 (342 BOPD).- Well PN2-4 produces from Cabo Blanco fm. It was opened since September 2002. This is the only well that produces oil in this reservoir. The other wells in the reservoir are wet.

Wells nearby KK-26 and KK-21 (230 BOPD and 196 BOPD).- The high production of wells KK-26 and KK-21 is caused by the response to the injection in Cabo Blanco sands. Most of the wells around them have a good response to the gas injection too.

The following recommendations for neighboring wells are restated:

- KK-15: Isolate water production from Cabo Blanco sands with a cement squeeze job.
- KK-17: Take a temperature survey to identify and isolate interval of gas entry. Well was producing about 130 BOPD when the gas broke through.



- Reduce gas injection rates in wells Z-7 and Z-14 to 2000 MSCFD each one due to gas injection canalization in wells KK-17, KK-19 and KK-21.

Wells nearby TT-19 (173 BOPD).- Well TT-19 is affected by the gas injection done in well TT-1 in Mogollón sands. The better performance of well TT-19 (vertical well) is because it penetrates more section of the Mogollón sands than the wells around which are also responding to the gas injection. These wells were affected by water injection some years ago so periodically they are treated with biocides to reduce the bacterias formation. It is expected a better behavior after these treatments.

Wells nearby Z-3, Z-4 and Z-18 (119 BOPD, 121 BOPD and 131 BOPD).- Wells Z-3, Z-4 and Z-18 are located in the same reservoir and are producing from Cabo Blanco sands. Based on their history production, these wells are affected by the gas injection done in well Z-6. No other well is located within this reservoir.

#### **Lobitos Area**

Five wells are producing over 100 BOPD. Four of them are new wells and one is under the effect of the injection in Hélico sands.

Wells nearby LO6-25 ST (387 BOPD).- Well LO6-25 ST is a new well and produces from Basal Salina fm. There is no other well nearby.

Wells nearby LO16-26 (273 BOPD).- Well LO16-26 is a new well and produces from Rio Bravo fm. It is located alone in the reservoir block from where it produces a relative high oil rate.

Wells nearby LO19-1 (204 BOPD).- Well LO19-1 is a new well and produces from Hélico sands. Well LO11-5 is located in the same reservoir but with a poor development of the sands.

Wells nearby LO18-3 (113 BOPD).- Well LO18-3 produces from Pariñas sands. Well LO18-4, a nearby well that produces from the same reservoir, according to stratigraphic correlation the main body is not presented in this well. No other well is within this reservoir.

Wells nearby LOBO-037 (102 BOPD).- Well LOBO-037 is responding to the gas injection done in well LOBO-064 in Hélico sands. The wells nearby have stabilized their production so they are affected by the gas injection that started 2 years ago. These wells are closely monitored and according to their behavior in next months some changes in the injection pattern should occur.

#### **Providencia Area**

One well is producing more than 100 BOPD.

Wells nearby PVX8-12 (182 BOPD).- Pariñas sands had been isolated in well PVX8-12. After almost 20 years these sands were re-opened and fraced. Wells around it have the Pariñas opened and have already been fraced.

cc: César Montes  
Well File