

My name is Jose Pena. I am from Las Cruces, New Mexico and I am engaged to my beautiful fiancée Linda. One of my hobbies includes training my dog, Marshall, who is a full-bred German Shepard. Another one of my hobbies is playing fantasy football. My team name is the Fighting Jalapenas, however this year they haven't done much fighting which has led to a poor record. I am getting my bachelors degree in chemical engineering at New Mexico State University and my expected graduation date is May 2016. The reason why I chose chemical engineering is because I knew that I wanted to work in the oil and gas industry or anywhere that I could be a process engineer. The highest chemical engineering course I have completed is CHME 307 transport operations III: Staged Operations.

Support San Juan Business Unit base production surveillance and 2014 post-audit effort, by doing so I had to understand compressor systems, sizing equipment and field application. Also, I had to generate compressor curves for the common Leroi compressors in ConocoPhillips operations. With the Leroi compressors, I had to validate compressor curves with actual field data. This project will aid compression engineers in sizing future compression projects. I also had to evaluate and submit compressor downsize projects for approval.

This was accomplished by using the company's software to compile pressures and flow data for compressed wells, identified and evaluated projects for 2015. Then, I generated and validated compressor curves for two Leroi compressor models. To generate the curves, I had to use a scatter plot with suction pressure as my x-axis and flow rate as my y- axis. Later, I ran economics for a possible downsizing for one of the compressed wells then submitted that project into their software. For the 2015 compressor downsize project preparation, I looked at forty-four wells for a possible downsize. To do this, I looked at the company's software to get the flows, suction pressure, and discharge pressure. I also looked at their database to see what engine and compressor models the units plate horsepower. After looking at the data and compressor curves, I was able to determine the future engine and compressor with the new plate horsepower.

The reason I had to look into the Leroi compressors is because there are a significant number of them for the 2015 downsize program. Since there are so many, we chose to validate the software. There are a lot running in the field and they have excellent performance, so we want to keep using them. In order to validate the software, there was a field wide survey for the actual operating conditions for the compressed wells. These included the suction pressure, discharge pressure, and the flow rate. Then, I filtered out the data to just show the Leroi compressor. After filtering out that data I was able to generate the curve with the newer Leroi compressor software it was optimistic and did not fit the field data that I had, so we contacted Leroi and asked them about that and they gave us their older software telling us this software is a better predictor in performance for their smaller screw compressors. Once I was given that software, I was able to generate the compressor curves and that data did fit what we had out in the field, but it had some problems in the software's equation so the compressor curve was not linear on what it needed to be. The capital compression team is still going to use the curves I generated because it gives them a good range on what the compressor is capable of to use it for a downsize.

For the downsize that I did for one of the compressed wells I had to look at different types of databases and different software to see if this well is a possible candidate for downsizing. What I first did is look at what type of engine, plate horsepower, percent utilization, and compressor it currently has. I had to look into a database to get the engine, plate horsepower, and compressor and I used one of their software to calculate the percent utilization, and it turns out to be a rental unit. After looking at the operation conditions we can downsize this unit to a smaller engine, with a lower plate horsepower and a higher percent utilization and we will be using one of the in-house compression units. I used one of their other software that shows me the life of the well, it is very important to look at the life of the well because we don't want to start an economic project with a seven year life and then find out that the well only has a three year life. After looking at the software, that well previously was set to be downsized earlier this year but it had some downhole issues and the compression team waited until it

was repaired and made sure the production returned to what it used to be. Then we knew we can do the downsize once the production returned to what it used to be and looked at the post work over forecast and we sized it based on that curve. Then I generated the compressor curves for the well using the data from their operation conditions software and I made an operating window on the graphs displaying where the compressor will be working at.

One phase on getting the project implemented is by having the project's group go out to the field and look to see how many people they need to complete the project as well as what type of equipment is needed. Then, they will contact the compression team, giving us the total capital to complete the project, which we use that to run our economics. Another key item needed to run the economics is the total monthly cost savings, which is the difference between the monthly rental rate for the rental compressor and the monthly maintenance of the in-house compressor unit. Once I get those key items, I look into one of the company's data base to find out if there are any partners or is it all one hundred percent ConocoPhillips, and in this case this is one hundred percent working interest and it does not involve any partners. I use the key items; cost savings, working interest, monthly rent, monthly maintenance, and the total capital and input those into the economics software. Then it calculates us the average annual rate of return, pay out, and the net present value. In this case, the AARR was a really high percentage that is because we are not purchasing a new unit and this well is a one hundred percent ConocoPhillips working interest so we only use the maintenance cost since there is no partners for this well. The economics were based only on monthly cost savings, no fuel gas savings were in this economic evaluation.

After running the economics and the software showing the project is economical for the company, I prepared the justifications and set a meeting with the field engineer, the field supervisor and the lead foreman. We will discuss on doing this downsize and we will show them the economics, the compressor curves, the operation conditions of the well, or they will tell us if there is currently a project

on that well or if there are any other issues. After discussing with them, they gave us the approval to downsize the compressor unit and from there I will enter it into the company's project software. In that software I will also submit all the paper work that I showed the field engineer, field supervisor, and the lead foreman plus I also included the letter of them approving the downsize. Then it will go to many supervisors and accounting personnel for approval it so that it will be ready to implement.

Some of the key notes that I have done for my project is recommend the capital compression team to use the older Leroi screw compressor software for the smaller compression units. The well that I downsized will be executed in January 2015, and anticipate the monthly savings starting in February. The 2015 compressor downsize program, the forty-four wells that I looked for a possible downsized will be ready for implementation by the second and third quarter.

I feel that my chemical engineering courses helped me prepare to achieve my goals. The class that helped me out the most was CHME 201 material and energy balances because when looking at the different compressor models it made me think like a process engineer looking at all the different operating conditions and looking at the ideal conditions that was given from the vendors. Also I went through a corrosion and scale training and the courses that helped me understand more of what they were training me was CHME 361 engineering materials and 441 chemical kinetics because they showed how they treat the corrosion and scale by using content that I have learned in those courses. Another course that I know that would also helped me would be the engineering economics but since I have not taken that course yet, I will be looking forward to it since I ran economics for the capital compression team.

Support San Juan Business Unit health, safety and environment core values in order to do so I need to lead by example and identify and stop any unsafe acts observed. Attend all required safety meetings applicable to the job function that is either the office or the field. I will report any unsafe conditions, pain, illness, near miss or incident immediately to my supervisor. This goal was set met by

participating in all the required emergency response drills applicable to the job function that is either the office or the field. Committing to utilizing the safety tools provided by ConocoPhillips including stop cards, go cards and job safety analysis in a way that promotes a safe work environment for my coworkers and I. I also demonstrated through action, my personal commitment to zero incidents, injuries, and illnesses.

What I learned from my co-op at ConocoPhillips is collaboration and I got to see that with the team that I was with. From all the meetings that I was in everyone supported and respected each other. What I had to do in my part is I had to get outside of my comfort zone and communicate with everyone. We all seek and shared any new information for the 2015 compressor downsize program preparations and we utilized each other strengths. There was a point that we had so many data bases that we started creating a master data base to make sure it wouldn't get lost, then we would have master data base of the master data base. That was my way of making sure I involved the right people and I shared that new information with the compression team. After learning about collaboration within the group it made me learn how to listen for key things and take opportunities for teaching and learning with that I was able to communicate without being afraid of asking any questions. With that I am willing to try something new and show more leadership.