

**Data Driven Production Conference**

**3GiG’s Return to Production Management Panel Session**

**June 6th 2:45-3:15pm**

# **Conference Theme**

# Optimize Decision Making, Eliminate Downtime, Achieve Production Excellence.

# Where Oil & Gas and Silicon Valley meet - the #1 data focused oil & gas conference in the world

# **Panel Topics**

* Discussion on the challenges and current thinking on the return to production management process.
* How are companies connecting people, downtime and production to improve the return to production process?
* What are opportunities for improvement in the well intervention process?
* What is the potential value in improving the process?
* What are some best practices/lessons learned in terms of the people, process & technology?

**CHAIR**

**Kandy Luktats, CEO, 3-GIG**

Kandy Lukats is the President and CEO of 3GiG and manages the strategic relationships with 3GiG’s oil & gas industry clients. Her role is focused on partnering with senior management and executives to design and implement, technology led, change initiatives targeted at decision support and bottom line improvements for companies.

She has over 30 years’ experience in the oil and gas and information technology industries. Previous roles include VP of Exploration and Development Systems, EVP Marketing and Communications, operations manager, management consultant and subsurface workflow consultant at Halliburton’s, Landmark division. She has a Masters in Geology and prior to Landmark worked at BP and as an exploration consultant in the UK and Australia.

She is an inductee to VIP Professional Woman of the Year Circle (NAPW) and has been recognized as a Key Women in Energy and one of the 50 Key Information Technology Players in Energy. She has published and presented at the AAPG, SPE, SEG, Smart Field Summit and was recipient of the International Conference on Petroleum Data, Integration and Data Management speaker star award.

**PANEL**

**Jon Krome, Head of Operations, Maintenance and Improvement, BHP Billiton**

Jon Krome is head of operations, maintenance and integrity at BHP Billiton Petroleum in Houston. He joined the company in 2009 as an operations and production unit manager in Trinidad and the United Kingdom, and began working with BHP Billiton’s Eagle Ford assets in 2013. Krome began his career in 1988 in well operations and completions assignments with Mobil Oil, and subsequently served as an operations manager at Aera Energy, a senior manager at Accenture, an associate partner at IBM, and a senior manager at Capgemini Consulting. He holds a B.A. in earth and planetary sciences from Johns Hopkins University, and an M.S. in petroleum engineering from the University of Southern California.

**JoAnn Meyer, President, Previse Consulting**

JoAnn is a consultant, trainer, and mentor specializing in process improvement. She brings 30 years experience, including over a decade at the executive level, in engineering and operations management for upstream oil and gas companies. She believes aligning daily behaviors around the use of data to improve a few core processes delivers bottom line results and long-term success. JoAnn’s extensive business side experience enables her to help clients not only design excellent solutions but also to build the necessary infrastructure to sustain improvement.

**William Williford, General Manager GOM Deepwater Business Unit, W&T Offshore**

William Williford joined W&T in 2006. He held several technical positions with increasing responsibilities before being named Exploration Project Manager in 2012, a position he held until being appointed to GM GOM Deepwater in 2014. Mr. Williford has over 20 years of industry experience with large independent operators. Prior to joining W&T, Mr. Williford held positions in reservoir, production, completions, and worldwide operations on the Shelf, Deepwater and Onshore at Kerr Mcgee Oil & Gas and Oryx Energy. Mr. Williford received his Bachelor of Science Degree in Petroleum Engineering from Mississippi State University in 1995.

**PANEL TRANSCRIPT**

***Kandy:***

I have interviewed a lot of people about the subject. And here is my best example and understanding in terms of an analogy, especially for people who aren't engineers.

 So, with a lot of arm waving as a new geologist, I am a doctor. And the well is my patient. The first time I know that something is wrong with the well, is when it shows up in my office. I don't know why it's sick, I don't know what happened to it. Now, I may have some fancy system, like Meredith just showed you, and I might be able to deduce, I might need to analyze why something went wrong. But, that's my deal as a doctor, is to basically triage the situation with the patient. So, the return to production management process is about the human side of what is happening when you identify there's something wrong with the work. What are those steps, that the marathon team were talking about, once they identify the problem, and how long, and what they do, to get it back into production.

 We spent a long time as well, thinking about what kind of people would we want to come talk about that process in the industry, and what are the challenges, and where are people looking at solving that problem. We went out and asked a lot of ... early career professionals. I'm looking at a few of you in the audience right now. And we said, "Would you like to come and sit on a panel, a very esteemed conference, with a lot of very senior leadership from the industry?" And the first response we got from everyone was sheer fear. The idea, if you are of a certain age group, of standing up here, and talking about what you would like the industry to do, given you were just starting in it, basically nobody would come and sit on that panel.

 In the absence of that, we turned to some later career professionals, and our esteemed panel are here to talk about that subject here. I will tell you that just to fit in with the conference and the general theme, I seriously considered on going and getting my hair dyed, a spray tone, so you're adding a little bit of a thing here. Basically, I just kind of put off the idea, and I've decided to stay a young, early career professional as to them. Just so you know.

 The second challenge that we talked about on the panel, when we put the panel together, is what kind of people, what kind of companies, are looking at the problem, and where have they solved it, historically. Our panel is basically made up of representation from almost every size and scale of company and operation across the world. We have people that have worked in the Eagle Ford, Trinidad, California, deep water, onshore, mid continent, overseas. They've worked for companies from Exxon Mobil, to small consulting, from Murphy, to W&T Offshore, everywhere. And they've played out in every single role you can think of within the process, from production management, to operations management. Nearly all of them are engineers now. We do have one other earth scientist on the panel, and I'm sure he's gonna talk about that at some point.

 When we get to talk about the challenges, and we talk about the panel, I'm gonna ask William to start off talking about how he first identified that they first had a challenge in this area within the company. And then we're going to circle back afterwards and talk about the ways that these companies and the individuals have been part of solving those problems in the industry. So William, go ahead.

***William:***

Good, I'll play a little bit off of Kandy being a doctor. Kinda said set it up like this is that. Most of the time, you get a little sick. You don't know if you really need to go to the doctor. A lot of us start from self diagnostics. I've lived in Houston probably about 15 years. One of the major issues I've had living here is I have allergies. So, as a well, I started coughing a little bit, little decongestion here. I'm thinking, "Hey, I'm fine, you know, I'm familiar with allergies, and I'll just go on my way." Now relate that to the well a little bit.

 I know the well was producing, let's say, 50 barrels of oil a day. Offshore, not a whole lot, we've got a lot of production going back to this field, so a lot of the other wells are carrying most of the cost. The [LU 00:04:38] cost. So, well goes down, starts boarding, we start off offshore, clean up operators, and send the information in the end to the superintendent, which in turn, tells us if the operations group ... I think we have, what? 50 barrels a day. But we also have other wells down there, could be down thousands of barrels, or so. From our standing point, priority [inaudible 00:04:59] switches more to [inaudible 00:05:01].

 But, as we go in, there's less talk about who's involved in that. That's the problem. We have me as the asset manager, the production engineers, the red warning gears, facility engineers. We actually look at production all the time, but, I'll play a little bit more into that and tell you a little bit about the rest of the team. And I'll be including ... and if a certain day the operations and what's going on if the well's going down. That would be the geologists, and the landmen. Most people included in the [inaudible 00:05:32], we start talking about production, but they play an important piece in what's going on in the situation.

 I'm a try to list some common small things. 50 barrels of oil a day is considered a small amount. As we go along, and set up the issue a little bit further, you could delve down, it's sick, we don't know how sick it really is. On the surface, not very sick. There's not a lot of production. What happened was, is that this is a newly acquired field, so you'll learn a lot about the field, and most of the production out here is [inaudible 00:06:08].

 So, we think, you know, if people understand the units, then our production oil well will can hold a lot of anchorage, and therefore it's not a problem. So we find out, probably about two months down the road, everybody [inaudible 00:06:21] build offshore, if we start going down for three months, then we start having the issue of actually losing our lease. Well, this well wouldn't really bargain [units 00:06:30]. So, we have a separate room, and we call inspiration. Well, they have prospects all over, they just trying to kind of [inaudible 00:06:40]. What we did not know was that this well, under this well, it had a prospect of about 5 million barrels. So the problem is, is if we lose this lease, then other people with offerings always looking for other things to drill, and they have an eye on this drill. They're just waiting for this lease to expire.

 So, I'm gonna stop, and leave it there, and call it the small things.

***Kandy:*** Joanne?

***JoAnn:***

The difference is, when I go into the doctor, and I am legitimately sick, and I know I'm going to need some interaction of some kind. If I'm the patient sitting in the doctor's office, what I don't want is to sit there for very long and wait. Nor do I want to hear that I'm going to need some additional tests, so I need to go somewhere to get the tests before I can come back. I don't want to do any of that.

 So now I'm going to mix my metaphors ... or let me give you an example, a specific example. I'm gonna talk now about, don't even have a well that is 50 barrels in this particular field. The average is between 15 to 20. But there's a bunch of them. You know, there's a thousand of those wells. And so if you get too many failures, then all of a sudden, it's "bing." It's impacting the production. And what I don't want, what the challenge was as well- First of all the challenge was I could never make my production targets, that's number one. In trying to figure out how to get back to the production target, meet that target, was trying to deal with the down wells, and all the down oil that we had. And it seemed like our best efforts, we just really struggled with being able to claw any of that down production back.

 And what the issue was, is it wasn't that everyone is feeling the same pressure, getting beat upon because they weren't meeting the production targets. And everyone was trying very hard, and everyone was focused. The issue was a little bit like, I'll switch metaphors, we have a couple of people, or more than a few people, in a row boat and everybody's got an oar. And everybody is trying, they're putting their oar in the water at some point in time, and making a stroke with that oar. The only problem was, it wasn't very well coordinated. We would make some progress, it was kind of sloppy and we weren't in a straight line and we weren't making great progress. And the big challenge we had is something that I heard Tron mention this morning, I heard Yanbo mention this morning, I think I heard Josh mention, and the people this morning talk about the fact that the data is not very well integrated. That there's silence of data. Well guess what, before we were depending upon data too much, it's because we don't behave very integrated. Our individual people then, we didn't act that way.

 So everyone was working their hardest, whether it was the production technician, or the production foreman, or the guy scheduling the rig that needed to go out, everybody was working hard. But the alignment and the coordination around how that needed to happen to minimize the time between knowing that I was sick and I need help, and actually getting me well again, was not great. It was taking way too much time.

***Kandy:*** John?

***John:***

Thank you. I must declare that Kandy contacted me a month ago or so, and drove me into perhaps, and said, "Look, we need you to really come and look wiser and more mature," so I colored my hair as gray as possible so I fit that bill. I hope I succeeded.

 Making sure you're at the doctors office for a credible reason. Once you're there, get in and out as quick as possible. But like you, I don't even want to be there in the first place. I want to prevent having to go to the doctors in the first place.

 Aa little bit of background for my problem was that we had bought, BHP Billiton, had bought Petrohawk assets in about 2012, and it was a company under a fast pace of development. There was lots and lots of data. It had been piped through a series of different skating systems. The good news at the time is, and this was only 5 years ago, that everything was attached to an alarm or notification. There was a reference point. It was at a plus or minus ten percent, or a target production level, and if any time it deviated, a series of people would get a text and an email, and sometimes a phone call.

 When we first inherited the asset, it was a bit crazy, because people were getting contacted two or three different ways to address the same problem. There were hundreds and hundreds of wells. 10, 20, 30 people over there were just deluged with a certain amount of data.

 Resource allocation was not a huge problem because we had allocated the number of foreman to the right size of lease or route. 120 to 150 wells per person. For a technician, or an operator, an informant would take care of six or eight of those, so that they could keep track of those, without a very elegant IT system. Now we do have skater systems and ways to report that, and some of the functionality that we saw in the Maritime example, which is a great example.

 It wasn't around figuring out which wells are gonna fall through the cracks, but more importantly it was about how to get away from just the fire fighting. This was a team that was applauded for years in having a quick mean time to prepare, very well [inaudible 00:12:11] to prepare. Had a lot, [gain 00:12:13] after it, get the well back on production, move onto the next one. Business savvy as that sounds, no one took the time figure out the root cause. "Why is the well going down in the first place? What can I do to avoid it all together?" That's the metaphor back to the doctor's office, or the analog back to the doctor's office. How do I avoid the well going down, and the patient having to go in, in the first place?

 So openly, this was how to prevent the failure, and play less the mean time to repair game, and play more the mean time between failure game and equipment speed. So having to lengthen out the time between doctors visits. [inaudible 00:12:48].

***Kandy:***

So, to kind of sum up, if I can paraphrase what we've heard, is the challenge between, if you were in the triage world, making sure that there are specialists involved in the triage situation, like William saw around the land. Having land like in the marathon example, a land involved can see what's going on in the operations dashboard.

 In the second area with Joanne, we're talking about the length of time you're sitting. You might be sitting as the well is down, waiting to be looked at. Especially if you were in a smaller, I don't know if this is a politically correct way of saying this, but if you were in a less sexy field, and you are in the bottom field, the least producing, getting attention or getting right results on occasion to get looked at or seen, might be worth the challenges.

 And then from John's standpoint is, how do you get from the firefighting mode, where your showing up, say, to be fit on a regular basis, to be able to step back and really look at the process of the root cause analysis.

 We're gonna circle back around and basically, starting again with William is, given the challenge that you have, how did you and your team then approach solving that problem so that you can improve on that process?

William: Right. Kind of what we do, as I say, I'm actually the guy with the problem, so it took me a little while to actually go into the doctor's office. I look pretty good. Look like there's not a big problem. I know I'm sick, maybe coughing a little bit but no big issue. I have three or four people looking out at me. One guy will say after the operation, "Oh, it's not that bad. We just gotta let him sit there for a little bit."

 You have the production engineers say, "Hey, I got these other patients that look a little bit more sick. Maybe I'll just put him on hold. I'll put him in the schedules." Then you have the geologist who'll say, "Hey, I'm working on this project, but it's not that big of a deal. We got time in order to be able to evaluate [inaudible 00:15:07]." Then we have the landman say, "Well, it looks fine. [inaudible 00:15:12] conversation."

 We talk a little bit. He actually goes back and looks at some of the history. He finds out, "Hey, this well's got sick before," that this well is not part of the [Union 00:15:25]. You stand along the well and you getting sick is a big thing [inaudible 00:15:29]. I kind of laid that in the beginning saying that if I lost this lease, y'all still get a good prospect in just the drill and make a lot of money. The problem is, is that you're in jeopardy of losing it. I only need the ground that I actually sit on. That causes problems because if you know about the process of going and releasing it and going, you spend more money. More money than you thought if you just get something that's all [inaudible 00:16:02].

Kandy: When we talked about before, you talk venture someone who processes or the way you change things to make sure that you have a constant eye out for those issues.

***William:***

What I did now, is that now you don't limit it to just the operations group. You didn't [inaudible 00:16:24]. Now we have a weekly meeting to go over all our to go over all our in jeopardy leases and leases that have one gulf holding a lease or we have a low production covering the lease because we have losses. Now we have a process on, if we base it, then we're gonna get all the production on these critical lease, we call it a critical lease report. Make sure everybody involved, as far as the operations, plan, accounting, everybody's including these things, make sure we understand the issue that we have.

***Kandy:*** JoAnn, you want to talk a little bit about how you solve that waiting time issue?

***JoAnn:***

As I mentioned, it wasn't a lack of focus on needing to ... It wasn't that people weren't focused on trying to get the down wells back on. What we have to quickly evolve to if we had any chance of getting our arms around all that down production, while John was trying to figure out how we don't have any more failures at all, is we have to take what I call, instead of having focus, you had to have an organized discipline to commit that. To take certain actions today. There was some comment and the marathon folks talked about that. Their dashboards are helping them to see what needed to be done today.

 From a diagnostic or analysis standpoint, that's a great discipline to have. I think that's extremely important. What we weren't doing at the time was then saying when it comes to executing those recommendations that are coming out to fix this, how do we ensure that nothing falls through the cracks? How do we get that organized discipline around the execution of those steps? Probably the number one was visibility. Just as the marathon dashboard did, shows the analysis and identifying wells and operative conditions that aren't where you want them. The same thing needed to happen, for when we actually start taking action, what needs to be done today? Who is responsible for doing that? We want to be sure that no well was an orphan.

 We didn't want any wells sitting in someone's inbox. The notification sitting in someone's inbox. We wanted all of them to be visible to everyone. It did come up to trying to get some visibility in one system after we know we're sick and we need to take some action, how do we extend that into insuring the execution steps everyone, all the integration, the engineer knew what the operations person's supposed to do. Or the foreman. Or a technician. Or the guy that was scheduling the rigs. There had to be one place to coordinate all of those activities.

 We were small, little insignificant, not sexy field. One of the key things we did is we recognized that there was Eagle Ford out there. It was an Eagle Ford that was doing all that good stuff. We actually packed up and went over and spent some time with them. That was critical. Big believer in learning from others.

***Kandy:*** John?

***John:***

 Yes. You'll recall my problems come up with the doctor's office all together. How do I avoid frequent failures, you have really low production. Ultimately, it's about educating yourself and starting to collect data so you think about the continuous recruitment cycle of [KNB 00:20:05] Check act. I want you to get good data collection so you can make fact-based reasoning decisions. Ultimately, less to development of toy, very simple system to start categorizing some of the symptoms of the down wells. That sounds fairly simple, perhaps even rudimentary, but when you're talking about 1,000 wells in a very fluid situation, big management becomes a lot of tactics and tactics and more tactics.

 These [inaudible 00:20:34] for offshore for many years since the late '60s, so we did have a system in place and they categorized the symptoms of down production. I keep saying symptoms versus a root cause because, technically speaking, a symptom is what we would observe at first watch. Why the well went down and why the facility shut the well down. It may or may not be related to the root cause. Root cause is typically days or long of evaluation and analysis. It's the most obvious symptom that's taking the well down.

 We leveraged what we built offshore. It used, effectively, years. Because we are a very new environment, these were new oil fields, the number of codes and the simple definition is no longer applied. As an example, we had something like 20 or 30 down codes in the offshore environment. I think we actually had to do, a deep dive, about ten times that many to get it right over one shore. I think we [inaudible 00:21:32] in New York. These codes themselves sound trite almost. You can come up with lots of different reasons why wells come down, but it's really a great exercise in the community-based standards. Everybody's got to put their thumb print on this for some reason because a lot of people have to execute this. We're talking about hundreds of people having used these common terms and these common codes and to find things the same way in order to collect high-quality data. You can collect data that's quite random. Decisions you make for improvement are gonna be just as random obviously.

 This all gets codified into a bit of technology. There were some IT folks involved, which is a good thing. At the right time, this was not technology solution. It was a business process solution with a technology backbone. It's web enabled. It's got many drop-down menus. We can sort it and visualize it and re-portal it. There'll be a mobile version here eventually. Ultimately, I want to emphasize this is a business process that must be driven by the business owners, not so much a "knowledge is for joy," something kind of cool.

 Ultimately, it's populated by users that are the operations team for down time events and production engineers generally for referral events. Difference between them having referral for us is down time, the well production actually goes to zero. Something showing deferral is, something is off, production off, it's declined for off the expectation, but it still produces something. It's inhibited but not completely down.

 Ultimately, this data that we collect, these reports that we generate must be used as part of the larger continuous recruitment cycles. I'm talking about the usage of meetings and evaluating the data in a more disciplinary way and brainstorming solutions to problems and executing one of those with some bigger [ail 00:23:26] to only reviewing those and learning what we can from them. I would submit just collecting the data and even reviewing it team by team can only get you so far. There's always a bigger prize and we have a bigger team to evaluate. Trends and acting on things to come.

***Kandy:***

Thank you. We wanted to leave a couple of minutes for questions and then really just to sum up what you've heard is three very experienced operations productions managers talking about their, it was really funny listening to the [writing 00:23:55] machines talk just before. Because now hearing about "what are the humans doing?" Every challenge that these have all faced involved challenges with visibility into the fact that there's a problem. But also visibility into what the humans are doing to start there.

 I noticed one of the things on the American slides, "The thing to come." The last slide was around their tracking of the work and the reporting of what people are actually doing. And what can be learned from that. For example, in what John's talking about in terms of just codifying what was the problem.

 I'm gonna open up for questions. Basically, I think there's a microphone somewhere ... Yeah, great. Any questions?

***Speaker 5:***

[Rod Saminami 00:24:50] from the power group. I would like really to bring the subject a little bit probably deeper into that of a quality of the [maginets 00:25:01] or quality of the data that you get. How it's really focused on [pocudo 00:25:05] because much of what this start probably turns on, with the tech team, issues that are impacting operations. Probably more like, the bomb fails, the well goes down. They are pretty much obvious, but what about the non-obvious? How much of the data is integrated in the process of recognizing things like data building, not reconciling, not validated. Particular [graph 00:25:38], at the end of the day, production is about quality, quantity measurements. What metrics and eventually paying back the [disorders 00:25:47] and so on. How much of these processes, these processes are being put in place to cater, as well, to that level of [inaudible 00:25:57] when it comes to looking at the data quality from that perspective as opposed to pure operation, data that related to the actual, the operations?

 One example could be the balancing of the system, is that integrated or part of the project or [much 00:26:16] measurement? And the quality of the measurement and [inaudible 00:26:20] that process simulation?

***Kandy:*** John, do you want to close this one?

***John:***

Yeah, I'll start because I think there's something over here we learned as well. Today we all are measuring everything. Companies our size probably have a couple million tags. Much less than Exxon Mobil, who's probably got 10 or 20 million tags. About a year ago, we came to a civil organization that we actually have two product streams coming off of our facilities and our wells.

 Clearly, the most obvious one is the product stream called Oil Gas. In order as well. We monitor the heck out of that. We got control centers and surveillance centers and we have engineers on top of engineers watching the other engineers for that product flow. We can't but realize that the second product flow, which is almost as valuable, is the data. If the product flow is this way, there's a measurement point in here, there's another slip stream of data in the form of electrons in some way or current that's flowing as well. It must be monitored. We developed these new centers called knowledge and built operations centers or T rocks.

 BHP Billiton is a fairly large mining company, some of you might know that. Many of our colleagues in Australia and other places are using the t-rocks to make sure that the quality of the data is as high as it can be, so several people look at the product, the up product or the gas data. It's a pot falling as well. The infrastructure such as the lions network, such as the router, such as the data management databases. Thing of that nature all have to be green, green, green for you to have confidence in the data before you get to be a decision maker to localize a crew or do a work over.

 We have recently come to that realization where using these t-rocks. We're still learning how to use them most effectively, but I think it's in that simple realization that we think it'll be for. Not that it's perfect, we saw plenty of pieces of [inaudible 00:28:18] that fail much more than they should. [inaudible 00:28:20] meters, coils, meters, things like that, but we're starting to get really serious about their quality.

***Kandy:***

I think we're out of time, but I want to explain ... Do we have time? Yeah. We want to wrap it up. Team, the panel, will be in the coffee break area if anybody wants to follow up with questions. Kind of in the back coffee area. That'd be great. Thank you all very much.