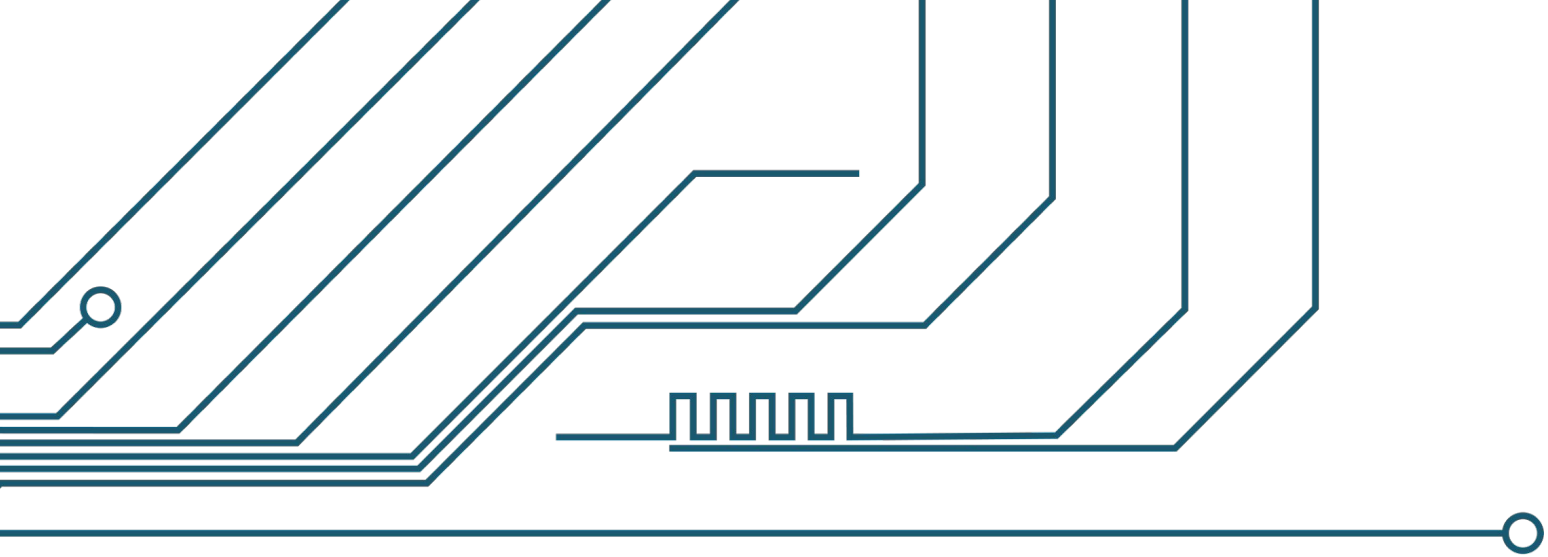

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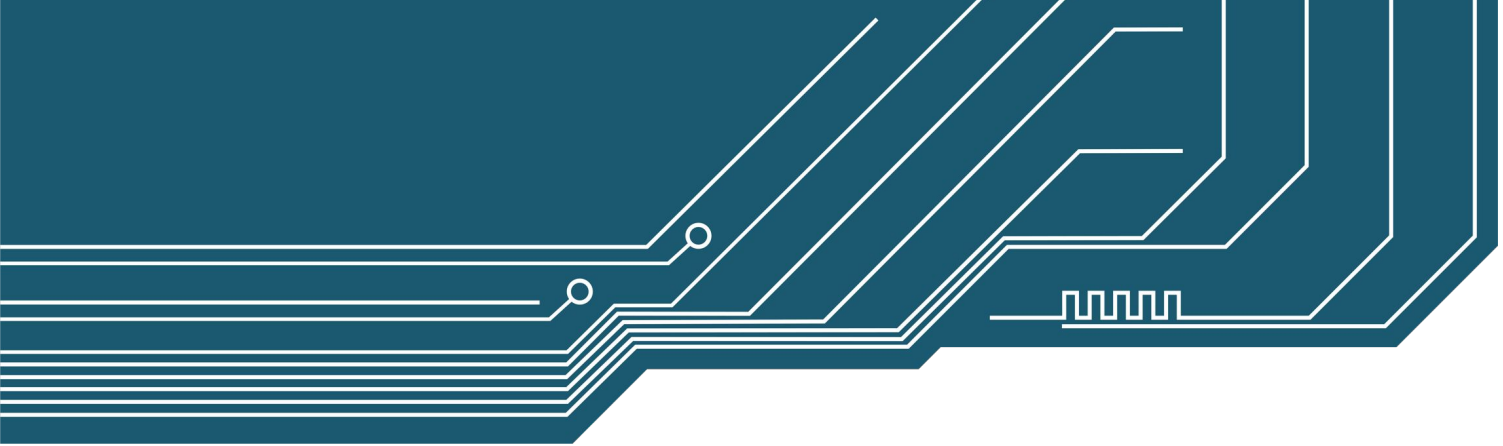


INDUSTRY REPORT 2022 SURVEY RESULTS

FEBRUARY 2022

ABOUT THE SURVEY

Erdos Miller conducted a survey to better understand the MWD landscape, surveying a total
of 84 respondents. Participants identified themselves of 10 Job Titles.

- Field Engineer
- Operations/Product Manager
- President/VP
- Technology/Engineering Manager
- R&D Manager/Engineer
- Owner/ C- Level
- Project Specialist
- Sales Person
- Student/Intern
- Other

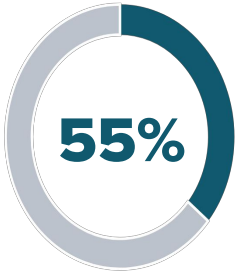
ABOUT THE SURVEY

All insights are provided by Ken Miller, CEO & Founder of Erdos Miller.

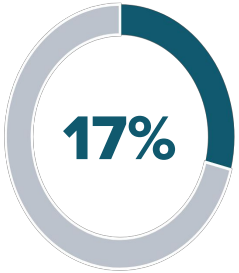
Ken began his career in automotive microcontroller development, but quickly found his niche in the oilfield: downhole tool design. Ken's passion is for technology and finding new ways to solve old problems. He can quickly understand a new challenge and provide the leadership to deliver the best technical and business solution to customer's needs. His business vision and leadership has grown Erdos Miller to the successful engineering and product development firm that it is today.

QUESTION 1

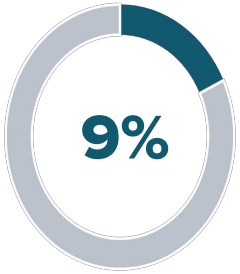
WHAT PERCENTAGE OF YOUR JOBS DAY AND NIGHT TOWER ARE FULLY STAFFED?



76% to 100 % of our jobs are fully staffed



51 % to 75% of our jobs are fully staffed



26% to 50% of our jobs are fully staffed

25% or less of our jobs are fully staffed

None of our jobs are fully staffed

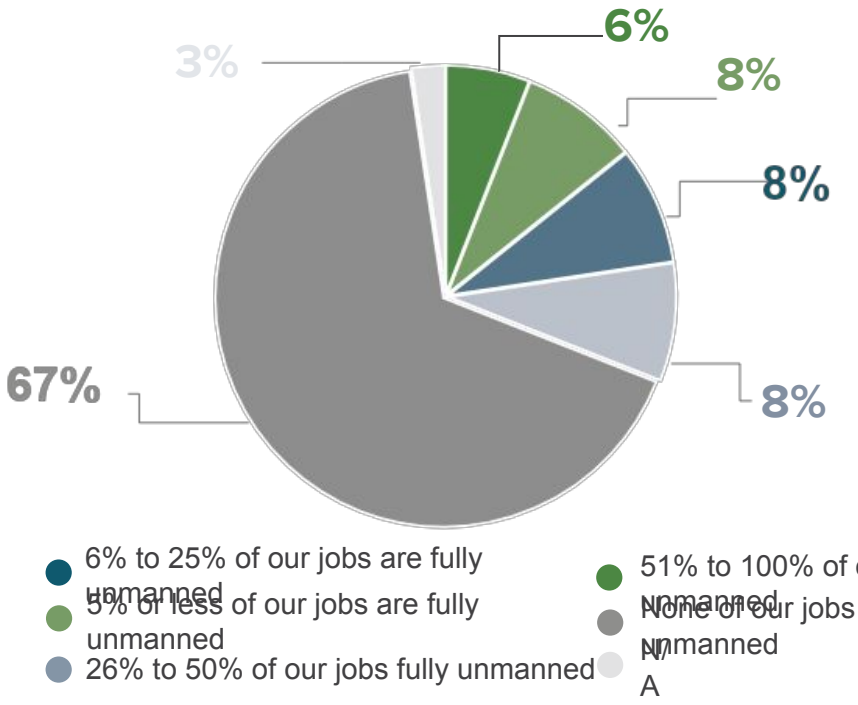
N/A

Ken's Insight: Automation of MWD Operations continues.

Fully staffed operations are decreasing and will soon be in the minority. This is a sharp contrast to 8 years ago before the 2015/2016 crash when nearly every job was fully staffed. More jobs will go to half-staffed and no-staffed operations. As Oilfield activity ramps up in 2022 and beyond it will become increasingly difficult to find talent and this trend will accelerate.

QUESTION 2

HOW MANY OF YOUR JOBS ARE FULLY UNMANNED?

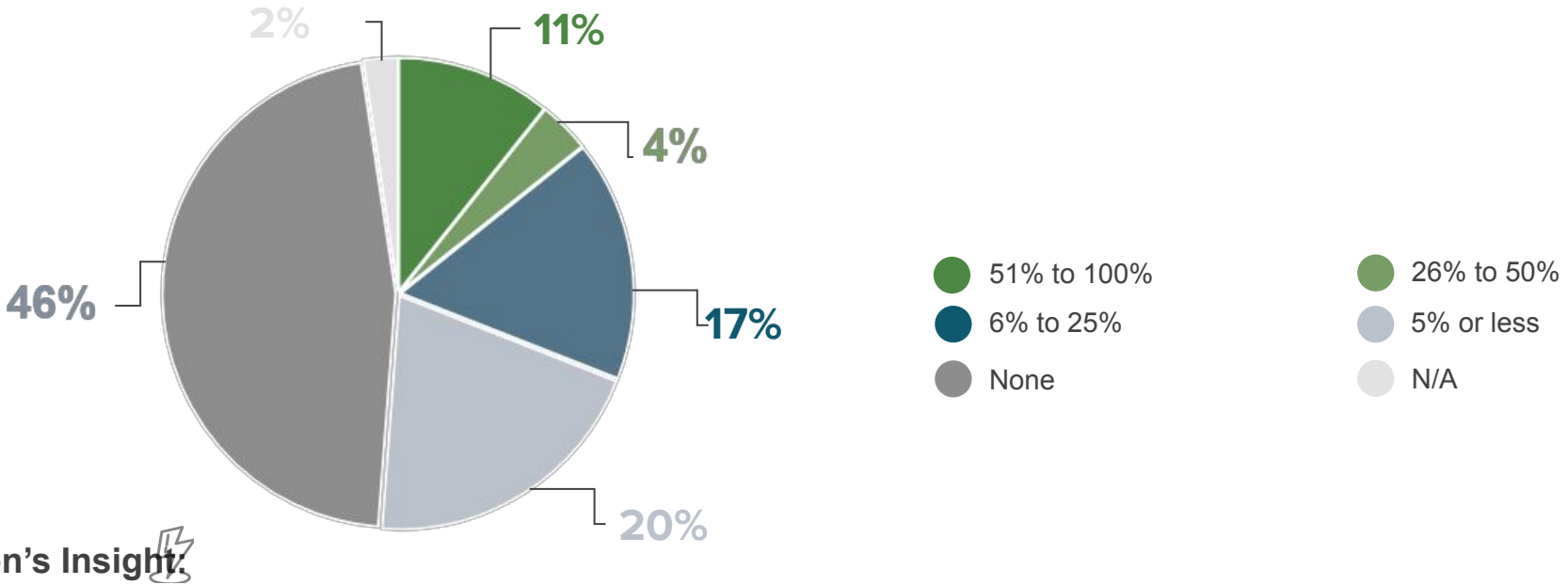


Ken's Insight:

Only 6% of Survey Participants are reporting that the majority of their operations fit the traditional expectation of fully "unmanned." A futurist prediction from before the '15/'16 crash surely would have said that by 2022 the vast majority of MWD/DD work would fit the definition of being entirely unmanned.

QUESTION 3

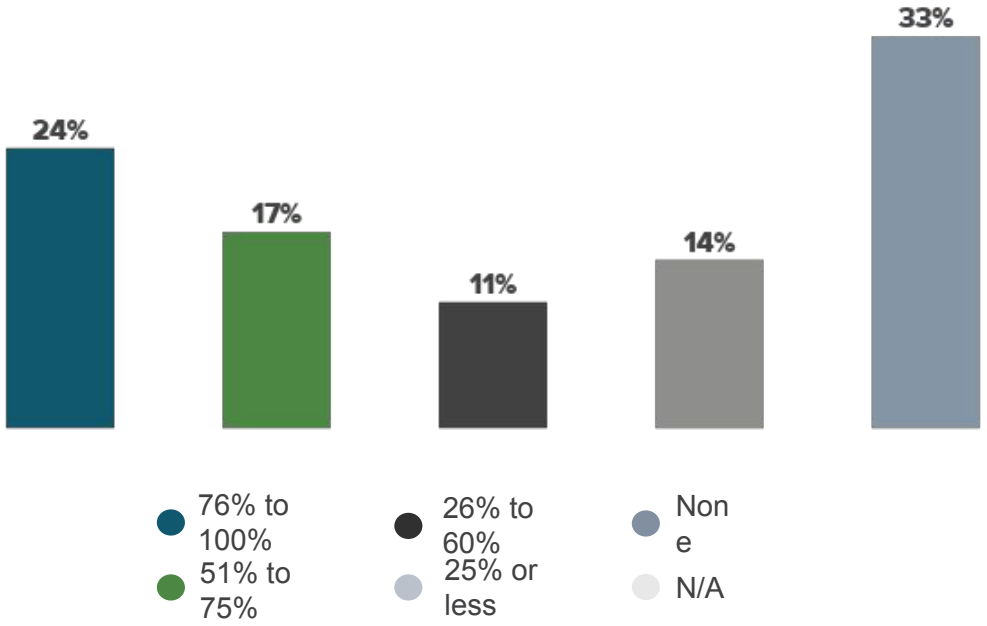
WHAT PERCENTAGE OF YOUR WORK IS HOTHOLE (AT 175°C OR ABOVE)?



Ken's Insight:
Almost half of participants are reporting that they have no hot-hole work at all. There are huge efficiencies to be gained by tailoring equipment to the work to be done. Hot hole tools have such a limited selection of components that can be chosen to provide the level of reliability that is expected.

QUESTION 4

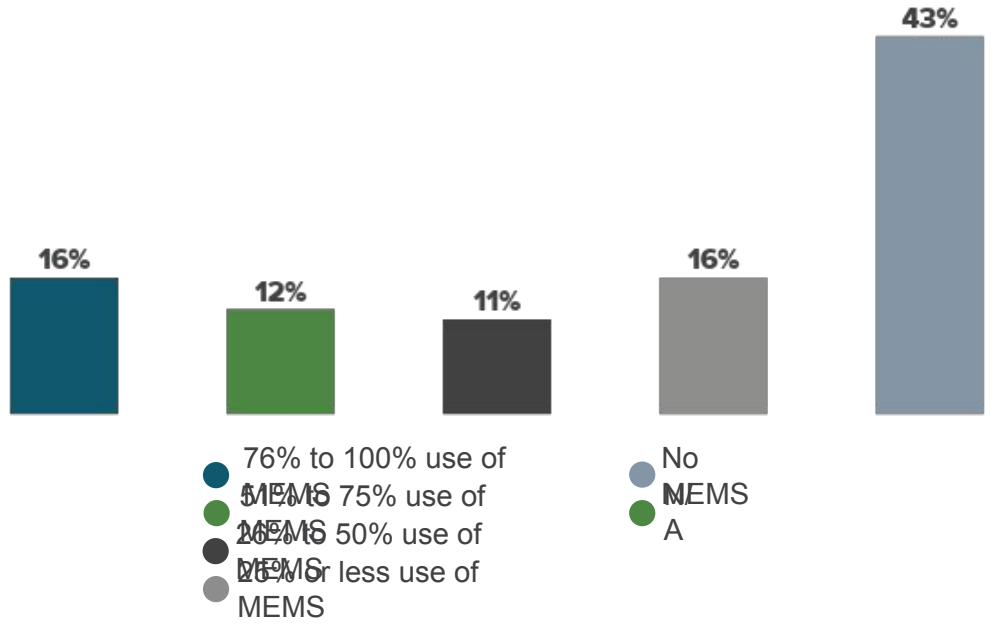
WHAT PERCENTAGE OF YOUR FLEET STILL RUNS LEGACY 3-PIECE ELECTRONICS? (EX. MPU, TPS SENSOR)



Ken's Insight: Electronics have a surprising lifetime, and it's costly and difficult to change. 24% of respondents are still operating legacy 3-piece MWD electronics. Modern MWD systems can and should do more.

QUESTION 5

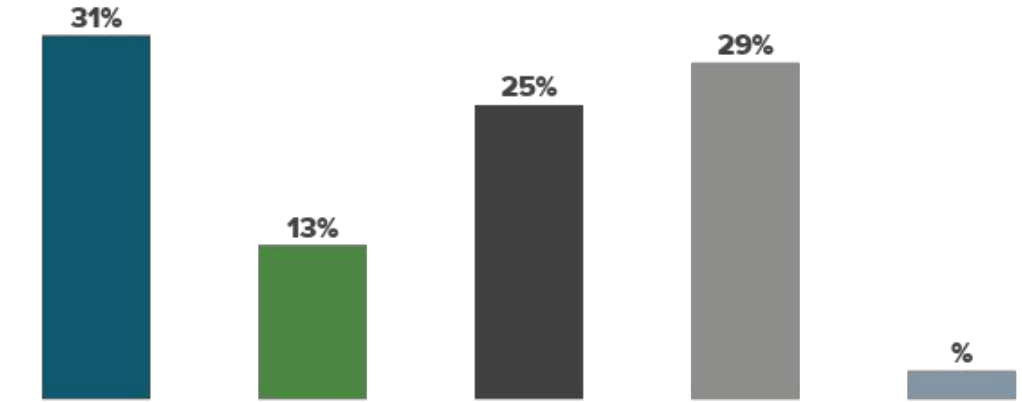
WHAT PERCENTAGE OF YOUR FLEET IS MADE UP OF SOLID-STATE MEMS VS. TRADITIONAL QUARTZ OR FLUXGATE?



Ken's Insight:
The battle is over. The future is MEMS. More than HALF of respondents are now using MEMS directional sensor technology to drill wells. Expect this trend to increase as MEMS-based tools eclipse their counterparts in lower costs, higher reliability and software performance.

QUESTION 6

WHAT PERCENTAGE OF YOUR JOBS INCLUDE SHOCK MITIGATION TOOLS IN THE MWD BESIDES INTERNAL SNUBBERS?



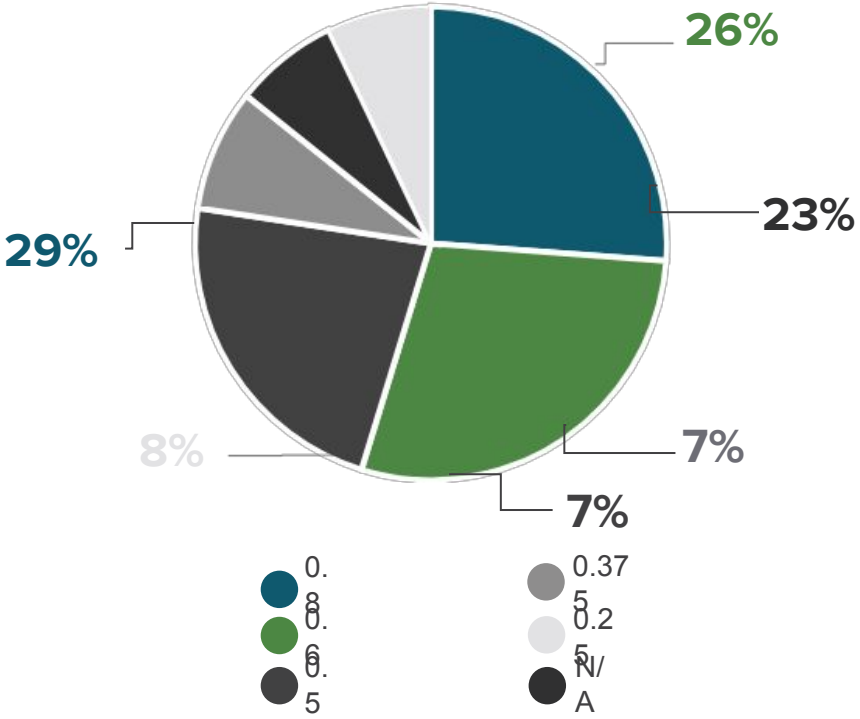
- We use shock mitigation tools on all jobs
- We use shock mitigation tools on most jobs
- We use shock mitigation tools on some jobs
- None, we don't use shock mitigation tools
- N/A

Ken's Insight:

Shock and vibration mitigation components have become nearly standard in MWD component design. This increases the cost of the MWD system while overall targeting to increase the reliability. Questions remain about how often these tools hurt versus help. Different BHAs, drillers and local differences in formation make A/B case studies challenging.

QUESTION 7

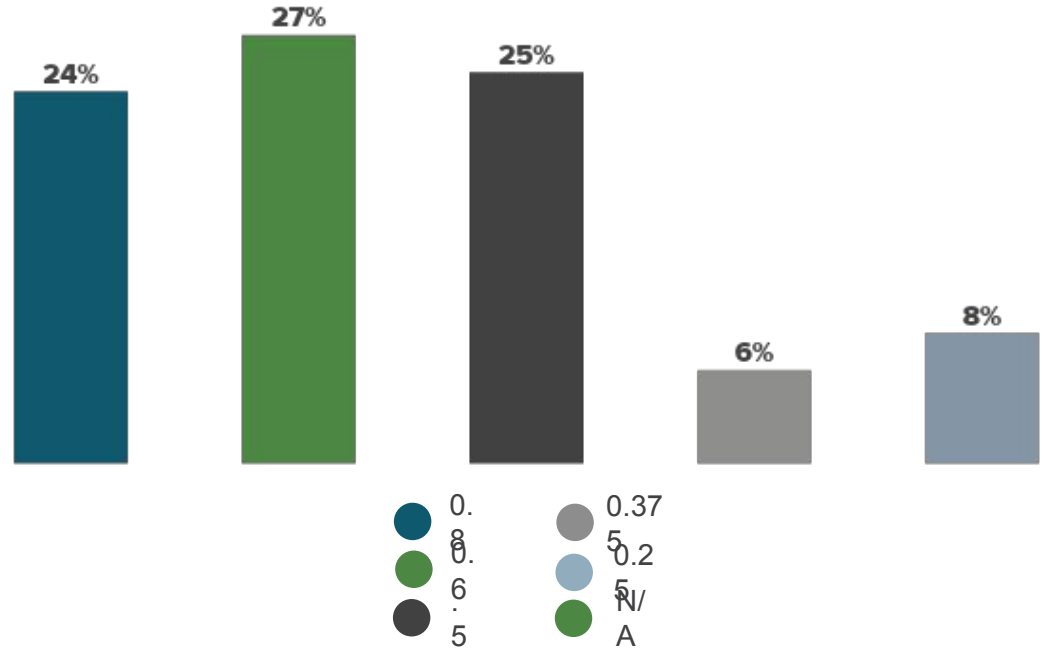
WHAT IS YOUR TYPICAL PULSE WIDTH FOR THE INTERMEDIATE?



Ken's Insight:
Intermediates are a great playground for testing new telemetry, besides very shallow where reflections can sometimes cause more problems than you would think, it's the safest part of a job to try something new. However, the data requirements for this hole section are typically lower, with most customers not running live corrections. These lower data requirements allow service companies to keep their costs down where they can. More pulses mo' money.

QUESTION 8

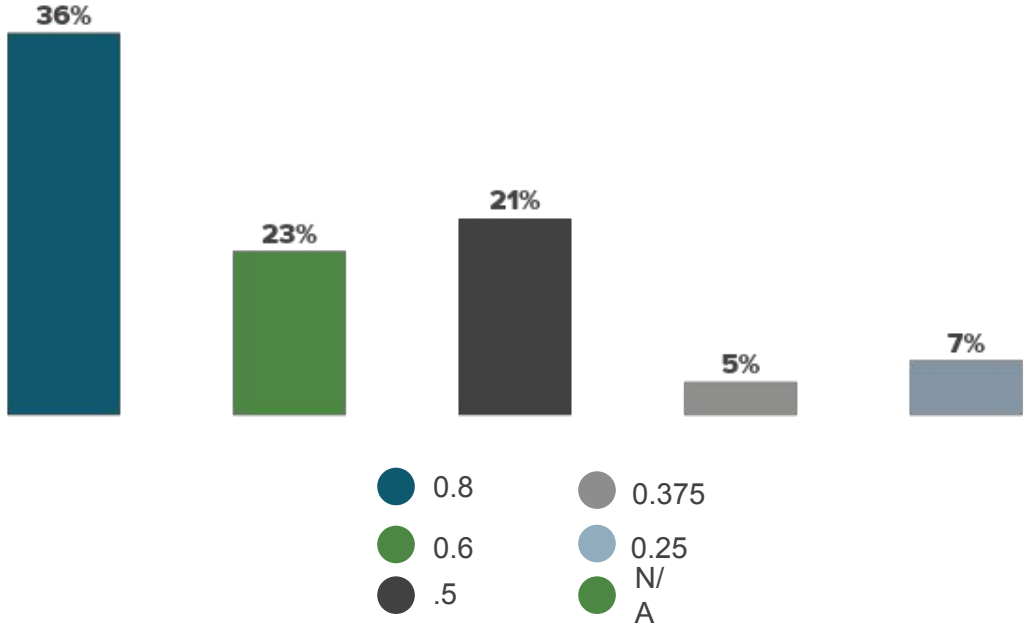
WHAT'S YOUR TYPICAL PULSE WIDTH FOR THE CURVE?



Ken's Insight: The curve is where it starts to get interesting. A lot of customers prefer to run live corrections in the curve which necessitates six axis data. Also, the more Continuous Inclination and Continuous Azimuth you can pack in between those ever-present tool-faces the better. You can observe a solid shift into a higher gear with 0.5 PW dominating in the curve with a lot of customers preferring to go to 0.375 or 0.25 for that extra punch. Expect the curve to be the hole section where service companies are most likely to turn the data rate way up.

QUESTION 9

WHAT'S YOUR TYPICAL PULSE WIDTH FOR THE DEEP LATERAL?

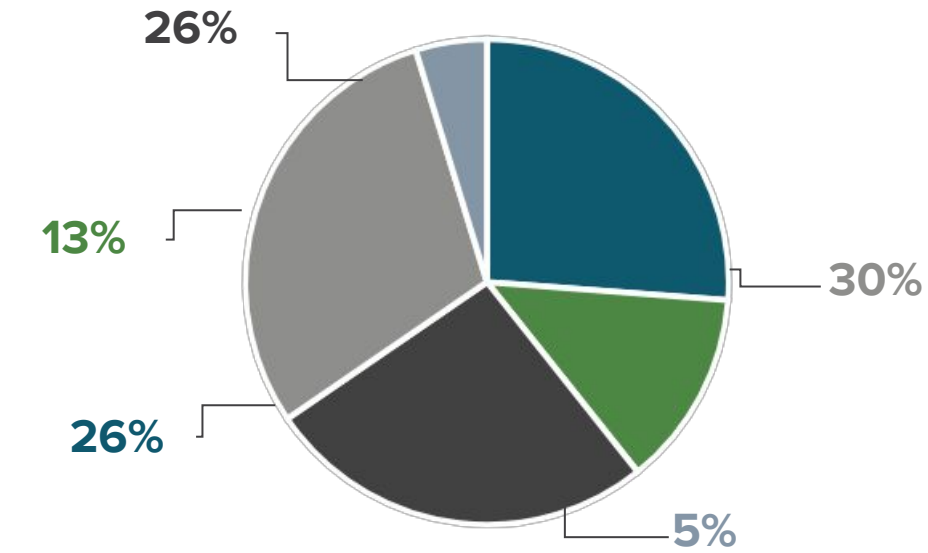


Ken's Insight:

Well, we goofed up on this question. We should have had 1.0 or 1.2 as options but we'll work with what we've got. 0.8 PW dominates the lateral, likely due to it being the hole section that brings the weight, torque, flow rates and double agitators. The name of the game is to just keep pushing each pulse width deeper and continuing to refine transmitter and decoder systems to delay the point of downlink job after job.

QUESTION 10

WHAT PERCENTAGE OF YOUR JOBS ARE YOU RUNNING DYNAMIC SEQUENCES?



Ken's Insight:

Dynamic sequences have far less adoption than I think they should, and by that, I mean my expectations are 100%. There is absolutely no need to send tool-faces when rotating. Our bandwidth is so ludicrously slow that cutting it in half just seems obscene. I think we need a new version of dynamic sequences to see this feature rolled out ubiquitously.

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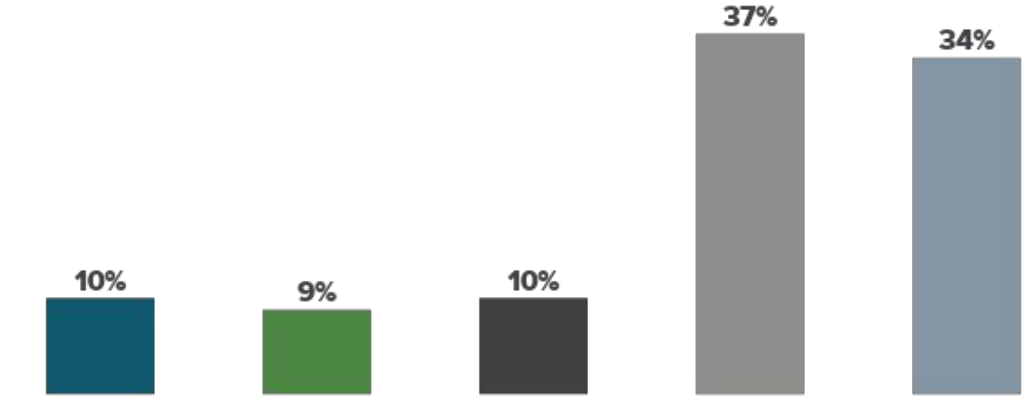
QUESTION 11

WHAT PERCENTAGE OF YOUR JOBS ARE YOU RUNNING AZIMUTHAL GAMMA ON?



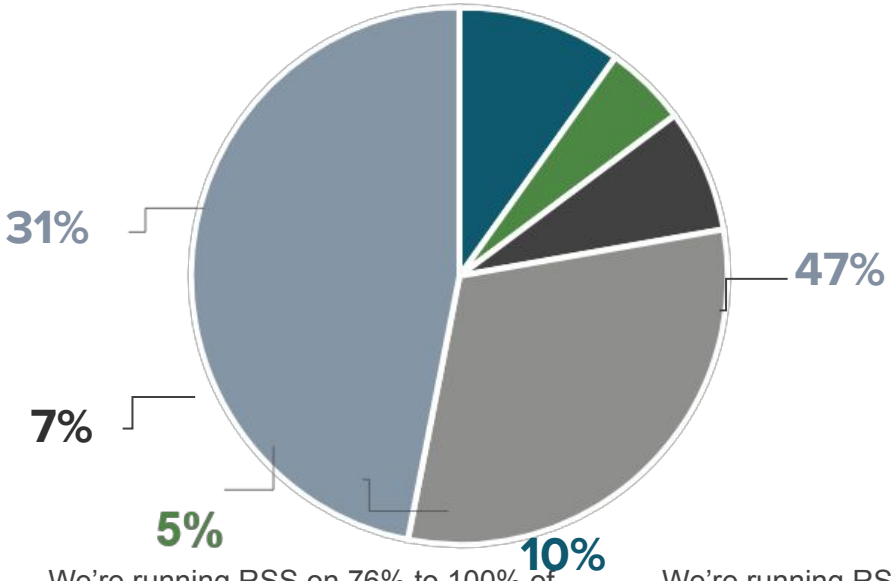
- We run AziGamma on 76% to 100% of our jobs
- We run Azigamma on 51% to 75% of our jobs
- We run Azigamma 26% to 50% of our jobs
- We run Azigamma on 25% (or less) of our jobs
- None, we are running Azigamma

Ken's Insight:

I am really blown away that anyone would have answered this question in the 76-100% category. We now have 2/3 of surveyed professionals saying they're running AziGamma on some of their jobs. That's way up. Expect this amount to go up as more service companies get their hands on a new generation of cost-effective azimuthal gamma tools.

QUESTION 12

WHAT PERCENTAGE OF YOUR JOBS ARE YOU RUNNING WITH RSS CURRENTLY?



- We're running RSS on 76% to 100% of our jobs
- We're running RSS on 51% to 75% of our jobs
- We're running RSS on 26% to 50% of our jobs
- None we're not currently running RSS on our jobs
- We're running RSS on 25% (or less) of our jobs

Ken's Insight: Easier market access.

We may be reaching the tipping point for RSS, probably 20 years after the inventors of RSS predicted it, but none the less we may be there. We have half of respondents running RSS on some of their work and there is an arms race underway to build new low-cost independent systems. Expect RSS usage to go nowhere but up. Ultimately discrete MWD systems may disappear, and they may become a component of an RSS system.

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