



| Production

# Chapter Seven:

**The morning routine: Soap. Shampoo. Toothbrushes and toothpaste. Mouthwash. Shaving cream. Deodorant. Perfume or cologne. Cosmetics. Contact lenses, eyeglasses and sunglasses. Nail polish. Lipstick. Combs and brushes. Hand lotion. Dresses. Sweaters. Shoes. Purses. Vitamins. Aspirin. Allergy pills.**



**Daily commute: Asphalt. Motor oil. Gasoline. Car bodies and dashboards. Battery cases. Oil filters. Antifreeze. Fan belts. Enamel paint.**

*Home sweet home:* Upholstery. Dishes and dishwasher parts. Coffee makers. Floor wax. Curtains. Rugs. House paint and paintbrushes. Roof shingles. Refrigerators and ice cube trays. Speakers. Trash bags. Toolboxes. Candles. Water pipes. Shower curtains. Detergents. Pillows. Phones.

*Weekend warriors:* Jet fuel. Boats. Bicycle tires. Golf bags and balls. Fishing lures, rods and boots. Footballs, helmets and cleats. Basketballs. Skis. Tennis rackets. Roller skates. Surfboards. Bug spray. Artificial turf. Luggage. Bandages.

Binney and Smith produced the first box of eight Crayola crayons in 1903, derived from petroleum. The initial colors were red, orange, yellow, green, blue, violet, brown and black. Source: American Oil & Gas Historical Society



Women were using Vaseline to make mascara by 1915. Cosmetic industry giant Maybelline traces its roots to the petroleum product. "What a Difference Maybelline Does Make" magazine ad from 1937. Source: American Oil & Gas Historical Society

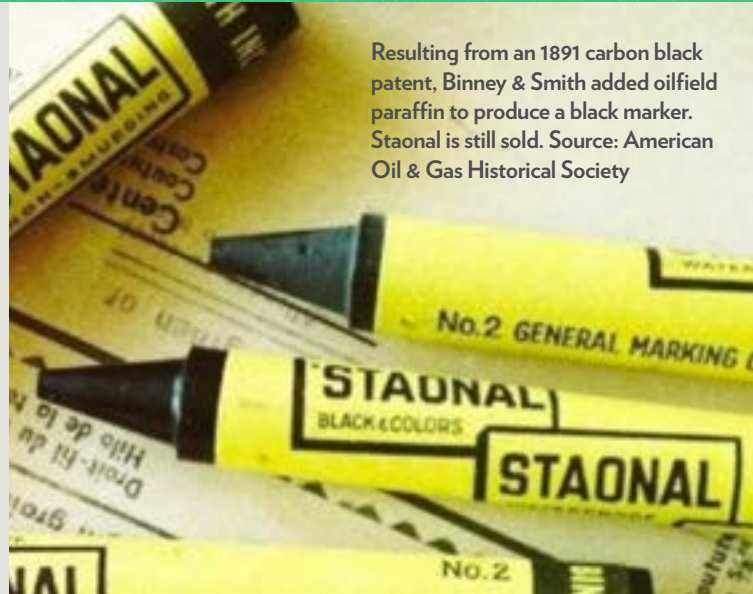
# Most people use the everyday items above

without a second thought to how they're made. As we mentioned in earlier chapters, it's a modern-day luxury to take for granted all the conveniences that fossil fuels provide in our day-to-day routines.

If folks bothered to look – they wouldn't have to dig deep – they'd discover that the 76 items mentioned above represent a mere fraction – roughly just 1.3% – of the 6,000-plus products made with petrochemicals.

That should be worn as a badge of honor by the oil and gas industry. But as more than a dozen of the roughly 100 Pioneer employees we interviewed for this series over the past 18 months told us, the energy industry doesn't do the best job of sharing facts like this with the wider public.

There's a valid reason. With decades of slanted news coverage, grandstanding politicians who broad-brush "Big Oil" executives in front of TV cameras, then bolt before learning the facts, and decades of faulty narratives out there as it is, how can the industry even expect a fair shake? Many say they're better off not engaging with critics.



Resulting from an 1891 carbon black patent, Binney & Smith added oilfield paraffin to produce a black marker. Staonol is still sold. Source: American Oil & Gas Historical Society



"I don't think most people look out the window and see what I see," says Pioneer Production Operations Vice President **Craig Kuiper**, peering out his sixth-floor Irving office one recent summer afternoon. "I see cars going up and down (State Highway) 114; I see buildings with power; I see airplanes taking passengers on business trips or vacations.

"I think people take for granted all the things that reliable, affordable and plentiful fossil fuels do for them," **Craig** says. "People get a little out of touch with what would happen if they didn't have them."

# We've covered quite a bit

of ground over the past six weeks charting oil's remarkable journey. So far, we've learned how our skilled Geology team employed cutting-edge science and technology to accurately pinpoint optimal spots to place a well. We found out how our Land team secured the acreage we'll need for drilling. Finally, we shadowed our Drilling and Completions units as they began the process of unlocking the hydrocarbons buried deep underground, relying on both scientific precision and old-school sweat labor to accomplish it.

All along, we've also told a parallel story of how we approach each of these stages with a mindset focused on worker safety and environmental stewardship – even if the job takes longer or costs more. That's been a cornerstone of *"The Pioneer Way,"* and having that critical buy-in from hundreds of employees in the field puts us a cut above our peers.

We're one step closer to realizing a financial benefit after the weeks, months – sometimes even years – of the company's significant investment in logistics and labor. *"Drilling is risky, because finding oil is only half the job,"* observed prize-winning business and technology writer Tahl Raz. *"The real challenge is finding the money to pump the oil."*

Yet believe it or not, we *still* have a ways to go.



"There's often a misconception that we drill a well, we frac a well, and then our team just goes out and opens up a well, all the oil flows out, and everything's great," says 10-year Pioneer veteran **Matt Mathis**, field productions operations manager. "Really, there's a lot that happens day in and day out. Yes, we do go out and essentially open up a well, but often that well's not going to flow on its own. It's going to take some kind of continuous intervention to get it to produce."

In this chapter, we'll talk to **Craig, Matt** and some of their colleagues to learn about the penultimate stage in the life of a drop of oil: Production. From there, we'll finally chase *"the Pioneer molecule"* as it makes its way from tank battery to cargo ship – but that's a story for next week.

**We learned last week that before a well is handed off to our Production team, *Pioneer's* Completions crews have already cleared the wellbore and connected it to a production tree – also known as a “*Christmas tree*” in the field – made up of the valves, pipes and other controls that will eventually separate and divert our oil, gas and water to their respective destinations.**

Now, it falls to workers on **Craig's** 950-employee Production team – Pioneer's largest unit – to bring a well on for the first time.

“The first drops of oil that actually come out of the ground have probably been ‘touched’ by a significant number of Pioneer workers across several departments,” **Craig** says. “My group is responsible for the wells and facilities from the moment we start producing until we plug and abandon them. We have a great group of people taking care of our wells from **Day One.**”

**Craig's** a 21-year Pioneer veteran who got interested in the oil business watching his dad sell frac and cement jobs to engineers. What impressed him at the time were the perks of the trade.

“I thought, ‘I want to be one of those guys, because those guys are the ones going golfing, going out to eat, going hunting,’” **Craig** says, chuckling. “My dad was in the oil field, in sales, and I had the opportunity to interact with his clients – many of them were engineers – and the more I understood about their work, the more interested I became.”

But Easy Street it wasn't. When **Craig** graduated Texas A&M with a degree in mechanical engineering and two internships under his belt – including at Parker & Parsley Co., which merged with MESA Inc. in 1997 to form **Pioneer** – oil was selling at **\$12 a barrel**. Undaunted, he let his work speak for itself, first at Marathon Oil, then at Pioneer, working different roles in Texas, Louisiana, the Gulf of Mexico and Corporate. When it came time for performance reviews, **Craig** would inquire about potential opportunities, making it known to his supervisors he was willing to tackle another challenge.

## After our Completions team hands off the job to Production Operations, it's up to this unit to recover our hydrocarbons from the wellbore.

To do it, workers rely on several methods to lift oil and gas to the surface, depending on the job: **ESPs**, **gas lift** and **rod pump** techniques.

Known in the field simply as an **ESP**, the **electrical submersible pump** is a reliable, artificial-lift method used to bring medium to high volumes of fluids to the surface. The **gas lift** method injects gas into production tubing in the wellbore to reduce **hydrostatic pressure** – the force created by standing or resting fluids – to allow liquids to travel at a higher flow rate inside the wellbore. Among the oldest artificial-lift methods is **rod pumping** – also called **sucker rod pumping** – which transfers motion from the wellhead's driving machine to a downhole oil pump.

The artificial lift stimulation brings oil, gas and other fluids – or, as **Pioneer** Area Operations Superintendent and nearly 35-year industry veteran **Jim Bailey** more colorfully calls, “the blood, guts and feathers” – to the surface of the wellbore.

“That means everything that comes out of that wellbore goes through a single line – oil, gas, water – and then travels to a separation system, which will take the gas off and send your oil to the heater at the tank battery and your water to your **freewater knockout**,” **Jim** says. Also known as an **FWKO**, the unit separates water from oil and gas.

**Jim** supervises production in the northwest section of **Pioneer's** four Permian Basin regions, which are divided by geography. His territory, which includes the Midland city limits, measures roughly 98 miles north to south and 85 miles east to west and produces 200,000 barrels of oil a day. He's also responsible for 113 company employees and contractors in that zone.

Remember when we mentioned in **Chapter 1** that a common trait shared among many Pioneer employees we interviewed in the past 18 months was “oil in the veins?” Count **Jim** among them. All his family members were or are in the oil and gas industry, and he's spent his life and entire career within 150 miles from where he was born and raised – in the small town of Mertzon, Texas, just south of San Angelo. He lives about 130 miles from **Midland** – a two-hour commute.

**“I wouldn't have ever picked a different career,”**  
**Jim says proudly.**

**Pioneer's** wellsites are spread over a massive swath in the **Permian Basin**. To better illustrate the vast territory we operate within, let's break it down a bit.

In an average year, our **Production Operations** team drives around 15 million miles – enough to travel to the moon and back 30 times.



The 1.25 million barrels of water produced daily by our operations – at a rate of 2 ½ barrels per every barrel of oil – can fill 80 Olympic-size swimming pools. Any Cowboys fans in the house? That volume of water can fill the 104 million cubic feet of AT&T Stadium every 15 days.

And here's one more: You can fit 1 ½ Rhode Islands inside **Pioneer's** 976,000 gross-acre footprint in the basin.

Illustrating a point we've been making since our first chapter, there's no team we've profiled in this series that **doesn't** critically interact somehow during this process with its counterparts across the company.

A perfect example is the work done by our Production Engineering team, which includes our Regional Engineering, Regulatory and Analyst units. They collaborate with numerous departments to aid our Production Operations unit by supplying technical knowledge, regulatory guidance and analytics to troubleshoot and solve problems and deliver performance that contributes to **Pioneer's** business success.



“Oil production is the heart of **Pioneer's** business, and it requires the work of everyone within the company to make a drop of oil,” says Operations Engineering Manager **Cody Pye**, who's been with **Pioneer** for more than 11 years. “Our Production Operations team is an integral part as we deliver every drop to the sales point.

“For us to succeed, it requires us to collaborate with all teams, including Drilling, Completions, Capital Projects, Strategic Planning & Field Development, **Pioneer Water Management**, Land, Supply Chain Management, Marketing, Accounting, TechSol and others,” he says.



# The aim after the fluids

are separated, **Craig** explains, is to ultimately reach 99.9% crude oil. The diverted water is either recycled for future completions or re-injected into the ground, and the oil and gas is sold at our tank battery facilities.

The separated oil and gas are transferred, or sold, to our *oil and gas gatherers*. (We'll learn more about this terminology, and who buys our products, next week in our last chapter covering the Marketing stage.)

"A lot of times, we refer to our tank batteries as the cash registers because that's where we have our products go through *custody transfer meters*," **Craig** says. "**Pioneer** then collects the revenue off the barrels that leave those tank batteries."

**Custody transfer meters** are the points where our recovered hydrocarbons are measured for sale from **Pioneer** to our buyer.

"For the Production Operations group, that's where the money's made," **Craig** says. "We get paid based on what goes through those meters."

This year, we'll tally a net production of around **133 million barrels** of oil. Multiply the going rate per barrel of oil – say around **\$90** – and you're able to calculate revenue from the oil produced.





# You know the old phrase, “*Dance with the one that brung ya*”?



That might be a casual way to describe how the foundation laid by **Pioneer's** older, vertical well program led to the company's wild success as new technology ushered in *The Shale Revolution* with horizontal drilling.

Today, **Pioneer** operates around 3,500 horizontal wells to its roughly 2,800 vertical wells. The tally comes out about equal, but production-wise, our vertical well inventory produces about 15,000 barrels of oil a day. That's nothing to sniff at. But our horizontal stock, in contrast, churns out about 500,000 barrels a day.

Let's not lose sight of the fact that our vertical portfolio created value for our company year after year, and it's the reason why we're celebrating our **25th anniversary this year**, and why 2,000 of us have jobs with salary and benefits packages that are the envy of our peers.




**“We want to be respectful of that fact,” says Matt, who we met at the beginning of this chapter. “None of us would be here and have the opportunity in front of us that we have were it not for the tremendous amount of work that went into the huge vertical program that developed at Pioneer over the past decades. We wouldn’t have the acreage position that we do, and we certainly wouldn’t be able to develop things from a horizontal perspective.**

“But at the same time, we operate in a different environment and a different world – from a market perspective, a company perspective and industry perspective – than we did 20 years ago – and that reality has caused us to have to adjust in terms of the way we approach things and some of the philosophies we have,” he says.

**Matt’s journey to Pioneer began at the U.S. Naval Academy, and then seven years’ active duty after graduation working in nuclear power. In 2011, he went to work for a company that serviced hybrid and electric vehicles, but he wasn’t enamored with the work. An old academy roommate encouraged him to apply for a job opening at *Pioneer*.**

**Less than a month after *Matt* interviewed for the spot, he was working at *Pioneer*. He started out in our Las Colinas headquarters in Corporate Facilities, building CNG fueling stations for trucks, and worked different assets in Kansas and Texas. In 2014, he took on an engineering role in the early days of the horizontal operations program in the Permian. He’s lived in Midland since 2017.**



**Our vertical well inventory still produces for us, no matter how many barrels per day, and that calls for having skilled Production teams who can maintain equipment that’s sometimes north of 30 years old. *Matt* equates the challenge to someone trying to plug PC equipment into a Mac and make it all work seamlessly.**

# “There’s a lot of different



vintages, which is a spectrum that ranges from vertical wells and facilities put on production in the 1970s to our more recent horizontal-focused development,” says **Joe Delmonico**, workover and field services manager, who’s been with Pioneer for 13 years. “It’s assets passed down from various operators since the Parker & Parsley days, those inherited through acquisitions like DoublePoint and Parsley, and all the different designs **Pioneer** has constructed over the years as we’ve grown and adjusted our approach.

“Our teams are not segregated dependent on the vintage of the well or facility,” **Joe** says. “They have to know it all – surface and downhole – to safely and efficiently do their jobs.”



Before he arrived at the Colorado School of Mines, **Joe** reluctantly admits he “didn’t even know what an oil or gas well was.” He also would’ve preferred a bigger school with a reputation for being a little more fun. What eventually sold him on his major was a professor who told him, “If you like to travel, if you like to be outside and you like to make money, you should go into petroleum engineering.”

He didn’t look back. He started with **Pioneer** on the North Slope of Alaska, followed by time in various roles in south Texas, our Las Colinas headquarters and, most recently, in Midland.

“I’m still waiting for our Alaska office to reopen,” **Joe** joked.

There's another trait exhibited by our Production team: A can-do attitude, no matter the circumstance – whether it's a global pandemic or 100-year winter storm.



“There’s nobody else to push the problem off to – we are literally the end of the line,” Matt says.

“So, if we’re short on production, or something happens, everybody on our team, they’re going to run through a brick wall to try to fix that problem.”

When winter storm Uri blasted the state in February 2021, **Matt** and **Joe** recall their teams trying to thaw equipment in 20-degree weather and field personnel lobbying their supervisors to check on their wells even in pitch darkness, on ice-caked roads. When COVID-19 hit a year earlier, workers begged bosses for extra hours when colleagues tested positive for the strain to at least keep some production going.

“The ice storm was a great example,” **Matt** says. “It was to the point that **Joe** and I had to put limits on our teams. We said, ‘We know you want to get out there, we know you want to get this solved, but we’ve got to put some limits on this,’ or they would’ve pushed themselves to the brink and beyond because they are that personally invested in what they do every day.

“It’s a personal thing for our guys, and if their production numbers are off, they feel physically unwell to the point of, ‘I have to go out and take care of this problem right now.’ And we have to say, ‘It’s 1 a.m., it can wait until you’re rested so you can make good decisions,’” he says.

Their teams are so dedicated to their craft and *Pioneer's* success, *Joe* says, that he's amazed at times when he thinks about how much effort goes into what these teams accomplish day in and day out.

“As long as they're doing it safely and they had the resources they needed, you can consider it done,” *Joe* says. “They hold themselves to a very high standard.”



### COMING NEXT WEEK:

We've reached our final stage in the life of a drop of oil. Here, we'll find out how our Marketing team sells our product, and then trace its journey from our tank batteries in West Texas southward via pipeline to the Gulf Coast and onto tanker ships headed for dozens of refineries around the world. It's a fascinating look at how a vision – sometimes years in the making – finally becomes reality.

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