# 8 Lance Cook - Shell Chief Scientist

**Duration: 5 minutes**

## Description:

As a Shell chief scientist, Lance Cook's focus is on identifying, developing and implementing technologies that not only can have a widespread impact on Shell's global operations, but also that are affordable and can be replicated in the field. An example? Capitalizing on the assembly line concept that revolutionized the auto industry, Shell has devised a system for mass-drilling tight reservoirs, such as shale and coalbed methane, that could make these deposits much safer and less costly to develop.

# 8 Lance Cook - Shell Chief Scientist Film Transcript

[Background music]

Piano playing fast, lively tune.

[Video footage]

Man wearing red lab coat walking through corridor towards camera.

[Lance Cook]

I didn't initially intend to go into the energy industry.

[Video footage]

Close-up of man walking.

[Lance Cook]

I started out as an archaeology major at the University of Texas,

[Video footage]

Interview with Lance Cook, wearing googles and red lab coat.

[Text displays]

Lance Cook

Chief scientist

Shell

[Lance Cook]

but as graduation grew closer,

[Lance Cook]

I realised I couldn't get a job in archaeology in the US,

[Lance Cook]

so I switched majors to petroleum engineering.

[Lance Cook]

After I graduated in 1979, I went to work at Shell.

[Video footage]

Oil rig in the sea.

Close-up of a drill.

[Lance Cook]

I asked to go into the drilling, because it looked fun.

[Video footage]

Close up of drills in operation.

[Lance Cook]

You get to travel around the world,

[Lance Cook]

you get to play with big toys in ships

[Video footage]

Rig in sea, camera zooming out.

[Lance Cook]

and you get to play with deepwater semi-submersibles.

[Lance Cook]

After starting out in New Orleans in the Offshore group,

[Video footage]

Camera pointing towards floor, One Shell Square written on the ground in a foyer.

Camera pans up to glass doors.

Looking upwards at a skyscraper.

Looking through doors of an office.

[Lance Cook]

I moved to Anchorage to become an engineering

[Video footage]

Man writing on map on the wall in an office.

[Lance Cook]

and exploration drilling programmer.

[Video footage]

People in a field next to a helicopter.

[Lance Cook]

In Alaska, we had to install an entire infrastructure

[Video footage]

Man looking through a camera.

[Lance Cook]

to operate in the Arctic –

[Video footage]

Man working on some machinery in the field.

[Lance Cook]

a big job, but we were given the resources to make it happen.

[Video footage]

Man making notes.

Man with large yardstick.

[Lance Cook]

After Alaska, I came to Houston

[Video footage]

Close-up of man working on machinery.

[Lance Cook]

to work in what was then the Bellaire Research Centre.

[Lance Cook]

I've turned down several moves, because my wife, who has a PhD,

[Lance Cook]

has a career, too,

[Lance Cook]

so I've been here over 25 years.

[Lance Cook]

But despite that, Shell has still made it possible

[Lance Cook]

for me to have a global career.

[Lance Cook]

I've had a variety of jobs in Onshore Drilling and Production

[Video footage]

Shot of a drill, panning down.

[Lance Cook]

and I also spent several years as a CEO of a Shell joint venture.

[Video footage]

Shots of various parts of the drill.

Close-up of a rotating pipe.

[Lance Cook]

That venture developed a revolutionary expandable casing

[Video footage]

Shot of lots of casing piled up.

[Lance Cook]

for deepwater applications.

[Lance Cook]

In 2007, I became vice president of Global Technology.

[Lance Cook]

Through that position, I got involved with a Shell joint venture

[Video footage]

Looking up at a drill, panning around.

[Lance Cook]

with China National Petroleum company.

[Video footage]

Looking through the window at a worker with hardhat and overalls on.

[Lance Cook]

As chief scientist, I'm continuing that role

[Lance Cook]

travelling between Houston and Beijing.

[Video footage]

Woman in hardhat and overalls walking through a heavy industrial door.

[Lance Cook]

That's exciting, because through this joint venture,

[Video footage]

Walks into a room with lots of machinery, looking out onto work site.

[Lance Cook]

we're creating a unique well manufacturing system.

[Lance Cook]

It will bring into the oil field the same assembly line concepts

[Lance Cook]

that revolutionised the auto industry.

[Background music]

Music changes to more dramatic, futuristic.

[Lance Cook]

It's an unconventional approach to exploiting tight reservoirs,

[Lance Cook]

such as shale and coal-bed methane.

[Graphic]

Diagram of what looks like a probe going underground.

[Lance Cook]

These resources have begun to play a significantly bigger role

[Graphic]

Sending multiple probes underground.

[Lance Cook]

in Shell's growth strategy.

[Lance Cook]

They will provide the low-cost energy

[Lance Cook]

that will power our economies for decades to come.

[Lance Cook]

But developing them often requires hundreds, if not thousands, of wells.

[Lance Cook]

As you can imagine, drilling costs represent the biggest budgetary item

[Lance Cook]

in bringing tight gas fields into production.

[Lance Cook]

The current industry practice is to design drilling rigs and equipment

[Graphic]

Looking at a green landscape from above.

Zooming in on a work site with a drill.

[Lance Cook]

to handle a wide range of well types.

[Lance Cook]

Instead of that, we're designing them for the well types to be drilled,

[Graphic]

Zooming in on drilling site.

[Lance Cook]

as well as automating the rig controls.

[Graphic]

Panning around the drilling site and rig.

[Lance Cook]

That way, we can mass-drill these wells,

[Lance Cook]

which will dramatically reduce the cost and environmental impact

[Lance Cook]

of field development.

[Lance Cook]

It will also be safer,

[Video footage]

Close-up of person in overalls covered in mud operating machinery by hand.

[Lance Cook]

because fewer people will be working on the rig floor

[Lance Cook]

and moving heavy equipment.

[Video footage]

Another person helps to lift equipment.

[Lance Cook]

Automation will also reduce the risk of human error.

[Video footage]

Close-up of hand on a computer mouse.

Computer screen with timers and boxes with numbers in.

[Lance Cook]

By the end of the decade, Shell intends to drill

[Video footage]

Close-up of drill.

[Lance Cook]

about 30,000 unconventional wells around the world,

[Video footage]

Computer screen showing drill going down.

[Lance Cook]

so this will have a tremendous impact.

[Video footage]

Drill rotating.

[Lance Cook]

Technology is not just about being new or expensive.

[Lance Cook]

It's about getting work done.

[Lance Cook]

Shell recognises that with current low natural gas prices,

[Lance Cook]

we would need to use a different business model.

[Lance Cook]

We also need to make technologies affordable,

[Lance Cook]

in order to make tight gas reservoirs economical to develop.

[Lance Cook]

As chief scientist, my greatest focus will be

[Video footage]

Lance looking at machinery.

[Lance Cook]

on getting these technologies implemented,

[Video footage]

People with red lab coats on working in laboratory.

[Lance Cook]

moving new ideas from the prototype stage into mature versions

[Video footage]

Close up of Shell logo on lab coat. Man working with a test tube with ‘sample’ written on it.

Hand pulling out a piece of equipment on a trolley.

[Lance Cook]

that we can replicate and deploy rapidly in the field.

[Video footage]

People in lab coats looking at machinery in lab.

Lance talking to people.

[Lance Cook]

Right now - in Wells, new technology

[Video footage]

Close-up of drip of liquid going into a bottle.

[Lance Cook]

might easily take eight to ten years to develop.

[Video footage]

Labelled digital displays with numbers on them.

[Lance Cook]

I want to cut that time in half.

[Lance Cook]

An example is what we're doing on the automation front.

[Video footage]

Man working at computer.

[Graphic]

Probe going through ground.

[Lance Cook]

The brain of the well manufacturing system

[Graphic]

Graphic of beneath earth’s surface. Probes being sent to a flashing spot marked in red.

[Lance Cook]

is our Supervisory Control and Data Acquisition drill software,

[Lance Cook]

which we call SCADAdrill.

[Lance Cook]

As it matures and proves itself,

[Graphic]

Camera zooms out to show signals being sent to a satellite in the air.

Small shot in the left-hand corner shows man working at computer while signals being sent.

[Lance Cook]

we need to have a robust approach

[Lance Cook]

for taking lessons learned from these experiences

[Graphic]

Close up of probe in ground.

[Lance Cook]

and integrating them into the next generation of SCADAdrill.

[Graphic]

Probe reaches the flashing red spot.

[Lance Cook]

We need to be able to do this quickly and across our global operations,

[Video footage]

Man working on a tablet computer outside at a site.

[Lance Cook]

but we don't have a good way of doing that now.

[Lance Cook]

Wouldn't it be great if when we come up with a new way of doing something,

[Video footage]

Two men looking at four computer screens in a lab.

[Lance Cook]

we could download it into all the rigs in our fleet?

[Video footage]

Panning over a drilling site.

[Lance Cook]

The same as when we log onto our Shell computer

[Lance Cook]

and get an automatic software update.

[Lance Cook]

Shell is the right company to make this happen.

[Lance Cook]

Innovation is part of our culture, and that culture is quite unique

[Video footage]

Close-up of laboratory equipment.

Two people working together on machinery in lab.

[Lance Cook]

compared to most other international oil companies.

[Video footage]

Man working in lab, turning a handle.

[Lance Cook]

Engineers here have a lot of freedom

[Video footage]

Two men in lab coats walking while talking and looking at clipboard.

[Lance Cook]

to come up with good ideas and experiment.

[Video footage]

Close-up of engineer working in lab.

[Lance Cook]

But it's not just people in the research lab who are innovating.

[Video footage]

Another engineer working in lab.

[Lance Cook]

People in the field are coming up with new ideas, too.

[Lance Cook]

The role of chief scientist

[Video footage]

Lance talking to another man in a lab.

[Lance Cook]

in the Technology group is to identify those ideas

[Video footage]

Engineer pulling out a drawer with lab equipment on.

[Lance Cook]

that could have widespread impact

[Lance Cook]

and help get them out into the world. �

[Graphic]

Black and white photo of Lance smiling.

[Graphic]

Shell logo on white background.