**ROSETTA LANDER SCIENCE A-ROLL VT – FINAL**

TAPE STARTS: 10:00:00

A-ROLL STARTS: 10:00:10

10:00:10

[ROSETTA ORBITER ANIMATION]

As the Rosetta orbiter continues its science mission, the lander’s future is less certain.

10:00:17

[ROSETTA LANDER ANIMATION]

Although Philae recently sent signals from the comet, it’s unknown if there will be any more science ahead for its ten instruments.

10:00:25

[ROLIS CAMERA COPY CLOSE UP]

This camera is exactly the same as one of them – the Rosetta Lander Imaging System – or ROLIS. Located beneath the lander,

10:00:34

[LANDER DESCENT IMAGES TO COMET, TAKEN BY ROLIS]

it took the descent images to the comet in November and now has a birds-eye view of the comet surface.

10:00:41

[INSET CLIP: STEFANO MOTTOLA, PRINCIPAL INVESTIGATOR ROLIS CAMERA]

“*What we saw from ROLIS is that we have a surface covered with gravel. We thought we would see fine dust but we didn’t see any so it was a surprise to us. And this will help us understand what mechanisms are at work on the comet and now we will have to figure out where these pebbles that are on the surface come from.*

10:01:05

[EXTERIOR SHOTS AT DLR]

The ROLIS copy is at the German space agency, DLR, in Berlin.

10:01:11

[IVANKA PELIVAN SET UP SHOTS – DLR BERLIN FILMING]

It’s located in this clean room, where operations engineer Ivanka Pelivan generates and tests the telecommands that are sent to the orbiter and then relayed to the camera on board the lander on the comet.

10:01:23

[ROLIS CAMERA LIGHT SEQUENCE]

An array of four types of monochromatic light illuminates the surface - blue … green… red… and infrared, which is invisible. Each light is a different wavelength and provides different spectral information about the surface.

The lens opens to produce very sharp pictures in the near field – about 30cms away. With the lens on we get clear images further away. If Philae ever does fully wake up, telecommands can be sent to ROLIS to work under multiple conditions.

10:01:59

[INSET CLIP: IVANKA PELIVAN, DLR]

“*It will continue working on characterising the surface of the comet. There’s the plan to rotate the lander and then we will gain more information of the neighbouring parts of the surface. The plan is to have a ROLIS image every time the lander does a rotation.”*

10:02:20

[COMET IMAGES]

Data from all Philae’s instruments has informed the work of the other scientific teams. Rosetta scientists have analysed grains from the comet and discovered that it contains carbon rich molecules from the early formation of our solar system.

10:02:36

[INSET CLIP: JEAN-PIERRE BIBRING, CO-PRINCIPAL INVESTIGATOR PHILAE LANDER]

*“These grains are really the complex molecules, that have been then put in the planetary oceans and probably played a critical role for the emergence of life.”*

10:02:46

[PHILAE’S LANDING TRAJECTORY AND PHILAE ANIMATION]

The lander’s unexpected bounces on landing caused some teams a few headaches. Close up images from ROLIS showed the lander was probably tilted upwards, which explains why a fully extended drill couldn’t deliver a soil sample to the COSAC instrument. Fortunately, COSAC worked perfectly and could analyse dust samples as planned.

10:03:08

[EXT. GVS MAX PLANCK INSTITUTE FOR SOLAR SYSTEM RESEARCH, INT. GVS COSAC LABORATORY AND DUST CLOUD LANDING IMAGE]

At the Max Planck Institute for Solar System Research in Germany there’s a flight replica of the COSAC instrument inside this vacuum chamber. COSAC has already detected over a dozen molecules containing carbon, hydrogen, nitrogen and oxygen from the dust cloud kicked up from landing.

10:03:28

[INSET CLIP: FRED GOESMANN, PRINCIPAL INVESTIGATOR COSAC]

“*A sample would have been great but then again the whole sequence worked. After 10 years in flight the whole instrument behaved as it should have done. So everything which was under our influence, what we built, what we did, what we planned, programmed, tested, did work. It’s just that the comet wasn’t quite as cooperative as we would have hoped.”*

10:03:48

[ROSETTA ORBITER ANIMATIONS AND COMET STILLS]

The mission team will continue trying to obtain science from the lander as the orbiter makes new observations of the comet. Now the Rosetta mission has been extended by nine months until September 2016, the orbiter can also witness the comet’s declining activity as it moves away from the Sun after perihelion in August. This will give an even greater understanding of how comets evolve during their lifetime.

[ENDS AT 10:04:16]

**Rosetta science lander B-Roll**

10:04:16

IVANKA PELIVAN, Operations Engineer, DLR, the German Space Agency, (English)

*“Recently I’ve prepared 17 telecommands for all kinds of different conditions, different illumination conditions and different power conditions. Maybe we don’t have enough power to run the whole sequence, maybe we just have enough power to run one sequence, one colour for example, but right now it looks pretty good that we can execute the whole thing.”*

*“The camera was developed for space but there’s a spin off. It’s been used, or it’s used to detect fires all around Berlin and Brandberg, it’s wide coverage and also other countries, Spain. I think it’s also now in Australia. Yes it’s a pretty good use on Earth as well.”*

10:05:12

FRED GOESMANN, COSAC Principal Investigator, COSAC, Max Planck Insitute for solar system research,in Goettingen, Germany (GERMAN)

A soundbite in German explaining how he felt on hearing about Philae sending a signal after hibernation and whether it could affect the COSAC instrument on the lander.

10:06:31

DLR BERLIN, EXTERIOR GVs

Exterior shots of the German Space Agency, DLR, in Berlin.

10:07:07

ROLIS CAMERA GVS, DLR Berlin

A sequence of lights from a copy of the ROLIS camera, which is on board the Philae lander, illuminating a small rock at the ROLIS laboratory at the German Space Agency, DLR, in Berlin.. Set up shots showing Ivanka Pelivan... and a copy of the ROLIS camera that is used t.... Shows sequence of lights.... Filmed at

10:10:30

MAX PLANCK INSTITUTE FOR SOLAR SYSTEM RESEARCH, GOETTINGEN, GERMANY

Exterior GVs of the Max Planck Institute for Solar System Research in Goettingen, Germany. Also interior shots in a laboratory with Fred Goesmann where a copy of the

COSAC instrument is inside a vacuum chamber.

PHILAE AND ROSETTA ANIMATIONS

Animations of the Philae lander on the surface of the comet and the Rosetta orbiter.

END : 10:12:29