



EAST



RION

1  
00:00:04,820 --> 00:00:02,810  
while the expedition 40 crew members

2  
00:00:06,110 --> 00:00:04,830  
continue to work throughout their busy

3  
00:00:09,230 --> 00:00:06,120  
work days they'll aboard the space

4  
00:00:11,810 --> 00:00:09,240  
station will take some time to look at

5  
00:00:14,270 --> 00:00:11,820  
another vehicle NASA is getting ready to

6  
00:00:16,369 --> 00:00:14,280  
launch its new human spacecraft Orion

7  
00:00:18,560 --> 00:00:16,379  
into space for the first time in

8  
00:00:20,179 --> 00:00:18,570  
December getting around into space is

9  
00:00:22,749 --> 00:00:20,189  
only a part of the mission just as

10  
00:00:26,540 --> 00:00:22,759  
important is getting Orion safely home

11  
00:00:28,220 --> 00:00:26,550  
Orion will travel 3,600 miles into space

12  
00:00:30,380 --> 00:00:28,230  
before we entering the Earth's

13  
00:00:33,320 --> 00:00:30,390

atmosphere and splashing down into this

14

00:00:36,170 --> 00:00:33,330

Pacific Ocean we're a team of NASA and

15

00:00:38,120 --> 00:00:36,180

US Navy technician and engineers will be

16

00:00:40,070 --> 00:00:38,130

waiting to retrieve it some of the

17

00:00:41,780 --> 00:00:40,080

members of that team were here at the

18

00:00:43,790 --> 00:00:41,790

Johnson Space Center just last week

19

00:00:46,640 --> 00:00:43,800

testing out techniques for the retrieval

20

00:00:48,440 --> 00:00:46,650

and my colleague brandy dean went out to

21

00:00:52,310 --> 00:00:48,450

the neutral buoyancy lab to talk to them

22

00:00:54,950 --> 00:00:52,320

we'll listen to this now this is tim

23

00:00:56,540 --> 00:00:54,960

daughter he's the dive manager here at

24

00:00:57,800 --> 00:00:56,550

the neutral buoyancy laboratory and he's

25

00:00:59,720 --> 00:00:57,810

going to tell us a little bit about the

26

00:01:01,610 --> 00:00:59,730

recovery plans for Orion thanks for

27

00:01:03,200 --> 00:01:01,620

joining us Tim and welcome so since the

28

00:01:06,020 --> 00:01:03,210

last time you guys came out to visit

29

00:01:08,210 --> 00:01:06,030

we've been to see during that evolution

30

00:01:10,100 --> 00:01:08,220

of at sea trials we experienced a

31

00:01:12,350 --> 00:01:10,110

rougher than expected sea conditions

32

00:01:14,300 --> 00:01:12,360

inside the well deck out it you know

33

00:01:16,610 --> 00:01:14,310

outside the well deck it was a sea state

34

00:01:18,410 --> 00:01:16,620

one nice calm glassy we should probably

35

00:01:20,990 --> 00:01:18,420

I'm sorry pause and described with the

36

00:01:23,440 --> 00:01:21,000

well deck it okay so we are doing well

37

00:01:26,180 --> 00:01:23,450

debt recovery that's on an LPD class

38

00:01:28,250 --> 00:01:26,190

amphibious ship the well deck is the

39

00:01:30,649 --> 00:01:28,260

submersible area where they bring in elk

40

00:01:32,240 --> 00:01:30,659

acts the air-cushion vehicles or the

41

00:01:34,550 --> 00:01:32,250

landing craft they'll bring them in and

42

00:01:35,960 --> 00:01:34,560

out of the vessel you know the well deck

43

00:01:37,969 --> 00:01:35,970

is can go up to about eight or nine or

44

00:01:39,380 --> 00:01:37,979

ten feet so we're gonna do the same

45

00:01:41,360 --> 00:01:39,390

thing we're bringing the capsule inside

46

00:01:42,890 --> 00:01:41,370

of that while it's submerged we're

47

00:01:45,289 --> 00:01:42,900

controlling it by tending the whole time

48

00:01:46,880 --> 00:01:45,299

and then we'll ballast bring the

49

00:01:48,500 --> 00:01:46,890

well deck up and set it down inside of a

50

00:01:50,210 --> 00:01:48,510

cradle what we realize that what the

51  
00:01:52,190 --> 00:01:50,220  
Navy didn't know and we didn't know was

52  
00:01:54,350 --> 00:01:52,200  
even in a calm sea state if we have the

53  
00:01:55,760 --> 00:01:54,360  
right wave period the wave starts

54  
00:01:58,100 --> 00:01:55,770  
pitching the ship starts pitching and

55  
00:01:59,570 --> 00:01:58,110  
that becomes a chaotic effect inside the

56  
00:02:01,490 --> 00:01:59,580  
well deck okay so everything that you're

57  
00:02:03,890 --> 00:02:01,500  
going to see today is to mitigate out

58  
00:02:05,810 --> 00:02:03,900  
all of the the loads that were greater

59  
00:02:06,980 --> 00:02:05,820  
than expected the last series okay and

60  
00:02:08,149 --> 00:02:06,990  
you've got a couple of different things

61  
00:02:09,649 --> 00:02:08,159  
you're trying for them all right what

62  
00:02:10,849 --> 00:02:09,659  
are they what'd you see back here is a

63  
00:02:13,210 --> 00:02:10,859

slick capsule right now we're going to

64

00:02:15,520 --> 00:02:13,220

go right into Plan B are lifting it

65

00:02:16,750 --> 00:02:15,530

sighs I innovate we cannot do a well

66

00:02:18,790 --> 00:02:16,760

debt recovery we're going to use

67

00:02:20,380 --> 00:02:18,800

different classes of ships to use a

68

00:02:22,510 --> 00:02:20,390

knuckle boom crane to come over and just

69

00:02:24,820 --> 00:02:22,520

do a standard lift at sea so we'll pick

70

00:02:26,380 --> 00:02:24,830

the cradle otra castle up get it over

71

00:02:27,670 --> 00:02:26,390

some point of the ship and then set it

72

00:02:29,650 --> 00:02:27,680

down and its cradle all in a dry

73

00:02:31,120 --> 00:02:29,660

environment okay but to do that it

74

00:02:32,980 --> 00:02:31,130

requires the divers to go out in small

75

00:02:35,110 --> 00:02:32,990

boats attach a bunch of different lines

76  
00:02:37,180 --> 00:02:35,120  
and get them all wait you know ran the

77  
00:02:39,040 --> 00:02:37,190  
right way before they bring it up before

78  
00:02:40,360 --> 00:02:39,050  
the ship's comes along the side and then

79  
00:02:41,620 --> 00:02:40,370  
find the ship will drop its crane down

80  
00:02:43,810 --> 00:02:41,630  
which we're going to simulate with our

81  
00:02:45,610 --> 00:02:43,820  
overhead crane and then they'll hook up

82  
00:02:47,620 --> 00:02:45,620  
divers will back up they'll pick it up

83  
00:02:49,780 --> 00:02:47,630  
and then set it down in the ship okay so

84  
00:02:50,920 --> 00:02:49,790  
this is a plan B if we don't if we're

85  
00:02:52,540 --> 00:02:50,930  
not able to bring it into the well deck

86  
00:02:54,010 --> 00:02:52,550  
like we talked about this is another

87  
00:02:55,240 --> 00:02:54,020  
option this is another outfit I guess

88  
00:02:56,770 --> 00:02:55,250

we're going to try out I guess at the

89

00:02:58,930 --> 00:02:56,780

end of the month on our next recovery

90

00:03:00,760 --> 00:02:58,940

test in the ocean off the coast of

91

00:03:01,990 --> 00:03:00,770

California that's correct starting at

92

00:03:03,970 --> 00:03:02,000

the beginning of august or the end of

93

00:03:06,010 --> 00:03:03,980

july we're going to be out in san diego

94

00:03:07,449 --> 00:03:06,020

someone again we're most likely we're

95

00:03:09,970 --> 00:03:07,459

gonna be on the leeward side of San

96

00:03:12,100 --> 00:03:09,980

Clemente or one of the other Catalina

97

00:03:13,540 --> 00:03:12,110

Island out there it's in a protected

98

00:03:15,400 --> 00:03:13,550

area we can get the sea state we want

99

00:03:16,360 --> 00:03:15,410

and we can try the well deck recovery

100

00:03:17,830 --> 00:03:16,370

options again what we're going to do

101

00:03:20,259 --> 00:03:17,840

later which you can't really see here

102

00:03:21,640 --> 00:03:20,269

but I have a horse-collar system what

103

00:03:24,190 --> 00:03:21,650

that allows us to do is spread the load

104

00:03:27,160 --> 00:03:24,200

path out on tending and towing and

105

00:03:28,840 --> 00:03:27,170

handling the capsule in general what it

106

00:03:30,610 --> 00:03:28,850

does last time we had some point loading

107

00:03:32,620 --> 00:03:30,620

that we were breaking some straps which

108

00:03:35,320 --> 00:03:32,630

were designed to fail but the greater

109

00:03:36,880 --> 00:03:35,330

than expected load were mitigating that

110

00:03:38,320 --> 00:03:36,890

by spreading that load path all the way

111

00:03:41,290 --> 00:03:38,330

around the scum person capitalist oh

112

00:03:42,820 --> 00:03:41,300

okay well so you've been practicing for

113

00:03:44,759 --> 00:03:42,830

a little while I think it kind of on and

114

00:03:47,860 --> 00:03:44,769

off this week and how is it going so far

115

00:03:50,500 --> 00:03:47,870

we made a lot of progress on on Tuesday

116

00:03:51,850 --> 00:03:50,510

and yesterday we went back to the

117

00:03:53,350 --> 00:03:51,860

drawing boards and made a lot of

118

00:03:55,300 --> 00:03:53,360

engineering changes and then we're back

119

00:03:57,729 --> 00:03:55,310

going final changes before we go out to

120

00:03:58,930 --> 00:03:57,739

San Diego for the test run next month we

121

00:04:01,090 --> 00:03:58,940

also have the Navy divers in the

122

00:04:03,070 --> 00:04:01,100

facility about a month ago looking at

123

00:04:04,509 --> 00:04:03,080

this from there from what they saw of

124

00:04:07,270 --> 00:04:04,519

our initial designs which we came up

125

00:04:09,100 --> 00:04:07,280

with a KSC at a group meeting that was

126

00:04:12,009 --> 00:04:09,110

our version 1 this is version 2 point 0

127

00:04:13,390 --> 00:04:12,019

on all of our hardware okay well so you

128

00:04:15,250 --> 00:04:13,400

think we're ready to go back out to the

129

00:04:16,690 --> 00:04:15,260

ocean I think we're ready the Navy has

130

00:04:17,920 --> 00:04:16,700

bought off and what we're doing we made

131

00:04:19,750 --> 00:04:17,930

a lot of good changes we're going to do

132

00:04:21,670 --> 00:04:19,760

tweaks of final stuff in the next couple

133

00:04:23,469 --> 00:04:21,680

days we're going to take it out to San

134

00:04:25,030 --> 00:04:23,479

Diego and do some fit check next next

135

00:04:26,800 --> 00:04:25,040

week in a dry environment

136

00:04:28,720 --> 00:04:26,810

they're all supporting operation REM

137

00:04:30,370 --> 00:04:28,730

pack in San Diego right now the ship

138

00:04:32,070 --> 00:04:30,380

will come in and divers will come in

139

00:04:34,630 --> 00:04:32,080

will do a great meeting group meeting

140

00:04:35,830 --> 00:04:34,640

run through it all on a dry dive again

141

00:04:37,750 --> 00:04:35,840

and then finally go out to sea and

142

00:04:39,280 --> 00:04:37,760

practice it one more time all right well

143

00:04:41,620 --> 00:04:39,290

I think we'll look forward to hearing