



1
00:00:03,470 --> 00:00:05,670
GOOD MORNING, EVERYONE.
MY NAME IS MIKE DUNCAN.

2
00:00:05,670 --> 00:00:09,500
I WANTED TO GIVE YOU A LITTLE
BIT OF A TRAVEL LOG TODAY AND A

3
00:00:09,500 --> 00:00:15,110
LITTLE BIT OF SOME OF THE
BEHIND-THE-SCENES INSIGHT INTO

4
00:00:15,110 --> 00:00:18,660
OUR EXPERIENCE WITH THE CHILEAN
MINER RESCUE.

5
00:00:18,660 --> 00:00:19,971
IF I COULD HAVE THE FIRST SLIDE,
PLEASE.

6
00:00:19,971 --> 00:00:27,989
OF COURSE, OUR RELATIONSHIP WITH
THE CHILEANS BEGAN WITH OUR

7
00:00:27,989 --> 00:00:31,199
ASSOCIATION IN THE UNITED
NATIONS COMMITTEE ON THE

8
00:00:31,199 --> 00:00:35,090
PEACEFUL USES OF OUTER SPACE.
AND BACK IN JUNE OF THIS YEAR, A

9
00:00:35,090 --> 00:00:40,550
DELEGATION HEADED BY DEPUTY
ADMINISTRATOR GARVER AS WELL AS

10
00:00:40,550 --> 00:00:43,960
OTHER REPRESENTATIVES INCLUDING
DOUG COMSTOCK FROM THE

11
00:00:43,960 --> 00:00:49,210
INNOVATIVE PARTNERSHIPS PROGRAM
AND AL CONDES FROM THE

12
00:00:49,210 --> 00:00:56,700
INTERAGENCY RELATIONS AND OTHERS
WENT TO PARTICIPATE IN THIS

13
00:00:56,700 --> 00:01:00,000
COMMITTEE MEETING.
AND IT WAS DURING THAT TIME THAT

14
00:01:00,000 --> 00:01:03,700
THE CHILEAN REPRESENTATIVES FROM
THE CHILEAN SPACE AGENCY AND

15
00:01:03,700 --> 00:01:09,930
THEIR GOVERNMENT MET OUR AGENCY
OFFICIALS AND DEVELOPED A

16
00:01:09,930 --> 00:01:13,240
RELATIONSHIP THAT THE CHILEANS
DID NOT FORGET.

17
00:01:13,240 --> 00:01:19,360
AND WHEN THE MINING ACCIDENT
OCCURRED, AND THE MINERS WERE

18
00:01:19,360 --> 00:01:24,490
FOUND ALIVE ON THE 22nd OF
AUGUST, THE CHILEANS WROTE

19
00:01:24,490 --> 00:01:30,590
DEPUTY ADMINISTRATOR GARVER ON
THE 23rd OF AUGUST AND ASKED FOR

20
00:01:30,590 --> 00:01:33,590
OUR ASSISTANCE.
THINGS PROGRESSED RAPIDLY.

21
00:01:33,590 --> 00:01:39,479
AND AL CONDES WOULD TELL YOU
THAT ALL THE INTERACTIONS THAT

22
00:01:39,479 --> 00:01:43,090
WERE GOING ON BEHIND THE SCENES
BETWEEN THE CHILEANS, OUR AGENCY

23
00:01:43,090 --> 00:01:47,700
AND THE STATE DEPARTMENT, HE
COULD FILL 45 MINUTES OF TODAY'S

24
00:01:47,700 --> 00:01:52,479
PRESENTATION ALONE JUST IN ALL
THE THINGS THAT NEEDED TO BE

25
00:01:52,479 --> 00:01:57,549
OUTLINED TO GET US TO CHILE.
BUT FROM OUR STANDPOINT, THE

26
00:01:57,549 --> 00:02:02,150
TEAM MEMBERS' STANDPOINT, THAT
WAS ALL TRANSPARENT TO US.

27
00:02:02,150 --> 00:02:06,590
ON THE 25th OF AUGUST, WE WERE
ABLE TO HAVE OUR FIRST

28
00:02:06,590 --> 00:02:09,340
TELECONFERENCE WITH THE CHILEAN
MINISTER OF HEALTH.

29
00:02:09,340 --> 00:02:15,860
AND THEN THE 27th OF AUGUST, THE
CHILEAN AMBASSADOR CALLED UPON

30
00:02:15,860 --> 00:02:18,650
GENERAL BOLDEN HERE AT NASA
HEADQUARTERS.

31
00:02:18,650 --> 00:02:24,970
AND FROM THAT -- FROM THAT
MOMENT, WE WERE ON OUR WAY TO

32
00:02:24,970 --> 00:02:29,700
CHILE TO ASSESS THE SITUATION
AND OFFER ANY HELP THAT WE MIGHT

33
00:02:29,700 --> 00:02:35,310
BE ABLE TO HAVE.
NEXT SLIDE, PLEASE.

34
00:02:35,310 --> 00:02:38,870
SO HERE'S JUST A COPY OF THE
LETTER OF THANKS THAT THE

35
00:02:38,870 --> 00:02:43,010
CHILEAN AMBASSADOR WROTE TO
GENERAL BOLDEN THE DAY THAT HE

36
00:02:43,010 --> 00:02:45,120
MET WITH HIM HERE AT NASA
HEADQUARTERS.

37
00:02:45,120 --> 00:02:53,319
AND WITH THAT INCLUDED A MEMO
FROM THE MINISTER OF HEALTH

38
00:02:53,319 --> 00:02:58,569
OUTLINING SOME OF THE QUESTIONS
THAT THE CHILEANS WANTED US TO

39
00:02:58,569 --> 00:03:03,190
CONSIDER, THAT OF MEDICAL CARE
AND FOR LONG DURATION

40
00:03:03,190 --> 00:03:08,140
CONFINEMENT, IN PARTICULAR, THE
PSYCHOLOGICAL SUPPORT THAT MIGHT

41
00:03:08,140 --> 00:03:10,670
BE NECESSARY.
IT WAS VERY IMPORTANT FOR THEM

42
00:03:10,670 --> 00:03:16,920
ALSO TO UNDERSTAND ANY REFEEDING
ISSUES THAT THE MINERS MIGHT

43
00:03:16,920 --> 00:03:18,940
HAVE.
AND THEN, OF COURSE, THEY WERE

44
00:03:18,940 --> 00:03:23,760
INTERESTED IN ANY PARTICULAR
ENGINEERING ASPECTS THAT WE

45
00:03:23,760 --> 00:03:27,390
MIGHT HAVE TO SUGGEST.
BUT PRIMARILY, THEIR INTEREST

46
00:03:27,390 --> 00:03:30,069
WAS FROM A MEDICAL AND
PSYCHOLOGICAL SUPPORT

47
00:03:30,069 --> 00:03:33,650
STANDPOINT.
NEXT SLIDE, PLEASE.

48
00:03:33,650 --> 00:03:37,580
SO BY THE 31st OF AUGUST, WE
WERE IN SANTIAGO.

49
00:03:37,580 --> 00:03:42,540
THIS IS ONE OF MY FIRST
TAKE-HOME MESSAGES FROM MYSELF

50
00:03:42,540 --> 00:03:46,250
IN THAT YOU NEVER LINE UP BEHIND
ALL OF THE MICROPHONES THAT ARE

51
00:03:46,250 --> 00:03:48,800
DISPLAYED OUT IN FRONT OF YOU ON
THE TABLE.

52
00:03:48,800 --> 00:03:52,700
MY TEAM MEMBERS WERE MUCH
SMARTER THAN I WAS AT THAT

53
00:03:52,700 --> 00:03:57,650
POINT.
TO MY LEFT IN THAT SLIDE, THE

54
00:03:57,650 --> 00:04:01,220
MINING MINISTER, GOLDBURN, CAN
BE SEEN.

55
00:04:01,220 --> 00:04:07,210
TO MY RIGHT IS MINISTER
MANALICH WHO WAS MINISTER OF

56
00:04:07,210 --> 00:04:11,790
HEALTH.
IN THE FAR LEFT IN THE SLIDE IN

57
00:04:11,790 --> 00:04:18,069
THE RED TIE IS THE EXECUTIVE
SECRETARY OF THE CHILEAN SPACE

58
00:04:18,069 --> 00:04:19,959
AGENCY.
THIS IS PROBABLY A GOOD TIME FOR

59
00:04:19,959 --> 00:04:24,880
ME TO INTRODUCE THE OTHER
MEMBERS OF MY TEAM.

60
00:04:24,880 --> 00:04:30,419
DR. J.D. POLK ON THE FAR RIGHT
OF THE SLIDE WITH THE BEARD, HE

61
00:04:30,419 --> 00:04:33,000
KIND OF WENT NATIVE ON US WITH
THAT BEARD.

62
00:04:33,000 --> 00:04:37,229
HE LOOKED QUITE NATIVE AND
ACTUALLY FOLKS WOULD COME UP TO

63
00:04:37,229 --> 00:04:41,031
HIM AND ASK HIM QUESTIONS IN
SPANISH WHICH, OF COURSE, HE HAD

64
00:04:41,031 --> 00:04:49,910
TO DEFER.
MR. AL HOLLAND IS TO THE LEFT

65
00:04:49,910 --> 00:04:51,590
OF THE SCREEN, SECOND FROM THE
LEFT.

66
00:04:51,590 --> 00:04:56,020
HE'S AN OPERATIONAL PSYCHOLOGIST
WITH A LOT OF EXPERIENCE AND

67
00:04:56,020 --> 00:05:01,180
LONG DURATION SPACE FLIGHT
DATING BACK TO THE MIR DAYS AND

68
00:05:01,180 --> 00:05:04,560
CONTINUING ON THE INTERNATIONAL
SPACE STATION.

69
00:05:04,560 --> 00:05:07,850
THIRD FROM THE LEFT IS MR. CLINT
CRAIG.

70
00:05:07,850 --> 00:05:13,440
HE'S THE PRINCIPAL ENGINEER FROM
THE NASA ENGINEERING AND SAFETY

71
00:05:13,440 --> 00:05:17,360
CENTER DOWN IN HAMPTON,
VIRGINIA.

72
00:05:17,360 --> 00:05:22,490
I HAD NOT MET CLINT UNTIL WE ALL
COLLECTED AT THE AIRPORT IN

73
00:05:22,490 --> 00:05:26,250
HOUSTON, GETTING READY FOR OUR
FLIGHT DOWN TO LIMA AND THEN ON

74
00:05:26,250 --> 00:05:31,870
TO SANTIAGO.
SO I INTRODUCED MYSELF, THAT I

75
00:05:31,870 --> 00:05:34,930
HAD AN UNDERGRADUATE DEGREE IN
NUCLEAR ENGINEERING, THEN WENT

76
00:05:34,930 --> 00:05:38,210
ON TO MEDICAL SCHOOL AND SPENT
EIGHT YEARS IN THE NAVY.

77
00:05:38,210 --> 00:05:44,960
HE, OF COURSE, WAS A SUBMARINE
COMMANDER, SPENT 26 YEARS IN THE

78
00:05:44,960 --> 00:05:48,820
NAVY, WAS CAPTAIN OF THE TRIDENT
SUBMARINE, A LOT OF EXPERIENCE

79
00:05:48,820 --> 00:05:52,389
IN NUCLEAR POWER.
AND SO WE EXCHANGED PLEASANTRIES

80
00:05:52,389 --> 00:05:54,200
IN THE AIRPORT.
AND ONE OF THE FIRST QUESTIONS

81
00:05:54,200 --> 00:05:58,509
THAT CLINT ASKED ME WAS, DID I
REMEMBER THE SIX-FACTOR FORMULA

82
00:05:58,509 --> 00:06:02,210
FOR NUCLEAR REACTOR DESIGN AND
NEUTRON EFFICIENCY?

83
00:06:02,210 --> 00:06:07,430
AND I MUST ADMIT THAT MY
ENGINEERING DAYS WERE LONG AGO.

84
00:06:07,430 --> 00:06:11,260
AND I DIDN'T QUITE REMEMBER THE
SIX-FACTOR FORMULA.

85
00:06:11,260 --> 00:06:15,970
SO CLINT REMINDED ME OF THAT
FORMULA.

86
00:06:15,970 --> 00:06:18,620
AND THERE IT IS IF ANYBODY IN
THE AUDIENCE IS PARTICULARLY

87
00:06:18,620 --> 00:06:22,759
INTERESTED.
CLINT IS THE CONSUMMATE ENGINEER

88
00:06:22,759 --> 00:06:26,470
AND WAS A GREAT REPRESENTATIVE
OF THE ENGINEERING COMMUNITY

89
00:06:26,470 --> 00:06:29,750
WHILE WE WENT TO CHILE.
AND, OF COURSE, WHEN HE CAME

90
00:06:29,750 --> 00:06:34,070
BACK, HE WAS VERY INSTRUMENTAL
IN GETTING THE TECHNICAL FELLOWS

91
00:06:34,070 --> 00:06:39,590
TOGETHER FROM THE NASC TO HELP
WITH SOME OF THE RECOMMENDATIONS

92
00:06:39,590 --> 00:06:41,970
FOR DESIGN OF THE EXTRACTION
VEHICLE.

93
00:06:41,970 --> 00:06:47,180
NEXT SLIDE, PLEASE.
SO WHILE WE WERE AT THE MINISTER

94
00:06:47,180 --> 00:06:50,850
OF MINING'S OFFICES THAT FIRST
DAY, WE GOT A VERY GOOD BRIEF

95
00:06:50,850 --> 00:06:52,720
ABOUT THE SITUATION OF THE
MINERS.

96
00:06:52,720 --> 00:06:57,660
OF COURSE, THE MINERS WERE
TRAPPED 2,200 FEET UNDERGROUND.

97
00:06:57,660 --> 00:07:01,319
THEY ACTUALLY WERE SLIGHTLY
ABOVE SEA LEVEL BECAUSE THE

98
00:07:01,319 --> 00:07:06,560
MINING ENTRANCE WAS AT ABOUT 800
METERS ABOVE GROUND.

99
00:07:06,560 --> 00:07:14,080
BUT WHAT HAD HAPPENED WAS -- AND
YOU CAN SEE IT ON THE SLIDE -- A

100
00:07:14,080 --> 00:07:18,289
700,000-TON -- WHAT THEY CALLED
MEGABLOCK.

101

00:07:18,289 --> 00:07:22,770

I'M NOT QUITE SURE THAT THAT
REALLY DESCRIBED HOW BIG THIS

102

00:07:22,770 --> 00:07:26,419

ROCK COULD BE.
BUT IT ACTUALLY HAD SHIFTED OVER

103

00:07:26,419 --> 00:07:30,930

THE COURSE OF THE 100-PLUS YEARS
THAT THE MINE HAD BEEN IN

104

00:07:30,930 --> 00:07:33,360

OPERATION.
THEY HAD DONE A LOT OF

105

00:07:33,360 --> 00:07:36,699

EXCAVATION AND HAD BEEN WORKING
AROUND THIS MEGABLOCK.

106

00:07:36,699 --> 00:07:42,289

AND ACTUALLY, THE SUPPORT OF
THAT MEGABLOCK HAD BEEN

107

00:07:42,289 --> 00:07:45,789

EXCAVATED AWAY.
AND IT WAS JUST THAT PARTICULAR

108

00:07:45,789 --> 00:07:49,681

DAY, IT SHIFTED.
FORTUNATELY, THE MINERS WERE

109

00:07:49,681 --> 00:07:56,690

DEEP IN THE MINE DOWN WHERE YOU
SEE THE MORE PINK COLORATION ON

110

00:07:56,690 --> 00:08:01,479

THAT SLIDE IN THE BLOCK IN THE
LOWER LEFT-HAND CORNER.

111

00:08:01,479 --> 00:08:05,420

THEY WERE ON A BREAK.

SOME OF THEIR COMPADRES HAD JUST

112

00:08:05,420 --> 00:08:09,200

LEFT DRIVING SOME SUPPLIES BACK

OUT OF THE MINE.

113

00:08:09,200 --> 00:08:15,080

THOSE INDIVIDUALS MADE IT OUT,

AND NOBODY WAS INJURED IN THE

114

00:08:15,080 --> 00:08:18,069

COURSE OF THE MINE COLLAPSE, OR

IN THE COURSE OF THAT MEGABLOCK

115

00:08:18,069 --> 00:08:22,780

SHIFT.

BUT IT DID CAUSE ALL ACCESS

116

00:08:22,780 --> 00:08:28,150

ROUTES OR ESCAPE ROUTES FOR THE

MINERS TO BE BLOCKED.

117

00:08:28,150 --> 00:08:34,829

THE MINERS ACTUALLY WERE ABLE TO

GO AND EXPLORE SOME OF THE --

118

00:08:34,829 --> 00:08:38,219

SOME OF THE TUNNELS.

YOU KNOW, WHEN WE FIRST HEARD

119

00:08:38,219 --> 00:08:41,649

ABOUT THIS, AND I HEARD ABOUT IT

PROBABLY JUST AS YOU ALL DID ON

120

00:08:41,649 --> 00:08:46,559

THE NEWS, WE HAD HEARD THAT 33

MEN WERE TRAPPED IN THE SIZE OF

121

00:08:46,559 --> 00:08:51,470

AN AVERAGE LIVING ROOM IN A HOME
HERE IN THE UNITED STATES.

122

00:08:51,470 --> 00:08:57,639

IT WASN'T EXACTLY TRUE.
OF COURSE, THE RESCUE CHAMBER

123

00:08:57,639 --> 00:09:00,970

WAS, THE EMERGENCY CHAMBER WAS,
THAT WAS A SMALL CONFINED AREA,

124

00:09:00,970 --> 00:09:06,000

BUT THEY ACTUALLY HAD ABOUT, OH,
TWO KILOMETERS OR TWO OF TUNNELS

125

00:09:06,000 --> 00:09:10,360

THAT THEY COULD GO AND MANEUVER
AROUND IN.

126

00:09:10,360 --> 00:09:14,720

AND THEY HAD ROOM TO MANEUVER
TRUCKS AND OTHER HEAVY

127

00:09:14,720 --> 00:09:17,339

EQUIPMENT.
SO IN THEIR EFFORTS TO TRY TO

128

00:09:17,339 --> 00:09:21,350

SAVE THEMSELVES, OVER THOSE
FIRST 17 DAYS, THEY ACTUALLY,

129

00:09:21,350 --> 00:09:25,850

YOU KNOW, TRIED TO GO THROUGH
ALL OF THE TUNNELS THAT THEY HAD

130

00:09:25,850 --> 00:09:29,220

ACCESS TO, TRIED TO FIND THE
ESCAPE ROUTES.

131

00:09:29,220 --> 00:09:33,850

AND THEY FOUND ONE PARTICULAR
TUNNEL WHERE THERE WASN'T MUCH

132

00:09:33,850 --> 00:09:37,959

DEBRIS, BUT THERE WAS A SHEER
ROCK FACE THAT THEY WERE -- THAT

133

00:09:37,959 --> 00:09:41,459

WAS BLOCKING THE TUNNEL.
THEY HAD THE PRESENCE OF MIND TO

134

00:09:41,459 --> 00:09:46,670

TAKE SOME RED SPRAY-PAINT AND
SPRAY THE TOP OF THE ROOF ON

135

00:09:46,670 --> 00:09:49,069

THAT ROCK AND THEN WENT BACK A
DAY OR SO LATER.

136

00:09:49,069 --> 00:09:53,180

AND THAT MEGABLOCK HAD SHIFTED
ANOTHER, YOU KNOW, COUPLE OF

137

00:09:53,180 --> 00:09:56,019

FEET DOWN.
SO THEY KNEW THAT IT WAS STILL A

138

00:09:56,019 --> 00:10:02,709

VERY DYNAMIC SITUATION.
AND THEY PROCEEDED TO DO WHAT IT

139

00:10:02,709 --> 00:10:06,970

TOOK TO SURVIVE.
THE RESCUE CHAMBERS, OF COURSE,

140

00:10:06,970 --> 00:10:10,069

HAD SOME FOOD SUPPLIES AND SOME
WATER.

141

00:10:10,069 --> 00:10:15,579

IT WAS CERTAINLY NOT ENOUGH TO
KEEP THE MEN WELL NOURISHED OR

142

00:10:15,579 --> 00:10:19,949

WELL HYDRATED FOR THE LENGTH OF
TIME THAT THEY WERE TRAPPED

143

00:10:19,949 --> 00:10:25,100

UNDERGROUND BEFORE BEING FOUND.
THE -- IN FACT, IT WAS ESTIMATED

144

00:10:25,100 --> 00:10:30,040

THAT THEY WERE TAKING IN ABOUT
MAYBE A TABLESPOON OR TWO OF

145

00:10:30,040 --> 00:10:34,649

TUNA EVERY OTHER DAY AND MAYBE
HAD A SLICED PEACH, CANNED

146

00:10:34,649 --> 00:10:39,119

PEACH, AND THEN THE WATER
SUPPLY, THEY WERE ABLE TO FIND

147

00:10:39,119 --> 00:10:43,240

SOME WATER WITHIN THE -- WITHIN
THE MINE ITSELF.

148

00:10:43,240 --> 00:10:48,649

THAT WAS SURPRISINGLY DRINKABLE.
YOU KNOW, THEY WERE ABLE TO THEN

149

00:10:48,649 --> 00:10:52,559

SUSTAIN THEMSELVES.
THEY DID SOME OTHER THINGS THAT

150

00:10:52,559 --> 00:10:55,489

WAS GREAT FROM OUR PERSPECTIVE
IN TERMS OF HOW A GROUP

151

00:10:55,489 --> 00:10:58,239

SURVIVES.

THEY ESTABLISHED A LEADER.

152

00:10:58,239 --> 00:11:02,379

THAT LEADER WAS ABLE TO MAINTAIN

CONTROL OF THE GROUP FOR THE

153

00:11:02,379 --> 00:11:04,980

MOST PART.

THEY ESTABLISHED A SPIRITUAL

154

00:11:04,980 --> 00:11:06,819

LEADER.

THEY IDENTIFIED SOMEBODY THAT

155

00:11:06,819 --> 00:11:10,209

HAD SOME MEDICAL BACKGROUND THAT

COULD DO SOME FIRST-AID-TYPE

156

00:11:10,209 --> 00:11:12,769

THINGS.

SO THEY HAD DONE A LOT FOR

157

00:11:12,769 --> 00:11:17,759

THEMSELVES IN THAT 17 DAYS TO

TRY TO ASSURE THEIR SURVIVAL.

158

00:11:17,759 --> 00:11:22,119

TOP SIDE, YOU CAN SEE -- MAYBE

NOT WELL DESCRIBED ON THIS

159

00:11:22,119 --> 00:11:26,339

SLIDE -- BUT THE TOP SIDE,

DURING THOSE 17 DAYS, THE

160

00:11:26,339 --> 00:11:32,739

CHILEANS ACTUALLY DRILLED 15

HOLES TO THAT DEPTH TRYING TO

161

00:11:32,739 --> 00:11:37,189

BREAK INTO A TUNNEL OR REFUGE.
AND EVENTUALLY THEY WERE

162

00:11:37,189 --> 00:11:43,119

SUCCESSFUL AND, OF COURSE, THE
MINERS WERE FOUND TO BE ALIVE ON

163

00:11:43,119 --> 00:11:48,809

AUGUST 22nd.
NEXT SLIDE, PLEASE.

164

00:11:48,809 --> 00:11:51,589

SO HERE ARE THE MINERS.
NOT ONLY DID WE GET A BRIEFING

165

00:11:51,589 --> 00:11:54,220

ON THE STATUS OF THE MINE
ITSELF, BUT WE GOT A HEALTH

166

00:11:54,220 --> 00:11:58,920

BRIEFING ON THE MINERS.
ONE OF THEM HAD DIABETES.

167

00:11:58,920 --> 00:12:03,769

ONE HAD HIGH BLOOD PRESSURE.
ANOTHER ONE HAD A RESPIRATORY

168

00:12:03,769 --> 00:12:07,730

CONDITION CALLED SILICOSIS FROM
BEING IN THE MINES.

169

00:12:07,730 --> 00:12:11,209

HE USED TO BE A MINER BUT WAS
JUST A TRUCK DRIVER TRAPPED ON

170

00:12:11,209 --> 00:12:14,170

THE WRONG SIDE OF THE COLLAPSE
THAT DAY.

171

00:12:14,170 --> 00:12:16,619

ALSO, ONE OF THESE INDIVIDUALS,
IT WAS THEIR FIRST DAY ON THE

172

00:12:16,619 --> 00:12:20,649

JOB.
SO IMAGINE WHAT HE WAS THINKING

173

00:12:20,649 --> 00:12:25,949

WHEN ALL THIS WAS TAKING PLACE.
NEXT SLIDE, PLEASE.

174

00:12:25,949 --> 00:12:29,170

SO ON THE 1st OF SEPTEMBER, WE
FLEW UP.

175

00:12:29,170 --> 00:12:33,809

THIS IS A PICTURE OF THE CHURCH
JUST OFF THE CENTRAL COURTYARD.

176

00:12:33,809 --> 00:12:37,589

WE CHECKED INTO OUR HOTEL.
AND THEN THEY IMMEDIATELY TOOK

177

00:12:37,589 --> 00:12:41,369

US ON UP TO THE MINE SITE.
NEXT SLIDE, PLEASE.

178

00:12:41,369 --> 00:12:44,529

SO HERE'S SOME SIGNAGE GOING
INTO THE MINE SITE.

179

00:12:44,529 --> 00:12:45,929

EVERYBODY HAD TO WEAR A HARD
HAT.

180

00:12:45,929 --> 00:12:50,410

EVERYBODY HAD TO WEAR STEEL-TOED
SHOES.

181

00:12:50,410 --> 00:12:54,739

IF YOU DIDN'T BRING THESE ALONG
WITH YOU, THEY WERE PROVIDING

182

00:12:54,739 --> 00:12:56,970

THEM FOR YOU WHILE YOU WERE AT
THE MINE SITE.

183

00:12:56,970 --> 00:13:00,199

NEXT SLIDE, PLEASE.
THERE WAS A LOT OF SECURITY.

184

00:13:00,199 --> 00:13:03,170

AND THESE GUYS LOOKED SERIOUS.
THERE WERE ABOUT FOUR

185

00:13:03,170 --> 00:13:08,839

CHECKPOINTS ON THE WAY OUT TO
THE MINE SITE ITSELF.

186

00:13:08,839 --> 00:13:15,049

IT TOOK ABOUT 45 MINUTES DRIVING
IN THE DESERT WHICH IS A VERY

187

00:13:15,049 --> 00:13:17,930

DESOLATE PLACE, BUT ALSO VERY
BEAUTIFUL BECAUSE THEY HAD HAD

188

00:13:17,930 --> 00:13:22,499

SOME RAINS.
AND THERE WAS SOME VERY SMALL

189

00:13:22,499 --> 00:13:26,239

PURPLISH AND YELLOW FLOWERS THAT
WERE IN BLOOM IN THE DESERT.

190

00:13:26,239 --> 00:13:28,670

SO IT WAS AN ENJOYABLE RIDE OUT
THERE.

191

00:13:28,670 --> 00:13:32,639

BUT AS YOU GOT CLOSER TO THE
MINE, YOU HAD TO GO THROUGH EACH

192

00:13:32,639 --> 00:13:36,180

SUCCESSIVE CHECKPOINT.
AND AS I SAID, THESE GENTLEMEN

193

00:13:36,180 --> 00:13:39,170

WERE VERY SERIOUS.
SOMEHOW OR ANOTHER, AS SOON AS

194

00:13:39,170 --> 00:13:42,660

THE DRIVER SAID NASA, THE GATES
OPENED.

195

00:13:42,660 --> 00:13:47,139

AND WE WERE ABLE TO MOVE ON TO
THE NEXT DESTINATION.

196

00:13:47,139 --> 00:13:52,040

EVENTUALLY, YOU GOT INTO THE
CENTRAL AREA WHERE THE WORK WAS

197

00:13:52,040 --> 00:13:56,739

BEING DONE.
AND THE GUARDS WERE TRYING TO

198

00:13:56,739 --> 00:14:02,430

KEEP EVERYBODY AWAY FROM ALL THE
DRILLING ACTIVITIES THAT WERE

199

00:14:02,430 --> 00:14:05,259

PRESENT.
NEXT SLIDE, PLEASE.

200

00:14:05,259 --> 00:14:10,249

ONE OF THE FIRST THINGS THAT
IMPRESSED US IS THE SPIRIT OF

201

00:14:10,249 --> 00:14:14,189

THE PEOPLE.

AND ONE OF THE THINGS THAT THE

202

00:14:14,189 --> 00:14:18,279

FAMILIES HAD DONE WAS PUT OUT A

FLAG FOR EACH OF THE MINERS.

203

00:14:18,279 --> 00:14:24,459

THERE WERE 32 CHILEAN FLAGS AND

ONE BOLIVIAN FLAG FOR ALL THE

204

00:14:24,459 --> 00:14:28,069

MINERS THAT WERE TRAPPED

UNDERGROUND.

205

00:14:28,069 --> 00:14:33,569

NEXT SLIDE.

THIS IS AN OVERVIEW OF THE MINE

206

00:14:33,569 --> 00:14:39,179

SITE.

I'M STANDING ON THE TOP WHERE

207

00:14:39,179 --> 00:14:43,899

ONE OF THE DRILLING RIGS WAS AND

LOOKING DOWN.

208

00:14:43,899 --> 00:14:46,769

YOU CAN SEE HOW DESOLATE AN AREA

THIS WAS.

209

00:14:46,769 --> 00:14:51,059

NEXT SLIDE, PLEASE.

SO TO THE RIGHT ON THIS SLIDE IS

210

00:14:51,059 --> 00:14:55,279

SOME TENTS AND SOME TRAILERS.

AND YOU CAN SEE SOME SATELLITE

211
00:14:55,279 --> 00:14:58,019
DISHES THERE.
THIS IS THE AREA WHERE THE PRESS

212
00:14:58,019 --> 00:15:03,429
CORPS WAS LIVING.
IN THE BRIGHTLY COLORED TENTS,

213
00:15:03,429 --> 00:15:07,779
THE YELLOW AND ORANGE TENTS,
THIS IS WHERE THE FAMILIES WERE

214
00:15:07,779 --> 00:15:12,069
LIVING.
AND A NUMBER OF THE FAMILIES

215
00:15:12,069 --> 00:15:17,669
WERE PRESENT THROUGHOUT THE 69
DAYS THAT THE MINERS WERE

216
00:15:17,669 --> 00:15:21,269
TRAPPED UNDERGROUND.
NEXT SLIDE, PLEASE.

217
00:15:21,269 --> 00:15:25,590
AND THEN THIS IS THE WORK SITE
TO THE RIGHT, YOU CAN SEE A

218
00:15:25,590 --> 00:15:30,079
LARGE TENT STRUCTURE.
THAT WAS THE DINING HALL.

219
00:15:30,079 --> 00:15:36,649
ALSO SERVED AS A WORK AREA.
THE TWO RED -- OR ORANGE ROOF

220
00:15:36,649 --> 00:15:43,109
TENTS WERE FIRST AID.
WE HAD A BUILDING RIGHT IN THE

221

00:15:43,109 --> 00:15:46,509

FOREGROUND THERE THAT WAS A
BUILDING THAT WE DID MOST OF OUR

222

00:15:46,509 --> 00:15:49,649

WORK IN.
NEXT SLIDE.

223

00:15:49,649 --> 00:15:52,350

BACK UP ONE.
SO THIS IS THE BUILDING THAT WE

224

00:15:52,350 --> 00:15:56,610

DID MOST OF OUR WORK IN.
CONDITIONS WERE VERY DUSTY, BUT

225

00:15:56,610 --> 00:16:05,269

YET WE HAD ACCESS TO COMPUTERS.
WE HAD INTERNET ACCESS.

226

00:16:05,269 --> 00:16:10,410

AND WE COULD COMMUNICATE READILY
BACK TO OUR CONSULTANTS IN

227

00:16:10,410 --> 00:16:14,230

HOUSTON AND ALSO CONSULTANTS
THROUGHOUT THE UNITED STATES

228

00:16:14,230 --> 00:16:18,100

THAT WE FELT MIGHT BE ABLE TO
HAVE SOMETHING TO OFFER HERE.

229

00:16:18,100 --> 00:16:21,970

NEXT SLIDE, PLEASE.
I HAD BEEN A LITTLE MORE WORRIED

230

00:16:21,970 --> 00:16:27,180

ABOUT THIS HAD WE NOT ALREADY
CHECKED INTO THE HOTEL.

231

00:16:27,180 --> 00:16:35,059

THESE WERE TENTS THAT THE
CHILEAN MILITARY HAD, SOME OF

232

00:16:35,059 --> 00:16:40,569

THE SECURITY PEOPLE AND GUARDS
THAT WERE, YOU KNOW, MAKING SURE

233

00:16:40,569 --> 00:16:44,999

THAT THE WORK AREA STAYED CLEAR
OF OUTSIDERS.

234

00:16:44,999 --> 00:16:50,309

NEXT SLIDE, PLEASE.
THIS IS THE PALOMA OPERATIONS.

235

00:16:50,309 --> 00:16:54,379

PALOMA AS WE TRANSLATE IT MEANS
DOVE.

236

00:16:54,379 --> 00:16:58,149

ONE OF OUR COUNTERPARTS ALWAYS
SMILED WHEN WE SAID YOU MEAN THE

237

00:16:58,149 --> 00:16:59,660

DOVES?
BECAUSE I THINK THEY WERE

238

00:16:59,660 --> 00:17:03,579

LOOKING AT THESE MORE AS PIGEONS
OR CARRIER PIGEONS.

239

00:17:03,579 --> 00:17:07,680

THESE WERE THE LONG CYLINDERS,
STEEL CYLINDERS.

240

00:17:07,680 --> 00:17:12,890

THEY WERE ABOUT TWO METERS LONG,
MAYBE FOUR INCHES IN INTERNAL

241

00:17:12,890 --> 00:17:16,470

DIAMETER.

AND THEY WOULD HOIST THESE UP

242

00:17:16,470 --> 00:17:23,209

AND DOWN THIS 2200-FOOT SHAFT TO
RESUPPLY THE MINERS WITH FOOD

243

00:17:23,209 --> 00:17:28,820

AND WATER AND OTHER MATERIALS.
NEXT SLIDE, PLEASE.

244

00:17:28,820 --> 00:17:32,330

JUST AN EXAMPLE OF THEM
UNSCREWING THE CAP OFF OF THE

245

00:17:32,330 --> 00:17:36,159

END.
NEXT SLIDE.

246

00:17:36,159 --> 00:17:38,870

CLOSER VIEW.
NEXT SLIDE.

247

00:17:38,870 --> 00:17:44,000

AND SO THEY WOULD WRAP UP
FOODSTUFFS OR OTHER MATERIALS.

248

00:17:44,000 --> 00:17:48,370

IN THIS CASE IT WAS WRAPPED UP
IN BUBBLE WRAP TO PREVENT IT

249

00:17:48,370 --> 00:17:52,759

FROM THE JARRING OF THE RIDE
DOWN TO THE MINERS.

250

00:17:52,759 --> 00:17:56,070

THEY DID THIS ON KIND OF A
30-MINUTE CYCLE.

251

00:17:56,070 --> 00:17:58,519

IT WOULD TAKE TEN MINUTES TO
LOAD.

252

00:17:58,519 --> 00:18:02,570

IT WOULD TAKE TEN MINUTES FOR
THE PALOMA TO BE DROPPED THROUGH

253

00:18:02,570 --> 00:18:05,840

THE SHAFT DOWN TO THE MINERS.
THE MINERS WOULD HAVE TEN

254

00:18:05,840 --> 00:18:11,419

MINUTES TO UNLOAD IT AND THEN
LOAD BACK ANY MATERIALS THAT

255

00:18:11,419 --> 00:18:15,350

THEY WANTED TO SEND TOP SIDE,
MESSAGES TO THE FAMILY,

256

00:18:15,350 --> 00:18:19,490

WHATEVER.
ONE DAY, IN PARTICULAR, WE KNEW

257

00:18:19,490 --> 00:18:24,620

THAT THE MINERS WERE GETTING A
LITTLE BETTER BECAUSE ONE OF THE

258

00:18:24,620 --> 00:18:28,110

MINERS SENT BACK A DESSERT TO
THE SURFACE BECAUSE HE DIDN'T

259

00:18:28,110 --> 00:18:33,960

LIKE PARTICULARLY THAT DAY WHAT
WAS BEING SERVED FOR DESSERT.

260

00:18:33,960 --> 00:18:36,740

FORTUNATELY, YOU KNOW, THE
TOP-SIDE OFFICIALS FELT THAT

261

00:18:36,740 --> 00:18:39,360

THIS -- YOU KNOW, THEY NEEDED TO
REALLY TAKE CONTROL HERE, SO

262

00:18:39,360 --> 00:18:42,640

THEY SENT THE DESSERT BACK DOWN
AND SAID, YOU KNOW, THIS IS WHAT

263

00:18:42,640 --> 00:18:45,380

YOU HAVE TODAY.
YOU KNOW, WE'RE DOING THE BEST

264

00:18:45,380 --> 00:18:51,519

WE CAN.
BUT ANYHOW, IT WAS QUITE A FEAT

265

00:18:51,519 --> 00:18:58,820

ON HOW THE CHILEANS WERE ABLE TO
RESUPPLY THE MINERS, NOT ONLY

266

00:18:58,820 --> 00:19:04,450

GIVE THEM FOOD, BUT SUPPLY ALL
OTHER CONTINGENCY NEEDS THAT

267

00:19:04,450 --> 00:19:10,870

THEY HAD THROUGH THESE PALOMAS,
AND THAT OPERATION WAS 24 HOURS

268

00:19:10,870 --> 00:19:15,179

A DAY, 7 DAYS A WEEK.
NEXT SLIDE, PLEASE.

269

00:19:15,179 --> 00:19:22,580

THIS IS THE PLAN "A" DRILL.
THIS WAS THE HIGHEST POINT IN

270

00:19:22,580 --> 00:19:27,200

THE LOCAL AREA OF THE WORKING
MINE.

271

00:19:27,200 --> 00:19:33,980

AND I TOOK THIS PICTURE TO KIND
OF GIVE YOU THE IDEA OF SIZE OF

272

00:19:33,980 --> 00:19:36,950

THIS DRILL RIG.
AND I WAS ACTUALLY THINKING THAT

273

00:19:36,950 --> 00:19:40,350

SIZE WOULD, YOU KNOW, I'M 5'10"
OR THEREABOUTS.

274

00:19:40,350 --> 00:19:42,660

AND I THOUGHT MAYBE IT WOULD
GIVE YOU A PERSPECTIVE.

275

00:19:42,660 --> 00:19:46,299

BUT AS I GOT THIS SLIDE BACK AND
LOOKED AT THE PICTURE, I

276

00:19:46,299 --> 00:19:49,679

THOUGHT, WELL, MAYBE IT'S ALSO A
DEMONSTRATION OF GIRTH AS TO

277

00:19:49,679 --> 00:19:54,659

ABOUT HOW BIG THAT THING IS.
FORTUNATELY I'M HIDING BEHIND

278

00:19:54,659 --> 00:19:58,360

THE PODIUM HERE TODAY.
BUT THIS WAS QUITE AN OPERATION.

279

00:19:58,360 --> 00:20:01,570

THIS WAS THE ONLY DRILL RIG THAT
WAS IN OPERATION AT THE TIME WE

280

00:20:01,570 --> 00:20:05,190

WERE THERE.
THE RIG WAS BEING RUN BY SOME

281

00:20:05,190 --> 00:20:10,850

SOUTH AFRICANS.

SOUTH AFRICAN DRILLING COMPANY.

282

00:20:10,850 --> 00:20:13,820

AND IT WAS PROCEEDING VERY, VERY SLOWLY.

283

00:20:13,820 --> 00:20:19,039

AND THIS IS WHERE THE INITIAL ESTIMATES THAT IT MIGHT BE

284

00:20:19,039 --> 00:20:24,160

DECEMBER BEFORE THE MINERS COULD BE RESCUED BECAUSE OF THIS, YOU

285

00:20:24,160 --> 00:20:28,710

KNOW, PARTICULAR RIG HERE. NEXT SLIDE, PLEASE.

286

00:20:28,710 --> 00:20:34,530

SO AS WE GOT TO SEE SOME OTHER SITES AT THE MINE SITE, THIS

287

00:20:34,530 --> 00:20:39,160

IS -- ONE OF THE PALOMA SITES. AND THE GENTLEMAN IN THE ORANGE

288

00:20:39,160 --> 00:20:43,940

VEST IS HOLDING A CONDUIT. AND THEY WERE FABRICATING A

289

00:20:43,940 --> 00:20:47,040

CONDUIT THAT WAS GOING TO SUPPLY FIBER OPTIC CABLE FOR

290

00:20:47,040 --> 00:20:51,580

AUDIO/VISUAL COMMUNICATION. IT WOULD ALSO PROVIDE

291

00:20:51,580 --> 00:20:54,340

ELECTRICITY.

IT WAS GOING TO PROVIDE FRESH

292

00:20:54,340 --> 00:20:57,860

WATER, A CONTINUOUS SUPPLY OF

FRESH WATER, AND A CONTINUOUS

293

00:20:57,860 --> 00:21:05,629

SUPPLY OF COOL, DRY AIR TO HELP

WITH THE CONDITIONS DOWN BELOW.

294

00:21:05,629 --> 00:21:09,220

THE CHILEANS HAD HOPED TO SET UP

SOME TENTS BELOW WHERE THEY

295

00:21:09,220 --> 00:21:13,279

COULD PIPE THIS AIR IN AND AT

LEAST PROVIDE AN ENVIRONMENT

296

00:21:13,279 --> 00:21:16,809

AWAY FROM THE HEAT AND HUMIDITY.

AND THE TEMPERATURES DOWN THERE

297

00:21:16,809 --> 00:21:18,980

WERE ABOUT 90 DEGREES

FAHRENHEIT.

298

00:21:18,980 --> 00:21:22,600

HUMIDITY WAS ABOUT 90%.

AND THEY WANTED TO AT LEAST

299

00:21:22,600 --> 00:21:29,230

PROVIDE THEM A PLACE TO REST AND

GET AWAY FROM THAT BY SUPPLYING

300

00:21:29,230 --> 00:21:33,990

THIS FRESH AIR.

ALSO IN THIS PICTURE, SECOND

301

00:21:33,990 --> 00:21:37,679

FROM THE RIGHT, IS AN INDIVIDUAL
DRESSED IN BLACK.

302

00:21:37,679 --> 00:21:41,940

WITH A WHITE HARD HAT ON.
THAT IS COMMANDER NAVARRO.

303

00:21:41,940 --> 00:21:44,830

INTERESTINGLY ENOUGH -- AND WE
DIDN'T REALLY KNOW THIS AT THE

304

00:21:44,830 --> 00:21:52,759

TIME THAT WE WENT DOWN TO MEET
WITH OUR CHILEAN COUNTERPARTS --

305

00:21:52,759 --> 00:21:59,450

THEY HAD ALSO ASSIGNED THIS
INDIVIDUAL, AND HE WAS A CHILEAN

306

00:21:59,450 --> 00:22:06,049

NAVAL SUBMARINE CAPTAIN.
SO HE AND CLINT CRAIG, ALSO A

307

00:22:06,049 --> 00:22:12,720

FORMER NAVY SUBMARINE CAPTAIN,
HIT IT OFF IMMEDIATELY.

308

00:22:12,720 --> 00:22:18,000

AND IT WAS JUST ONE OF THE
EXAMPLES OF HOW IT WAS KIND OF

309

00:22:18,000 --> 00:22:22,750

FORTUITOUS HOW WE ALL CAME
TOGETHER AND BLENDED SO WELL

310

00:22:22,750 --> 00:22:28,200

WITH OUR CHILEAN COLLEAGUES.
THE LADY THAT'S SECOND FROM THE

311

00:22:28,200 --> 00:22:31,590

LEFT IN THIS SLIDE, HER NAME IS SOPHIA.

312

00:22:31,590 --> 00:22:35,980

SHE IS A REPRESENTATIVE OF THE CHILEAN GOVERNMENT FROM THE

313

00:22:35,980 --> 00:22:40,850

DEPARTMENT OF ECONOMICS. SHE WAS VERY EXCITED TO TELL US

314

00:22:40,850 --> 00:22:45,160

ALL ABOUT THE REGION. WHEN YOU GO TO THE GROCERY STORE

315

00:22:45,160 --> 00:22:49,340

AND YOU LOOK WHERE MAYBE SOME OF THE WHITE SEEDLESS GRAPES COME

316

00:22:49,340 --> 00:22:52,820

FROM, IT MAY WELL BE FROM THAT AREA IN CHILE.

317

00:22:52,820 --> 00:22:56,600

THIS IS THE REGION THAT WE WERE IN.

318

00:22:56,600 --> 00:22:59,580

SO SHE WAS EXCITED TO TELL US ALL ABOUT THESE THINGS.

319

00:22:59,580 --> 00:23:05,889

NEXT SLIDE, PLEASE. THIS IS COMMANDER URENA, A

320

00:23:05,889 --> 00:23:13,940

MEDICAL SUBMARINE OFFICER. HE WAS VERY FLUENT IN ENGLISH,

321

00:23:13,940 --> 00:23:18,399

SPENT A LOT OF TIME IN
CALIFORNIA WHILE HIS FATHER WAS

322

00:23:18,399 --> 00:23:22,940

GETTING A Ph.D. IN MATHEMATICS.
HE AND J.D., IN PARTICULAR, HIT

323

00:23:22,940 --> 00:23:27,870

IT OFF WELL TOGETHER.
NEXT SLIDE, PLEASE.

324

00:23:27,870 --> 00:23:33,159

THIS IS -- THE GENTLEMAN IN THE
GREEN VEST IS DR. ARTURO.

325

00:23:33,159 --> 00:23:38,799

AL HOLLAND WAS OUR PSYCHOLOGIST.
DR. ARTURO WAS THE CHILEAN

326

00:23:38,799 --> 00:23:42,100

PSYCHOLOGIST, TAKING CARE OF THE
MINERS.

327

00:23:42,100 --> 00:23:47,259

HIS FIRST NAME WAS ALBERTO.
SO THE TWO ALS ALSO HAD A COMMON

328

00:23:47,259 --> 00:23:50,389

BOND.
NEXT SLIDE, PLEASE.

329

00:23:50,389 --> 00:23:54,110

AND FINALLY, THE GENTLEMAN IN
THE MIDDLE FACING US IS DR.

330

00:23:54,110 --> 00:23:55,580

DIAZ.
HE WAS THE LEAD PHYSICIAN.

331

00:23:55,580 --> 00:24:02,009

HE, YOU KNOW, HAD A
WELL-ORGANIZED STRUCTURE OF

332

00:24:02,009 --> 00:24:07,059

PHYSICIANS UNDER HIM THAT WERE
ABLE TO PROVIDE MONITORING OF

333

00:24:07,059 --> 00:24:11,309

THE MINERS ON A 24-HOUR BASIS SO
THAT THE MINERS NEVER WERE

334

00:24:11,309 --> 00:24:17,360

WITHOUT ACCESS TO AT LEAST
MEDICAL CONSULTATION.

335

00:24:17,360 --> 00:24:20,509

IN ADDITION, THEY HAD SET UP A
NETWORK OF CONSULTANTS

336

00:24:20,509 --> 00:24:25,190

THROUGHOUT THEIR COUNTRY AS WELL
AS OTHER CONSULTANTS AROUND THE

337

00:24:25,190 --> 00:24:29,429

WORLD TO TALK ABOUT VARIOUS
PROBLEMS, IN PARTICULAR,

338

00:24:29,429 --> 00:24:31,570

VACCINATION.
THEY WERE WANTING TO MAKE SURE

339

00:24:31,570 --> 00:24:35,580

THAT THEY HAD VACCINATED THE
MINERS AGAINST COMMON PROBLEMS,

340

00:24:35,580 --> 00:24:39,999

PNEUMONIA, INFLUENZA,
MENINGITIS, THOSE KINDS OF

341

00:24:39,999 --> 00:24:43,779

THINGS THAT YOU MIGHT BE
CONCERNED ABOUT.

342

00:24:43,779 --> 00:24:53,049

SHORTLY AFTER THIS PICTURE WAS
TAKEN, WE WENT INTO THIS ROOM IN

343

00:24:53,049 --> 00:24:56,460

THE BACKGROUND THERE.
AND THIS IS WHERE WE WERE ABLE

344

00:24:56,460 --> 00:24:59,150

TO HAVE OUR FIRST
COMMUNICATION -- ACTUALLY, IT

345

00:24:59,150 --> 00:25:02,990

WAS OUR FIRST AND ONLY
COMMUNICATION WITH THE MINERS.

346

00:25:02,990 --> 00:25:08,549

SO WE WERE ALL HUDDLED IN THERE.
DR. J.D. POLK, DR. DIAZ, MYSELF,

347

00:25:08,549 --> 00:25:13,379

SOME OTHERS, AND THEY HAD A
PHONE SYSTEM AT THAT TIME SET UP

348

00:25:13,379 --> 00:25:17,740

WHERE WE COULD TALK TO THE
MINERS BY PHONE.

349

00:25:17,740 --> 00:25:23,200

AND SO, YOU KNOW, DR. DIAZ
EXPLAINED THAT THE NASA

350

00:25:23,200 --> 00:25:28,999

PHYSICIANS WERE HERE.
YOU KNOW, DR. DIAZ ASKED IF I

351

00:25:28,999 --> 00:25:32,490

WANTED TO SAY HELLO TO THE
MINERS.

352

00:25:32,490 --> 00:25:39,620

AND SOME OF MY BEST SPANISH I
MUSTERED, HOLA, BUENOS AIRES.

353

00:25:39,620 --> 00:25:45,870

AND THE MINER THAT WAS ON THE
OTHER END OF THE PHONE SAID, COMO

354

00:25:45,870 --> 00:25:51,399

ESTAS?
I'M SURE MY SPANISH TEACHER

355

00:25:51,399 --> 00:25:54,009

TURNED OVER IN HER GRAVE BECAUSE
I COULDN'T THINK WHAT TO SAY

356

00:25:54,009 --> 00:26:02,509

NEXT.
DR. DIAZ WHISPERED, "SAY BIEN."

357

00:26:02,509 --> 00:26:04,179

DR. J.D. POLK IS OVER IN THE
CORNER.

358

00:26:04,179 --> 00:26:09,049

HE'S JUST SHAKING HIS HEAD, JUST
COULDN'T BELIEVE THAT I WAS SO

359

00:26:09,049 --> 00:26:13,110

INEFFICIENT IN AT LEAST SAYING
HELLO AND THAT I'M DOING FINE IN

360

00:26:13,110 --> 00:26:18,460

SPANISH.
BUT ANYHOW, WE MANAGED TO

361

00:26:18,460 --> 00:26:22,210

CONTINUE, YOU KNOW, TALKING TO
THE MINERS.

362

00:26:22,210 --> 00:26:26,980

AND THEY WOULD RELAY, YOU KNOW,
SOME THINGS THAT WE WERE -- OUR

363

00:26:26,980 --> 00:26:29,730

CHILEAN COUNTERPARTS WOULD RELAY
IN SPANISH WHAT WE WERE SAYING

364

00:26:29,730 --> 00:26:33,260

IN ENGLISH.

WELL, THE NEXT DAY IN THE

365

00:26:33,260 --> 00:26:38,549

NEWSPAPER, LEAD ARTICLE IN THE
NEWSPAPER SAYS, "DR. MIKE

366

00:26:38,549 --> 00:26:42,149

DUNCAN.

NASA TEAM LEADER SPEAKING TO THE

367

00:26:42,149 --> 00:26:47,259

MINERS IN SPANISH."

SO I GOT A LOT OF GOOD PRESS

368

00:26:47,259 --> 00:26:49,570

WHILE WE WERE DOWN THERE.

SO IT CAN GO BOTH WAYS

369

00:26:49,570 --> 00:26:52,809

SOMETIMES.

THE OTHER THING THAT THE MINERS

370

00:26:52,809 --> 00:26:59,879

DID WHEN WE SAID OUR HELLOS TO

THEM WAS, I KNOW YOU'VE HEARD

371

00:26:59,879 --> 00:27:03,149

THIS CHANT THAT THE CHILEAN
PEOPLE DO.

372

00:27:03,149 --> 00:27:04,769

IT'S CHI-CHI-CHI-!
LE-LE-LE!

373

00:27:04,769 --> 00:27:13,879

LOS MINEROS DE CHILE!
ONCE THE MINERS KNEW WE WERE

374

00:27:13,879 --> 00:27:18,429

THERE, THEY ALL CONGREGATED,
AND THEY DID THIS CHANT FOR US

375

00:27:18,429 --> 00:27:23,149

WHICH DEMONSTRATED TO US NOT
ONLY HOW WELCOMING THEY WERE FOR

376

00:27:23,149 --> 00:27:26,830

US TO BE THERE, BUT, YOU KNOW,
WHAT GREAT SPIRIT THAT THEY WERE

377

00:27:26,830 --> 00:27:32,929

IN DESPITE THE CHALLENGES THAT
THEY WERE FACING.

378

00:27:32,929 --> 00:27:40,059

SO IT WAS QUITE A MOMENT FOR US
FOR THEM TO DO THAT FOR US.

379

00:27:40,059 --> 00:27:46,970

NEXT SLIDE, PLEASE.
AT THE END OF EACH DAY, THE

380

00:27:46,970 --> 00:27:50,080

CHILEANS THAT WERE WORKING THE
DRILL RIGS, SUPERVISING THE

381

00:27:50,080 --> 00:27:53,130

DRILL RIGS OR SUPERVISING THE
MEDICAL AND PSYCHOLOGICAL

382

00:27:53,130 --> 00:27:57,720

ACTIVITIES, WE WOULD MEET --
THEY WOULD MEET, AND WE WERE

383

00:27:57,720 --> 00:27:59,700

ALLOWED TO SIT IN ON THESE
MEETINGS.

384

00:27:59,700 --> 00:28:02,309

THEY WOULD SUMMARIZE WHAT HAD
HAPPENED DURING THE COURSE OF

385

00:28:02,309 --> 00:28:05,749

THE DAY AND WHAT THE PLAN WAS
GOING TO BE FOR THE NEXT DAY.

386

00:28:05,749 --> 00:28:12,330

AND THEN THEY WOULD ALL GO DOWN
TO A TENT THAT WAS SET UP

387

00:28:12,330 --> 00:28:17,119

SPECIFICALLY TO COMMUNICATE WITH
THE MINERS' FAMILIES.

388

00:28:17,119 --> 00:28:19,540

AND SO THIS FIRST DAY WE WERE
INTRODUCED TO THE MINERS'

389

00:28:19,540 --> 00:28:23,610

FAMILIES.
AND WE WERE EACH ALLOWED THE

390

00:28:23,610 --> 00:28:28,480

OPPORTUNITY TO SAY HELLO TO THE
MINERS' FAMILIES.

391

00:28:28,480 --> 00:28:32,309

AL HOLLAND WHO IS OUR
OPERATIONAL PSYCHOLOGIST WHO HAS

392

00:28:32,309 --> 00:28:36,340

A LOT OF EXPERIENCE IN DEALING
WITH OUR ASTRONAUTS ON ORBIT,

393

00:28:36,340 --> 00:28:40,759

DEALING WITH THEIR FAMILIES,
UNDERSTANDING THEIR NEEDS AND

394

00:28:40,759 --> 00:28:47,490

CONCERNS, REALLY MADE QUITE A
PASSIONATE SPEECH TO THE FAMILY

395

00:28:47,490 --> 00:28:51,269

MEMBERS THAT DAY.
AND IT WAS SO WELL RECEIVED THAT

396

00:28:51,269 --> 00:28:54,100

ONE OF THE LADIES STOOD UP AND
SAID, I WOULD LIKE TO ADOPT YOU

397

00:28:54,100 --> 00:28:57,330

RIGHT NOW.
ANYWAY.

398

00:28:57,330 --> 00:29:00,320

AL DID A GREAT JOB FOR US.
NEXT SLIDE, PLEASE.

399

00:29:00,320 --> 00:29:05,740

OVER THE NEXT COUPLE OF DAYS,
WE'D GO OUT TO THE MINE SITE.

400

00:29:05,740 --> 00:29:10,131

EACH DAY WE WOULD MEET IN THE
LITTLE MEETING BUILDING THAT I

401
00:29:10,131 --> 00:29:12,619
SHOWED YOU.
IN THIS PARTICULAR CASE, WE WERE

402
00:29:12,619 --> 00:29:17,340
MEETING WITH THREE OF THE
ENGINEERS FROM ASMAR WHICH IS

403
00:29:17,340 --> 00:29:23,080
THE NAVAL -- THE CHILEAN NAVAL
ENTERING GROUP THAT ACTUALLY

404
00:29:23,080 --> 00:29:29,549
BUILT THE EXTRACTION VEHICLE.
AND WE WERE JUST TALKING WITH

405
00:29:29,549 --> 00:29:33,789
THEM ABOUT, YOU KNOW, SOME
ENGINEERING REQUIREMENTS,

406
00:29:33,789 --> 00:29:37,409
MEDICAL REQUIREMENTS AND TRYING
TO GET AN UNDERSTANDING OF THE

407
00:29:37,409 --> 00:29:40,220
REQUIREMENTS THAT THEY WERE
ALREADY DEALING WITH IN TERMS OF

408
00:29:40,220 --> 00:29:44,759
HOW TO DESIGN THIS VEHICLE.
NEXT SLIDE, PLEASE.

409
00:29:44,759 --> 00:29:51,419
OF COURSE, THIS LADY IN THE --
BLONDE LADY IN THE RED JACKET,

410
00:29:51,419 --> 00:29:56,309
SHE WAS REPRESENTING THE
GOVERNMENT.

411

00:29:56,309 --> 00:30:05,990

AND SHE WOULD, YOU KNOW, BE PART
OF THESE END-OF-DAY DISCUSSIONS

412

00:30:05,990 --> 00:30:09,009

ABOUT THE PROGRESS THAT WAS
BEING MADE.

413

00:30:09,009 --> 00:30:14,240

NEXT SLIDE, PLEASE.
BUT ON OUR FINAL DAY AT THE MINE

414

00:30:14,240 --> 00:30:19,450

SITE, WE PRESENTED -- MADE A
PRESENTATION TO OUR CHILEAN

415

00:30:19,450 --> 00:30:22,960

COUNTERPARTS THAT TALKED TO THE
MEDICAL AND BEHAVIORAL SUPPORT

416

00:30:22,960 --> 00:30:26,940

THAT WE FELT THAT NEEDED TO BE
CONSIDERED.

417

00:30:26,940 --> 00:30:30,700

IN ADDITION, CLINT CRAIG DID A
VERY NICE JOB IN TALKING TO THEM

418

00:30:30,700 --> 00:30:34,869

ABOUT ORGANIZATIONAL STRUCTURE.
AT TIMES IT SEEMED TO BE

419

00:30:34,869 --> 00:30:41,470

SOMEWHAT LESS THAN, YOU KNOW,
CLEANLY ORGANIZED IN TERMS OF

420

00:30:41,470 --> 00:30:45,809

WHO WAS LEADING WHAT.
IT WAS PROBABLY A DIFFERENCE IN

421

00:30:45,809 --> 00:30:50,059

OUR UNDERSTANDING OF HOW THEY
WERE STRUCTURED, BUT ANYWAY, WE

422

00:30:50,059 --> 00:30:56,809

MADE SOME SUGGESTIONS ABOUT HOW
THIS MAYBE COULD BE DONE CLEANER

423

00:30:56,809 --> 00:30:59,679

FROM A COMMUNICATIONS
STANDPOINT.

424

00:30:59,679 --> 00:31:04,309

OF COURSE, THE MEDICAL THINGS,
WE TALKED TO THEM ABOUT VITAMIN

425

00:31:04,309 --> 00:31:07,159

D REPLACEMENT.
WE TALKED TO THEM ABOUT VIRUS

426

00:31:07,159 --> 00:31:11,519

REACTIVATION.
WE TALKED TO THEM ABOUT THE

427

00:31:11,519 --> 00:31:17,440

PSYCHOLOGICAL SUPPORT THAT WE
SEE IN TAKING CARE OF OUR

428

00:31:17,440 --> 00:31:22,610

ASTRONAUTS IN ISOLATED AND
REMOTE AND AUSTERE ENVIRONMENTS,

429

00:31:22,610 --> 00:31:25,379

ALTHOUGH ON SPACE STATION, IT'S
A MUCH BETTER ENVIRONMENT THAN

430

00:31:25,379 --> 00:31:29,120

THE MINERS WERE FACING 2,200
FEET UNDERGROUND AT THESE

431

00:31:29,120 --> 00:31:33,081

TEMPERATURES AND HUMIDITIES.
DURING THE TIME THAT WE WERE

432

00:31:33,081 --> 00:31:37,169

PUTTING THE FINAL TOUCHES ON
THIS PRESENTATION, NEXT SLIDE,

433

00:31:37,169 --> 00:31:41,299

PLEASE, THERE WAS A LOT OF
COMMOTION GOING ON OUTSIDE.

434

00:31:41,299 --> 00:31:44,409

HORNS WERE HONKING.
YOU KNOW, THIS WAS GOING ON FOR

435

00:31:44,409 --> 00:31:46,999

MINUTES.
WE COULDN'T QUITE FIGURE OUT

436

00:31:46,999 --> 00:31:49,869

WHAT WAS HAPPENING.
SO WE STEPPED OUTSIDE.

437

00:31:49,869 --> 00:31:52,489

AND ABOUT THAT TIME THIS STRUCK
ROLLS BY.

438

00:31:52,489 --> 00:31:58,360

AND THIS IS THE DRILL RIG THAT
WAS BROUGHT TO THE MINE SITE.

439

00:31:58,360 --> 00:32:02,049

AND THIS IS THE DRILL RIG THAT
ACTUALLY WAS SUCCESSFUL IN

440

00:32:02,049 --> 00:32:05,519

REACHING THE MINERS.
THIS IS WHAT THEY CALLED PLAN

441

00:32:05,519 --> 00:32:09,929

"B."

PLAN "C" WAS A PETROLEUM RIG

442

00:32:09,929 --> 00:32:13,970

THAT WAS TAKING A LOT LONGER TO
BRING TO THE MINE SITE AND SET

443

00:32:13,970 --> 00:32:17,340

UP, BUT IT WAS ACTUALLY THOUGHT
THAT MAYBE PLAN "C" WAS ACTUALLY

444

00:32:17,340 --> 00:32:21,929

GOING TO BE ABLE TO REACH THE
DEPTH THE QUICKEST.

445

00:32:21,929 --> 00:32:24,549

OF COURSE, THAT TURNED OUT NOT
TO BE THE CASE.

446

00:32:24,549 --> 00:32:30,899

WE NEVER DID MEET THE TEAM WHILE
THEY WERE -- WHILE WE WERE AT

447

00:32:30,899 --> 00:32:34,440

THE MINE SITE.
BUT IT WAS QUITE AN EVENT WHEN

448

00:32:34,440 --> 00:32:38,929

THIS TRUCK ROLLED INTO TOWN.
I SHOULD ALSO MENTION -- AND I

449

00:32:38,929 --> 00:32:43,230

THINK SOMETHING THAT WASN'T WELL
PUBLICIZED DURING THE COURSE OF

450

00:32:43,230 --> 00:32:47,659

ALL THESE EVENTS IS THAT IN
ORDER TO GET THIS RIG FROM

451

00:32:47,659 --> 00:32:54,700

PENNSYLVANIA TO CHILE, THEY
NEEDED A BIG AIRPLANE.

452

00:32:54,700 --> 00:33:01,309

AND U.P.S. ACTUALLY OFFERED UP
THE AIRCRAFT, THE FLIGHT TIME,

453

00:33:01,309 --> 00:33:09,019

THE AIR CREW TO BE ABLE TO GET
THIS EQUIPMENT DOWN TO CHILE,

454

00:33:09,019 --> 00:33:16,700

AND THEN THEY COULD DRIVE IT ON.
NEXT SLIDE, PLEASE.

455

00:33:16,700 --> 00:33:22,570

WELL, BEFORE WE LEFT THE MINE
SITE FOR THE FINAL TIME, WE HAD

456

00:33:22,570 --> 00:33:26,539

ONE LAST PRESS CONFERENCE.
THIS WAS AN INTERNATIONAL PRESS

457

00:33:26,539 --> 00:33:30,890

CONFERENCE.
A LOT OF INTEREST WAS BEING

458

00:33:30,890 --> 00:33:34,409

GENERATED AROUND THE WORLD AT
THAT TIME.

459

00:33:34,409 --> 00:33:38,749

SO THIS IS WHAT WE WERE FACING.
NEXT SLIDE.

460

00:33:38,749 --> 00:33:45,149

HERE WE ARE LINED UP.
AND EACH OF US WAS ABLE TO

461

00:33:45,149 --> 00:33:49,960

RESPOND TO SOME QUESTIONS AS
THEY WERE DIRECTED TO US.

462

00:33:49,960 --> 00:33:53,200

NEXT SLIDE.

AND THIS IS WHAT I WAS SEEING ON

463

00:33:53,200 --> 00:33:55,909

THE OTHER SIDE OF ME.

THAT'S DURING THAT PRESS

464

00:33:55,909 --> 00:33:58,119

CONFERENCE.

AND I SURE HOPE THAT I WAS

465

00:33:58,119 --> 00:34:03,639

SAYING THINGS CORRECTLY AND IN
APPROVAL OF OUR CHILEAN

466

00:34:03,639 --> 00:34:07,360

OFFICIALS THAT WERE PRESENT.

AT THE END OF THIS PRESS

467

00:34:07,360 --> 00:34:13,909

CONFERENCE, WE FELT IT WAS VERY
IMPORTANT TO SHOW SOME SPIRIT

468

00:34:13,909 --> 00:34:17,270

OURSELVES.

AND SO I CONVINCED THE TEAM THAT

469

00:34:17,270 --> 00:34:19,940

WE NEEDED TO STAND UP AND DO THE
CHI-CHI-CHI!

470

00:34:19,940 --> 00:34:23,480

LE-LE-LE!

LOS MINEROS DE CHILE CHANT.

471

00:34:23,480 --> 00:34:26,470

BUT WE WEREN'T VERY GOOD AT IT.
SO I ASKED THE MINISTRY OF

472

00:34:26,470 --> 00:34:31,139

HEALTH TO STAND UP WITH US.
HE HELPED LEAD US IN DOING THAT

473

00:34:31,139 --> 00:34:34,909

CHANT.
AND I THINK IT GOT A LOT OF PLAY

474

00:34:34,909 --> 00:34:39,030

IN THE MEDIA THERE IN CHILE.
NEXT SLIDE, PLEASE.

475

00:34:39,030 --> 00:34:43,710

I DIDN'T WANT YOU TO THINK THAT
WE HAD SPENT ALL OF OUR TIME

476

00:34:43,710 --> 00:34:48,899

WORKING.
THE CHILEANS WERE VERY GRACIOUS

477

00:34:48,899 --> 00:34:50,429

HOSTS.
THEY WERE VERY WARM AND

478

00:34:50,429 --> 00:34:53,879

WELCOMING.
THEY WANTED US TO UNDERSTAND

479

00:34:53,879 --> 00:34:57,400

ABOUT, YOU KNOW, THEIR FAMILIES,
THEIR CULTURE.

480

00:34:57,400 --> 00:35:02,319

THIS IS THE HOME OF THE LADY
WHOSE FIRST NAME WAS SOPHIA THAT

481
00:35:02,319 --> 00:35:07,970
IS FROM THE ECONOMICS DEPARTMENT
THERE.

482
00:35:07,970 --> 00:35:12,330
SHE AND HER HUSBAND WELCOMED US
INTO THEIR HOME, SAMPLED A LOT

483
00:35:12,330 --> 00:35:17,579
OF TRADITIONAL CHILEAN FOOD.
AND YEAH, WE DID HAVE SOME

484
00:35:17,579 --> 00:35:22,430
CHILEAN WINE.
WE HAD A GOOD TIME THAT EVENING.

485
00:35:22,430 --> 00:35:25,109
NEXT SLIDE.
AND, OF COURSE, THE FOLLOWING

486
00:35:25,109 --> 00:35:26,859
NIGHT WE DID THE SAME THING ALL
OVER AGAIN.

487
00:35:26,859 --> 00:35:31,240
THIS IS AT DR. DIAZ'S HOME.
BUT IT WAS AT THIS POINT THAT

488
00:35:31,240 --> 00:35:37,829
DR. J.D. POLK COMMENTED THAT
WHEN WE CAME TO CHILE, WE CAME

489
00:35:37,829 --> 00:35:40,660
AS REPRESENTATIVES OF OUR AGENCY
OR REPRESENTATIVES OF OUR

490
00:35:40,660 --> 00:35:45,740
GOVERNMENT, BUT THAT WE WERE
ACTUALLY LEAVING AS FRIENDS.

491
00:35:45,740 --> 00:35:49,430
I THINK YOU COULDN'T HAVE SAID
THAT BETTER BECAUSE THIS GROUP

492
00:35:49,430 --> 00:35:53,619
OF PEOPLE THAT YOU SEE AROUND
THIS TABLE ARE CHILEAN

493
00:35:53,619 --> 00:35:57,210
COLLEAGUE, WHETHER THEY WERE
MEDICAL PHYSICIANS, WHETHER THEY

494
00:35:57,210 --> 00:35:59,930
WERE PSYCHOLOGISTS, WHETHER THEY
WERE SUBMARINE COMMANDERS AND

495
00:35:59,930 --> 00:36:04,700
ENGINEERS.
YOU KNOW, WE ALL BLENDED SO WELL

496
00:36:04,700 --> 00:36:09,770
AND WORKED SO WELL TOGETHER.
IT WAS REALLY QUITE REFRESHING.

497
00:36:09,770 --> 00:36:12,960
NEXT SLIDE, PLEASE.
WHEN WE GOT BACK TO OUR HOTEL

498
00:36:12,960 --> 00:36:16,540
THAT NIGHT, OF COURSE, THIS WAS
THE 200th ANNIVERSARY OF THE

499
00:36:16,540 --> 00:36:20,290
COUNTRY OF CHILE.
AND THEY HAD AN ALL-NIGHT PARTY

500
00:36:20,290 --> 00:36:23,470
GOING ON JUST OUTSIDE OUR HOTEL
WHERE THEY WERE PLAYING -- AND

501
00:36:23,470 --> 00:36:28,160
ACTUALLY, THEY WERE SUPPOSED TO
COUNT DOWN 1,000 SONGS.

502
00:36:28,160 --> 00:36:31,920
I'M NOT SURE IF THEY WERE
INDIVIDUAL SONGS OR THEY'D

503
00:36:31,920 --> 00:36:34,020
REPLAY SOME OF THEM OVER AND
OVER AGAIN.

504
00:36:34,020 --> 00:36:37,170
BUT ANYHOW, THEY WERE DOWN TO
ABOUT 500 WHEN THIS SLIDE WAS

505
00:36:37,170 --> 00:36:40,119
TAKEN.
SO THEY HAD MORE TO GO.

506
00:36:40,119 --> 00:36:42,520
AND THEY WERE STILL PLAYING THE
NEXT MORNING WHEN WE LEFT THE

507
00:36:42,520 --> 00:36:46,040
HOTEL.
NEXT SLIDE.

508
00:36:46,040 --> 00:36:49,230
AFTER WE LEFT, OF COURSE, THINGS
CONTINUED TO PROGRESS AT THE

509
00:36:49,230 --> 00:36:52,710
MINE SITE.
AS YOU CAN SEE IN THIS SLIDE, WE

510
00:36:52,710 --> 00:36:58,030
HAVE THE PLAN "A" RIG AT THE
TOP, THE PLAN "B" RIG KIND OF AT

511

00:36:58,030 --> 00:37:02,680

THE MIDDLE.

AND THE PLAN "C" RIG, THE OIL

512

00:37:02,680 --> 00:37:08,770

PLATFORM, AND THE FRONT

LEFT-HAND PART OF THIS SLIDE.

513

00:37:08,770 --> 00:37:13,400

NEXT SLIDE.

WE ALSO CAME BACK AND CONTINUED

514

00:37:13,400 --> 00:37:15,920

TO WORK.

WE EVENTUALLY, INSTEAD OF A

515

00:37:15,920 --> 00:37:22,400

POWER POINT PRESENTATION, WE

ACTUALLY WROTE UP A MORE FORMAL

516

00:37:22,400 --> 00:37:25,859

WRITTEN DOCUMENT FOR THE

CHILEANS TO REFER TO, THINKING

517

00:37:25,859 --> 00:37:31,140

ABOUT THE MEDICAL SUGGESTIONS

AND BEHAVIORAL HEALTH SUPPORT,

518

00:37:31,140 --> 00:37:33,319

THINGS LIKE, YOU KNOW, HOW TO

KEEP THE MINERS WORKING

519

00:37:33,319 --> 00:37:38,460

TOGETHER, HOW TO STRUCTURE THEIR

SHIFTS, HOW TO THINK ABOUT, YOU

520

00:37:38,460 --> 00:37:43,680

KNOW, LIGHTING IN THE TUNNELS IN

THEIR WORK AREA, IN THEIR REST

521

00:37:43,680 --> 00:37:51,270

AREA, IN THEIR SLEEP AREA.

ALSO IN THIS DOCUMENT WERE THE

522

00:37:51,270 --> 00:37:56,210

RECOMMENDATIONS THAT CLINT CRAIG

AND THE TECHNICAL FELLOWS FROM

523

00:37:56,210 --> 00:38:00,839

THE NASC DEVELOPED ON THE

EXTRACTION VEHICLE DESIGN.

524

00:38:00,839 --> 00:38:04,109

NEXT SLIDE, PLEASE.

SO IN THIS SLIDE -- AND THIS IS

525

00:38:04,109 --> 00:38:08,940

COURTESY OF THE BBC -- IT LISTS

A LOT OF THE THINGS THAT WE

526

00:38:08,940 --> 00:38:11,730

TALKED ABOUT.

FROM THE STANDPOINT OF THE

527

00:38:11,730 --> 00:38:16,690

EXTRACTION VEHICLE ITSELF, THE

ROLLERS ON SHOCK ABSORBERS TO

528

00:38:16,690 --> 00:38:21,020

HELP CUSHION THE RIDE AND REDUCE

FRICTION AS THIS VEHICLE WAS

529

00:38:21,020 --> 00:38:26,440

TRANSITING THE ROCK SHAFT.

THE TOP OF IT WHERE IT WAS, YOU

530

00:38:26,440 --> 00:38:34,160

KNOW, SELF-FITTING INTO THE

SHAFT AND PREVENTED FROM GETTING

531

00:38:34,160 --> 00:38:38,680

STUCK.

THE FACT THAT THE VEHICLE COULD

532

00:38:38,680 --> 00:38:42,470

ACTUALLY BE SEPARATED AND THE
MINER COULD LOWER HIMSELF BACK

533

00:38:42,470 --> 00:38:50,510

DOWN IN THE EVENT THAT THE TOP
PART OF THE VEHICLE WOULD GET

534

00:38:50,510 --> 00:38:54,560

STUCK IN THE SHAFT.

WE ALSO MADE SOME ADDITIONAL

535

00:38:54,560 --> 00:38:57,450

COMMENTS ABOUT, YOU KNOW,
SUPPLYING OXYGEN, HAVING

536

00:38:57,450 --> 00:39:01,109

COMMUNICATIONS.

YOU KNOW, THE TAKE-HOMES FROM

537

00:39:01,109 --> 00:39:04,349

THE SPACECRAFT -- OR SPACE
FLIGHT ENVIRONMENT, WHEN OUR

538

00:39:04,349 --> 00:39:07,670

ASTRONAUTS COME BACK FROM SPACE,
WE DO FLUID LOADING.

539

00:39:07,670 --> 00:39:11,720

WE HAVE SUPPORT STOCKINGS ON
THEIR LOWER EXTREMITIES AND

540

00:39:11,720 --> 00:39:18,420

THEIR ABDOMEN ALL IN AN EFFORT
TO PREVENT ANY POSSIBILITY OF

541

00:39:18,420 --> 00:39:23,950

PASSING OUT BECAUSE THEY'RE
HYPERBOLIMIC AND ALSO PROVIDE

542

00:39:23,950 --> 00:39:30,119

THEM WITH SALT SOLUTIONS PRIOR
TO ENTRY.

543

00:39:30,119 --> 00:39:32,670

SO ALL THESE THINGS WERE DONE
FOR THE MINERS.

544

00:39:32,670 --> 00:39:35,090

WHEN WE WERE DOWN THERE, THEY
WERE THINKING THAT IT MIGHT TAKE

545

00:39:35,090 --> 00:39:39,680

UP TO FOUR HOURS FOR THE TRANSIT
TIME FROM 2,200 FEET BELOW

546

00:39:39,680 --> 00:39:42,450

GROUND TO GET TO THE TOP.
AS IT TURNED OUT, IT WAS ONLY

547

00:39:42,450 --> 00:39:44,840

ABOUT 15 MINUTES.
BUT, YOU KNOW, WE WERE STILL

548

00:39:44,840 --> 00:39:48,410

CONCERNED ABOUT THE POSSIBILITY
OF FAINTING DURING THE COURSE OF

549

00:39:48,410 --> 00:39:50,299

THAT TRANSIT.
NEXT SLIDE, PLEASE.

550

00:39:50,299 --> 00:39:59,869

WHILE ON THE NIGHT OF THE FIRST
MINER BEING RESCUED, I WAS HAPPY

551
00:39:59,869 --> 00:40:06,450
TO BE AT THE CHILEAN EMBASSY.
AND IT WAS AN OPPORTUNITY FOR ME

552
00:40:06,450 --> 00:40:12,059
TO EXPERIENCE THAT WITH THE
CHILEAN PEOPLE THAT I HAD REALLY

553
00:40:12,059 --> 00:40:14,589
HAD A WARM PLACE IN MY HEART
FOR.

554
00:40:14,589 --> 00:40:20,119
AND IT WAS, YOU KNOW, A
CELEBRATION, AS YOU MIGHT WELL

555
00:40:20,119 --> 00:40:23,160
IMAGINE, INCLUDING REPEATING OF
THE CHANT CHI-CHI-CHI-!

556
00:40:23,160 --> 00:40:25,700
LE-LE-LE!
LOS MINEROS DE CHILE!

557
00:40:25,700 --> 00:40:30,040
AND I THINK PROBABLY A NUMBER OF
US WATCHED THROUGHOUT THE COURSE

558
00:40:30,040 --> 00:40:33,490
OF THE NEXT 24 HOURS, THE
EXTRACTION OF ALL 33 OF THE

559
00:40:33,490 --> 00:40:34,490
MINERS.
NEXT SLIDE, PLEASE.

560
00:40:34,490 --> 00:40:39,309
THIS IS A LITTLE CLOSER-UP VIEW
OF THE EXTRACTION CAPSULE.

561

00:40:39,309 --> 00:40:45,849

AND SHOWING YOU THE ANGLE AT
WHICH THIS CAPSULE TRANSITED

562

00:40:45,849 --> 00:40:49,869

PRETTY MUCH A STRAIGHT SHOT DOWN
TO THE RESCUE CHAMBER.

563

00:40:49,869 --> 00:40:52,790

NEXT SLIDE, PLEASE.
OF COURSE, THIS IS WHAT IT WAS

564

00:40:52,790 --> 00:40:57,770

ALL ABOUT.
THE THRILL OF HAVING THESE MEN

565

00:40:57,770 --> 00:41:02,049

REUNITED WITH THEIR FAMILIES WAS
JUST REALLY QUITE OVERWHELMING

566

00:41:02,049 --> 00:41:04,339

AT TIMES.
NEXT SLIDE.

567

00:41:04,339 --> 00:41:06,539

AND, OF COURSE, IT WAS A GREAT
SUCCESS.

568

00:41:06,539 --> 00:41:11,569

NOT ONLY FOR THE SURVIVORS OF
THIS ORDEAL, BUT A GREAT SUCCESS

569

00:41:11,569 --> 00:41:15,300

FOR THE PRESIDENT AND HIS
GOVERNMENT.

570

00:41:15,300 --> 00:41:19,250

NEXT SLIDE, PLEASE.
THIS IS THE ORDER THAT THE

571

00:41:19,250 --> 00:41:22,650

MINERS CAME OUT IN.
AND WE HAD SOME DISCUSSIONS.

572

00:41:22,650 --> 00:41:25,950

YOU KNOW, A LOT OF TIMES IN THE
MEDICAL FIELD WHEN WE THINK

573

00:41:25,950 --> 00:41:28,010

ABOUT, WELL, LET'S GET THE
WEAKEST AND THE SICKEST OUT

574

00:41:28,010 --> 00:41:32,820

FIRST SO THAT WE CAN START CARE.
THE SUBMARINE COMMANDER, CAPTAIN

575

00:41:32,820 --> 00:41:36,079

NAVARRO, SAID, YOU KNOW, IN THE
SUBMARINE WORLD, WE WOULD SENT

576

00:41:36,079 --> 00:41:39,490

UP OUR MOST ABLE-BODIED PERSON
IF WE HAD TO EVACUATE FROM A

577

00:41:39,490 --> 00:41:44,140

SUBMARINE SO THAT THAT
INDIVIDUAL COULD TELL US WHERE

578

00:41:44,140 --> 00:41:47,410

THE PROBLEMS WERE, IF THERE WERE
ANY ON THE WAY UP.

579

00:41:47,410 --> 00:41:49,770

AND SO INDEED, THAT'S WHAT WAS
DONE.

580

00:41:49,770 --> 00:41:54,960

THE YOUNG MAN THAT CAME UP FIRST
WAS FELT TO BE THE MOST

581

00:41:54,960 --> 00:41:58,589

PSYCHOLOGICALLY FIT, THE ONE
THAT HAD THE MOST TECHNICAL

582

00:41:58,589 --> 00:42:04,920

KNOW-HOW AND COULD ARTICULATE
WHAT THE RIDE WAS LIKE AND WHAT

583

00:42:04,920 --> 00:42:09,670

THEY CAN DO TO IMPROVE IT.
AND, OF COURSE, THE LAST MAN OUT

584

00:42:09,670 --> 00:42:15,710

WAS THE GENTLEMAN THAT WAS THE
TEAM LEAD FOR ALL OF THE MINERS.

585

00:42:15,710 --> 00:42:21,650

NEXT SLIDE, PLEASE.
THE EXTRACTION VEHICLE, PHOENIX

586

00:42:21,650 --> 00:42:26,140

2, IS ON WORLD TOUR NOW.
IT MAY ACTUALLY BE AT THE

587

00:42:26,140 --> 00:42:28,319

SMITHSONIAN SOMETIME IN THE
SPRING.

588

00:42:28,319 --> 00:42:31,030

I KNOW THERE ARE SOME
NEGOTIATIONS GOING ON BETWEEN

589

00:42:31,030 --> 00:42:34,840

THE STATE DEPARTMENT, THE
SMITHSONIAN AND THE CHILEANS

590

00:42:34,840 --> 00:42:40,210

ABOUT BRINGING THAT SO THAT WE
ALL CAN SEE THIS VEHICLE.

591
00:42:40,210 --> 00:42:44,020
NEXT SLIDE, PLEASE.
WELL, WE WERE FORTUNATE ENOUGH

592
00:42:44,020 --> 00:42:50,450
TO BE INVITED TO THE WHITE
HOUSE.

593
00:42:50,450 --> 00:42:53,730
OUTSIDE OF THE WHITE HOUSE GATE,
WE ALL CONGREGATED.

594
00:42:53,730 --> 00:42:56,619
AND YES, THAT'S ME HOLDING A
PICTURE OF FLAT SHUTTLE INSTEAD

595
00:42:56,619 --> 00:43:03,240
OF FLAT STANLEY.
THE GENTLEMAN THAT DESIGNED THE

596
00:43:03,240 --> 00:43:09,250
DRILL BIT IS STANDING BEHIND THE
LADY IN THE WHITE BLOUSE WITH

597
00:43:09,250 --> 00:43:15,000
THE RED JACKET.
THE TWO GENTLEMEN ON THE FAR

598
00:43:15,000 --> 00:43:19,020
RIGHT ARE GENTLEMEN THAT WERE
BROUGHT BACK FROM AFGHANISTAN

599
00:43:19,020 --> 00:43:21,690
WHERE THEY WERE DRILLING WATER
WELLS.

600
00:43:21,690 --> 00:43:26,349
THEY ACTUALLY RAN THE RIG.
AND THEN THERE WAS SOME

601
00:43:26,349 --> 00:43:30,720
INDIVIDUALS THERE THAT ACTUALLY
REPRESENTED THE FOODSERVICE FIRM

602
00:43:30,720 --> 00:43:36,630
THAT SUPPLIED ABOUT 50,000 MEALS
TO THE MINERS DURING THE COURSE

603
00:43:36,630 --> 00:43:38,990
OF THIS ORDEAL.
NEXT SLIDE, PLEASE.

604
00:43:38,990 --> 00:43:46,089
IT WAS A GREAT PRIVILEGE TO BE
IN THE OVAL OFFICE.

605
00:43:46,089 --> 00:43:50,260
THE PRESIDENT GREETED EVERY ONE
OF US INDIVIDUALLY AS WE CAME

606
00:43:50,260 --> 00:43:54,660
THROUGH THE DOOR.
HE MADE US FEEL LIKE WE WERE THE

607
00:43:54,660 --> 00:43:59,369
MOST IMPORTANT THING TO HIM AT
THAT PARTICULAR TIME.

608
00:43:59,369 --> 00:44:02,400
AND, OF COURSE, IT WAS LATER
THAT DAY THAT WE ALL HEARD ON

609
00:44:02,400 --> 00:44:09,390
THE NEWS THAT THESE PRINTER
BOMBS HAD BEEN PLACED IN THE

610
00:44:09,390 --> 00:44:13,490
CARGO PLANES.
AND SO I'M SURE THAT HE MAY WELL

611

00:44:13,490 --> 00:44:16,691

HAVE HAD THAT KNOWLEDGE AT THE
TIME.

612

00:44:16,691 --> 00:44:22,559

BUT WHILE WE WERE THERE, HE WAS
VERY GRACIOUS, TALKED TO EACH OF

613

00:44:22,559 --> 00:44:27,859

THE TEAMS INDIVIDUALLY.
NEXT SLIDE, PLEASE.

614

00:44:27,859 --> 00:44:31,500

AND HERE HE'S TALKING TO THE
GENTLEMEN THAT PROVIDED THE

615

00:44:31,500 --> 00:44:34,920

FOODSERVICE.
IF YOU LOOK REALLY CLOSELY, YOU

616

00:44:34,920 --> 00:44:40,119

CAN SEE ME BEHIND AL HOLLAND.
AND I'M ACTUALLY LOOKING AWAY.

617

00:44:40,119 --> 00:44:44,109

I REALLY COULDN'T SEE HIM AS HE
WAS TALKING.

618

00:44:44,109 --> 00:44:48,020

ONE OF MY FRIENDS BACK AT
JOHNSON SPACE CENTER ASKED IF I

619

00:44:48,020 --> 00:44:54,470

HAD SPOTTED A SQUIRREL OUTSIDE
THE WINDOW OF THE OVAL OFFICE.

620

00:44:54,470 --> 00:44:58,630

ACTUALLY, THERE WAS NO SQUIRREL.
BUT I WAS TAKING IN THE MOMENT.

621

00:44:58,630 --> 00:45:06,039

AND LOOKING AROUND, LOOKING AT
THE DESK, THE SENSE OF BEING IN

622

00:45:06,039 --> 00:45:09,470

THAT OFFICE AND THE HISTORY THAT
THAT OFFICE HAS SEEN.

623

00:45:09,470 --> 00:45:15,299

NEXT SLIDE, PLEASE.

WE CAME BACK TO NASA

624

00:45:15,299 --> 00:45:18,250

HEADQUARTERS HERE.

WE WERE VERY GRACIOUSLY RECEIVED

625

00:45:18,250 --> 00:45:20,710

BY GENERAL BOLDEN AND DEPUTY
ADMINISTRATOR GARVER.

626

00:45:20,710 --> 00:45:25,390

AND WE WERE PRESENTED THE
EXCEPTIONAL ACHIEVEMENT MEDAL.

627

00:45:25,390 --> 00:45:29,030

SO HERE ARE THE FOUR TEAM
MEMBERS THAT WENT TO CHILE AND

628

00:45:29,030 --> 00:45:34,000

AL CONDES WHO WORKED TIRELESSLY
BEHIND THE SCENES TO MAKE SURE

629

00:45:34,000 --> 00:45:40,380

THAT ALL OF THE NEGOTIATIONS,
YOU KNOW, WERE TAKEN CARE OF.

630

00:45:40,380 --> 00:45:44,849

AND IT WAS A TRANSPARENT THING
FOR US AS WE WERE WORKING ON THE

631

00:45:44,849 --> 00:45:49,109

TASK AT HAND DOWN IN CHILE.
NEXT SLIDE, PLEASE.

632

00:45:49,109 --> 00:45:53,450

WE WERE ALSO ENTERED INTO THE
CONGRESSIONAL RECORD.

633

00:45:53,450 --> 00:45:57,569

MS. EDDIE BERNICE JOHNSON,
REPRESENTATIVE OF TEXAS,

634

00:45:57,569 --> 00:46:01,150

CONGRATULATED THE NASA TEAM AND
ENTERED OUR NAMES INTO THE

635

00:46:01,150 --> 00:46:05,150

CONGRESSIONAL RECORD AS HOUSE
RESOLUTION NUMBER 1734.

636

00:46:05,150 --> 00:46:09,430

NEXT SLIDE, PLEASE.
AND IN CLOSING, I JUST WANTED TO

637

00:46:09,430 --> 00:46:17,020

MAKE THE COMMENT THAT THE THINGS
THAT WE RECOMMENDED TO THE

638

00:46:17,020 --> 00:46:19,799

CHILEANS, THESE ARE THE THINGS
THAT WE DO EVERY DAY.

639

00:46:19,799 --> 00:46:23,900

WE WRITE RECOMMENDATIONS FOR
SPACECRAFT, YOU KNOW, WHETHER

640

00:46:23,900 --> 00:46:25,730

THAT'S ENGINEERING
RECOMMENDATIONS, WHETHER IT'S

641
00:46:25,730 --> 00:46:32,890
MEDICAL RECOMMENDATIONS, DESIGN
THINGS FOR SPACECRAFT, BUT IT

642
00:46:32,890 --> 00:46:37,619
WAS APPLIED IN A DIFFERENT WAY.
WE ALSO, YOU KNOW, THINK ABOUT

643
00:46:37,619 --> 00:46:42,069
CONTINGENCIES HERE AT NASA AND
PLAN FOR CONTINGENCIES.

644
00:46:42,069 --> 00:46:46,589
SO THOSE KINDS OF THINGS
TRANSLATED VERY WELL.

645
00:46:46,589 --> 00:46:51,780
THE OTHER THING ABOUT THIS
EMBLEM OF NASA IS THAT IT'S

646
00:46:51,780 --> 00:46:59,760
RECOGNIZED THROUGHOUT THE WORLD
AS A QUALITY ORGANIZATION WHERE

647
00:46:59,760 --> 00:47:07,940
SOME OF THE BEST ENGINEERING AND
MINES AND ENGINEERING WORKED.

648
00:47:07,940 --> 00:47:13,350
I THINK WE SHOULD ALL TAKE PRIDE
IN THE FACT THAT WE ARE A PART

649
00:47:13,350 --> 00:47:17,780
OF SUCH AN ORGANIZATION THAT IS
SO WELL RECOGNIZED THROUGHOUT

650
00:47:17,780 --> 00:47:21,280
THE WORLD AND SO WELL RESPECTED.
NEXT SLIDE, PLEASE.

651

00:47:21,280 --> 00:47:25,829

FINALLY, THE PRINT'S A LITTLE
SMALL HERE.

652

00:47:25,829 --> 00:47:30,490

I APOLOGIZE FOR THAT.
A LIST OF PEOPLE THAT FROM AN

653

00:47:30,490 --> 00:47:33,760

ENGINEERING, BEHAVIORAL HEALTH
AND MEDICAL STANDPOINT AS WELL

654

00:47:33,760 --> 00:47:37,770

AS INTERSPERSED THROUGH THERE,
OTHER PEOPLE THAT HELPED SUPPORT

655

00:47:37,770 --> 00:47:43,440

US, TO HELP GET US PASSPORTS,
HELP, YOU KNOW, MAKE SURE, YOU

656

00:47:43,440 --> 00:47:46,289

KNOW, FROM A STATE DEPARTMENT
STANDPOINT THAT EVERYTHING WAS

657

00:47:46,289 --> 00:47:49,829

CLEARED AND READY TO GO SO THAT
WE COULD GET DOWN THERE AND DO

658

00:47:49,829 --> 00:47:53,109

OUR WORK.
AND WE'RE VERY GRATEFUL TO THESE

659

00:47:53,109 --> 00:47:56,220

PEOPLE THAT HELPED TO SUPPORT
US.

660

00:47:56,220 --> 00:47:58,440

AND IF WE COULD GO TO THE LAST
SLIDE.

661

00:47:58,440 --> 00:48:03,579

AND I'D BE HAPPY TO TAKE ANY
QUESTIONS THAT YOU MIGHT HAVE.

662

00:48:03,579 --> 00:48:10,920

I THINK CERTAINLY THE OUTCOME
WAS VERY REWARDING AND THAT WE

663

00:48:10,920 --> 00:48:16,359

WERE ABLE TO PARTICIPATE IN SUCH
A SUCCESSFUL ENTERPRISE.

664

00:48:16,359 --> 00:48:20,640

BUT JUST THE TRIP ITSELF AND
BEING ABLE TO GO DOWN THERE,

665

00:48:20,640 --> 00:48:24,029

MEET THE CHILEAN PEOPLE,
UNDERSTAND THEIR -- YOU KNOW,

666

00:48:24,029 --> 00:48:28,261

GET A SENSE OF THEIR SPIRIT, GET
A SENSE OF THEIR WARMTH, IT WAS

667

00:48:28,261 --> 00:48:32,599

A VERY REWARDING TRIP FOR US AND
ONE THAT WE WERE HAPPY TO

668

00:48:32,599 --> 00:48:34,990

REPRESENT NOT ONLY THIS AGENCY
BUT THE COUNTRY.

669

00:48:34,990 --> 00:48:46,729

SO THANK YOU VERY MUCH.
SO ANY QUESTIONS?

670

00:48:46,729 --> 00:48:55,930

>>

YOU SAID IT WAS 90 DEGREES

671

00:48:55,930 --> 00:48:57,089

BELOW THE SURFACE.

YET EVERYONE UP TOP WAS IN

672

00:48:57,089 --> 00:48:58,089

COATS.

>> MM-HMM.

673

00:48:58,089 --> 00:49:00,930

WELL, FIRST OF ALL, THINK OF IT

THAT WE WERE 800 METERS ABOVE

674

00:49:00,930 --> 00:49:07,809

SEA LEVEL IN THE MOUNTAINS.

IT WAS KIND OF THE TAIL END OF

675

00:49:07,809 --> 00:49:12,410

THEIR WINTER.

AT NIGHT, THERE WAS NO CLOUD

676

00:49:12,410 --> 00:49:15,240

COVER.

SO THERE WAS A LOT OF RADIANT

677

00:49:15,240 --> 00:49:17,789

COOLING.

SO IT WOULD BE VERY COOL IN THE

678

00:49:17,789 --> 00:49:20,500

MORNINGS, OVERNIGHT AND IN THE

MORNING.

679

00:49:20,500 --> 00:49:22,619

AND THEN IT WOULD WARM UP DURING

THE DAY.

680

00:49:22,619 --> 00:49:25,240

YOU PROBABLY SAW SOME OF THE

PICTURES WHERE WE WERE CARRYING

681

00:49:25,240 --> 00:49:27,670

OUR COATS AND THAT SORT OF
THING.

682

00:49:27,670 --> 00:49:33,000

NOW, DOWN -- THIS IS A VERY
SEISMICALLY ACTIVE REGION.

683

00:49:33,000 --> 00:49:36,020

WE THINK THAT PROBABLY SOME OF
THE REASON FOR THE HIGH

684

00:49:36,020 --> 00:49:41,470

TEMPERATURES IN THE MINE ITSELF
ARE RELATED TO THE FACT THAT

685

00:49:41,470 --> 00:49:45,730

THERE'S A LOT OF SEISMIC
ACTIVITY, A LOT OF, YOU KNOW,

686

00:49:45,730 --> 00:49:52,141

HEAT IN THE SUBTERRANEAN LEVELS
RELATING TO, YOU KNOW, LAVA AND

687

00:49:52,141 --> 00:49:58,059

THAT SORT OF THING.

>> I HAD A QUESTION, TOO.

688

00:49:58,059 --> 00:50:00,789

FIRST OF ALL, THANK YOU SO MUCH
FOR REPRESENTING NASA SO WELL.

689

00:50:00,789 --> 00:50:03,549

>> THANK YOU.

>> IT MAKES ME FEEL PROUD TO

690

00:50:03,549 --> 00:50:05,370

WORK IN THIS ORGANIZATION AS
WELL.

691

00:50:05,370 --> 00:50:06,609

>> THANK YOU VERY MUCH.

>> THANK YOU.

692

00:50:06,609 --> 00:50:10,779

I'M CURIOUS TO KNOW, WITH SUCH
REDUCED CALORIE CONTENT THAT THE

693

00:50:10,779 --> 00:50:13,970

MINERS HAD INITIALLY, WAS THERE
ANY PERSPECTIVE AS TO HOW MUCH

694

00:50:13,970 --> 00:50:16,650

MORE TIME THEY HAD?
HAD THEY NOT BEEN DISCOVERED?

695

00:50:16,650 --> 00:50:19,660

JUST ON ROUGH ORDERS OF
MAGNITUDE, HOW CLOSE WERE THEY

696

00:50:19,660 --> 00:50:22,609

TO SOMETHING BAD HAPPENING?
>> OF COURSE, THAT'S ALWAYS A

697

00:50:22,609 --> 00:50:29,049

HARD QUESTION TO ESTIMATE.
YOU KNOW, THERE HAVE BEEN SOME

698

00:50:29,049 --> 00:50:32,641

INDIVIDUALS, I CAN THINK OFF THE
TOP OF MY HEAD, A PARTICULAR

699

00:50:32,641 --> 00:50:36,500

INDIVIDUAL THAT WAS IN AN IRISH
PRISON THAT WAS MAKING A

700

00:50:36,500 --> 00:50:38,760

STATEMENT BY GOING ON
STARVATION.

701

00:50:38,760 --> 00:50:42,320

AND I THINK THAT INDIVIDUAL
LASTED SIX, SEVEN, EIGHT WEEKS,

702

00:50:42,320 --> 00:50:45,039

SOMETHING LIKE THAT.
SO THAT'S KIND OF PUSHING IT,

703

00:50:45,039 --> 00:50:50,680

YOU KNOW, SIX WEEKS WOULD BE
ABOUT THE ABSOLUTE LIMIT.

704

00:50:50,680 --> 00:50:54,349

WITH REGARDS TO CALORIC INTAKE.
OF COURSE, YOU KNOW, WITHOUT

705

00:50:54,349 --> 00:50:58,200

WATER, IT WOULD HAVE BEEN MUCH
SOONER.

706

00:50:58,200 --> 00:51:02,880

YOU KNOW, THEY WERE -- THEY WERE
GETTING NEGLIGIBLE CALORIES,

707

00:51:02,880 --> 00:51:05,740

QUITE FRANKLY.
INTERESTINGLY, WHEN WE GOT OUR

708

00:51:05,740 --> 00:51:10,460

FIRST MEDICAL BRIEF, THE
MINISTER OF HEALTH SAID, NOW, WE

709

00:51:10,460 --> 00:51:13,170

DO HAVE A PROBLEM.
BY THE HEIGHT AND WEIGHT AND

710

00:51:13,170 --> 00:51:17,750

ABDOMINAL GIRTH MEASUREMENTS
THAT WE KNEW OF THE MINERS GOING

711

00:51:17,750 --> 00:51:21,750

IN, THERE'S NINE OR TEN OF THESE
GUYS THAT AREN'T GOING TO FIT IN

712

00:51:21,750 --> 00:51:25,380

THE CAPSULE BASED ON THE
INTERNAL SIZE OF THE RESCUE

713

00:51:25,380 --> 00:51:28,529

CAPSULE AS IT WAS DESIGNED AT
THAT TIME.

714

00:51:28,529 --> 00:51:32,039

AND SO IT WAS SOMEWHAT
FORTUITOUS THAT BY THE TIME THEY

715

00:51:32,039 --> 00:51:35,660

WERE FOUND, THEY ESTIMATED THAT
THE MINERS MAY HAVE LOST, YOU

716

00:51:35,660 --> 00:51:38,710

KNOW, 15, 20 POUNDS.
SO THAT KIND OF HELPED.

717

00:51:38,710 --> 00:51:41,770

AND WE DIDN'T WANT TO FATTEN
THEM UP TOO MUCH WITH

718

00:51:41,770 --> 00:51:57,150

FOODSTUFFS.
OKAY.

719

00:51:57,150 --> 00:51:58,309

>> THANK YOU AGAIN FOR AN
EXCELLENT PRESENTATION.

720

00:51:58,309 --> 00:52:00,819

I HAD THE PRIVILEGE OF ALSO
BEING HERE TO HEAR DR. POLK

721

00:52:00,819 --> 00:52:05,559

PRESENT ON THIS AS WELL.
YOU'VE BOTH BEEN VERY HUMBLE

722

00:52:05,559 --> 00:52:10,250

ABOUT YOUR ACTIVITIES IN THIS
AREA.

723

00:52:10,250 --> 00:52:15,110

AND RIGHTFULLY SO CREDIT TO THE
CHILEANS FOR THEIR ENDEAVORS AND

724

00:52:15,110 --> 00:52:17,220

THEIR ACTIVITIES.
BUT I WONDER IF YOU COULD SPEAK

725

00:52:17,220 --> 00:52:20,609

A LITTLE BIT MORE SPECIFICALLY
ON EXACTLY THE KINDS OF THINGS

726

00:52:20,609 --> 00:52:24,819

FROM A MEDICAL PERSPECTIVE WE
WERE ABLE TO SHARE WITH THE

727

00:52:24,819 --> 00:52:28,269

CHILEANS, WHAT THEY WERE ABLE TO
PUT TO USE.

728

00:52:28,269 --> 00:52:30,380

>> SURE.
I THINK THAT IT'S, AS YOU

729

00:52:30,380 --> 00:52:35,550

POINTED OUT, VERY IMPORTANT FOR
US TO RECOGNIZE THAT WE WERE

730

00:52:35,550 --> 00:52:39,920

THERE AS CONSULTANTS.
AND ANY OF THE THINGS THAT WE

731

00:52:39,920 --> 00:52:43,559

TALKED TO THEM ABOUT WERE
PROVIDED TO THEM FOR THEIR

732

00:52:43,559 --> 00:52:46,750

CONSIDERATION.
WE DID NOT DO DIRECT MEDICAL

733

00:52:46,750 --> 00:52:48,549

CARE.
WE DID NOT DO DIRECT PSYCH

734

00:52:48,549 --> 00:52:52,740

SUPPORT, WE DID NOT DO DIRECT
ENGINEERING, DESIGN WORK OR ANY

735

00:52:52,740 --> 00:52:57,039

OF THE BUILDING.
IT WAS ALL A CHILEAN EFFORT.

736

00:52:57,039 --> 00:53:00,400

AND THEY WERE, QUITE FRANKLY,
WRITING THE BOOK ON HOW YOU'D DO

737

00:53:00,400 --> 00:53:05,339

A RESCUE OF 33 MEN FROM 2,200
FEET BELOW THE SURFACE IN THESE

738

00:53:05,339 --> 00:53:09,819

KINDS OF CONDITIONS.
SO IT'S VERY IMPORTANT FOR US TO

739

00:53:09,819 --> 00:53:13,180

UNDERSTAND THAT THE CHILEANS
WERE THE ONES THAT MADE THE

740

00:53:13,180 --> 00:53:19,250

DECISIONS AND EXECUTED THE
RESCUE ITSELF.

741

00:53:19,250 --> 00:53:25,170

BUT IN TERMS OF THE MEDICAL
THINGS, FOR EXAMPLE, IN OUR

742

00:53:25,170 --> 00:53:29,880

ANALOG ENVIRONMENTS THAT WE DEAL
WITH, FOR EXAMPLE, IN ANTARCTICA

743

00:53:29,880 --> 00:53:35,140

OR IN THE SPACE FLIGHT
ENVIRONMENT, WE HAVE TO REPLACE

744

00:53:35,140 --> 00:53:38,420

VITAMIN D.
AND VITAMIN D HAS BEEN IN THE

745

00:53:38,420 --> 00:53:41,450

NEWS LAST WEEK WHERE THE
INSTITUTE OF MEDICINE SAID THAT,

746

00:53:41,450 --> 00:53:46,079

YOU KNOW, 600 INTERNATIONAL
UNITS OF VITAMIN D DAILY SHOULD

747

00:53:46,079 --> 00:53:50,160

BE SUFFICIENT FOR THE AVERAGE
PERSON TO TAKE AND MAINTAIN

748

00:53:50,160 --> 00:53:56,060

THEIR VITAMIN D LEVELS IN THEIR
BLOODSTREAM AND IN THEIR BODY.

749

00:53:56,060 --> 00:53:58,710

WE HAVE FOUND THAT NOT TO BE
SUFFICIENT.

750

00:53:58,710 --> 00:54:03,609

AND WE TEND TO REPLACE ABOUT
2,000 INTERNATIONAL UNITS PER

751

00:54:03,609 --> 00:54:08,160

DAY.

AND THERE ARE OTHER -- THERE'S

752

00:54:08,160 --> 00:54:11,900

OTHER RESEARCH OUT THERE THAT
SAYS IF YOU DO 50,000 UNITS ONCE

753

00:54:11,900 --> 00:54:16,180

A MONTH, THAT THAT WOULD ALSO
MAINTAIN YOUR VITAMIN D STORE.

754

00:54:16,180 --> 00:54:20,280

SO THIS IS AN EXAMPLE OF
SOMETHING THAT WE TALKED TO THE

755

00:54:20,280 --> 00:54:23,160

CHILEANS ABOUT IN TERMS OF HOW
TO MANAGE THE VITAMIN

756

00:54:23,160 --> 00:54:29,789

SUPPLEMENTATION FOR THE MINERS.
THE REFEEDING OF THE MINERS WAS

757

00:54:29,789 --> 00:54:32,450

VERY CRITICAL IN ITSELF.
WHEN YOU HAVE SOMEBODY THAT'S IN

758

00:54:32,450 --> 00:54:38,770

A STARVATION STANDPOINT, WE
LEARNED THIS FROM, YOU KNOW,

759

00:54:38,770 --> 00:54:44,190

CONCENTRATION CAMP VICTIMS OR
PRISONERS OF WAR.

760

00:54:44,190 --> 00:54:48,430

WHEN THEY GET OUT OF THOSE KINDS
OF ENVIRONMENTS AND NOW FOOD IS

761

00:54:48,430 --> 00:54:53,869

AVAILABLE, YOU CAN'T JUST FEED
THEM ANYTHING AND AS MUCH AS

762

00:54:53,869 --> 00:54:56,500

THEY WANT.
IT NEEDS TO -- YOU NEED TO START

763

00:54:56,500 --> 00:54:59,760

REFEEDING THEM SLOWLY, MAKE SURE
THERE'S A PROPER COMBINATION OF

764

00:54:59,760 --> 00:55:06,539

CARBOHYDRATE, FAT AND PROTEIN,
VITAMIN SUPPLEMENTATION, MINERAL

765

00:55:06,539 --> 00:55:09,140

SUPPLEMENTATION.
SO THESE ARE THE KINDS OF THINGS

766

00:55:09,140 --> 00:55:14,310

THAT WE TALKED TO THEM ABOUT IN
ADDITION TO MAKE SURE THAT THE

767

00:55:14,310 --> 00:55:17,440

REFEEDING PLAN WENT WELL.
AND THEY HAD AN EXCELLENT HANDLE

768

00:55:17,440 --> 00:55:20,460

ON THE REFEEDING.
ALSO, THE FACT THAT THEY WERE

769

00:55:20,460 --> 00:55:23,480

WORKING WITH THESE PALOMAS, THEY
COULD ONLY GET SO MUCH FOOD TO

770

00:55:23,480 --> 00:55:26,829

THEM TO BEGIN WITH.
AND SO THAT KIND OF HELPED IN

771

00:55:26,829 --> 00:55:30,299

THE REFEEDING PLAN ITSELF AS
WELL.

772

00:55:30,299 --> 00:55:33,500

I THINK THAT IS ALL WE HAVE TIME
FOR TODAY.

773

00:55:33,500 --> 00:55:39,650

IT'S CERTAINLY BEEN MY PLEASURE
TO RELAY TO YOU OUR EXPERIENCES

774

00:55:39,650 --> 00:55:43,589

IN WORKING WITH THE CHILEANS AND
THE SUCCESSFUL EFFORT OF THE

775

00:55:43,589 --> 00:55:49,079

MINERS.
AND IT WAS TRULY A VERY WARM AND