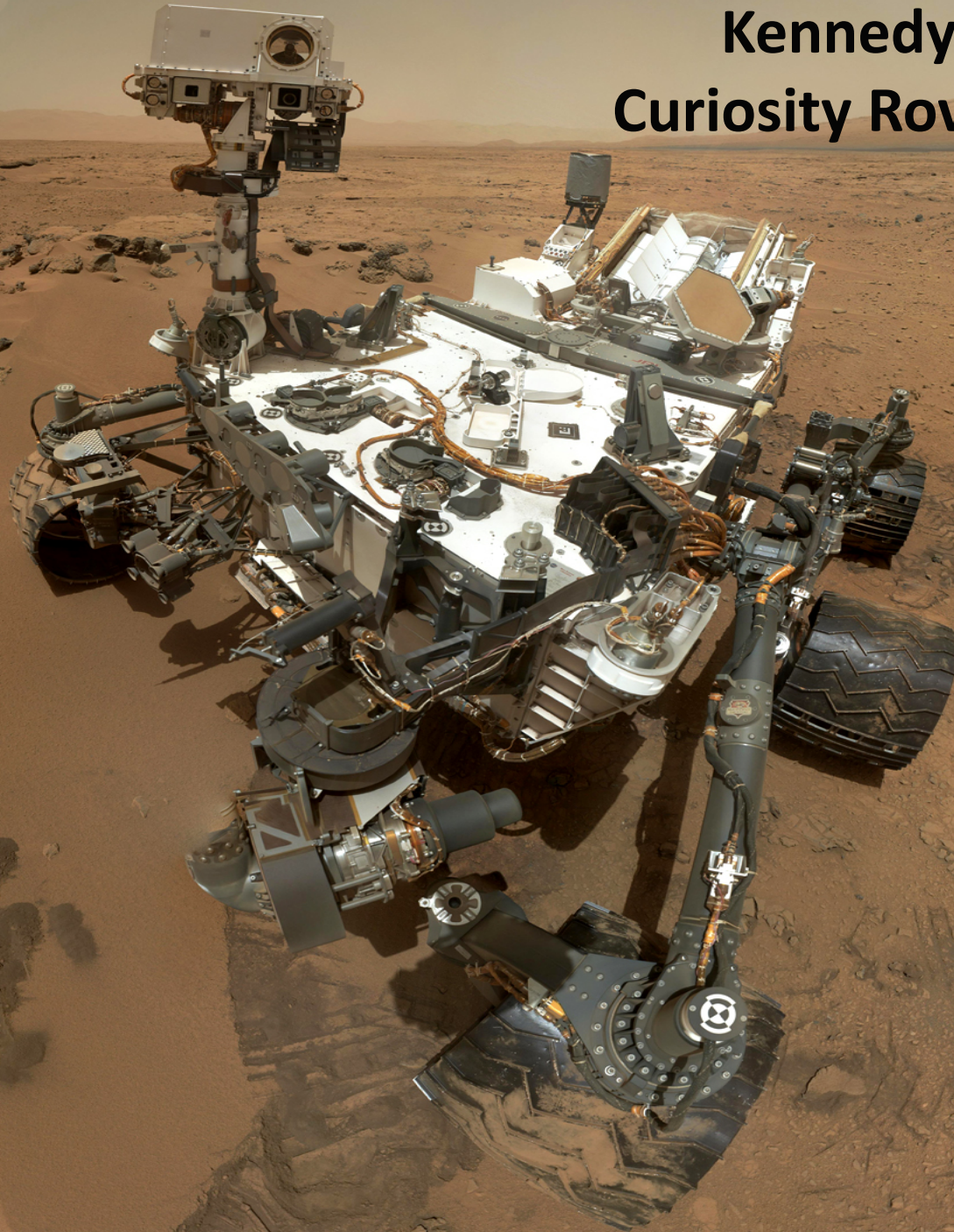


Kennedy Space Center Curiosity Rover Processing 2013



Curiosity Arrives at the Kennedy Space Center June 23, 2011





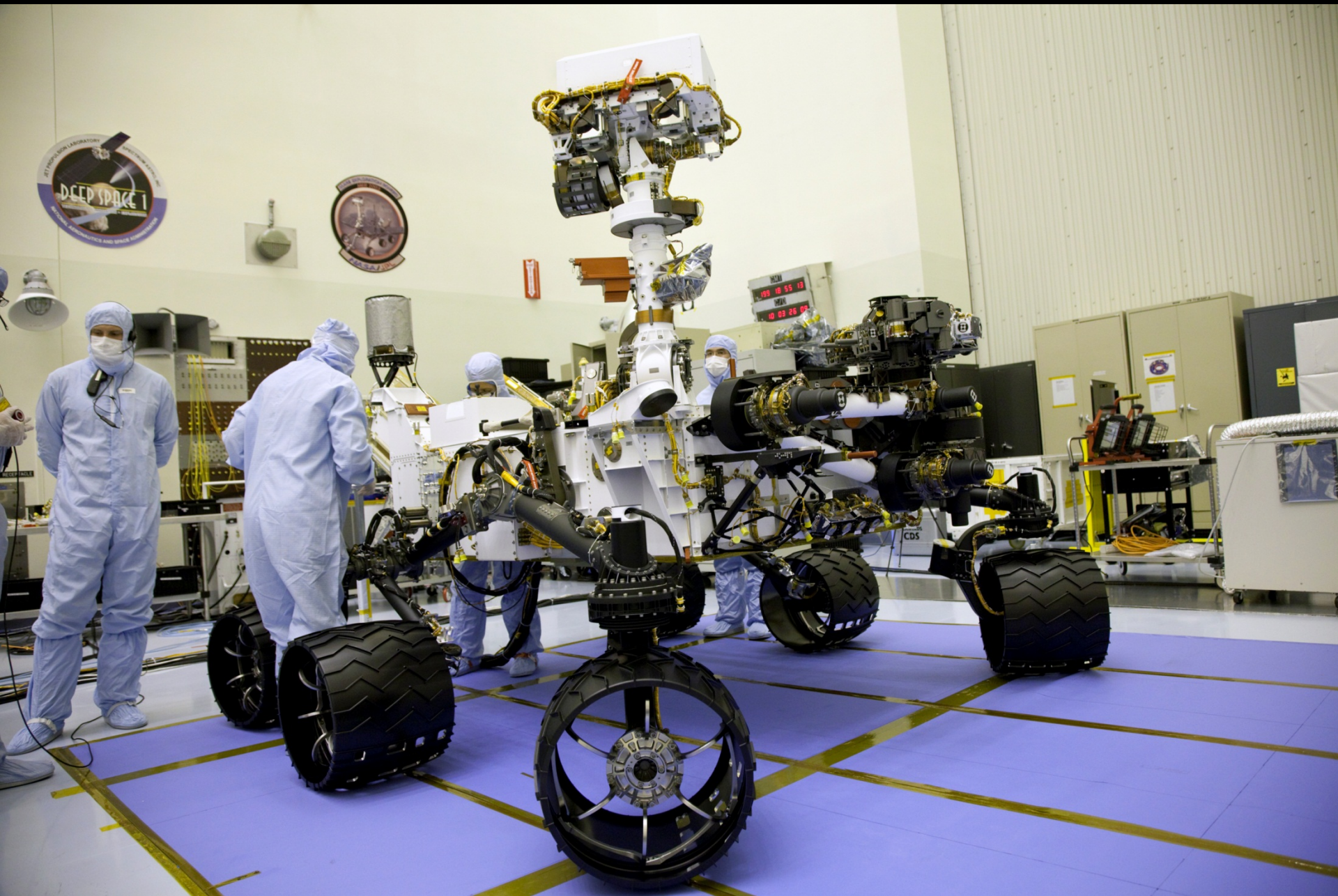












Atlas V Rocket Arrives at Kennedy Space Center















MMRTG
Arrives at
KSC





Curiosity's Power Source

The New Multimission Radioisotope Thermoelectric Generator

10.6 Pounds of PU-238 in 32 Cubes

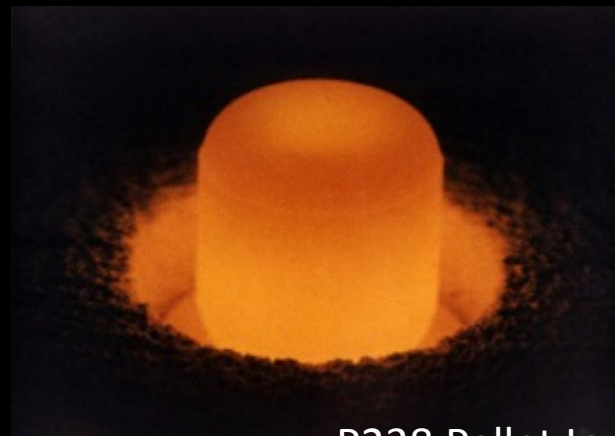
(Half Life 87.7 y)

Alpha Emitter

Solid State Thermoelectric Conversion

Provided by DOE

Manufactured by Hamilton Sundstrand



P238 Pellet In
Production

Generation Capacity is 125 Watts electrical energy

From 2000 watts of heat energy

2.6 KWH electrical energy/day

Thermal heat used to warm electronics bay

Excess heat radiated to atmosphere

Two rechargeable Lithium-ion batteries having capacity 42 amp-hours

To provide extra power to the rover when the demand exceeds the RTG's output capacity



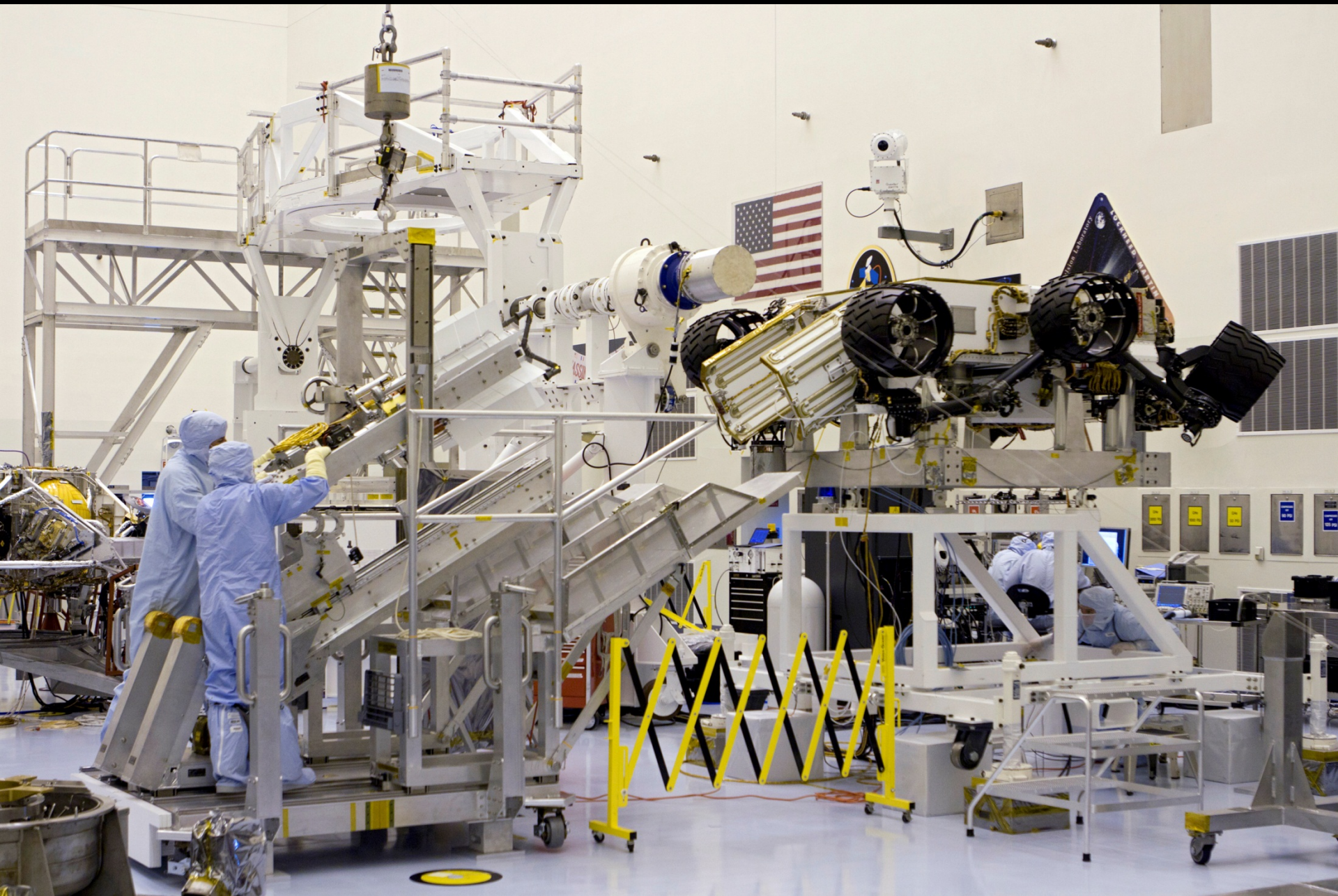




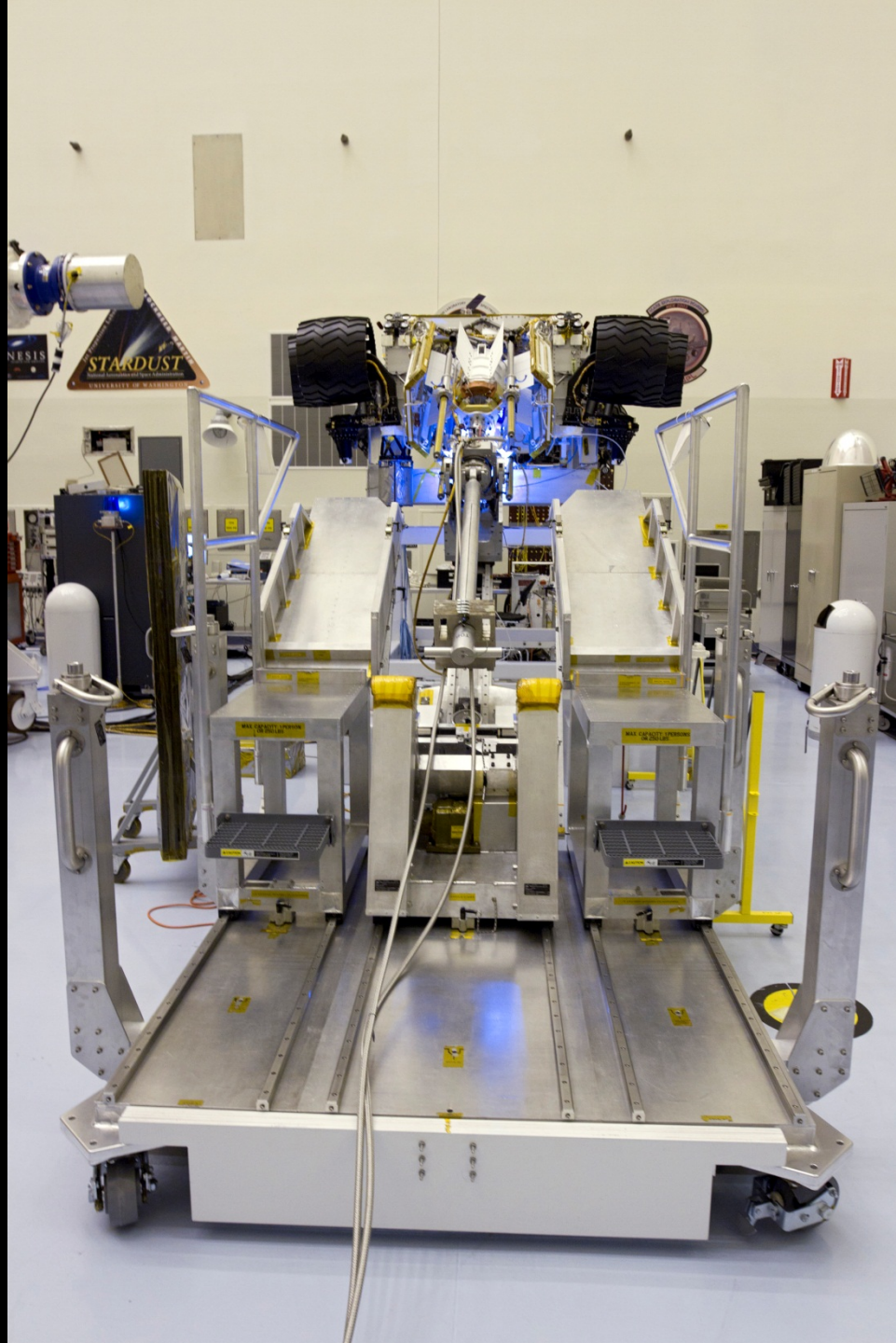
Fit Checking the MMRTG on Curiosity















240



CAUTION !
Helium Tanks under High Pressure
Do not work near tanks without protective covers in place
(unless authorized)

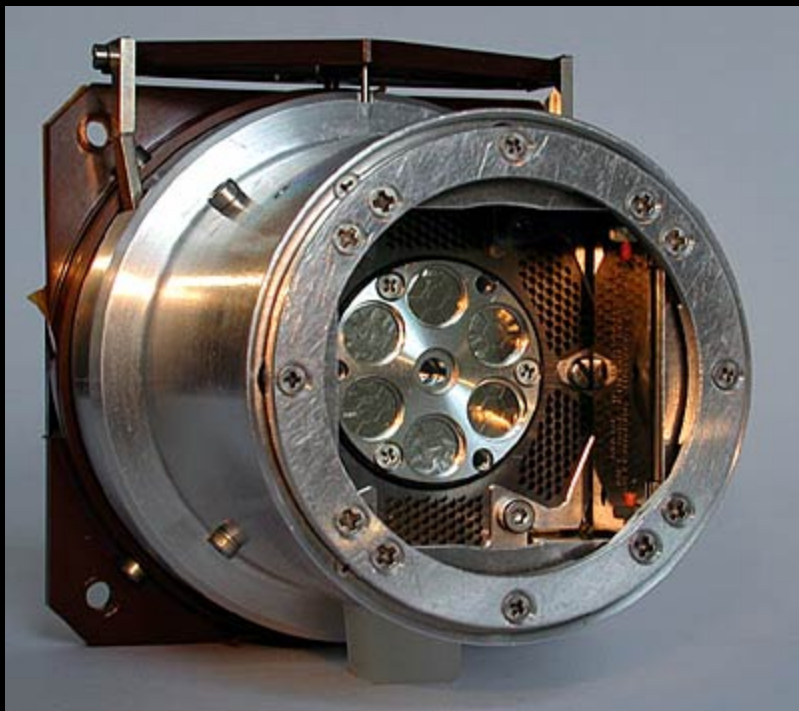
CAUTION
RADIOACTIVE MATERIAL
RADIATION AREA
RESTRICTED ACCESS FOR ENTRY
NO ENTRY BY UNAUTHORIZED PERSONNEL

The KSC Rad Control Team





APXS
CU-244
Arrives



APXS

Alpha Particle X-Ray
Spectrometer

**Curium 244 – Alpha Source /
Plutonium 240 Decay Gamma Source**

**PIXE Principle – Particle Induced X-Ray Emissions
and Lower Energy Emissions**

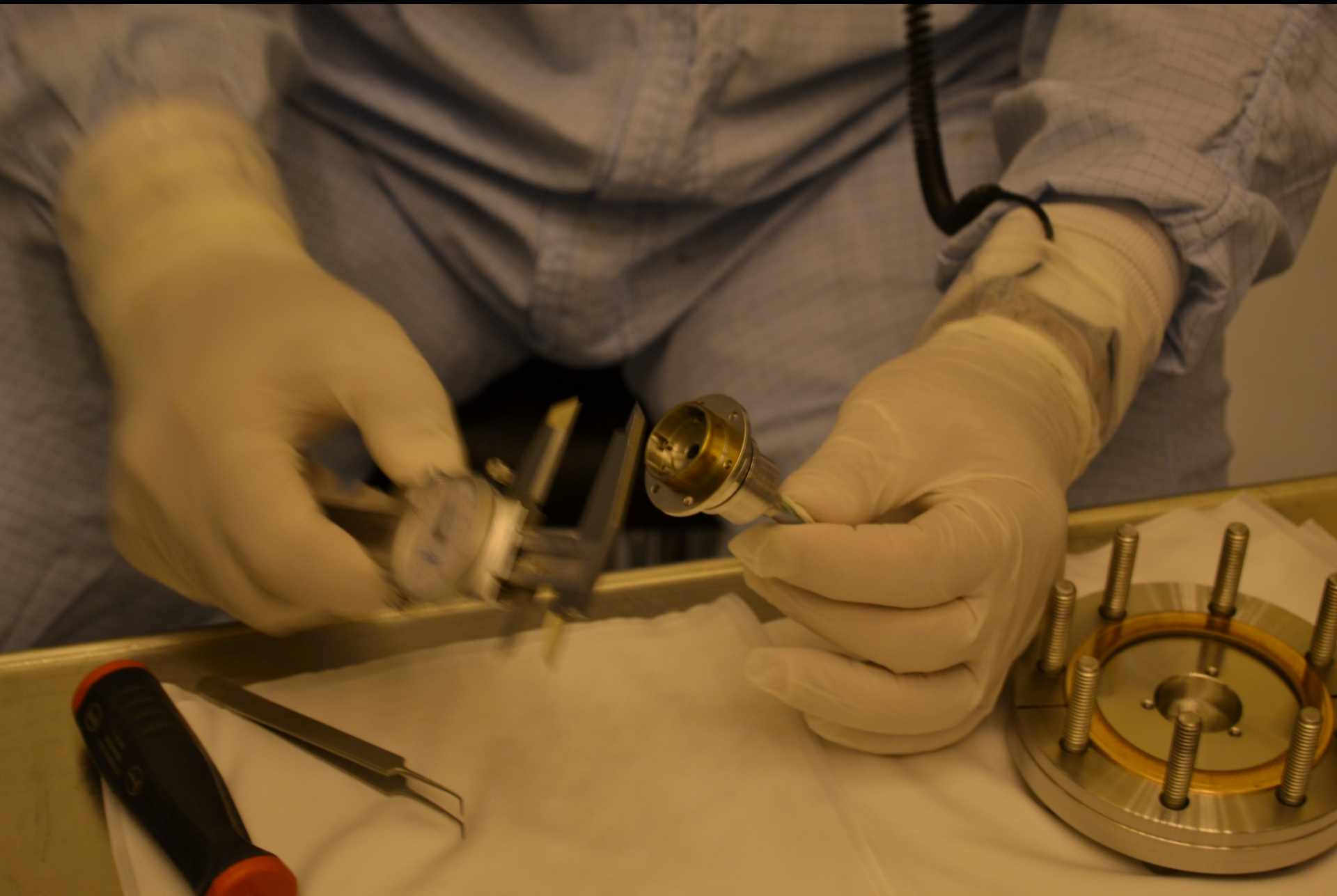
The APXS PIXE Principle

PIXE relies upon the fact that fast moving alpha particles can knock electrons from the lowest energy levels of atoms right out of the atom itself.

This leaves an atom with an unstable configuration of electrons, and one of the electrons in the high energy levels of the atom will now drop down to the low level one, emitting an X-ray as it does so.

APXS has a detector to capture these X-rays and we can determine the elements in the sample by looking at the energy of the X-rays – each element emits X-rays with very specific energies, an energy signature if you like. PIXE is good for detecting lighter elements, essentially sodium through to calcium.

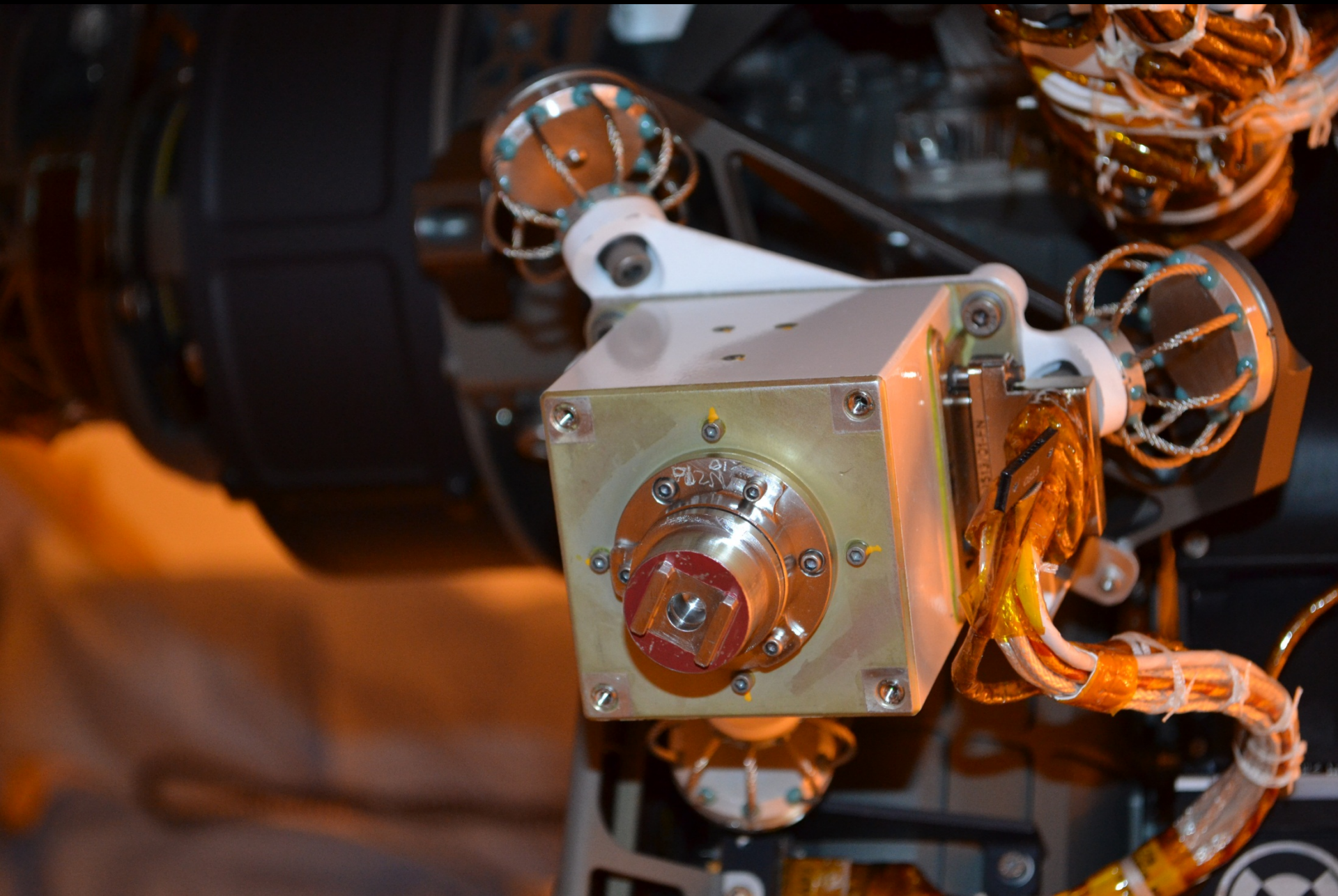


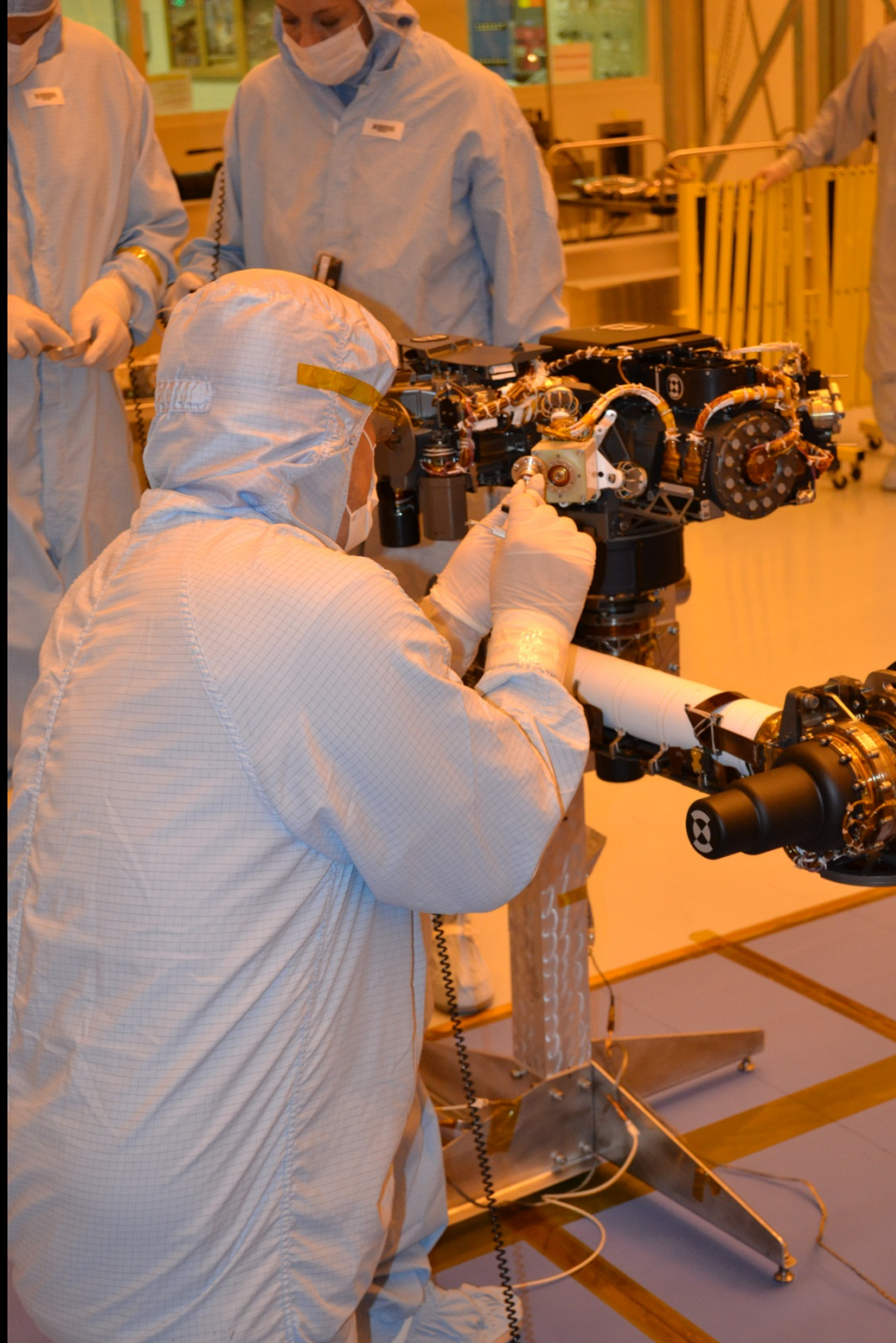






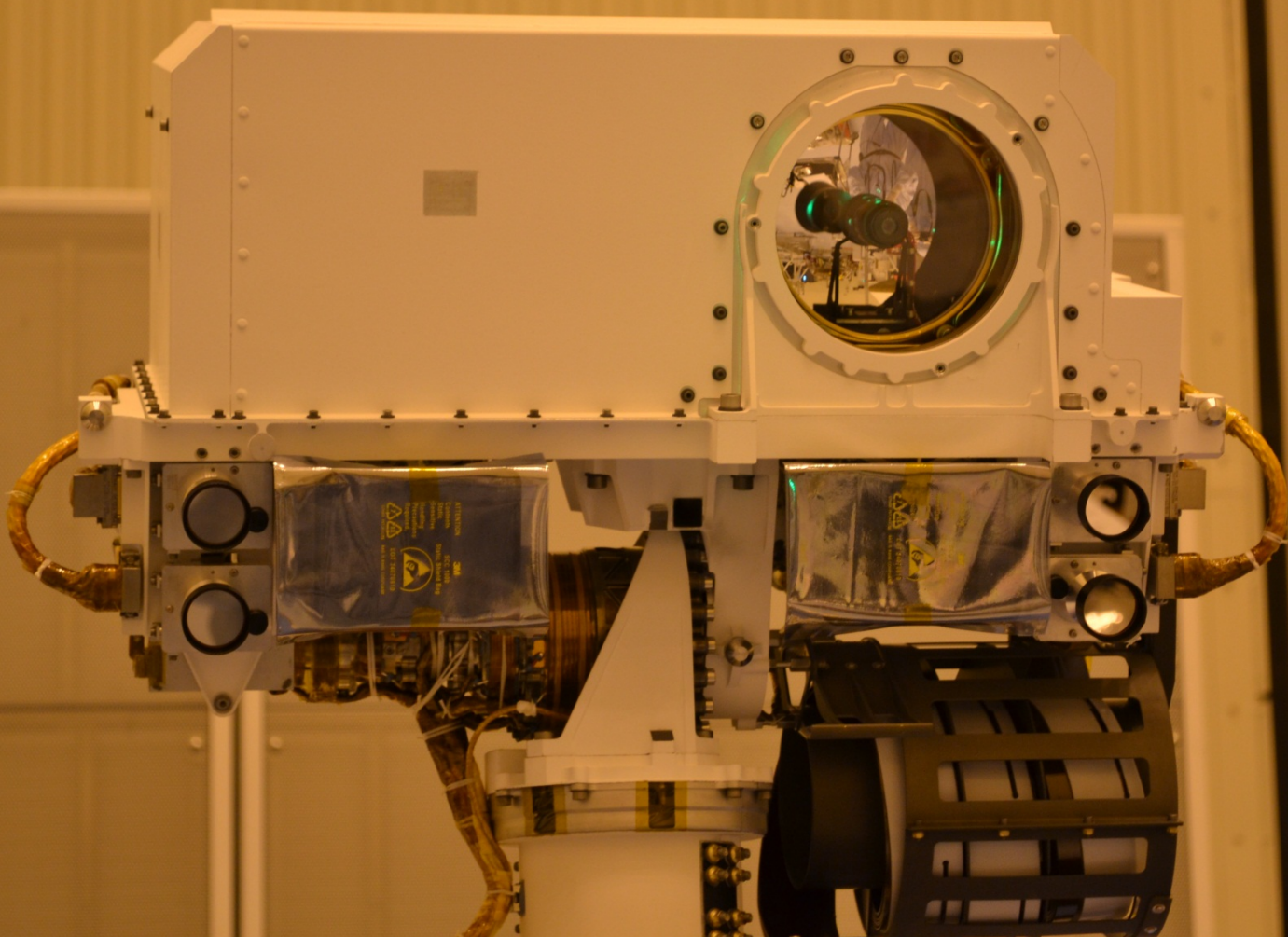


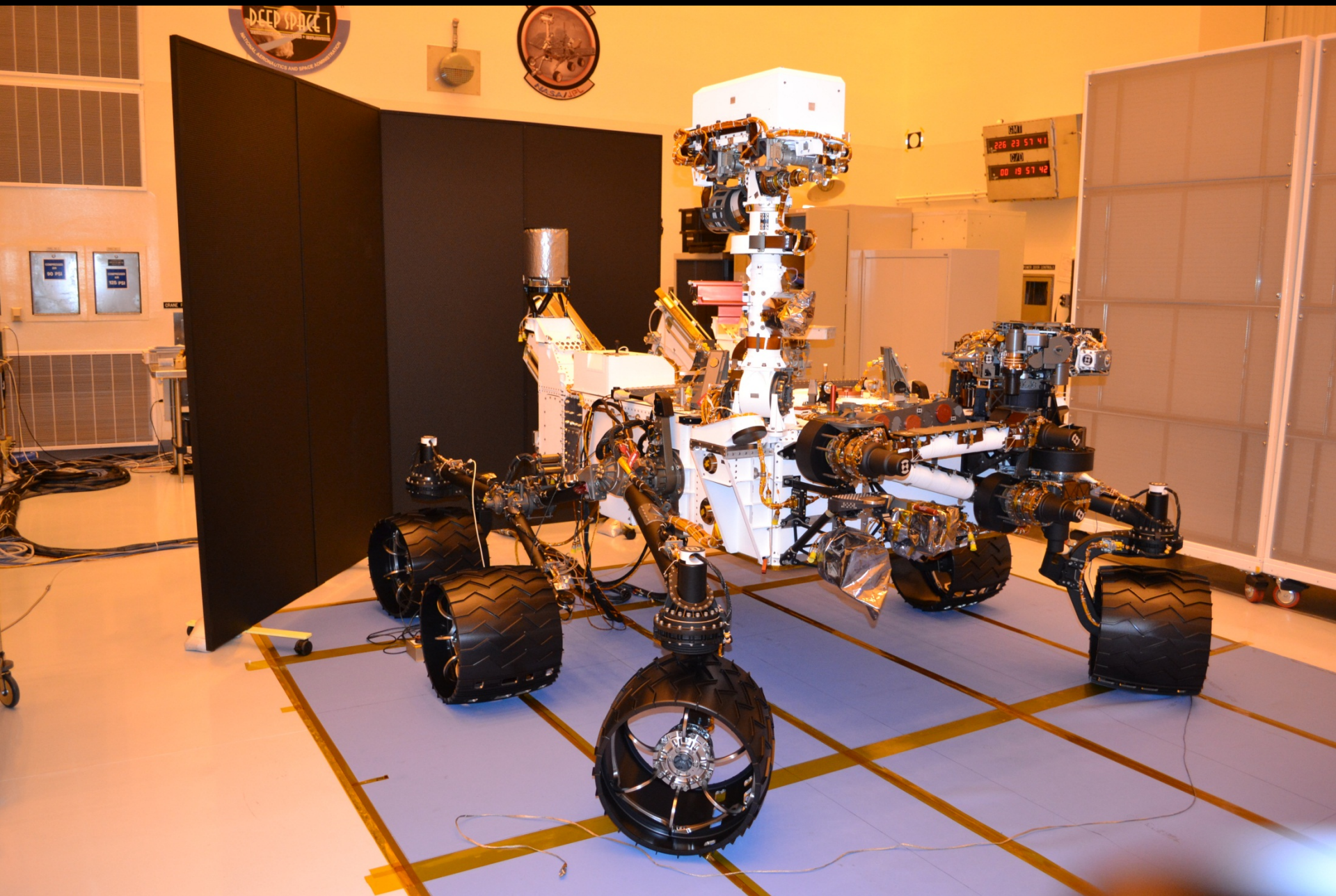


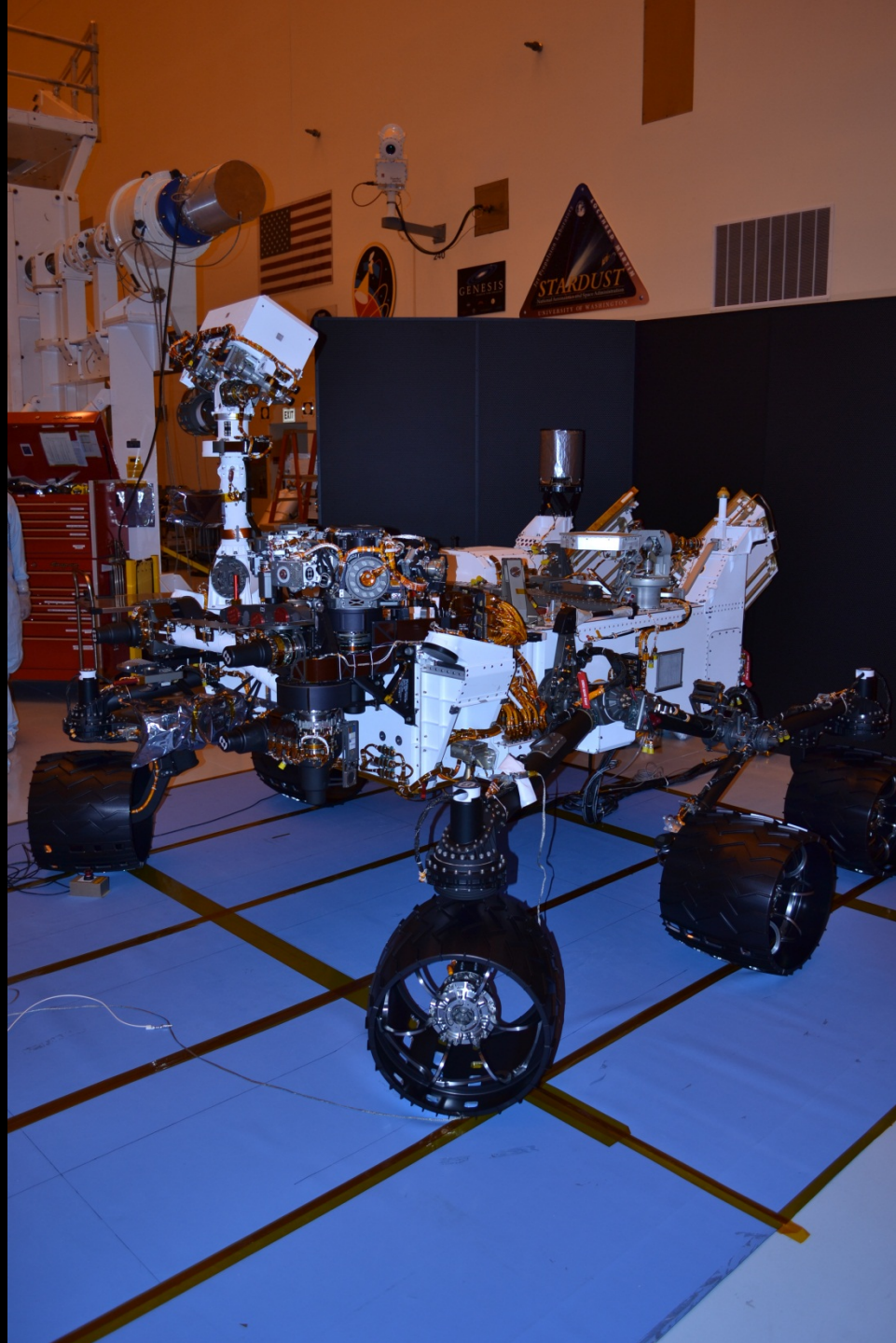




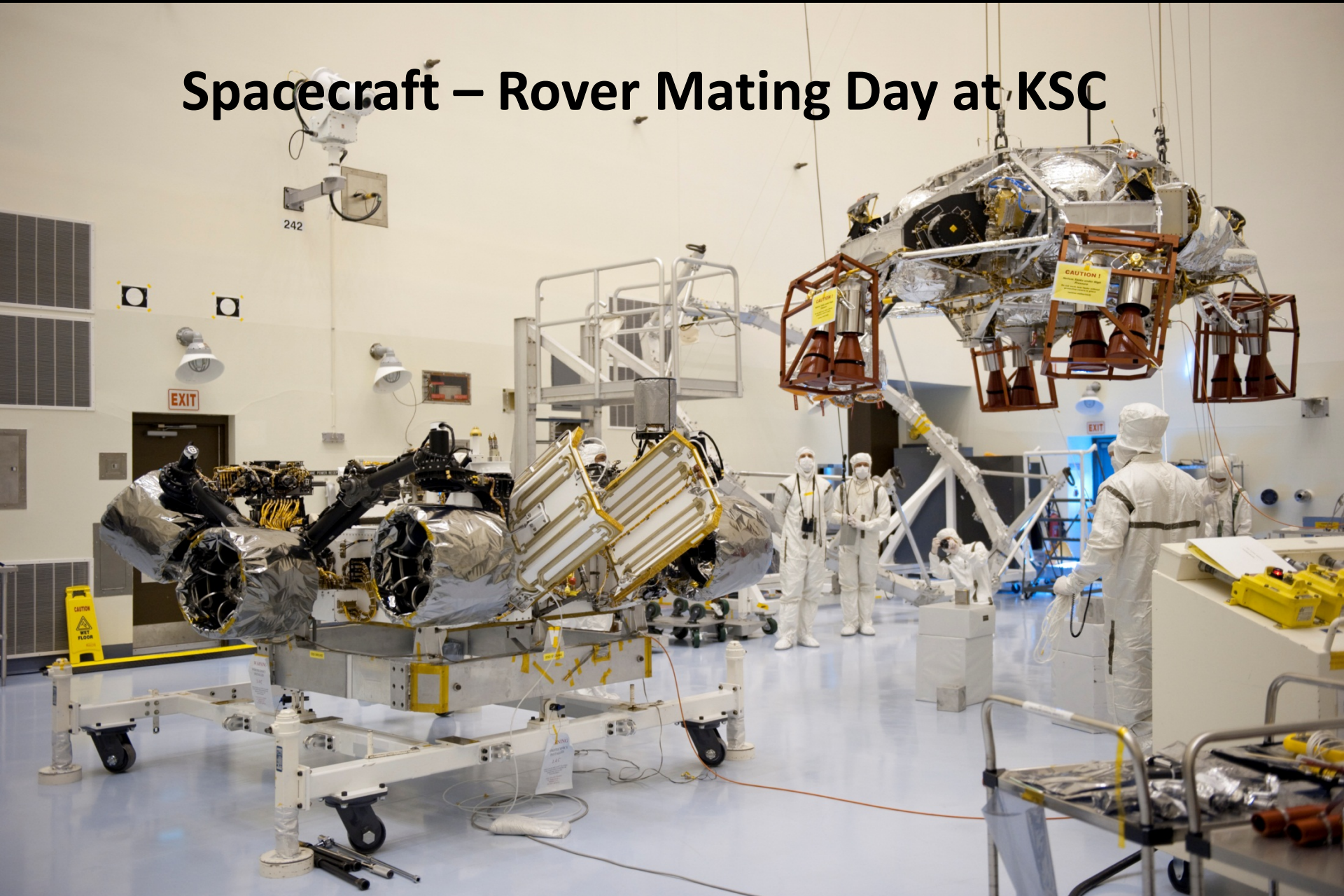








Spacecraft – Rover Mating Day at KSC

















MT
PART 10257468
S/N 001
WT 2520 LBS

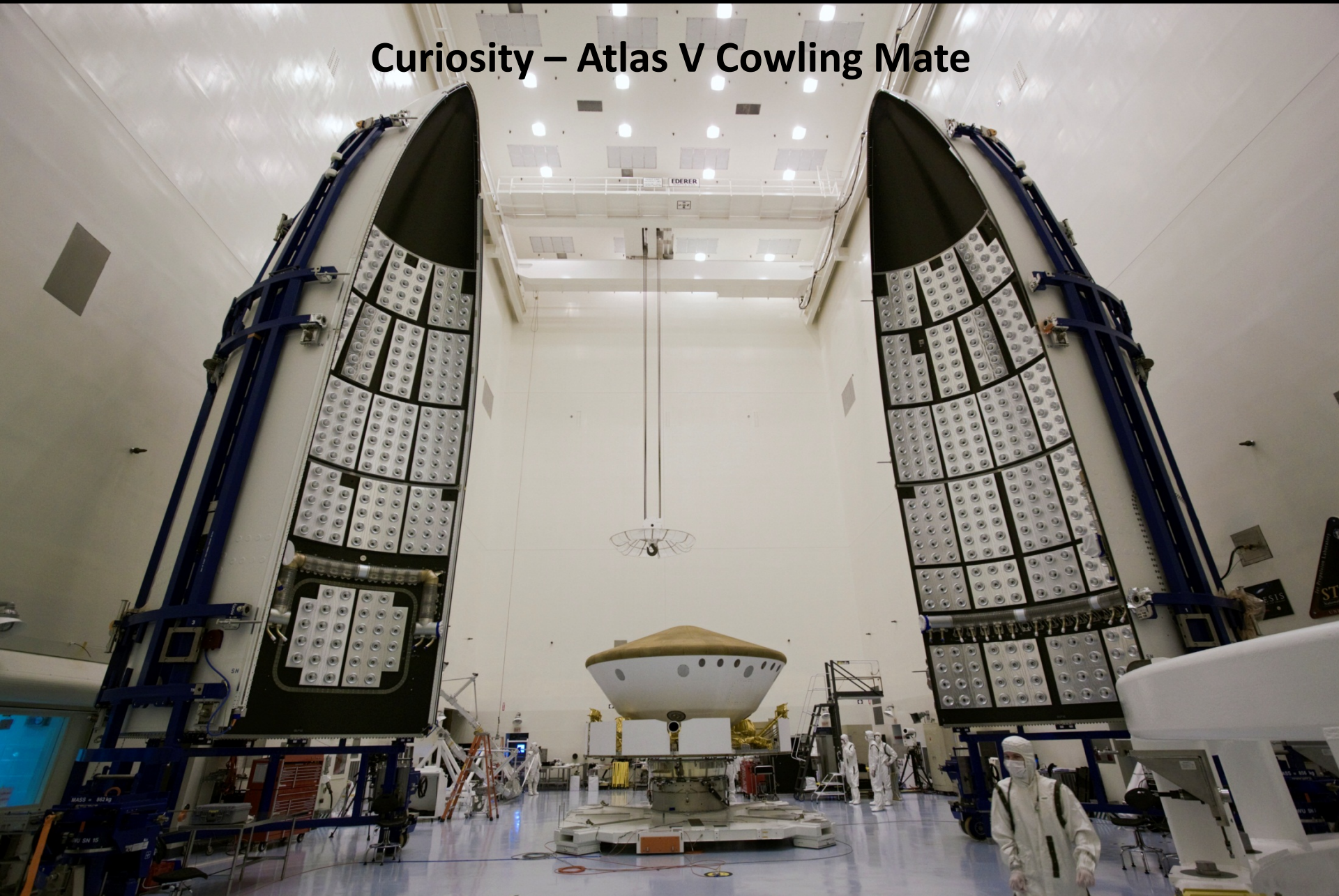
WARNING!

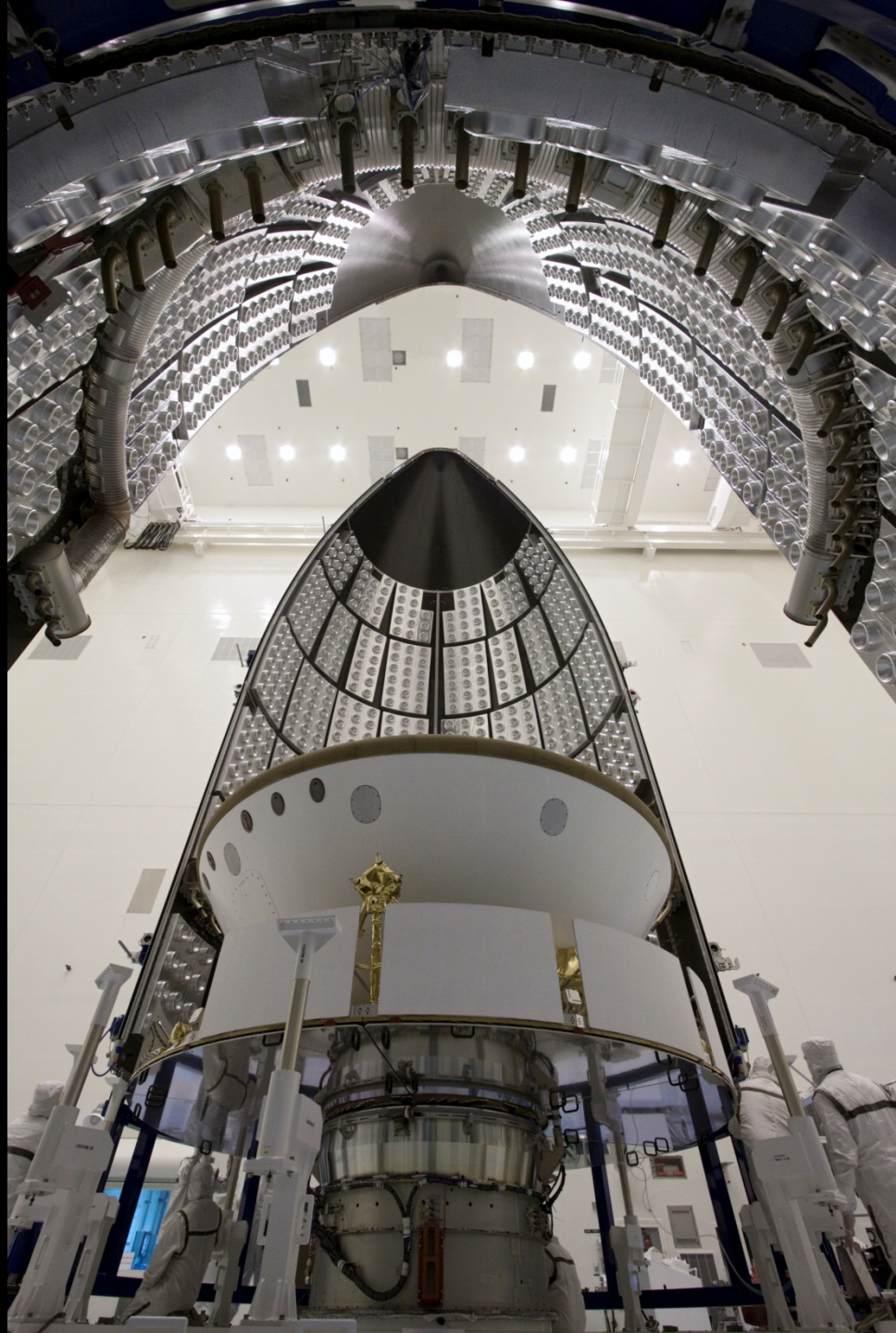






Curiosity – Atlas V Cowling Mate











Curiosity to the Launch Pad For Atlas V Mating



Pad Installation of The MMRTG

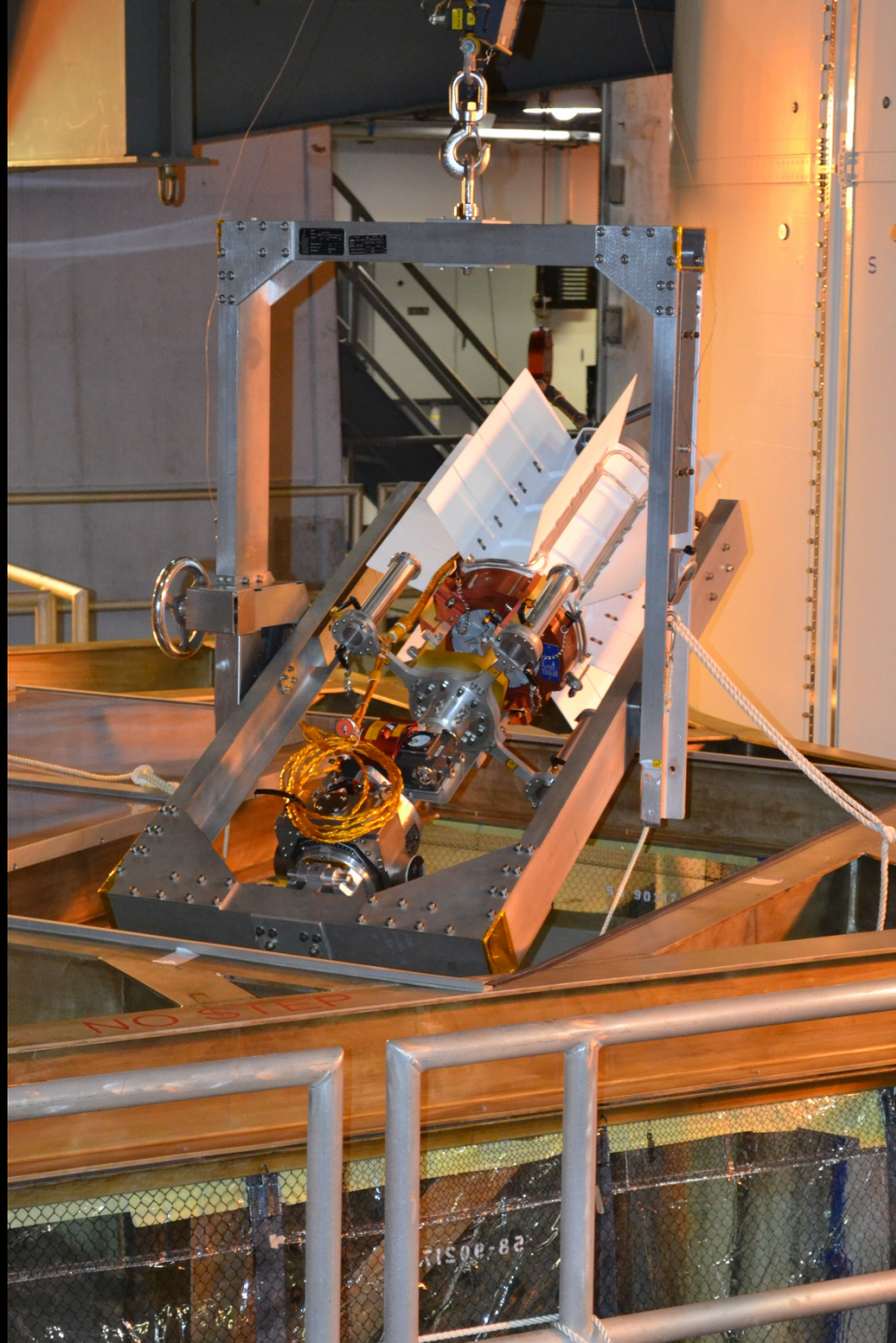
















NO STEP

NO STEP

MAX. CAPACITY: 1 PERSON
OR 250 LBS

MAX. CAPACITY: 1 PERSON
OR 250 LBS



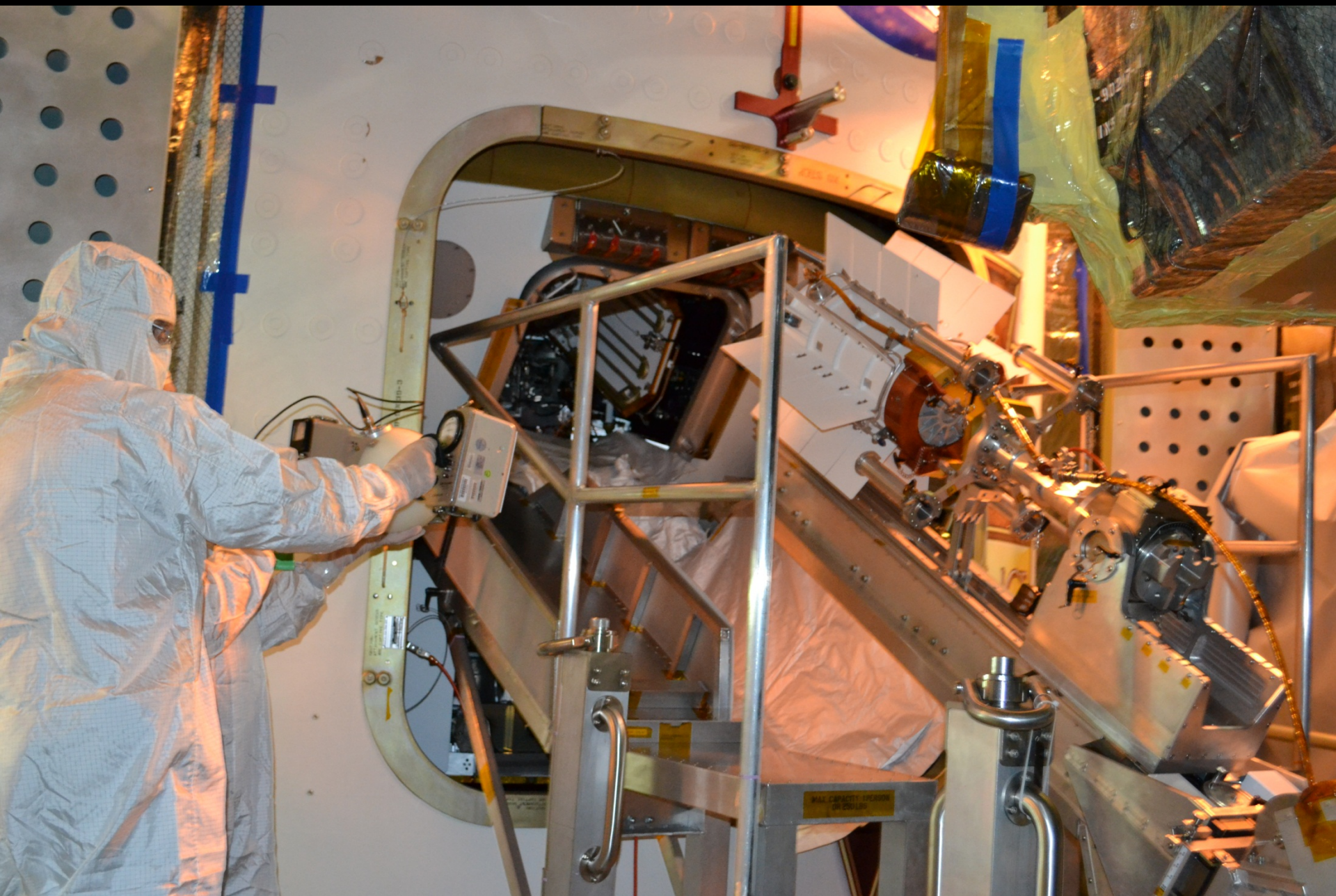
CAUTION

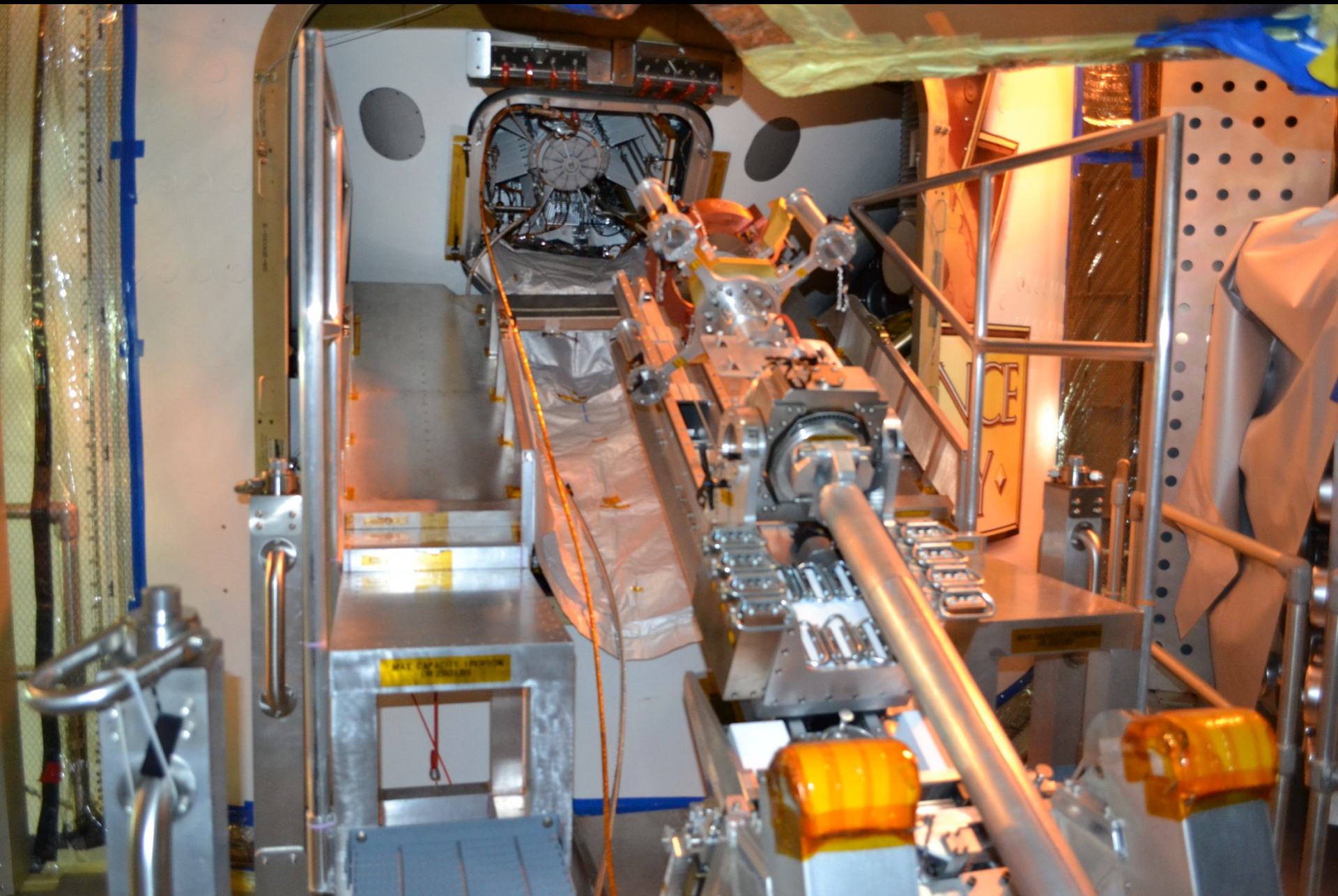
CAUTION

CAUTION

58-90217-18

MAX CAPACITY 1000 LBS
FOR 2500 LBS









Roll Out to Launch
Pad at CCAFS









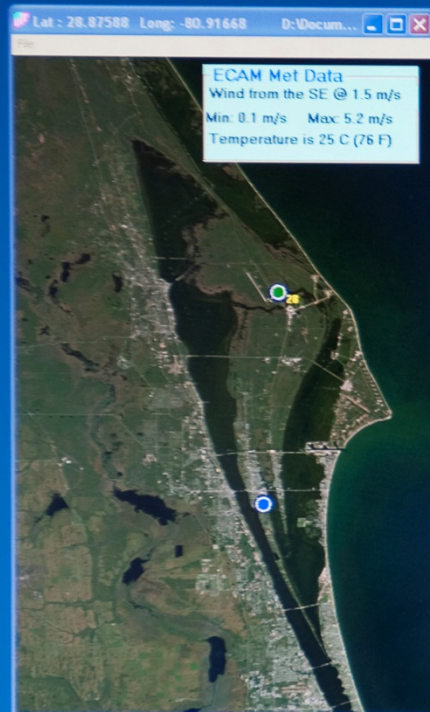
Launch Morning at CCAFS





Kennedy Space Center RADCC

08/05/2011



MSL eDAP 3.3 Saturday, November 26, 2011 07:00

File About Map ECAM Data Setup

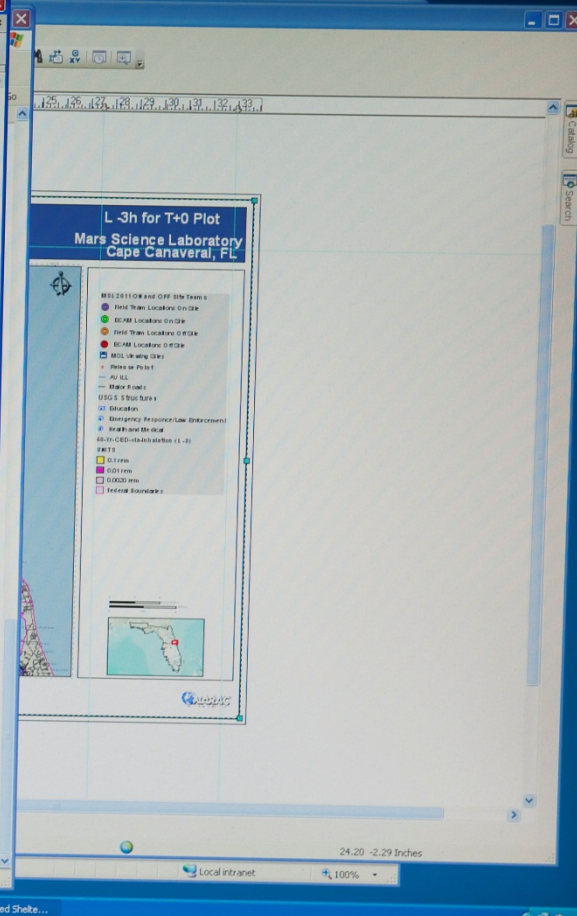
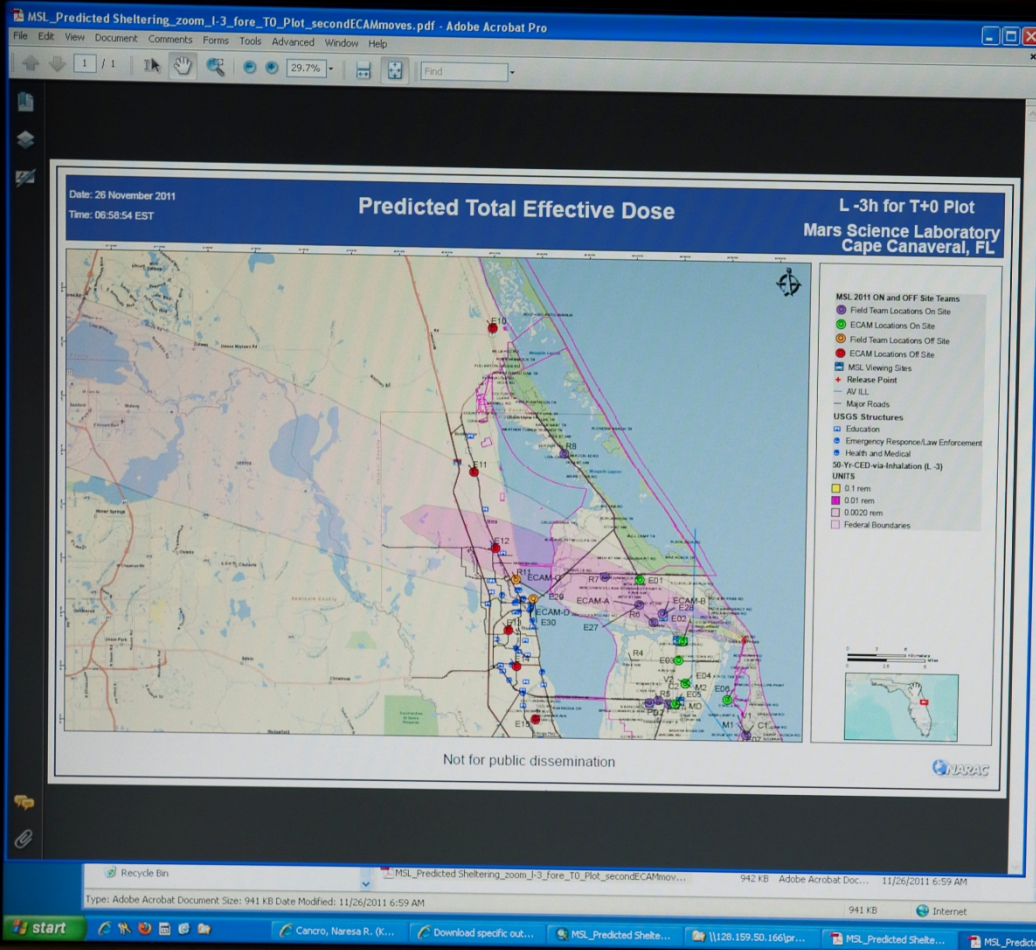
MSL ECAMs - Committed Effective Dose (CED) rem

ECAM 001 11-26-2011 06:59:09 OPERATIONAL Gross: 1.03 CPM Below LOS of 0.002 rem	ECAM 009 11-26-2011 06:59:02 OPERATIONAL Gross: 1.53 CPM Below LOS of 0.002 rem	ECAM 017 11-26-2011 07:00:02 OPERATIONAL Gross: 1.90 CPM Below LOS of 0.002 rem	ECAM 025 11-26-2011 06:59:10 OPERATIONAL Gross: 2.02 CPM Below LOS of 0.002 rem
ECAM 002 11-26-2011 06:58:29 OPERATIONAL Gross: 0.87 CPM Below LOS of 0.002 rem	ECAM 010 11-26-2011 07:00:23 OPERATIONAL Gross: 0.96 CPM Below LOS of 0.002 rem	ECAM 018 11-26-2011 07:00:30 OPERATIONAL Gross: 0.98 CPM Below LOS of 0.002 rem	ECAM 026 11-26-2011 06:59:33 OPERATIONAL Gross: 0.85 CPM Below LOS of 0.002 rem
ECAM 003 11-26-2011 06:59:52 OPERATIONAL Gross: 1.06 CPM Below LOS of 0.002 rem	ECAM 011 11-26-2011 07:00:02 OPERATIONAL Gross: 0.68 CPM Below LOS of 0.002 rem	ECAM 019 11-26-2011 06:58:57 OPERATIONAL Gross: 0.80 CPM Below LOS of 0.002 rem	ECAM 027 11-26-2011 07:00:09 VACANT
ECAM 004 11-26-2011 06:58:56 OPERATIONAL Gross: 0.55 CPM Below LOS of 0.002 rem	ECAM 012 11-26-2011 06:59:28 OPERATIONAL Gross: 1.81 CPM Below LOS of 0.002 rem	ECAM 020 11-26-2011 06:59:44 OPERATIONAL Gross: 0.60 CPM Below LOS of 0.002 rem	ECAM 028 11-26-2011 06:59:54 OPERATIONAL Gross: 0.00 CPM
ECAM 005 11-26-2011 06:58:28 OPERATIONAL Gross: 0.62 CPM Below LOS of 0.002 rem	ECAM 013 11-26-2011 07:00:01 OPERATIONAL Gross: 0.47 CPM Below LOS of 0.002 rem	ECAM 021 11-26-2011 06:59:42 OPERATIONAL Gross: 0.25 CPM Below LOS of 0.002 rem	ECAM 029 11-26-2011 07:00:12 VACANT
ECAM 006 11-26-2011 06:59:56 OPERATIONAL Gross: 1.10 CPM Below LOS of 0.002 rem	ECAM 014 11-26-2011 06:59:57 OPERATIONAL Gross: 1.75 CPM Below LOS of 0.002 rem	ECAM 022 11-26-2011 06:59:43 OPERATIONAL Gross: 1.12 CPM Below LOS of 0.002 rem	ECAM 030 11-26-2011 07:00:14 VACANT
ECAM 007 11-26-2011 06:59:57 OPERATIONAL Gross: 0.47 CPM Below LOS of 0.002 rem	ECAM 015 11-26-2011 06:59:44 OPERATIONAL Gross: 1.11 CPM Below LOS of 0.002 rem	ECAM 023 11-26-2011 06:58:40 OPERATIONAL Gross: 1.14 CPM Below LOS of 0.002 rem	ECAM Meteorological Data Wind from the SE @ 1.5 m/s Min: 0.1 m/s Max: 5.2 m/s Temperature is 25 C (76 F)
ECAM 008 11-26-2011 06:59:24 OPERATIONAL Gross: 1.12 CPM Below LOS of 0.002 rem	ECAM 016 11-26-2011 06:59:26 OPERATIONAL Gross: 1.11 CPM Below LOS of 0.002 rem	ECAM 024 11-26-2011 06:58:20 OPERATIONAL Gross: 1.52 CPM Below LOS of 0.002 rem	Next Update in 6.0 min

DOE – NASA REMOTE ECAM MONITORS



V42223um



ViewSonic

Curiosity Launch to Mars November 26, 2011









Curiosity Lands on Mars

August 6, 2012

