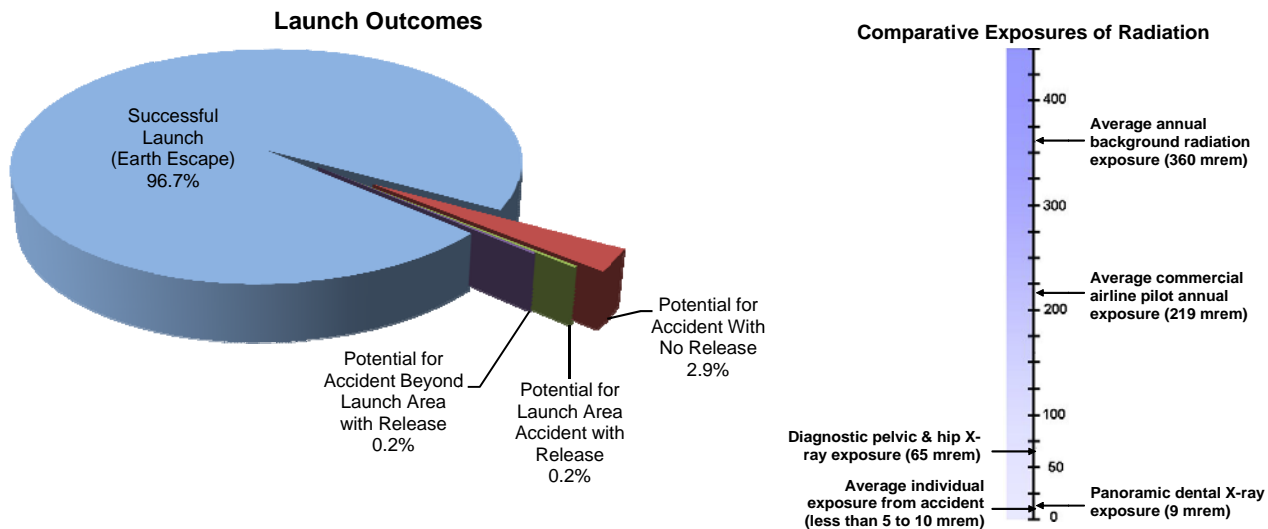


Mars Science Laboratory

Launch Nuclear Safety

NASA plans to launch a mission in the fall of 2011 to land a large, complex rover on Mars. The launch period opens in October, 2011 and could extend through mid-December, 2011. The rover is approximately the size of a sub-compact car and will carry a suite of science instruments to provide detailed information on the past and present habitability of Mars. The MSL mission will allow NASA to substantially advance its technological and operational capabilities in exploring Mars by: delivering a large, mobile science payload safely and precisely to a selected location on the surface of Mars; conducting comprehensive science investigations on the surface for an extensive period of time; and transmitting large volumes of scientific data to Earth.

The MSL mission will launch on an Atlas V launch vehicle. The rover will carry a multi-mission radioisotope thermoelectric generator (MMRTG) to enhance the rover's range and operability and life time. Since the MMRTG uses 4.8 kg (about 10 pounds) of plutonium dioxide (mostly plutonium-238) as a heat source, the mission is subject to a stringent nuclear safety review process culminating in a review by the President's Science Advisor. The graphic below summarizes potential outcomes should an accident occur during the launch of MSL.



- There is a 96.7% chance of MSL having a successful launch.
- Though there is a 3.3% chance of an accident somewhere along the flight path, there is only a 0.4% chance of an accident with a release of plutonium.
- In the unlikely case of a release of plutonium in the launch area, most people would not be exposed to radiation.
- In the unlikely event of an exposure, the average dose to individuals in the launch area would be less than a dental X-ray (5-10 millirem).
- Even in the unlikely event of a launch area accident, as a precautionary measure, residents in potentially affected areas would be advised to take shelter, while monitoring teams verify whether a release has occurred. Sheltering could further reduce any potential radiation dose to the launch area population.

For more information on the safety of missions that are enabled by radioisotope power systems, see the DOE Space Radioisotope Power System Safety Fact Sheet at: www.ne.doe.gov/pdfFiles/SRPSSafety_Jan_2008.pdf.

For More Information

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