



Mars Science Laboratory

Radiological Contingency Planning

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 the end of 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 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, operability, and life time. Since the MMRTG uses 4.8 kg (about 10 pounds) of plutonium-238 dioxide, Kennedy Space Center in coordination with state, local and other federal agencies develops a set of contingency plans to respond to a launch accident with a potential for release of radioactive material.

Assessments of potential accidents for the proposed RPS-powered Mars Science Laboratory indicate that the chance of an accident that could result in the release of any plutonium is very small. NASA and DOE do not expect the safety of the public to be threatened by the launch of the MSL mission even in the unlikely event of an accident resulting in a release of radiological material. Proactive steps are being taken to provide technical resources, trained personnel, and timely communication of information in the unlikely event of an accident. NASA and the agencies of the local, State, and Federal government responsible for emergency response have collectively developed a strategy and plan for responding in the unlikely event of an accident involving the MSL.

In the unlikely event of an accident, the emergency response activities would always be directed toward protecting the health and safety of the public and on-site personnel from potential hazards. Once protective measures are

taken, NASA, DOE, and other Federal agencies would execute, if necessary, recovery plans to locate and recover radioactive materials if necessary.

A launch accident would not necessarily produce a radiation hazard; as a result, the critical first action in responding to any situation would be collecting accurate information about whether any release had occurred. Prior to launch, mobile field teams comprising radiation safety and detection specialists from Federal, State and local agencies will be in the area surrounding the launch site, both inside and outside the Kennedy Space Center/Cape Canaveral Air Force Station boundary. Each of these teams will carry state-of-the-art, specialized instrumentation for air sampling and contamination detection. Additionally, automated air monitoring stations will be in place before launch to detect any potential release of radioactive material following a launch accident and continuously communicate results back to assessment centers.

Air sampling is of significance due to the fact that this could be the first indication of a release of radioactive material.

Prior to and during launch, a Radiological Control Center onsite at KSC will be staffed with radiation detection and assessment experts from Federal, State and local agencies to evaluate the measurements made by the mobile field teams and the automated air monitoring stations in the event of an accident. The purpose of the control center is to evaluate the field measurement information to assess whether a release of radioactive material has occurred, to characterize quickly the extent of any radiological release, and make recommendations regarding protective actions to the State and County and launch site managers.

Key in preparing to respond to a launch accident is having trained professionals ready to provide appropriate assistance. Although it is unlikely there will be a launch accident with a release of radioactive material and exposure of the public, specific training is being provided to medical personnel at local hospitals on how to treat individuals possibly exposed to radioactive materials. This training for health professionals in the area is being provided as a prudent and proactive measure.

For More Information

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In the unlikely event of a launch area accident, as a precautionary measure, residents in potentially affected areas could be advised by local emergency management officials to take shelter, while monitoring teams verify whether a release has occurred. Sheltering further reduces any potential radiation dose to the launch area population.

Finally, it is essential to clearly communicate the information to the public. NASA and DOE will be meeting with local officials and the media to provide background information and answer questions regarding the MSL mission. If a launch accident were to occur, NASA would work with County and State Emergency Management Centers and the media to ensure that the public was immediately informed of the situation and any recommended protective actions.

NASA and DOE will have in place the technical resources, trained personnel, and timely communication procedures so that the public and local officials have access to the most current and highest quality information available.