

Planetary Protection for Humans on Mars



Planetary Protection Policy:

Protect the Earth, Avoid Harmful Contamination

Adding humans, policy has the same intent—but different implementation



Robotic
Exploration

Early Human
Exploration

Future
Use



We Are Here...



Phased Approach: Be careful early; tailor later constraints using knowledge gained

- Humans have many interests at Mars; understanding potential hazards supports all of them
- Searching for Mars life becomes more difficult, the more Earth contamination is introduced
- Future colonization could be challenged, if unwanted Earth invasive species are introduced
 - Blocking aquifers
 - Consuming resources
 - Interfering with planned introductions



Basic Motivation



Protect the Earth

Preserve Human Interests
on Mars

Human
Exploration
Systems



Earth
Biology



Mars
Environment

Understanding of
facts informs
future developments