

Statement of the Space Resources Roundtable, November 4, 2004

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On behalf of the Space Resources Roundtable

The Space Resources Roundtable held its sixth annual meeting, November 1-3, 2004. 141 people representing industry, government and academia gathered to hear presentations on the current status of space resources research and applications, prospects for development, new technologies, and economic and political frameworks within which space resources will be developed. The meeting was held against a backdrop of the new Vision for Space Exploration in which space resource development has been identified as a key technological thrust. The following statement has been circulated to all who attended the meeting and approved by those whose names are attached. As this statement is being transmitted directly to NASA, no NASA employee has been identified as a signatory to this document.

Economic reasons dictate that the promise of use of resources in space transcends current programs for the exploration of space. Not only will the availability of resources – materials and energy – reduce the difficulty and cost of exploration programs, by “living off the land,” but will allow commerce to take root outside of the Earth. Using space resources for propellant will reduce the cost of operating in space by allowing complex productive systems built on Earth to replace the tremendous payloads of inert propellant of little value on Earth that now must be transported into space. Using space resources to capture, transform and transport energy in space will replace the need for heavy, expensive payloads transported from Earth. Production of the raw materials of space for construction and manufacturing will ultimately sever the umbilical that, until now, has bound space travel to the Earth, and will allow self-sufficiency to take root beyond the boundaries of Earth. The establishment of economic power in space based on space resources will allow the competitive advantage of space (access to unique environments, ease of transportation, abundance of energy, etc.) to emerge. This will create new wealth from space. For the first time, space will have a positive balance sheet. Most of these benefits will flow directly to Earth, but they will also provide the basis for sustaining people who may eventually choose to live away from the Earth.

NASA’s management of the new Vision may not lead to resource development, because the NASA culture focuses on individual exploratory missions or campaigns, not on the economic returns from exploration. This is evident in recent NASA discussions of strategies that spend little time or effort to develop lunar resources and leave the Moon quickly to embark on complex and difficult human flights to Mars. What is needed is a new economic objective to accompany the exploration and science that has controlled past NASA programs.

We encourage NASA and the nation to fully integrate space resource development into its Exploration Vision through a directed effort of technological research and demonstration, in which the demonstration is made tangible through the use of space resources in the exploration strategy itself. Committing to the use of propellant produced on the Moon or Mars as an integral part of exploring the Moon and Mars will make resource development urgent, rather than a side issue to be addressed after “more pressing” objectives are met. Although this could be a little more expensive in the beginning than bringing everything from Earth, the long-term payoffs can

be immense. When Europeans first explored North America, they could not have imagined that someday they would import plywood from the West.

All of the needed materials and energy to create a self-sufficient lunar outpost are available there and the program required to attain self-sufficiency is much less expensive than sending people to Mars, where no economic return can be expected for a long, long time. At some level of development, if we plan well, a lunar outpost can achieve economic “takeoff,” from which it then becomes possible to cut the umbilical from Earth and provide products to Earth and to ventures in cislunar space in free-market exchanges. When that stage of development has been reached, the ingenuity of humans on the Earth and in space will provide new businesses and products to improve standards of living on Earth. In the meantime, it should be a role of the Exploration Vision to blaze the technology trail and of NASA to investigate the mechanisms by which new private investment in space can be encouraged.

We encourage NASA to establish a Space Resources Council that would be responsible for evaluating the political and economic framework in which space resources are developed and encouraging the development of the needed technology. Industry should play a role in the decision-making that must go into the integration of these important new technologies into NASA’s exploration programs. Fulfilling the Exploration Vision requires that we invest immediately in the tools and techniques required to use space resources.