Fiscal Year:	FY 2009	Task Last Updated:	FY 11/06/2009
PI Name:	Weaver, Aaron Ph.D.		
Project Title:	Spaceflight Injectable Delivery System		
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Division Name:	Human Research		
Program/Discipline:	HUMAN RESEARCH		
Program/Discipline Element/Subdiscipline:	HUMAN RESEARCHOperational and clinical research		
Joint Agency Name:	TechP	ort:	Yes
Human Research Program Elements:	(1) ExMC :Exploration Medical Capabilities		
Human Research Program Risks:	(1) Medical Conditions : Risk of Adverse Health Outcomes and De that occur in Mission, as well as Long Term Health Outcomes Due	ecrements in Performanc e to Mission Exposures	e Due to Medical Conditions
Space Biology Element:	None		
Space Biology Cross-Element Discipline:	None		
Space Biology Special Category:	None		
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PI Organization Type:	NASA CENTER	Phone:	(216) 433-3757
Organization Name:	NASA Glenn Research Center		
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City:	Cleveland	State:	ОН
Zip Code:	44135	Congressional District:	10
Comments:			
Project Type:	GROUND	Solicitation / Funding Source:	Directed Research
Start Date:	10/01/2008	End Date:	12/30/2011
No. of Post Docs:		No. of PhD Degrees:	
No. of PhD Candidates:	Ν	No. of Master' Degrees:	
No. of Master's Candidates:	No.	of Bachelor's Degrees:	
No. of Bachelor's Candidates:		Monitoring Center:	NASA JSC
Contact Monitor:	Watkins, Sharmila	Contact Phone:	281.483.0395
Contact Email:	sharmila.watkins@nasa.gov		
Flight Program:			
Flight Assignment:	NOTE: Per the Human Research Roadmap and HRP Master Task date changed to 12/30/2011; original end date was 9/30/2014 (Ed.,	List, the project is currer , 9/20/2012)	tly in an archived state. End
Key Personnel Changes/Previous PI:			
COI Name (Institution):	McQuillen, John (NASA Glenn Research Center)		
Grant/Contract No.:	Directed Research		
Performance Goal No.:			
Performance Goal Text:			

Task Description:	The goal of this task is to provide a means of injecting potentially lifesaving medications to a crewmember during the 144-hour contingency that requires the astronauts to wear their EVA suits. The task assumes that the crewmember is in a low pressure, low temperature environment. The challenge of this task is to develop a device to deliver medication to the crewmember inside the suit under these harsh conditions. Under this effort, system components will be evaluated to determine physical properties. This includes how fluids behave in a low-temperature, low-pressure environment, how to exclude bubbles, and concepts for storage and filling of medications in a low-temperature, low-pressure environment. Specific Key Performance Parameters (KPPs) are defined below. An 18-gauge needle will be used, if a needle is chosen as the delivery vehicle through the skin. The system will not increase the transient vehicle-dependant leak rate by more than TBD sccm for EVA suit pressure The system will need to be simple enough to use to be operated by a pressurized, gloved hand at EVA pressure. The system will have a minimum lifetime of 40 injections. This technology development (TD) task will be considered successful if, Technology and processes are developed to interface an injection device with the EVA suit. Technology and processes are developed to provide injections in a low-temperature environment. Technology and processes are developed to fill the proper medications into an injection device in a low-temperature, low-pressure environment. Technology and processes are developed to store the proper medications into an injection device in a low-temperature, low-pressure environment.
Rationale for HRP Directed Research:	
Research Impact/Earth Benefits:	
Task Progress:	New project for FY2009.
Bibliography Type:	Description: (Last Updated:)