Profiles of Innovativeness and Effective Research Communication

ATTACHMENT A

Attachment A represents the data to be collected for which the Office of Science seeks approval under this PRA clearance request. Attachment A-1 represents the kinds of information to be collected from the managers of the national laboratories in a structured interview about the context and various policies while Attachment A-2 represents the research environment survey that will be given to the researchers in the selected research projects and one-half sample of those not involved in these projects within the selected departments and centers in the six national research laboratories. A-3 represents the data to be collected from the project leaders to help validate the classification of the research projects by the relative strategic emphasis on incremental vs. radical innovation and small scope vs. large scope projects. Finally, A-4 is the structured interview about the strategies of the national laboratories for building diverse work teams and encouraging the exchange of information that will be given to the top managers. Table One summarizes the variables that will be measured in the survey and the interviews.

Table One
Independent Variables and Source of Information

Category of Data	***Source of Information***
Cross-functional teams, autonomy, cross-fertilization, risk-taking, collaborations	Research environment survey given to all members of selected projects and up to 60% of remaining members of departments and centers from which projects were selected.
Rewards for research work, the value of managers, the quantity/ quality of resources, organizational support for research, managerial control, agile investment, and focused goals.	Research environment survey given to all members of selected projects and up to 60% of remaining members of departments and centers from which projects were selected.
Complexity, strategy of centers, nature of the discipline (rate of change, stability of funding, focus on inter-disciplinary work, etc.)	Interviews with middle and top managers
Mechanisms for creating cross-functional teams and diverse collaborations	Interviews with middle and top managers
Questions about exchanges of technical information, critical thought, and collaborations	Interviews with middle and top managers

Regression analysis will examine the impact of various independent variables on the extent of innovativeness and the extent of communication of knowledge. Attempts will be made to codify the differences between the five disciplinary contexts and use these as control variables. Since there are multiple team members and multiple teams, complete confidentiality is assured.

ATTACHMENT A (continued)

List of surveys and informational interviews and associated burden hours

		Burden/Respondent Cost FY 2009	FY2010
A-1,3,4	**Structured Interviews with Project Leaders and Managers**		
	Contact:	**66 hours**	**66 hours**
	Nature of interviews: information about the context of the research organization and research projects.	**$3,486**	**$3,486**
	Number and frequency: 132 (est.) individuals		
	Respondents: project leaders and managers		
	Estimated Response time: one-half hour per interview		
	Examples of Questions: See Attachments A-1, A-3, A-4		
	Statistical Methodology: Content analysis, computation of means, ANOVA		

A-2 Research Environment Survey with Projects Teams

	Contact:	**450 hours**	**450 hours**
	Nature of survey: Information about the nature of the research work, Actual and preferred managerial processes, assessment of the research environment, and background demographic characteristics	**$23,769**	**$23,769**
	Number and frequency: 900 (est.) individuals in both FY2009 and FY2010		
	Respondents: researchers (scientists, engineers, technologists)		
	Estimated Response time: one-half hour per survey		
	Examples of Questions: See Attachment A-2		
	Statistical Methodology: Computation of means, ANOVA, multiple Regression analysis		

Attachment A (Continued)
Detailed Estimates of Respondents and Interviewee Burden and Cost

Laboratory	Relevant Population	Sample size[1] (est.)	Estimated Respondents Burden[2]	Estimated Cost[3]	Estimated Interviews	Estimated Interviewees Burden[4]	Estimated Cost[3]	Estimated Total Cost
Large Laboratories								
Brookhaven National Laboratory	500	400	200 hrs	$10,564	28	28 hrs	$1,479	$12,043
Pacific Northwest National Laboratory	500	400	200 hrs	$10,564	28	28 hrs	$1,479	$12,043
Sandia National Laboratories	500	400	200 hrs.	$10,564	28	28 hrs	$1,479	$12,043
Smaller Laboratories								
Ames Laboratory	250	200	100 hrs	$5,282	16	16 hrs	$845	$6,127
National Renewable Energy Laboratory	250	200	100 hrs	$5,282	16	16 hrs	$845	$6,127
STAR/NOAA	250	200	100 hrs	$5,282	16	16 hrs	$845	$6,127
	2,250	1,800	900 hrs	$47,538	132	132 hrs	$6,972	**$54,510**

1. Estimated sample size based on assumptions of average sizes of projects, departments and centers.
2. Estimated respondents burden based on assumption of survey completion time of 30 minutes from pilot surveys.
3. Estimated cost of respondents burden based on mean hourly wage of $52.82 (mean annual salary of $111,689) in the 2006 National Compensation Survey for the BLS occupational category of engineering manager.
4. Estimated interviewees burden based on assumption of one-hour interview for selected project leaders and middle managers.