**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 **$3,486 $3,486**

research organization and research projects.

**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, **$23,769 $23,769**

Actual and preferred managerial processes, assessment of the research

environment, and background demographic characteristics

**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 size1 (est.)** | **Estimated Respondents Burden2** | **Estimated Cost3** | **Estimated Interviews** | **Estimated Interviewees Burden4** | **Estimated Cost3** | **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.