

# Supporting Statement B for

## **Survey of Principal Investigators on Earthquake Engineering Research Awards Made by the National Science Foundation, 2003-2009**

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Attachment 1: Earthquake Engineering Award PI Survey

Attachment 2: Introductory Email from NSF

Attachment 3: Introductory Email from Contractor

Attachment 4: Reminder Email

Attachment 5: Thank You Email

## **B.1. Respondent Universe and Sampling Methods**

The respondent universe for the proposed data collection consists of two groups: 1) Principal Investigators (PIs) on research awards made by the George E. Brown, Jr. Network for Earthquake Engineering Simulation (NEES) Program; and 2) PIs on other research awards made by NSF in the area of earthquake engineering while the NEES program has been active. More specifically, the group of targeted NEES PIs consists of PIs on awards with the following characteristics:

- Awards funded through NSF award code 7396 (NEES-R projects only, excluding the NEES Operations award)
- Awards funded through applications active as of FY 2009 (e.g., excluding awards with application codes beginning with "10" or "11")
- Excluding awards for workshops, conferences, student travel
- Excluding awards made to support other programs (e.g., IRIS, NEHRP)
- Excluding SGER/EAGER/RAPID awards unless the award was to use NEES or other international facilities (e.g., payload projects)

Targeted non-NEES investigators were PIs on awards with the following characteristics:

- Awards funded through NSF application codes 1636 and 1637 whose subjects (based on a review of project abstracts) were judged to be "earthquake engineering" or "tsunami" related
- Awards funded through applications active between calendar year 2003 and FY2009
- Excluding awards for workshops, conferences, student travel
- Excluding awards purely for earthquake or tsunami reconnaissance
- Excluding SGER/EAGER/RAPID awards

Estimates of the respondent universe for each category and anticipated number of participants are summarized in Table B.1.

**Table B.1. Estimated Respondent Universe and Use of Sampling Methods by Category**

Category of participant	Type of data collection proposed	Estimated size of respondent universe	Expected response rate	Expected number of participants
PIs on NEES research awards	web-based survey	98	80%	78
PIs on other Earthquake Engineering research awards	web-based survey	96	80%	77

Sampling is not feasible within the two target groups because there are a variety of sub-strata of possible interest (e.g. PIs on large projects, PIs funded through NSF’s SGER program, PIs using each of the 16 different facilities, PIs using multiple facilities), and the numbers in any particular sub-stratum are too small to sample effectively.

## **B. 2. Procedures for the Collection of Information**

### **B.2.1 Data Collection Procedures**

The web-based survey will be implemented using a secure commercial web-based survey hosting service. The survey consists of 26 multiple choice or free response questions (see Attachment 1), and it is estimated that it will require approximately 30 minutes to complete.

One week prior to the survey launch, NSF program staff will contact the target population (NEES-R and investigator-initiated researchers) via email to describe the purpose of the evaluation, introduce the contractor, and request cooperation. This initial email is included as Attachment 2. Within one week, the contractor will contact all potential participants via email. This introductory letter will include a link to the survey website and individual login information (Attachment 3). Respondents will have four weeks in which to complete the survey. The contractor will monitor response rates. At weeks 1, 2, and 3 after survey is initiated,

nonrespondents will receive a follow-up email (in Attachment 4). Those who complete the survey receive a thank-you note (in Attachment 5). When the survey is complete, a non-respondent analysis will be performed by demographics and other characteristics.

### **B.2.2 Data Analysis Procedures**

Quantitative data from the survey will be entered into a database and analyzed using a software package such as Stata, SAS or SPSS. Responses for each question will be tabulated, and appropriate descriptive statistics will be calculated (e.g. measures of central tendency, dispersion). Responses to certain questions will also be stratified by funding mechanism, type of project, and facilities used and cross-tabulated in order to look for potentially interesting patterns. If warranted and feasible, multivariate statistical methods may be used to further investigate apparent patterns in the survey data.

### **B.3. Methods to Maximize Response Rates**

The contractor will employ methods found to be generally effective in maximizing response rates. These include:

- 1) Sending an introductory letter from the NSF program staff to the survey population requesting cooperation (see Attachment 2). As a major funder of earthquake engineering research, it is anticipated that an initial communication directly from NSF may draw attention to the evaluation.
- 2) Monitoring survey responses continuously and contacting non-respondents periodically with individualized reminders.
- 3) Allowing respondents to save partially-completed survey responses to be completed later.

When logging out of the system, respondents who have not yet completed the survey will

be given an estimate of future effort (e.g. "survey 50% complete"); if a respondent wishes to submit an incomplete survey, they will be able to do so at any time.

- 4) Obtaining contact information directly from NSF. Since the relevant awards are fairly recent, it is likely that the email addresses on record are valid. If any emails are bounced, web searches will be conducted in an attempt to update the contact information.

#### **B.4. Test of Procedures or Methods to be Undertaken**

As the target respondent group for the survey is relatively small, a formal pre-test of the instrument will not be undertaken before the survey is fielded. However, the instruments have been reviewed by NSF and contractor staff, including experts in survey design and evaluation methods. A member of the contractor's staff with a background similar to the target respondents (geophysical engineering) also gave simulated responses to the survey questions based on a past project that was similar to NEES; the simulation was used to estimate burden and to verify that the language used in the survey questions would be familiar to potential respondents.

#### **B.5. Individual Consulted on Statistical Aspects and Individual Collecting and/or Analyzing Data**

The design for this information collection was developed by the Science and Technology Policy Institute (STPI) in consultation with the NSF. STPI Research Staff Member Dr. Brian Zuckerman will have primary responsibility for data collection and analysis. Dr. Zuckerman's contact information is:

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