



# **Scientist Emeritus Program Review Report**

A report prepared by the Scientist Emeritus Program Review Panel

March 15, 2006

Report submitted to Linda Gundersen, Acting, Associate Director for  
Geology

**U.S. Department of the Interior  
U.S. Geological Survey**

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# Scientist Emeritus Program

## Review Report

A report prepared by the Scientist Emeritus Program Review Panel.

### Executive Summary

The Scientist Emeritus (SE) Program has been and continues to be an important component of the Geologic Discipline (GD). This Program offers retirees an opportunity to continue their professional association with the U.S. Geological Survey and contribute their time and talents to a wide variety of projects. In the fall of 2005, the acting Associate Director for Geology established a committee to conduct a thorough review of and make recommendations for this Program.

This report presents a brief history of the Program, analyzes data that the committee collected about the current Program, and makes recommendations for improvements to the Program.

In FY05, GD spent \$840,000 on the SE Program for 194 SE. Of this amount, \$640,000 was spent on space charges, which is paid whether the SE occupy the space or not, and \$201,000 was spent on operating expenses. Based on the data collected, the monetary benefit was calculated to be \$5,724,750 per year based on salary estimated at a GS-14/5 for actual volunteer hours. This is almost a 7-fold return on an \$840,000 investment or a 28-fold return on a \$201,000 investment. Some of the activities SE are involved in include serving on outside scientific advisory panels, providing technical leadership to younger research and operational scientists, being an active member of Team projects, and producing 550 publications from 2000-2006. The GD SE Program has greatly benefited the USGS by allowing scientists to continue their research, outreach, and mentoring activities at minimal expense to the organization. These contributions increase the productivity of the USGS and enhance its visibility and image to external audiences. The SE provide the USGS with a breadth and depth of wisdom and knowledge that was gained through many years of experience and leadership in their fields.

The current SE Program is an excellent volunteer program, but it can benefit from some minor modifications. The glue binds these modifications together to make a more powerful SE program is the leadership that management provides at all levels – Team, regional and national. Through implementation of the recommendations provided in this report, GD management can move the SE Program successfully into the future.

The committee recommendations for the SE Program are summarized below.

Implement “Yearly Checklists for Managers,” a tool for local managers to increase communication with their SE, keep up-to-date e-mail lists, clarify expectations, help determine appropriate funding levels, address identified problems, and obtain an Annual Progress Review.

Re-establish and expand the Bradley Scholar Program to support the investigation of science research frontiers that have potential importance to the Nation. Fund the Bradley Scholar Program through the Associate Director for Geology's Office. Encourage Program Coordinators to provide additional Bradley Scholar Program funds that would be used to support priority Program goals. Expand the Bradley Scholar Program to include appropriate legacy work with its associated publication costs. Evaluate the Bradley Scholar Program after the first year and revise, if necessary. Encourage local management to establish small funds to address non-Bradley Scholar SE needs.

Have the regions play a larger role in the Scientist Emeritus Program. Charge Regional offices to work with their Regional Property Offices to set up a process for obtaining better quality surplus computers for SE. Where there is a need across Teams in a region, encourage the Regional offices to set up community laboratory space and, if appropriate, community office space. In order to improve documentation of the SE program, renew the tracking of volunteer hours. Have Teams work with the Regional offices to collect these data quarterly. Take these data, along with other SE information, and compile an annual report for the Associate Director for Geology. Remove from the SE Policy Statement the charge for an Emeritus Program Advisory Panel. By giving the regions a larger role in the SE program, each region can design a communication mechanism that best fits the needs for their region.

Many SE have generated volumes of data and research materials that need to be properly archived. Teams need to work with their SE to ensure that all appropriate materials are properly maintained until such time as they are archived. The Denver Library currently has a very large volume of material that has been submitted by GD scientists for inventory and transferal to the National Archives. Given the current staffing, and with no additions of new research materials, it is estimated that it will take ten years to complete this archiving process. The committee recommends that financial assistance be provided to the library staff to hire student help.

Show appreciation and recognition of SE and their work. This can be accomplished through:

- Creation of a new award for SE – “Outstanding Scientist Emeritus Award,”
- A yearly reception of SE at each national center outlining contributions and highlights of the program,
- A SE science session similar to a poster display,
- Highlighting SE contributions on USGS Geology internet and intranet Web sites,
- Generating a fact sheet describing the SE program and its benefits, or
- Inclusion of a USGS official SE display at National level science meetings.

Inform Team members and the public about the SE program through the public and internal Web pages. The committee recommends that the USGS Geology public website should include a general description of the Program and SE contributions to the USGS mission. The USGS Geology intranet website should provide a “quick link” to the SE Program Web page. The SE program internal Web page needs to include key information about the program:

- Updated Policy Statement
- Ethics Requirements
- All of the necessary SE forms, such as SE agreement form, Yearly Checklists for Managers, Time Log, Annual Progress Review form.

- Karen Siderelis' e-mail on "Tips for Ensuring Proper Records Management During Change"
- Selected highlights such as photographs, quotes, and referenced new maps or publications.

Update the Policy Statement. The committee has provided potential wording. The purpose of the SE Program is to utilize the expertise, intellect, and creativity of individuals who have retired from the USGS to enhance the programmatic activities of the Bureau. Open the Program to all individuals who have demonstrated leadership and a high level of productivity during their employment at the USGS and who desire to continue working as a volunteer at the USGS. Individuals can apply irrespective of grade, series, or title provided the guidelines, as defined above, are met. A *Scientist Emeritus – Team* is an active member of a project in BASIS+. Funds are generally at the Team level. A *Scientist Emeritus – at-Large* can be at the local, regional or national level. This SE can pursue outreach activities and staff support to management, as well as oversee special projects, complete legacy work, or engage in projects not associated with a BASIS+ project. A *Scientist Emeritus - Bradley Scholar* may investigate science research frontiers that have potential future importance to the Nation. The key here is the potential for long-range importance. If SE are performing legacy work or completing publications, they can apply for the Bradley Scholar Funds, provided their proposal meets the above criteria. Funds for this category are at the national level. Duration of this agreement may be up to three years. A *Scientist Emeritus – Honorary* is reserved for individuals who have had long, distinguished careers with the USGS and who are less active or no longer active in science. As the title is honorary, it will be conferred by the Regional Executive.

Implement a national database and an advocate position for the SE Program to ensure consistency across regions. Develop a Web-based SE agreement form that will populate part of the national database. Implement the Web-based version in the FY07 SE cycle for use by all new SE and for other SE that are willing. Over the next three years, phase in all SE agreement forms into the internet version. Staff the advocate position on a rotating basis with a senior SE. Have the advocate's duties include:

- Official USGS liaison to the Director, Regional Management, and other parties, as needed.
- Coordinate and oversee the Bradley Scholar Program.
- Coordinate and oversee the SE awards.
- Coordinate and oversee the official USGS displays, websites, etc.

## Introduction

In October 2005, the U.S. Geological Survey (USGS) acting Associate Director (AD) for Geology, Linda Gundersen, established a committee to review and recommend improvements to the Scientist Emeritus (SE) Program within the Geologic Discipline (GD). The AD specifically requested that this committee 1) document and assess the contributions and costs to the USGS of the SE Program, 2) assess the strengths and weaknesses of the program, 3) evaluate the current policy document and recommend changes, if warranted, and 4) discuss broadly with the retirement-eligible workforce and scientist emeriti (SE) the current policies and guidelines.

As part of the review process, the committee obtained information from numerous stakeholders through several venues. Each region held an open meeting where committee members from that region discussed the SE Program with USGS employees. This meeting also gave Team Chief Scientists (TCS), Project Chiefs (PC), and project members the opportunity to share their ideas. A questionnaire was sent out to all SE, and a second questionnaire was sent to all TCS and PC. Additional information was obtained through discussions with individual committee members, and these comments were shared with the entire committee.

The Scientist Emeritus committee consisted of seven people (two from each region and one from headquarters) with additional assistance as needed from a Human Resources and an Ethics representative:

- Betty Adrian – Associate Chief Scientist (GD) and Chair of committee
- Mary Jo Baedecker – External Research Scientist Emeritus (WRD)
- David Brew – Scientist Emeritus (GD)
- Laurel Bybell – Associate Program Coordinator (GD)
- Karl Kellogg – Research Scientist (GD)
- Art Schultz – Chief Scientist (GD)
- Tom Suchanek – External Manager/Research Scientist (BRD)
- Nancy Baumgartner – Ethics Counselor
- Bill Creach – Human Resources liaison

## **History and Current Program**

### **History of SE Program**

The Scientist Emeritus (SE) Program has been an important component of the Geologic Discipline's (GD) service to the Nation since its inception in 1986 as part of the USGS Volunteer for Science Program. See Chapter 500.23 of the Survey Manual and the Volunteer for Science Handbook for additional details. The SE Program offers retirees an opportunity to continue their professional association with the USGS and contribute their time and talents to a wide variety of projects. In 1996, GD introduced the Bradley Scholar component of the SE Program "to promote innovative basic research in solid earth sciences." The Program was named in honor of W.H. Bradley, Chief Geologist from 1944-1959, for his dedication to high-quality research. The Program offered a special opportunity for SE "to pursue studies of scientific excellence not necessarily related to existing Division Programs." It was the intent of this Program that Bradley Scholars would address "new fields of research in the geologic sciences." Participation in this Program was through a competitive process and was initially limited to a few individuals per year. Although proposed research could span from 1 to 3 years, funding after the first year was contingent upon the results of an annual review. This Program ran for several years but was terminated due to budget cuts.

### **Current SE Program**

As the first step in its fact-finding process, the SE committee obtained information on the SE Program for FY05. In FY05, there were 194 SE on 19 Teams (including all Regional Executive Offices). The Eastern Region had 43 SE on five Teams, the Central Region had 64 SE on six Teams, and the Western Region had 87 SE on eight Teams. A questionnaire was sent to all SE,

and the committee received 108 responses (Appendix 1). Of the SE respondents, 55% have been SE for over 7 years. Only 6% have been SE for less than one year. With regard to numbers of volunteer hours per week, 26% work 30 or more hours, 32% work between 20-29 hours, and 33% work between 10-19 hours. Although these numbers indicate that only 5% work less than 10 hours per week, that number probably is a bit deceiving because the committee suspects that many of the SE who did not respond to the questionnaire are those that volunteer less than 10 hours per week. The SE answered that their participation in the SE Program primarily was to 1) complete scientific products, 2) continue scientific investigations, 3) conduct new research, and 4) provide scientific expertise. When asked to select which topics they actually spend their time on, 74 said they are providing advice/support/mentoring, 73 SE indicated that they are working on legacy science, 71 are participating in USGS projects, and 69 are working on new research.

The SE have had a significant impact on USGS science through their interactions with many scientists and Team members, primarily as participants in current projects. Many continue to be prolific writers of scientific articles. See Appendix 2 for a list of SE publications from 2000-2006 that was obtained from questionnaire responses. The 550 reports and abstracts in this list are from only 74 SE and include USGS publications, journal articles, and books.

The value of our SE Program was captured by one research scientist who said: “Since joining the Survey in 1999 as a relatively young research geologist, Emeritus scientists have been an integral part of my work and positive experience with the Survey. Numerous retirees have openly shared their great knowledge and experience with me in spite of my questioning of the status quo. They have unselfishly inspired and encouraged me to try to contribute to the scientific foundations that they have established over the decades. This is not only true for work related to the Survey’s direct mission and our work in general but also for the advancement of Earth science.”

As the committee evaluated its abundance of data, several common themes appeared: 1) communication, 2) technical and administrative support, 3) space issues, 4) publications, 5) archiving, 6) recognition, 7) policy statement issues, and 8) funding. The next part of this report contains a synopsis of each theme, including committee recommendations, where appropriate.

## **Communication**

### **Levels of Communication**

For a successfully functioning SE Program, it is important that communication with the SE be maintained at several levels. The first line of communication is at the Team level, that is with the TCS, PC, and project members. According to the recent SE questionnaire (Appendix 1, question 21), 74% of respondents are very satisfied and 17% are somewhat satisfied with the level of communication with their TCS and project members. By region, the percentage of SE that are very satisfied or somewhat satisfied is 100% for ER, 95% for WR, and 84% for CR, indicating a somewhat lower level of satisfaction in the CR. In the comments provided for this question, two problems were identified: feeling isolated and being either in a remote office or away from key project members or support staff. For most situations, the TCS and PC provide primary communication with SE concerning Team and project related scientific information **The committee suggests that these issues be addressed first at the TCS level through increased communication and, if that is not satisfactory, at the regional level.**

The second line of communication is through e-mail and the USGS website. The committee's efforts to distribute the announcement about this review and the questionnaire to all SE was not completely successful. There is no one distribution list that reaches all SE. It is not clear why some SE are on a particular e-mail distribution list and others are not. Some SE have chosen not to be on e-mail distribution lists in order to enjoy an emeritus status with fewer distractions and less bureaucratic information to read. Other SE feel they are out of the loop and thus not being sought for advice. Obviously, this is a situation where the amount of communication appropriate for one SE is not appropriate for another SE. It is expected that most SE are interested in the general directions of USGS Programs, funding from Congress, awards being presented, and major accomplishments in the discipline. However, most SE are not interested in administrative changes, training (unless it is required), committee assignments, closures due to climate, and other miscellaneous e-mail. **The committee recommends that a new SE e-mail distribution list be established that can be used judiciously at the regional or AD level for announcements on topics of importance to SE. Since each Team would be responsible for the e-mail lists that feed into the general e-mail lists, it is imperative that the Teams update the SE e-mail list in Lotus Notes in a timely manner.** It also is expected that some SE would like to be on the "GS-G-All" list, and this should be provided upon request.

A third line of communication is within the GD volunteer community. GD has a retirees newsletter, currently edited by Gene Roseboom, that is circulated twice a year. At present, about 86 SE are members of the retirees group. Recently, the newsletter started listing the publications of the SE, and it is an impressive list that deserves recognition beyond the project or Team level. Perhaps information about the newsletter to all SE will encourage participation in the retirees group and serve as a way to recognize the accomplishments of the SE.

### **Opportunities and Responsibilities of SE**

The committee heard from the SE and the TCS and PC that there is a need to clarify opportunities and responsibilities for SE and Team/project members. Being recognized as a SE is an honor for the individual and a benefit to the USGS through retained expertise and talent. Questions two and three of the SE questionnaire concerned why and how individuals contribute to the USGS (Appendix 1). Of 107 respondents, 87 SE stated they wanted to complete scientific products, 74 are providing advice/support/mentoring, 69 are working on new research, 44 are writing or speaking for general audiences, 36 are contributing to professional societies, and 27 are serving on external committees. All of these activities are valuable to the USGS. The GD SE Program currently recognizes four types of SE appointments: "Scientist Emeritus – Program" for those associated with Programs, "Scientist Emeritus – at-Large" to pursue research not associate with Programs or activities in outreach and staff support to management; "Scientist Emeritus – Bradley Scholar" for competitive work at the frontiers of science (currently an unfunded program), and "Scientist Emeritus – Honorary" for those emeriti who are less active or no longer active in science. **The committee recommends changes in these categories and how they are defined.** These categories and committee recommendations are discussed in more detail in the Policy Statement section below.

The SE should be provided a clear understanding of opportunities and limitations concerning funding (both for legacy and current project work), office and laboratory space, computer

support, support staff assistance, and ethics issues. **The committee recommends that TCS or TCS designee uses a New Scientist Emeritus Checklist (Appendix 3) when talking with new SE that will guarantee that each of them is given the opportunity to express their opinions and concerns about the SE Program and that managers will respond to SE concerns and clearly present their expectations of the SE. This should be followed by a yearly conversation with the TCS or TCS designee that uses the Yearly Checklist (Appendix 4).** If the SE isn't part of a specific Team, or if the assignment is at Headquarters, the conversation should be with the Regional Executive for Geology or their designee or with the AD for Geology or designee.

One concern of the SE is their inability to complete or conduct legacy work, which is defined as work from the past (experimental, mapping, interpretive) that has gone on for some time, is not complete at retirement, and will not be reassigned to another employee. In some cases, since legacy work is not project work, it is given lower priority or is done as a “bootleg” project. Yet, 73 out of 107 (68%) of SE respondents (Appendix 1, question 3) are currently doing legacy science, and 46 out of 64 (72%) of TCS and PC responded (Appendix 5, question 13) that SE associated with them are conducting legacy work. The discrepancy between the two groups may be due to double counting at the TCS and PC level or from their using a different definition of legacy science. Some of the issues relating to legacy studies identified by the SE and the TCS and PC are 1) lack of interest by current project/Team, 2) lack of funding to bring project to completion, 3) lack of SE discipline to complete project in a reasonable time, and 4) the need to evaluate the value of legacy work.

**The committee recommends that a separate SE fund of as much as \$300,000 be established at the national level to re-establish and expand the use of the Bradley Scholar Program. GD Program Managers should be encouraged to contribute additional funds to the Bradley Scholar Program for SE studies that address high-priority Program goals. It is recommended that after the first year of implementation of the new Bradley Scholar Program, it be evaluated in order to determine the most appropriate level of funding. It may be necessary to re-evaluate the Bradley Scholar Program annually to accommodate GD funding levels. The committee recommends that the Bradley Scholar Program funds be managed at the national level.** More information about the Bradley Scholar Program can be found in the Policy Statement Section later in this report.

## **Technical and Administrative Support**

Most SE require some technical and/or administrative support in order to accomplish the goals identified in their agreements. Technical/administrative support includes laboratory analyses, GIS, Information Technology (IT), office equipment, publications (digitizing, scanning, photo-geologic compilation), and administrative/secretarial assistance. The availability of this support clearly depends in large part on the health and wealth of an individual Team and the willingness of TCS and PCs to support SE. Questionnaire comments show a correlation between technical support provided to SE and the amount of OE available to the Team. SE funding also depends on the degree of participation in an active project. Those SE who are closely linked to a project receive similar amounts of funding as full-time employees. However, support for SE completing legacy studies depends entirely upon the good will of their TCS and PC, and in many cases, SE

are reduced to paying for these expenses (primarily for publication-related expenses) out of their own pockets.

When asked how they would rate their financial support for such needs as publications, field work, meetings, GIS, laboratory analyses, only 61% of the SE responded (Appendix 1, question 11) with either very satisfactory or somewhat satisfactory, and only 58% of the TCS/PC responded (Appendix 5, question 10) with either very satisfactory or somewhat satisfactory. **The committee believes that the SE Program would benefit considerably from additional funding both at the National and Team level.** Some Teams already have established SE accounts, and those Teams without a specific SE account may want to consider this alternative. Without a SE account, the purchase of even simple inexpensive items is difficult. **Based on feedback from the yearly SE discussion, the TCS or TCS designee could establish a small fund for SE discretionary use. When the fund is spent, the SE could request additional funds through discussion with the TCS or TCS designee. In addition, the committee recommends that a separate SE fund be set up at the National level to re-establish the Bradley Scholar Program. It is recommended that SE apply for all types of funding through the SE agreement form.** See Funding Section for more details.

When asked how they would rate SE office equipment (phone, computer, internet access, etc.), 82% of SE (Appendix 1, question 10) and 85% of TCS/PC (Appendix 5, question 9) feel that the office equipment was either very satisfactory or somewhat satisfactory. However, comments provided for this question reveal that many SE computers are out-of-date, and several were unable to access intranet documents. Some of these frustrating problems may be due to newer IT security requirements to which SE and the general workforce must adhere. IT security and outdated computers are, in many cases, incompatible. While it is understandable that many SE receive “hand-me-down” computers, it must be noted that some of these second-hand computers may be limiting the SE ability to accomplish work identified in the SE agreement. Many SE are not as computer literate as the general workforce and, as a result, may require more assistance. Unfortunately, given the declining workforce and reduced funding, the assistance that many SE require is not always feasible.

If SE are on Teams that buy only a few or no new computers, the likelihood of those SE receiving newer “hand-me-down” computers is substantially reduced. However, there may be other Teams in GD or USGS that have newer surplus computers. Many computers are surplused to the Regional Property Office. **The committee urges the Regional Executive’s Offices to work with their Regional Property Office to develop a process for obtaining newer surplused computers for the SE.**

Improving communication between SE and TCS should mitigate some of the problems identified by the committee, such as the inability to access internal documents and who receives IT support. The SE checklists (see Appendix 3 & 4) address various types of support. There needs to be a clear understanding between TCS or TCS designee and SE as to what type of Team or project support the SE can expect for the upcoming year. When the TCS or TCS designee and SE discuss issues on the checklist, these expectations should be clearly identified and thoroughly discussed.

Numerous comments expressed a need for uniform guidelines. There appears to be a lot of angst about the amount of funding and support SE receive. This varies from Team to Team and region to region. One SE commented “A concern that I have, and I’m not alone, is disparate treatment of Emeriti. Some are valued and well supported, whereas others are given office space but no OE, even for computers.” We understand the frustration that SE feel. Financial support for SE may not always be feasible at the level SE may desire or feel they deserve. Unfortunately, it appears some SE equate the amount of funding received with the value a Team or region places on them and their work. Each region and Team has a unique set of circumstances and funding issues that commonly change annually. A TCS, PC, or Regional Executive may have to make difficult and somewhat unpopular fiscal decisions. When this happens, the TCS or TCS designee needs to communicate with the SE that the decision is a fiscal decision and does not reflect on the abilities of the SE. It is critically important that the TCS, TCS designee, and PC maintain good communication with the SE and reinforce the value that the USGS places on the SE and their work. Even with frank discussions on support issues, SE may not necessarily agree with TCS or PC on the support SE is receiving, but at least there is clarity.

## Space Issues

In FY05, 194 SE occupied approximately 28,000 ft<sup>2</sup> of space that included offices, laboratories, and storage units in many different buildings all over the United States from the Smithsonian Institute in Washington, D.C. to Fairbanks, AK. The cost for this space was approximately \$639,000, and the average square footage per SE was 145 ft<sup>2</sup>. Forty-three SE occupied approximately 5,900 ft<sup>2</sup> (137 ft<sup>2</sup> per SE) in the Eastern Region, 64 SE occupied 12,200 ft<sup>2</sup> (191 ft<sup>2</sup> per SE) in the Central Region, and 87 SE occupied 10,100 ft<sup>2</sup> (116 ft<sup>2</sup> per SE) in the Western Region. (See Appendix 6 for SE Space Information.) It is important to note that GD currently has over 1800 employees and volunteers (including SE) who occupy over 1,000,000 ft<sup>2</sup> nation-wide. That average is approximately 560 ft<sup>2</sup> per person, in contrast to the SE average of 145 ft<sup>2</sup>.

When asked how they would rate their space, 83% of the SE (Appendix 1, question 9) and 80% of TCS/PC (Appendix 5, question 8) are either very satisfied or somewhat satisfied with SE space. However, SE comments revealed that they do not always have sufficient laboratory space. **The committee recommends that if a Team has insufficient laboratory space to accommodate SE needs, community labs at the Team level should be considered or, failing that, the Regional Executive might be able to create community laboratories at the regional level.** It is important for SE to communicate their laboratory needs to their TCS. A second concern was the need for a more equitable space allocation. SE comments suggested that there needs to be a difference in space allocation between SE that come in frequently and those that do not. Each Team has unique issues, both in terms of finance and space, and each Team has the responsibility to use its space wisely. The TCS may want to consider using common office space for those SE who contribute less than 10 hours a week. There may, however, be circumstances that justify other solutions, and the TCS needs to make the final decision. Increased communication between SE and TCS could potentially mitigate many of the space issues. If a Team does not have enough SE to share offices, setting up a shared office at the Team level may not be a prudent measure. **The committee urges the Teams to look into shared offices for SE who come into the office infrequently, and if that isn’t possible, the Regional Executive should consider setting up a common office space at the regional level. Common office**

space or an office with shared facilities should include desk(s), computer(s) with internet access, phone(s), and access to a copier. If necessary, space charges for each Team should reflect space usage.

## **Publications**

### **Unfinished work - what to do?**

Approximately half of the 95 SE respondents for question 12 (Appendix 7) listed publications as their most important contribution to the USGS. There are two interdependent issues that consistently come up with respect to SE publications – financial and technical support. For example, legacy maps and data often exist in outdated formats that take GIS and graphics support to bring them up to present publication standards. Without additional financial and technical support, these legacy maps cannot be published. Although a Team may have the facilities and staff to accomplish this work, there usually is no available funding unless either a TCS or PC is willing to contribute funds. If the USGS wishes to complete any type of legacy work, some type of financial commitment is needed. **The committee recommends that the annual agreement form contain a place where SE can identify their publication needs and that this also be included in the Yearly Checklist. This information should include anticipated technical support costs, page charges, and in-house printing costs. In addition, TCS, if at all possible, should recognize that funding for publications is an essential part of supporting their SE. Regional management should be consulted when Team funding may not be available for important legacy products. In some cases, completion of legacy products may appropriately be handled with the Bradley Scholar Program.**

### **Finished work - where to publish?**

Although many SE are able to produce a significant number of publications during their tenure, there are some limitations. The completion of in-house publications continues to be very slow. Some SE have expressed a fear that by the time their products are finally published, they may no longer be capable of being a SE. In this respect, these are the some of the same complaints generated by our present science staff. In order to publish their results in a shorter time span, many of the science staff and the SE are turning to non-USGS journals for their publication needs. The use of outside journals may speed up the publication process, but it may also mean that SE need funding and assistance in preparing manuscripts and for page charges. Those SE that are tied directly to on-going projects usually get the support they need, but those outside of project status do not. **Although a solution to the USGS publication problems is far beyond the scope of this committee, the committee does recommend that an attempt be made to publish SE legacy products that are of major significance to the USGS as soon as possible, even if it means assigning them a higher priority status.**

## **Archiving of Scientist Emeritus Material**

When any research geoscientist retires, there is a career's worth of material that must be consolidated, archived, and/or discarded. Although participation in the SE Program may delay this process, eventually, all material in the possession of SE must be similarly processed. Responses from the SE to question 19 (Appendix 7), "How do you plan to archive and preserve

your scientific material?” showed a clear lack of consensus about how material should be archived. Many were puzzled about what to do (“no clue,” “haven’t even considered that”). There was wide concern among others that the Field Records section of the library, due to staff cuts, is currently unable to process newly submitted material. Some SE have made plans to donate fossil and mineral collections and certain data sets to museums or outside agencies (e.g., Smithsonian, Woods Hole Data Library, Byrd Polar Research Institute), and several plan to pass on material to geologists whom they are mentoring.

The Field Records section of the USGS Library in Denver archives original field notes, maps, and other items produced by the Geologic Discipline. However, with recent budget cuts and the decrease in library staff over the past few years, the ability of the Denver library to handle the growing weight of invaluable, unpublished data has been handicapped. Reference service is being maintained, and deposits are being accepted, but a backlog of unprocessed material has existed for several years. This situation is of great concern to the library staff, as well as many within the larger geologic community. According to Tommie Ann Gard, Denver Chief Librarian, a strategy has been proposed to alleviate this problem. All previously submitted and future material, once it has been properly organized and inventoried, will be transferred to the National Archives facility located on the Denver Federal Center. Material will be prioritized for transfer according to date of project, usage, and relevancy to current USGS projects.

Under this recently proposed archival plan, all relevant material must first be submitted to the USGS library in Denver, where it will be organized and inventoried before being sent to the National Archives. Current USGS library staff (and possibly a new student hire) will compile the inventories and complete the transfer process. Numerous valuable old maps and documents have already been sent to the National Archives, where controlled environmental conditions will preserve these items, some of which have sustained damage from previous improper storage and use. National Archives personnel have estimated that it could be a ten-year project to organize and transfer what is presently held in the Field Records section, not including what is stored in retirees’ offices and homes.

The policy has been, and will continue to be, that only original material will be accepted: e.g., (1) original, annotated maps with field-location numbers, (2) field notes, labeled by date, location, and project on which they were originally written, (3) unpublished manuscripts, and (4) unpublished data sets (such as chemical analyses with locations, isotopic dates with locations, geophysical data, structural data, etc.). Original material that duplicates a published product will not be accepted. If research material submitted to the Denver library is temporarily needed, it will be retained before being sent to the National Archives. SE and others can check out this material by contacting Tommy Ann Gard (303-236-1004).

New material received from USGS will be stored in the Records Center Operations of the National Archives at the Denver Federal Center and will remain in the legal custody of the USGS. Such material may, upon request, be loaned back to researchers for temporary use. Old, historic material is stored separately in the Archival Operations section and is in legal custody of the National Archives. This material may be examined only at their facility. All material will be stored in a temperature- and humidity-controlled environment and, where appropriate, in acid-

free containers. Requests to the National Archives for research material should be made to Eric Bittner (303-407-5743; eric.bittner@nara.gov).

**The committee recommends that all retiring employees and current SE be notified of the current USGS policy concerning disposition of their research materials. It will be important to stress that these research materials must be adequately inventoried and properly labeled, following established guidelines, prior to submitting to the Denver library. A copy of the recent memo (Appendix 8) sent by Karen Siderelis, Associate Director for Geospatial Information, needs to be given to all retiring as well as current SE. The committee also recommends that funds be allocated to hire students that will assist library staff to sort and inventory existing and newly submitted archival GD material.**

The Associate Director for Geology is currently in the process of hiring a Program Coordinator for the new National Geologic and Geophysical Data Preservation Program. The new Program Coordinator will help formulate future policies for the curation and long-term preservation of USGS research materials. **The committee recommends that, in the interim, Teams need to work with their SE to ensure that all research materials are properly maintained until such time as they are archived.**

## **Strategies for Recognition**

### **Mentoring**

Although the majority of the SE list publications as the most important thing they contribute to the USGS, 74 out of 107 respondents list mentoring and providing support and advice as an activity with which they are involved (Appendix 1, question 3). Ten SE feel that this is the most important part of their contribution. Clearly, if the USGS is able to hire new scientists following the recent VSIP/VERA, the SE will serve as an important resource for mentoring. One scientist commented that “Much like a library, they [SE] represent a collection of valuable, accessible information. They guide the curious and mentor the willing.” **The committee recommends that as soon as the USGS hires a new scientist, an appropriate SE should be identified to guide the new employee. Furthermore, the TCS should encourage new hires to contact SE when there is a clear overlap in science expertise.** This will facilitate an important continuity of knowledge. One SE put it best, “The granting of emeritus status and the fostering of its emeriti are essential to the accumulation and evolution of knowledge in the scientific process in which the USGS is engaged.”

### **Recognition/Appreciation**

Over half of the SE feel there is a lack of recognition and appreciation of their many contributions by supervisors and managers above the TCS level. Several SE commented that their TCS or PC do recognize and appreciate SE efforts, but higher levels of management are clueless with respect to the publications, project support, outreach, and other SE work. Some SE attribute their lack of support for decent computers, laboratory and office space, and publication costs as an indication of a “lack of respect”. Additionally, several SE indicated that many of the newer employees do not even know who they are. Clearly, this is an issue that should be

addressed in any new plan to revitalize this USGS SE Program. **The committee offers the following suggestions:**

- 1. Create a new award for SE – “Outstanding Scientist Emeritus Award”. Inclusion of this award would be a regular part of the USGS awards process, including recognition at the formal awards ceremony.**
- 2. Hold a yearly “reception” of SE at each regional center in which the Center Director or USGS Director outlines the contributions and summarizes highlights of the program.**
- 3. Create a SE science display similar to a poster display for each regional center that showcases SE contributions.**
- 4. Add highlights of the SE Program to the USGS Internet and Intranet, as well as links from both the USGS and DOI volunteer websites (see web discussion below).**
- 5. Prepare a fact sheet about the SE Program and its benefits to the USGS and make it available to the Regional and Headquarters Outreach staff.**
- 6. Include information on the SE Program as part of the USGS official display at national level science meetings. For example, part of the USGS display at the National GSA meeting could focus on the SE Program.**

## **Website**

Approximately one half of the SE said that a website was a good idea. However, a substantial number were neutral about the idea, and some were very negative. Some of the negativity is due to perceived imposition on the SE to contribute information on a regular basis. Also, there is a fear that by posting their names and expertise on the site, SE may receive so many requests for general geologic information that they will have insufficient time for their project work. The committee does recognize the need for the USGS to document SE Program contributions. As a solution, **the committee recommends that a SE website be created that provides general information about the SE Program and that this site be added to the official USGS Geology intranet and USGS Geology internet sites. For the Geology internet site, a link could be added either above or below “Mendenhall Postdoctoral Research Fellowship Program.” For the Geology intranet site, add the “Scientist Emeritus Program” under “Quick Links” and include more information on the Scientist Emeritus Program website. Periodically, the information should be updated and, if appropriate, selected highlights including photographs, quotes, referenced new maps and publications, etc. could be added to the site.**

## **Tracking of hours**

Out of 108 SE respondents, approximately half said they regularly track their volunteer hours (Appendix 1, question 5). Several SE felt that over time, the Program has become lax in making sure that hours are recorded and in other cases there seems to be a feeling that even when hours are recorded, they disappear into the realms of the bureaucratic unknown. The committee feels that tracking of hours is an important way of documenting the strength of the SE Program. **The committee recommends that Regional Executives and TCS work together to renew the volunteer hours tracking system. Appendix 9 contains a recommended SE Time Sheet Quarterly Log. These data could be compiled by the regions and reported to the Associate Director for Geology in an annual SE Program report. This information also could be incorporated into the proposed USGS SE website.**

## Policy Statement

The current SE Program policy statement is on the SE Intranet website, <http://geology.usgs.gov/usgs/acgs/emeritus/index.shtml>. The policy statement should provide important information to potential and current SE. When the SE were asked if they had read the Scientist Emeritus Policy Statement in the past two years, 51% said yes, and 49% said no. Of those that responded “yes,” many responded with “I read it today.” Of the 61 TCS/PC who answered the same question, 33% said yes, and 67% said no. Clearly the majority of SE, TCS, and PC have not read the policy statement. This may relate to relevancy and readability of the document. The committee finds that the policy statement is out-of-date and needs revision. See Appendix 10 for a proposed rewrite of the policy statement.

There is some confusion with regard to who may participate in the SE Program. According to the policy statement, the “purpose of the Scientist Emeritus Program is to utilize - on a volunteer basis - the expertise, intellect, and creativity of senior scientists retired from the Geological Survey to enhance the programmatic activities of the Geologic Division.” A common question the committee received was “is this Program open to those other than GS-14 and 15 research scientists?” This needs to be clarified. Initially, the SE Program was limited to scientists who reached GS/GM-14 or 15 or supergrade level. In the mid-1990’s, this requirement was no longer written into the SE Program. There was a suggestion to open the Program to other than just research staff. There are operational, IT, and technical support staff who have come back as volunteers and would like to be recognized as a “scientist emeritus” for the contributions they are making to the science of our organization. One individual commented that “To grant emeritus status to only the scientific research staff of an institution leaves out a major portion of its extant heritage of important knowledge and wisdom, the technical and operational portion. Cultural responsibility suggests therefore that to fully garner and cultivate its extant knowledge heritage, an institution’s grateful honoring by emeritus be offered to its retiring engineering, technical, and operational staff, and perhaps even to those who have served notably in educational roles, leadership, and in the difficult task of the administration of science.”

The title of “scientist emeritus” is an honor conferred to those individuals who have demonstrated leadership qualities throughout their career. In addition, they had a productive career that contributed to the goals of the USGS. **The committee recommends that the Program be open to all who have exhibited the above noted qualities irrespective of series, grade or title. If an individual applies for the SE Program, and a TCS determines the individual does not qualify, the USGS Volunteer Program is a viable alternative.**

The policy statement identifies four informal classes of Scientist Emeritus. They are:

- Scientist Emeritus – Program
- Scientist Emeritus – at-Large
- Scientist Emeritus – Bradley Scholar
- Scientist Emeritus – Honorary

### **Scientist Emeritus – Team (formerly Program)**

According to the policy statement, the *Scientist Emeritus – Program* is “associated with Programs and Teams and addresses priority issues established through the leadership of the supporting Program and Team.” **The committee suggests renaming this as SE Scientist Emeritus – Team and expanding the role as follows.** This class is designed for those individuals who wish to remain active project members within a Team. These SE are assigned to specific projects and work on tasks that can be found in BASIS+ projects. Funding normally comes from projects, but can be directly from the Team. If the SE is pursuing project research, and the project or Team has insufficient funds to cover this activity, the SE may want to consider applying for the Bradley Scholar Program (see Scientist Emeritus - Bradley Scholar Program Section). Under this category, limited funds should be available field work, publication costs, and attendance at scientific meetings. SE update their agreement forms annually, and continued participation in the Program is contingent upon an acceptable review. SE are assigned office space and receive support deemed necessary to accomplish the goals identified in the SE agreement. SE are encouraged to participate in seminars and lectures offered by USGS and to promote USGS activities in their geographic area.

### **Scientist Emeritus – at-Large**

The current policy statement identifies a *Scientist Emeritus – at Large* as someone who “may pursue activities in such areas as outreach, staff support to management, library assistance, etc.” **The committee recommend expanding this category to include overseeing special projects, completing work from the past (experimental, mapping, interpretive) that has gone on for some time and was not complete at retirement, or conducting or engaging in projects not associated with a BASIS+ project.** Funding requests for this category go through the Teams. Discussion of funds/support needs to occur at the initial and, subsequent, yearly conversations with the TCS or TCS designee. If the Team SE proposal fits the guidelines of the Bradley Scholar Program (see Scientist Emeritus - Bradley Scholar Program Section), the SE may want to consider this option. SE update their agreement forms annually, and continued participation in the Program is contingent upon these being accepted. SE are assigned office space and receive support deemed necessary to accomplish the goals identified in the SE agreement. SE are encouraged to participate in seminars and lectures offered by USGS and to promote USGS activities in their geographic area.

### **Scientist Emeritus – Bradley Scholar Program**

The third type of SE identified, *Scientist Emeritus – Bradley Scholar*, currently is not funded. As defined in the policy statement, this class is “competitive and addresses broad frontier areas of science.” **The committee recommends re-instating and expanding the Bradley Scholar Program investigations of science research frontiers that have potential future importance to the Nation and providing specialized scientific expertise and research that is of long-range importance to the USGS and the Nation to include the completion of legacy work (experimental, mapping, interpretive work from the past that is not yet completed) that meets these two criteria.** The agreement can be for a duration of one to three years. Annual agreements will not be required, but progress and resource requests will be reviewed annually. Application to the *Scientist Emeritus – Bradley Scholar Program* is through the SE agreement form. The SE agreement form has a special section that must be completed for those interested in applying to this Program. The number of Bradley Scholars awarded depends upon the number of

applications, the level of funding requested, and the amount of money available. **The committee recommends an annual investment of as much as \$300,000 that will be handled at the GD National level.**

### **Scientist Emeritus – Honorary**

Through the years, because of changes in plans and/or reasons of health, SE may become less active in science, yet still wish to retain a SE affiliation with the USGS. In these cases, it is appropriate to recognize them as *Scientist Emeritus – Honorary*. This recognition is reserved for individuals who have had long, distinguished careers with the USGS and who are less active or no longer active in science. When entering this category, research materials should be turned over to other employees or archived. No time logs or progress reports are expected. SE-Honorary will be assigned to an organizational unit based upon their geographic location. **As the title is honorary, it will be conferred by the Regional Executive.** A SE - Honorary is encouraged to participate in seminars and lectures offered by USGS and to promote USGS activities in their geographic area. A shared computer can be accessed at the USGS, or a home computer address can be added to the SE e-mail distribution list.

The current policy statement for the SE Program states that each region will have an Emeritus Program Advisory Panel to resolve disputes between management and SE. Currently these panels are not in existence. **It is the recommendation of the committee that the advisory panels no longer be called for in the Policy Statement. The Committee recommends that each region should be able to choose a communication mechanism that best fits the needs for their region.** The committee believes that improved communication between SE and TCS can resolve most issues and that group meetings of SE and periodic reviews of the SE Program will be adequate. The Regional Executive can constitute an ad-hoc panel, if situations arise

By giving the regions a more active role in the SE Program, greater accountability, oversight and direction can be provided. When asked if they submit an Annual Review and Evaluation Form (Appendix 1 question 6), 62% of SE responded with “yes”. Based on comments made, however, it appears that many SE do not realize that the annual review/evaluation form and the annual agreement are different documents. As a result, the 62% probably is an inaccurate number. The policy statement discusses the process for completing and processing the Annual Review and Evaluation form. Unfortunately, there is no form or a link to the form on the USGS Intranet website. **The committee recommends implementation of a new Annual Progress Review form.** (See Appendix 11). Completion of this form will help build/keep accountability into this Program.

Communication among regions about the SE Program is very important to encourage consistency. One mechanism that could increase consistency among regions would be the creation and maintenance of a consistent discipline-wide SE database. When the data call went out to each region for a list of their SE, each region provided information, but each of the three was in a different format and contained somewhat different information. **The committee recommends creating a mechanism that will allow management to generate multiple reports from a common database.** Jerry McFaul along with Sally Brady, Bruce Hemmingway, Warren Day, and Mike Carr (Geology Discipline Scientist Emeritus Survey Team) developed a web-based form to replace the Scientist Emeritus Agreement Form. This form was designed to

gather SE information online using a standard Web browser. The intent was to have a retrievable database of SE Program information. This report could be the basis for an annual report to the Associate Director of Geology about the status of the SE Program. Early versions of the form contain problems, and Betty Adrian has volunteered to work with Jerry McFaul on creating a web-based SE agreement form that balances the needs/desires of the SE with the needs/desires of GD management. **The committee suggests that the new web-based version of the SE agreement be more similar to the current agreement. Appendix 12 contains all of the information the committee feels should be on the modified agreement form, and all of these information fields should be included in the web-based version. The committee recommends that the web-based version be phased in over a 2-3 year period.** All new SE should be required to use the web-based version of the SE agreement in FY 07.

### **Ethics Rules for Scientist Emeritus**

Ethics is another aspect of the policy statement that needs to be expanded and clarified. The committee discussed ethics and the scientist emeritus numerous times because as times have changed so have ethics-related issues. For example, more SE have their own consulting business than before.

**In working with the Ethics Office in Reston, the committee recommends adding a section to the SE website on “Ethics Rules for Emeritus Scientists”. The recommendations for this section follow:**

Your position as a USGS scientist emeritus brings with it significant visibility and responsibility. A scientist emeritus must continue to avoid financial conflicts of interest prohibited by 18 U.S.C. 208, but they are not subject to the investment restrictions of the Organic Act or the USGS Conflict of Interest Policy, and they are not required to file financial conflict of interest reports. However, there are numerous ethics rules that you must continue to follow as a condition your receiving and/or retaining scientist emeritus status.

If you have questions or concerns regarding these rules, please contact the USGS Ethics Office by phone (703) 648-7474, 7439 or 7422 or e-mail to [EthicsOffice@usgs.gov](mailto:EthicsOffice@usgs.gov).

- 1) You must keep the USGS personnel with whom you are associated as a scientist emeritus informed as to your employment status. This enables USGS personnel to determine whether there are projects on which you should not work and to assist you in avoiding conflicts of interest.
- 2) You must avoid any conflicts of interest between your scientist emeritus status and your personal financial interests or those interests imputed to you. When performing scientist emeritus work, you may not take any official actions (including providing recommendations and advice to USGS personnel) that could financially benefit you, your spouse, any entity with whom you work, with whom you are engaged in employment negotiations or with whom you have financial interest. 18 U.S.C. 208.
- 3) You must not violate post-Government employment restrictions, as set forth in 18 U.S. Code 207. All USGS retirees are subject to post-Government representational restrictions, and some

personnel have more restrictions than others. The basic restriction is that for two years after your retirement, you may not contact Federal personnel with the intent to influence them regarding particular matters involving specific parties that were your official responsibility during your last year of your USGS employment. For further information on post-Government employment restrictions, contact the USGS Ethics Office.

4) You may not use your scientist emeritus status for your personal financial gain. If you have a consulting business, there must be a clear distinction between your scientist emeritus status and your consulting business. This restriction does not prevent you from accepting honoraria for speeches or presentations you are invited to give because of your scientific experience and expertise. If such honoraria are proposed or accepted, you should inform the USGS personnel with whom you perform your scientist emeritus duties.

5) You must protect and conserve Government resources. Government resources may only be used for authorized purposes and in furtherance of the USGS mission. Government resources may not be used for commercial activities. If you are engaged in post-Government employment, you may not use your USGS e-mail account in association with that employment. You may utilize USGS computer resources in accordance with the USGS Limited Use Policy, so long as the use does not impact the USGS mission.

6) You may not release non-public information to unauthorized entities.

7) You may not testify or provide a deposition as an expert witness in matters concerning your scientist emeritus work, or concerning the USGS work of the project/Team with which you are associated, without prior authorization from the Ethics Office.

## **Funding**

The issue of funding was the most common theme that came out of the committee's research. When SE were asked how they would rate the financial support they received to accomplish their SE agreement (Appendix 1, questions 11), 61% were either very satisfied or somewhat satisfied. The SE were given six choices as to where their funding was obtained. Out of the 108 respondents, 16 stated some of their funding came from Program funds, 49 responded from projects, and 41 responded from Teams. Twenty-six out of 108 responded that they received no funding at all. In FY05, 194 SE were funded with approximately \$201,208 for operating expenses (OE) or \$1037 per SE. Some Teams also identified that they had put additional funds into the working capital funds for SE publications. Obtaining an accurate accounting of how much OE the SE received was not an easy task. When asked for information about OE for SE and space costs, many Teams responded that their estimates were approximate since they "do not have a separate emeritus account." Even for Teams that have a separate SE account, it was not easy to provide an accurate figure, since many SE receive OE from several sources, including "off-the-cuff" funds.

In order to get a more accurate figure on the amount of OE money provided to SE, it would be necessary to implement a new accounting process, which would involve significant additional effort. The committee is not making a recommendation either way on this issue.

Many TCS and PC commented that they try to meet the funding needs of their SE when presented with a request. Numerous comments made by SE, however, indicate that they need more funds. However, it appears that the SE have been reluctant to ask their TCS/PC for funding. The intent of the checklists for managers is to strengthen the communication between SE and TCS, including funding. The SE shouldn't assume that they will receive an automatic "no" to a funding request. Without discussion, the TCS/PC may not have been aware of the SE's funding needs. Only through discussion with the TCS or TCS designee will a clear and realistic use of funds be implemented. **The committee recommends that TCS be encouraged to establish a small fund to cover minor SE expenses. Assigning a small allotment (possibly \$100 - \$200) to each SE may provide them sufficient funding and eliminate the need for them to "go begging" for funds.**

### **Funding Mechanism**

There are several ways that SE can get their agreement funded. This can be done through Projects, Teams, Programs, OFA, or the Bradley Scholar Program. It is self-evident how the first four types of funds can be obtained. The Bradley Scholar Program funds, however, need to be applied for through the application process outlined in this section. **The committee recommends that as much as \$300,000 be invested into a newly revitalized "Scientist Emeritus – Bradley Scholar Program Fund" through the AD for Geology. The committee urges the AD to encourage Program Coordinators to provide additional funds. The Program(s) could identify a Program need, invest some money into this need, and have it included on the Bradley Scholar Program Guidelines for a given year.**

The funding mechanism for the SE Program is shown in Appendix 13, which contains a flow chart of the "Scientist Emeritus Funding Mechanism". The first step in the process of receiving funds is for the SE to complete an agreement form. If part of an existing project, the SE works with the PC to determine the appropriate funding level. When the SE agreement form is complete, it is submitted to the TCS or TCS designee. The TCS or TCS designee works with the SE to determine what type of appointment is appropriate – Team, at-Large, Honorary, or Bradley Scholar. It is at this time that the TCS or TCS designee uses the checklists for managers. During this discussion, the TCS or TCS designee discusses funds that were requested on the SE agreement form.

If the SE decides to pursue the *Scientist Emeritus – Bradley Scholar* funds, then the appropriate section on the SE Agreement form must be completed. Once the TCS or TCS designee determines everything is properly completed, the *Bradley Scholar Program* application is sent to the Regional Executive's Office. The Regional Office collects all applications for this Program, and a regional package is sent to the AD's office. If the Regional Office does not concur with the request, the SE agreement form is sent back to the Team. The SE may want to re-evaluate and revise the agreement form in light of the funding available. Once all of the SE agreements have been forwarded to the AD for Geology, a panel determines which SE agreement(s) will receive funds. Agreements that are not accepted are sent back to the regions and, ultimately, the Teams. These SE then need to re-evaluate and revise agreements, as needed. Those SE whose agreements were accepted will be informed as to the amount of funds they will receive.

If the SE is pursuing the Team SE agreement, then the next question to be asked is “are there sufficient funds available at the project or Team level to complete what the SE has identified on the SE agreement?” If there are sufficient funds identified, the SE agreement is submitted to the Regional Executive’s Office for approval of the SE agreement as is. If sufficient funds are not available at the Team level, the SE needs to re-evaluate and revise the agreement.

**To assist upper management with various aspects of the SE Program, as well as help maintain a national consistency, the committee recommends establishing an “advocate” for the SE Program. This new position would be in the Associate Director of Geology’s Office and would be staffed on a rotating basis by a senior SE. The senior SE would not have to relocate to Reston. Duties of the position include:**

- a. Official USGS liaison for the SE Program to the Associate Director for Geology, Regional Management, and other parties, as needed.**
- b. Coordination and oversight of the funding at the National level for the SE Program.**
- c. Coordination and oversight of the awards for SE at the USGS center ceremonies.**
- d. Coordination and oversight of official USGS displays, websites, and other material that describe the Program and contributions at the Bureau level. This includes the USGS Inter- and Intranets and participation at National level science meetings.**

**Cost/benefit**

In FY05, there were 194 SE on 19 Teams throughout the U.S. These Teams invested approximately \$840,000 into the SE Program for OE and space costs (Appendix 6). Of this, \$640,000 was spent on space charges, which is paid whether the SE occupies the space or not, and \$201,000 was spent on OE. Table 1 shows the breakdown of the 106 SE who responded to the question of how many hours per week they worked. The estimated number of hours

	<b>Number of hours worked</b>	<b>Estimated average</b>	<b>Number of SE</b>	<b>Estimated number of hours worked weekly</b>
	30 +	30	27	810
	20 - 29	25	34	850
	10 - 19	15	36	540
	< 10	5	9	45
<b>TOTAL</b>			106	2,245

**Table 1.** Number of hours worked by 106 SE

worked weekly by these 106 SE is 2,245 hours. The monetary benefit to GD is:

$$(2,245 \text{ hours/week}) \times (50 \text{ weeks/year}) \times \$51/\text{hour [GS-14 step 5 Denver]} = \$5,724,750/\text{year}$$

The return on investment is \$5,724,750. That is almost a 7-fold return on investment when using the \$840,000 figure (includes space and OE) or a 28-fold return on investment when using the \$201,000 figure (includes OE only).

The tangible and intangible benefits to the Geologic Discipline and the USGS, in general, for this investment are numerous. Appendix 2 contains 550 citations for publications from 2000-2006 submitted by 74 SE. Our SE serve on outside scientific advisory panels and boards, act as senior advisors on USGS committees, and participate in numerous USGS outreach projects. SE represent the USGS and speak at national meetings as well as provide technical leadership to younger research and operational scientists. SE secure data at risk and review lengthy papers on a broad range of topics many times quicker than Team members are able to do so. Numerous hours are spent mentoring junior research scientists and responding to inquiries from “Ask-A-Geologist”. The leadership SE provides to on-going projects is invaluable. Appendixes 7 and 14 contain written responses from many SE and TCS/PC, respectively, which highlight many of the benefits of the SE Program. One TCS/PC commented stated, “The Scientist Emeritus Program is an extremely important program and helpful to managers. It allows scientists, who have the ability to perform important project/mission critical work, a home in which to continue to provide useful data after they retire. Without the Program, many would face the agonizing decision of whether to retire and leave the Survey or not retire and use critical resources. This is a graceful compromise for both scientists and managers.”

## **Strengths/Weakness of SE Program**

The GD SE Program has greatly benefited the USGS by providing an inexpensive way for scientists to continue their research, outreach, and mentoring activities. Their many contributions increase the productivity of the USGS and enhance the image of the USGS to external audiences. The number of individuals participating in the Program proves that the USGS continues to provide a rewarding work environment. Many organizations and businesses give their retirees a watch and a “good luck” wish. The USGS enriches the lives of many long-time valuable retired public servants by allowing them to continue to contribute to the USGS mission goals in very meaningful ways. The SE provide the USGS with a breadth and depth of wisdom and knowledge gained through many years of experience and leadership in their field. They have headed up ground-breaking work in areas that allowed USGS scientists to accomplish goals they would not have been able to accomplish without the SE. As one scientist remarked, “Many of our emeritus scientists are giants in our field and their original work has stood the test of time as being among the great work in Earth science worldwide.” The USGS is very fortunate to have SE who are willing to continue to share their knowledge, their curiosity, their insatiable desire to continue to seek answers to those hard questions. The high productivity of SE is a great benefit to the USGS mission. Appendix 2 has 550 citations from 74 out of 194 SE.

One of the weaknesses of the current SE Program is the great variability in how SE are treated within Teams, between Teams, and between Regions. Another weakness is that the allocation of resources (funding, space, and other types of support) is not necessarily related to the productivity and contributions of the SE. In addition, there appears to be a lack of visibility of the current Program by the highest levels of USGS management. As the USGS moves toward a “fee for service” accounting system, it has become increasingly difficult for some SE to pay for services needed to complete their work. This includes items such as publication charges, drafting, analyses, time on complex instruments, and computers. Hopefully, recommendations presented in this report will provide GD management with a new insight and ideas on how to revitalize this valuable asset.

## Conclusion

The Geologic Discipline upper management recognized the need to re-evaluate and revitalize its Scientist Emeritus Program and as a result tasked the Scientist Emeritus Program Review Panel to make recommendations. This panel has spent several months collecting data and discussing this program with numerous individuals. The committee's recommendations follow.

1. Implement the "Yearly Checklists for Managers" to provide team management with a tool to engage SE in a comprehensive dialogue of both the SE and team needs.
2. Re-establish and expand the Bradley Scholar Program to provide SE with the opportunity to investigate research frontiers that have potential importance to the Nation. Funding will be through the AD for Geology's office and can be as much as \$300,000. Program Coordinators are encouraged to identify additional program funds to be added.
3. Encourage local management to establish a small fund to address SE needs.
4. Regional Executive's Offices should work with their Regional Property Office to design and implement a process for obtaining newer surplus computers for the SE.
5. Regional Executive's Offices should consider setting up community laboratory and office space, where appropriate.
6. Make every attempt to publish SE legacy products that are of major significance to USGS as soon as possible, even if it means assigning them high priority status.
7. Teams need to work with their SE in ensuring that all appropriate materials are properly maintained until such time as they are archived.
8. Provide financial assistance to the Denver Library to help process the volumes of GD data and research material waiting for transfer to the National Archives.
9. Identify a SE who is willing and appropriate for mentoring each new "scientist"
10. TCS should encourage new hires to contact SE when there is a clear overlap in science expertise.
11. Recognize SE by implementing one or more of the following:
  - a. Create a new award for SE – "Outstanding Scientist Emeritus Award."
  - b. Hold a yearly reception of SE or a SE science session at each national center where SE work is showcased.
  - c. Include SE highlights on the USGS GD internet and intranet websites.
  - d. Publish a fact sheet describing the nature of the SE program and its benefits to the USGS.
  - e. Include the SE program as part of the USGS official display at national level science meetings.
12. Update the SE intranet website to include information such as ethics rules, an updated Policy Statement, necessary forms, key memos, and selected highlights such as photographs, quotes, and referenced new maps and publications.
13. Update the Geology internet website to include links to the SE intranet website as well as selected SE program highlights.
14. Open the SE program up to all individuals who have demonstrated leadership qualities throughout their career. These individuals must have also had a productive career that contributed to the goals of the USGS. Series, grade or title will not prohibit an individual from becoming a SE provided they meet the above criteria.

15. Replace *Scientist Emeritus – Program* with *Scientist Emeritus – Team*. This category is for those individuals who wish to remain active project members and will work on tasks in BASIS+.
16. Expand *Scientist Emeritus – at-Large* to include not only those individuals who pursue activities as outreach, staff support to management and library assistance, but also those who oversee special projects, complete legacy work, or engage in projects not in BASIS+. This category can be at the Team, regional or National level.
17. Re-instate the *Scientist Emeritus – Bradley Scholars*. Individuals in this category may investigate science research frontiers that have potential future importance to the Nation or may complete legacy work or publications provided the proposal meets the guidelines of the program.
18. *Scientist Emeritus – Honorary* is a recognition reserved for individuals who have had long, distinguished careers with the USGS and who are less active or no longer active in science. This honor is conferred by the Regional Executive.
19. The Emeritus Program Advisory Panel called for in the current Policy Statement, but no longer active, should be removed from the Policy Statement. By giving the regions a larger role in the SE Program, each region can design a communication mechanism that best fits the needs for their region.
20. Establish a team to work with Jerry McFaul on creating a web-based SE agreement form. This form needs to be similar to the current form and needs to include all of the information identified in Appendix 12. The web-based agreement form will be phased in over the next two-three years.
21. Implement a new Annual Progress Review form. This form will be included in the web-based application. Until then a hard copy must be submitted yearly.
22. Include ethics rules for the SE on the SE website. Current SE need to be made aware that these rules have been put on the website.
23. Identify an advocate from among the senior SE and will be staffed on a rotating basis. The advocate duties include:
  - a. Official USGS liaison to the AD for Geology, Regional Management.
  - b. Coordinate and oversee the Bradley Scholar Program.
  - c. Coordinate and oversee the SE awards.
  - d. Coordinate and oversee the official USGS displays, websites, etc.

## Appendix 1.

### Scientist Emeritus Questionnaire

A panel is currently reviewing the USGS Geologic Discipline Scientist Emeritus Program. The panel's goal is to assess the benefits and costs of the program, its strengths and weaknesses, and to recommend potential improvements. As part of this process, we are sending you this questionnaire. Please take the time to answer the following questions and return them to Laurel Bybell at [lbybell@usgs.gov](mailto:lbybell@usgs.gov) by **COB Friday December 16, 1005**. Laurel will then compile all answers without respondents' names.

#### General Information

1. How long have you participated in the USGS Scientist Emeritus Program?  
 Less than one year  
 1-3 years  
 4-6 years  
 7 years or more
  
2. What are your reasons for participating in the Scientist Emeritus Program? Check all that apply.  
 Complete scientific products  
 Continue ongoing scientific investigations  
 Conduct new scientific research  
 Conduct or engage in special projects for the USGS  
 Provide specialized scientific expertise to the USGS and the Nation  
 Provide seasoned counsel to managers, individual scientists, and Discipline teams  
 Enhance the institutional memory and provide an historical perspective  
 Other Specify \_\_\_\_\_
  
3. How do you spend your time as a Scientist Emeritus? Check all that apply.  
 Completing legacy science  
 Conducting new independent research  
 Actively participating in USGS project/s  
 Providing advice/support/mentoring to other USGS employees  
 Writing/speaking for general audiences  
 Serving on internal committees  
 Serving on external committees  
 Contributing to professional societies  
 Other Specify \_\_\_\_\_
  
4. How many hours per week do you participate in the Program?  
 30 or more  
 20-29  
 10-19  
 Less than 10
  
5. Do you report your volunteer hours every quarter?  
 Yes  
 No  
 Sometimes

## Appendix 1.

6. Do you submit an Annual Review and Evaluation Form?

- Yes  
 No  
 Sometimes

7. Have you read the Scientist Emeritus Policy Statement in the past two years?

<http://geology.usgs.gov/usgs/acgs/emeritus/policy.shtml>

- Yes  
 No

**Additional Comments** \_\_\_\_\_

### **Funding and Facilities Provided to Scientist Emeriti**

8. Where do you obtain your USGS Scientist Emeritus **funding**? Check all that apply.

- Program  
 Project  
 Team  
 Other Specify \_\_\_\_\_  
 Don't know  
 I receive no funding

9. How would you rate your USGS **office and laboratory space**?

- Very satisfactory  
 Somewhat satisfactory  
 Neutral  
 Somewhat unsatisfactory Specify \_\_\_\_\_  
 Very unsatisfactory Specify \_\_\_\_\_

10. How would you rate your USGS **office equipment** (i.e., phone, computer, internet access)?

- Very satisfactory  
 Somewhat satisfactory  
 Neutral  
 Somewhat unsatisfactory Specify \_\_\_\_\_  
 Very unsatisfactory Specify \_\_\_\_\_

11. How would you rate the **financial support** you receive for publications, field work, meetings, GIS, laboratory analyses, etc. that is needed to accomplish your Scientist Emeritus agreement?

- Very satisfactory  
 Somewhat satisfactory  
 Neutral  
 Somewhat unsatisfactory Specify \_\_\_\_\_  
 Very unsatisfactory Specify \_\_\_\_\_

**Additional Comments**

## Appendix 1.

### Results/Products of the Scientist Emeritus Program

12. What is your **most important contribution** while you have been a Scientist Emeritus?
13. List your **scientific accomplishments** for the past three-to-five years while a Scientist Emeritus.
14. List your **publications** for the past three-to-five years while a Scientist Emeritus.
15. How would you rate your ability to get your Scientist Emeritus work published?  
\_\_\_ Very satisfactory  
\_\_\_ Somewhat satisfactory  
\_\_\_ Neutral  
\_\_\_ Somewhat unsatisfactory Specify \_\_\_\_\_  
\_\_\_ Very unsatisfactory Specify \_\_\_\_\_
16. How would you rate your ability to accomplish the goals found on your FY 2005 Scientist Emeritus agreement?  
\_\_\_ Very satisfactory  
\_\_\_ Somewhat satisfactory  
\_\_\_ Neutral  
\_\_\_ Somewhat unsatisfactory Specify \_\_\_\_\_  
\_\_\_ Very unsatisfactory Specify \_\_\_\_\_
17. How would you rate your ability to complete **legacy studies** that predate your current Scientist Emeritus agreement?  
\_\_\_ Very satisfactory  
\_\_\_ Somewhat satisfactory  
\_\_\_ Neutral  
\_\_\_ Somewhat unsatisfactory Specify \_\_\_\_\_  
\_\_\_ Very unsatisfactory Specify \_\_\_\_\_
18. How important do you think your contributions are to the USGS?  
\_\_\_ Very important  
\_\_\_ Important  
\_\_\_ Neutral  
\_\_\_ Not important Specify \_\_\_\_\_
19. How do you plan to archive and preserve your scientific materials? \_\_\_\_\_

**Additional Comments** \_\_\_\_\_

### Evaluation of Scientist Emeritus Program

20. How satisfied are you with your Scientist Emeritus experience?  
\_\_\_ Very satisfied  
\_\_\_ Somewhat satisfied  
\_\_\_ Neutral  
\_\_\_ Somewhat dissatisfied Specify \_\_\_\_\_  
\_\_\_ Very dissatisfied Specify \_\_\_\_\_

## Appendix 1.

21. Are you satisfied with your interactions with Project members, Project Chiefs, Team Chief Scientists?  
\_\_\_ Very satisfied  
\_\_\_ Somewhat satisfied  
\_\_\_ Neutral  
\_\_\_ Somewhat dissatisfied Specify \_\_\_\_\_  
\_\_\_ Very dissatisfied Specify \_\_\_\_\_
22. Are you satisfied with how the supervisors/managers at the USGS recognize and acknowledge your contributions to Bureau Programs?  
\_\_\_ Very satisfied  
\_\_\_ Somewhat satisfied  
\_\_\_ Neutral  
\_\_\_ Somewhat dissatisfied Specify \_\_\_\_\_  
\_\_\_ Very dissatisfied Specify \_\_\_\_\_
23. What is your opinion about creating a USGS web site that lists Scientist Emeriti and provides information about their backgrounds, current work, and bibliographies?  
\_\_\_ Good idea  
\_\_\_ Neutral  
\_\_\_ Bad idea Specify \_\_\_\_\_
24. What are your suggestions for improving the Scientist Emeritus Program? \_\_\_\_\_

**Additional Comments** \_\_\_\_\_

If there are issues not covered in this questionnaire, please contact any member of the Scientist Emeritus Program Review Panel:

**Betty Adrian** (Chair) – Associate Team Chief Scientist, Mineral Resources Team, Central Region 303-236-1806 [badrian@usgs.gov](mailto:badrian@usgs.gov)

**Mary Jo Baedecker**- External Research Scientist Emeritus, WRD 703-648-5858  
[mjbaedec@usgs.gov](mailto:mjbaedec@usgs.gov)

**Dave Brew**- GD Scientist Emeritus, Western Region 650-329-5726 [dbrew@usgs.gov](mailto:dbrew@usgs.gov)

**Laurel Bybell** - Associate Program Coordinator, National Cooperative Geologic Mapping Program 703-648-5281 [lbybell@usgs.gov](mailto:lbybell@usgs.gov)

**Karl Kellogg**- GD Research Scientist, Central Region 303-236-1305 [kkellogg@usgs.gov](mailto:kkellogg@usgs.gov)

**Art Schultz** - GD Team Chief Scientist, Mineral Resources Team, Eastern Region 703-648-6327  
[aschultz@usgs.gov](mailto:aschultz@usgs.gov)

**Tom Suchanek**, External Manager, BRD 916-278-9573 [tsuchanek@usgs.gov](mailto:tsuchanek@usgs.gov)

## Appendix 1.

### Scientist Emeritus Responses to Questionnaire (108 SE returned questionnaire)

#### General Information

1. How long have you participated in the USGS Scientist Emeritus Program?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>&lt;one year</b>	6	6%	4	9%	1	2%	1	5%
<b>1-3 years</b>	24	23%	14	32%	6	14%	4	20%
<b>4-6 years</b>	17	16%	5	11%	9	21%	3	15%
<b>7+</b>	60	55%	21	48%	27	63%	12	60%
<b>Total</b>	107	100%	44	100%	43	100%	20	100%

2. What are your reasons for participating in the Scientist Emeritus Program?

	<b>GD</b>	<b>WR</b>	<b>CR</b>	<b>ER</b>
<b>Complete scientific products</b>	87	39	34	14
<b>Continue scientific investigations</b>	83	38	31	14
<b>New research</b>	69	30	25	14
<b>Special USGS projects</b>	38	13	19	6
<b>Provide scientific expertise</b>	67	29	26	12
<b>Provide seasoned counsel</b>	56	22	20	14
<b>Enhance institutional memory</b>	49	20	19	10
<b>Other</b>	27	12	9	6

3. How do you spend your time as a Scientist Emeritus?

	<b>GD</b>	<b>WR</b>	<b>CR</b>	<b>ER</b>
<b>Legacy science</b>	73	31	30	12
<b>New independent research</b>	69	28	26	15
<b>Participating in USGS project/s</b>	71	32	27	12
<b>Providing advice/support/mentoring</b>	74	27	30	17
<b>Writing/speaking for gen. audiences</b>	44	21	14	9
<b>Serving on internal committees</b>	13	7	2	4
<b>Serving on external committees</b>	27	12	8	7
<b>Contributing to profess. societies</b>	36	15	14	7
<b>Other</b>	22	8	9	5

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4. How many hours per week do you participate in the Program?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>30 +</b>	27	26%	15	34%	9	22%	3	14%
<b>20-29</b>	34	32%	16	36%	8	20%	10	48%
<b>10-19</b>	36	33%	10	23%	20	48%	6	29%
<b>&lt;10</b>	9	9%	3	7%	4	10%	2	9%
<b>Total</b>	106	100%	44	100%	41	100%	21	100%

5. Do you report your volunteer hours every quarter?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Yes</b>	50	47%	20	45%	25	58%	5	24%
<b>No</b>	46	42%	18	41%	13	30%	15	71%
<b>Sometimes</b>	12	11%	6	14%	5	12%	1	5%
<b>Total</b>	108	100%	44	100%	43	100%	21	100%

6. Do you submit an Annual Review and Evaluation Form?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Yes</b>	63	62%	24	56%	31	76%	8	42%
<b>No</b>	36	34%	18	42%	9	22%	9	47%
<b>Sometimes</b>	4	4%	1	2%	1	2%	2	11%
<b>Total</b>	103	100%	43	100%	41	100%	19	100%

7. Have you read the Scientist Emeritus Policy Statement in the past two years?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Yes</b>	52	51%	23	53%	21	51%	8	42%
<b>No</b>	51	49%	20	47%	20	49%	11	58%
<b>Total</b>	103	100%	43	100%	41	100%	19	100%

### **Funding and Facilities Provided to Scientist Emeriti**

8. Where do you obtain your USGS Scientist Emeritus funding?

	<b>GD</b>	<b>WR</b>	<b>CR</b>	<b>ER</b>
<b>Program</b>	16	8	6	2
<b>Project</b>	49	23	20	6
<b>Team</b>	41	16	15	10
<b>Other</b>	15	8	3	4
<b>Don't know</b>	2	0	1	1
<b>No funding</b>	26	6	14	6

9. How would you rate your USGS office and laboratory space?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Very satisfactory</b>	72	67%	28	65%	29	69%	15	72%
<b>Somewhat satisfactory</b>	17	16%	7	16%	8	19%	2	10%
<b>Neutral</b>	2	2%	2	5%	0	0%	0	0%
<b>Somewhat unsatisfactory</b>	8	8%	4	9%	2	5%	2	10%
<b>Very</b>	2	2%	0	0%	1	2%	1	4%

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<b>unsatisfactory</b>								
<b>N/A</b>	5	5%	2	5%	2	5%	1	4%
<b>Total</b>	106	100%	43	100%	42	100%	21	100%

10. How would you rate your USGS office equipment (i.e., phone, computer, internet access)?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Very satisfactory</b>	67	62%	28	65%	26	60%	13	61%
<b>Somewhat satisfactory</b>	21	20%	8	19%	10	23%	3	14%
<b>Neutral</b>	4	4%	1	2%	2	5%	1	5%
<b>Somewhat unsatisfactory</b>	8	7%	3	7%	3	7%	2	10%
<b>Very unsatisfactory</b>	2	2%	1	2%	0	0%	1	5%
<b>N/A</b>	5	5%	2	5%	2	5%	1	5%
<b>Total</b>	107	100%	43	100%	43	100%	21	100%

11. How would you rate the **financial support** you receive for publications, field work, meetings, GIS, laboratory analyses, etc. that is needed to accomplish your Scientist Emeritus agreement?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Very satisfactory</b>	33	31%	15	34%	10	24%	8	40%
<b>Somewhat satisfactory</b>	32	30%	16	36%	12	29%	4	20%
<b>Neutral</b>	19	18%	7	16%	9	21%	3	15%
<b>Somewhat unsatisfactory</b>	12	11%	5	12%	6	14%	1	5%
<b>Very unsatisfactory</b>	6	6%	1	2%	2	5%	3	15%
<b>N/A</b>	4	4%	0	0%	3	7%	1	5%
<b>Total</b>	106	100%	44	100%	42	100%	20	100%

### **Results/Products of the Scientist Emeritus Program**

15. How would you rate your ability to get your Scientist Emeritus work published?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Very satisfactory</b>	48	45%	20	46%	20	48%	8	40%
<b>Somewhat satisfactory</b>	25	24%	12	28%	8	19%	5	25%
<b>Neutral</b>	16	15%	5	12%	7	17%	4	20%
<b>Somewhat unsatisfactory</b>	8	8%	5	12%	3	7%	0	0%
<b>Very unsatisfactory</b>	3	3%	0	0%	1	2%	2	10%
<b>N/A</b>	5	5%	1	2%	3	7%	1	5%

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<b>Total</b>	105	100%	43	100%	42	100%	20	100%
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16. How would you rate your ability to accomplish the goals found on your FY 2005 Scientist Emeritus agreement?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Very satisfactory</b>	44	42%	23	51%	15	36%	6	35%
<b>Somewhat satisfactory</b>	39	38%	14	32%	18	43%	7	41%
<b>Neutral</b>	11	11%	4	10%	5	12%	2	12%
<b>Somewhat unsatisfactory</b>	5	5%	3	7%	1	2%	1	6%
<b>Very unsatisfactory</b>	3	3%	0	0%	2	5%	1	6%
<b>N/A</b>	1	1%	0	0%	1	2%	0	0%
<b>Total</b>	103	100%	44	100%	42	100%	17	100%

17. How would you rate your ability to complete **legacy studies** that predate your current Scientist Emeritus agreement?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Very satisfactory</b>	28	30%	15	38%	12	31%	1	6%
<b>Somewhat satisfactory</b>	34	36%	14	36%	15	38%	5	31%
<b>Neutral</b>	15	16%	8	20%	4	10%	3	19%
<b>Somewhat unsatisfactory</b>	8	9%	1	3%	3	8%	4	25%
<b>Very unsatisfactory</b>	4	4%	1	3%	2	5%	1	6%
<b>N/A</b>	5	5%	0	0%	3	8%	2	13%
<b>Total</b>	94	100%	39	100%	39	100%	16	100%

18. How important do you think your contributions are to the USGS?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Very important</b>	37	35%	16	38%	12	28%	9	47%
<b>Important</b>	63	60%	25	58%	29	67%	9	47%
<b>Neutral</b>	2	2%	1	2%	0	0%	1	6%
<b>Not important</b>	3	3%	1	2%	2	5%	0	0%
<b>Total</b>	105	100%	43	100%	43	100%	19	100%

### Evaluation of Scientist Emeritus Program

20. How satisfied are you with your Scientist Emeritus experience?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Very satisfied</b>	73	69%	33	77%	26	60%	14	70%
<b>Somewhat satisfied</b>	22	21%	7	16%	10	23%	5	25%

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<b>Neutral</b>	3	3%	1	5%	2	5%	0	0%
<b>Somewhat dissatisfied</b>	8	7%	2	2%	5	12%	1	5%
<b>Very dissatisfied</b>	0	0%	0	0%	0	0%	0	0%
<b>Total</b>	106	100%	43	100%	43	100%	20	100%

21. Are you satisfied with your interactions with Project members, Project Chiefs, Team Chief Scientists?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Very satisfied</b>	80	74%	32	74%	30	70%	18	86%
<b>Somewhat satisfied</b>	18	17%	9	21%	6	14%	3	14%
<b>Neutral</b>	4	4%	0	0%	4	9%	0	0%
<b>Somewhat dissatisfied</b>	5	5%	2	5%	3	7%	0	0%
<b>Very dissatisfied</b>	0	0%	0	0%	0	0%	0	0%
<b>Total</b>	107	100%	43	100%	43	100%	21	100%

22. Are you satisfied with how the supervisors/managers at the USGS recognize and acknowledge your contributions to Bureau Programs?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Very satisfied</b>	50	47%	15	35%	22	52%	13	61%
<b>Somewhat satisfied</b>	29	27%	15	35%	10	24%	4	19%
<b>Neutral</b>	16	15%	9	20%	5	12%	2	10%
<b>Somewhat dissatisfied</b>	8	8%	2	5%	4	10%	2	10%
<b>Very dissatisfied</b>	3	3%	2	5%	1	2%	0	0%
<b>Total</b>	106	100%	43	100%	42	100%	21	100%

23. What is your opinion about creating a USGS web site that lists Scientist Emeriti and provides information about their backgrounds, current work, and bibliographies?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Good idea</b>	49	47%	19	45%	19	44%	11	58%
<b>Neutral</b>	47	45%	20	48%	21	49%	6	32%
<b>Bad idea</b>	8	8%	3	7%	3	7%	2	10%
<b>Total</b>	104	100%	42	100%	43	100%	19	100%

## Appendix 2.

### Scientist Emeritus Publications 2000-2006

- Aki, K., and Lee, W. H. K., 2003, Glossary of interest to earthquake and engineering seismologists, in "International Handbook of Earthquake and Engineering Seismology, Part B", edited by W. H. K. Lee, H. Kanamori, P. C. Jennings, and C. Kisslinger, p. 1793-1856, Academic Press, Amsterdam.
- Alford, D., and Schuster, R.L. (eds.), 2000, Usui Landslide Dam and Lake Sarez – An Assessment of Hazard and Risk in the Pamir Mountains, Tajikistan: United Nations ISDR Prevention Series No. 1, Geneva, 115 p.
- Alford, D., and Schuster, R.L., 2000, Introduction and summary: Chapter 1 in Usui Landslide Dam and Lake Sarez – An Assessment of Hazard and Risk in the Pamir Mountains, Tajikistan: United Nations ISDR Prevention Series No. 1, Geneva, p. 1-18.
- Ashley, R.P., and Rytuba, J.J., 2004, Mercury associated with gold dredge tailings in the Clear Creek and Trinity River watersheds, California: Proceedings of the 2004 CALFED Bay-Delta Program Science Conference (<http://cain.nbii.regional/calfed/>).
- Barnes, P.W., and Thomas, J.P. (eds.), 2005, Benthic Habitats and the Effects of Fishing, American Fisheries Society Symposium 41, 890 p.
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## Appendix 3.

### Checklist for Managers, New Scientist Emeritus

- Types of SE appointments** - What is the best fit now?
  - SE-Team (associated with projects)
  - SE-At-Large (pursue activities in outreach, staff support to management)
  - SE- Bradley Scholar (competitive work at the frontiers of science)
  - SE-Honorary (for inactive SE)
  
- Support** – Discussion on needs vs. ability of team to support
  - Office space
  - Lab space/access
  - Team Funding – now and in next few years (based on our current understanding of funding)
  - Funding for publications, experimentation, field work, meetings
  - Computer
  - Services (drafting, secretarial, GIS, etc.)
  
- E-mail**
  - GD-Emeritus e-mail list (to receive general information)
  - GD-ALL
  - Team (give e-mail list) \_\_\_\_\_
  - Other \_\_\_\_\_
  
- Progress Review** (If receiving funds, SE must provide a short progress statement each year.)
  
- Web Site** – Some activities and products of SE will be documented on our internal and external internet sites. If you are a SE –Team, at-Large, or Bradley Scholar appointment, we would like you to provide information of accomplishments in your yearly progress statement that can be used on these sites. This is a way of bringing more recognition to the accomplishments of our SE.
  
- Legacy Work** (if appropriate).
  - Anticipated completion date \_\_\_\_\_ years.
  
- Archiving**
  - Does SE have data or other materials that need archiving?
  - If yes, work with SE to put together archiving plan.
  
- Ethics Rules** - Although no financial forms need to be filled out, ethics rules still apply to SE.
  - Read Ethics Rules on Scientist Emeritus web site.
  - Does SE plan to have a consulting business?
  - If yes, discuss how to make certain there is no conflict of interest.

### Appendix 3.

- \_\_\_ **Honorary SE** - If SE becomes less active in science activities internal and external to the USGS, we will convert SE to an honorary SE. SE will continue to receive information about the USGS and have computer access at the USGS, if desired, in shared office space.
  
- \_\_\_ **Minimum requirements** - We recognize SE desire to reduce paperwork. Here are the minimum requirements:
  - \_\_\_ Being on the GD-SE email list (new)
  - \_\_\_ Requirements to take mandatory training (may vary from region to region) - i.e. computer
  - \_\_\_ Complete SE agreement (including a volunteer form) (either on a 1-2-or 3-year basis) as determined by the TCS or RG
  - \_\_\_ If receiving support (funding, office, lab) from the USGS, completion of quarterly time logs and a short yearly progress report including publications.
  - \_\_\_ SE Time Log
  - \_\_\_ Received and read Policy Statement.
  
- \_\_\_ **Contacts** - Every effort will be made in include SE in major team/project meetings and social functions, unless SE prefers otherwise.
  - \_\_\_ Yes, please include me.
  - \_\_\_ No thank you. I don't want to be included.
  - \_\_\_ Your first contact for issues related to your SE appointment is \_\_\_\_\_.
  - \_\_\_ If SE would like to talk to the next level of management, SE should contact \_\_\_\_\_.

## Appendix 4.

### Yearly Checklist for Managers

\_\_\_ **Update on expected funding** for team/projects in next FY.

\_\_\_ **Yearly progress statement and current SE agreement**

\_\_\_ **Support** – Discussion on needs vs. ability of team to support

\_\_\_ Office space

\_\_\_ Lab space/access

\_\_\_ Team Funding – now and in next few years (based on our current understanding of funding)

\_\_\_ Funding for publications, experimentation, field work, meetings

\_\_\_ Computer

\_\_\_ Services (drafting, secretarial, GIS, etc.)

\_\_\_ **Discussion points:**

\_\_\_ How much do you expect to work in the coming year? \_\_\_\_\_

\_\_\_ Is what you are proposing in your SE agreement able to be accomplished in this timeframe?

\_\_\_ Given the support the team/project is able to provide, will you be able to accomplish what is proposed in your SE agreement?

\_\_\_ Discussion of likely support for the FY and when TCS or TCS designee will be able to provide you with more detail.

\_\_\_ SE Time Log

\_\_\_ **Archiving**

\_\_\_ Does SE have data and other materials that need archiving?

\_\_\_ If yes, work with SE to put together archiving plan.

\_\_\_ **Legacy Work** (if appropriate).

\_\_\_ Anticipated completion date \_\_\_\_\_ years.

\_\_\_ **E-mail**

\_\_\_  GD-Emeritus e-mail list (to receive general information)

\_\_\_  GD-ALL

\_\_\_ Team (give e-mail list) \_\_\_\_\_

\_\_\_ Other \_\_\_\_\_

\_\_\_ **Contacts** - Every effort will be made to include SE in major team/project meetings and social functions, unless SE prefers otherwise.

\_\_\_ Yes, please include me.

\_\_\_ No, thank you. I don't want to be included.

\_\_\_ Your first contact for issues related to your SE appointment is \_\_\_\_\_.

\_\_\_ If SE would like to talk to the next level of management, SE should contact \_\_\_\_\_.

## Appendix 5.

### **Scientist Emeritus Questionnaire to Team Chief Scientists and Project Chiefs**

A panel is currently reviewing the USGS Geologic Discipline Scientist Emeritus Program. The panel's goal is to assess the benefits and costs of the program, its strengths and weaknesses, and to recommend potential improvements. As part of this process, we are sending you this questionnaire. Please take the time to answer the following questions and return them to Laurel Bybell at [lbybell@usgs.gov](mailto:lbybell@usgs.gov) by **COB Friday December 16, 2005**. Laurel will then compile all answers without respondents' names.

Thank you for your help.

#### **General Information**

1. What is your position at the USGS?

- Team Chief Scientist  
 Project Chief  
 Other Specify \_\_\_\_\_

2. Are there any Scientist Emeriti on your project or Team?

- Yes  
 No Specify \_\_\_\_\_

3. Do your Scientist Emeriti submit annual agreements?

- Yes  
 Some  
 No  
 Don't know

4. Do your Scientist Emeriti report their volunteer hours every quarter?

- Yes  
 Some  
 No  
 Don't know

5. Do your Scientist Emeriti prepare an Annual Review and Evaluation Form?

- Yes  
 Some  
 No  
 Don't know

6. Have you read the Scientist Emeritus Policy Statement in the past two years?

<http://geology.usgs.gov/usgs/acgs/emeritus/policy.shtml>

- Yes  
 No

**Additional Comments** \_\_\_\_\_

## Appendix 5.

### Funding and Facilities Provided to Scientist Emeriti

7. Where do your Scientist Emeriti obtain USGS **funding**? Check all that apply.

- Program
- Project
- Team
- Other Specify \_\_\_\_\_
- Don't know
- They receive no funding

8. How would you rate the USGS **office and laboratory space** provided for your emeriti?

- Very satisfactory
- Satisfactory
- Neutral
- Somewhat unsatisfactory Specify \_\_\_\_\_
- Very unsatisfactory Specify \_\_\_\_\_

9. How would you rate the USGS **office equipment** (i.e., phone, computer, internet access) provided to your emeriti?

- Very satisfactory
- Satisfactory
- Neutral
- Somewhat unsatisfactory Specify \_\_\_\_\_
- Very unsatisfactory Specify \_\_\_\_\_

10. How would you rate the **financial support** your emeriti receive for publications, field work, meetings, GIS, laboratory analyses, etc. that are needed to accomplish their Scientist Emeritus agreement?

- Very satisfactory
- Satisfactory
- Neutral
- Somewhat unsatisfactory Specify \_\_\_\_\_
- Very unsatisfactory Specify \_\_\_\_\_

11. How would you rate the ability of your emeriti to complete **legacy studies** that predate their current Scientist Emeritus agreement?

- Very satisfactory
- Somewhat satisfactory
- Neutral
- Somewhat unsatisfactory Specify \_\_\_\_\_
- Very unsatisfactory Specify \_\_\_\_\_

### **Additional Comments**

## Appendix 5.

### Results/Products of the Scientist Emeritus Program

12. How **important** is the work that Scientist Emeriti are performing for your project/team?

- Very Important
- Important
- Neutral
- Not Important Specify \_\_\_\_\_

13. In what **activities** are your Scientist Emeriti involved? Check all that apply.

- Completing legacy science
- Conducting new independent research
- Active participant in USGS project/s
- Providing advice/support/mentoring to other USGS employees
- Writing/speaking for general audiences
- Serving on internal committees
- Serving on external committees
- Contributing to professional societies
- Other Specify \_\_\_\_\_

14. List some of the **accomplishments** that Scientist Emeriti have made to your team in recent years.

15. How do you plan to **archive and preserve** your Scientist Emeriti's unpublished scientific materials?

**Additional Comments** \_\_\_\_\_

### Evaluation of the Scientist Emeritus Program

16. How satisfied are you with the Scientist Emeritus Program?

- Very satisfied
- Somewhat satisfied
- Neutral
- Somewhat dissatisfied Specify \_\_\_\_\_
- Very dissatisfied Specify \_\_\_\_\_

17. Are you satisfied with Scientist Emeriti interactions with Project members, Project Chiefs, Team Chief Scientists?

- Very satisfied
- Somewhat satisfied
- Neutral
- Somewhat dissatisfied Specify \_\_\_\_\_
- Very dissatisfied Specify \_\_\_\_\_

## Appendix 5.

18. Are you satisfied with how the supervisors/managers at the USGS recognize and acknowledge the contributions of Scientist Emeriti to Bureau Programs?
- Very satisfied  
 Somewhat satisfied  
 Neutral  
 Somewhat dissatisfied Specify \_\_\_\_\_  
 Very dissatisfied Specify \_\_\_\_\_
19. Are the organizational aspects (local committees, projected support mechanisms, etc.) contained in the 1996 Scientist Emeritus Policy Statement still appropriate?
- Yes  
 No Specify \_\_\_\_\_
20. What is your opinion about creating a USGS web site that lists Scientist Emeriti and provides information about their backgrounds, current work, and bibliographies?
- Good idea  
 Neutral  
 Bad idea Specify \_\_\_\_\_
21. What are your suggestions for improving the Scientist Emeritus Program? \_\_\_\_\_

**Additional Comments** \_\_\_\_\_

If there are issues not covered in this questionnaire, please contact any member of the Scientist Emeritus Program Review Panel:

**Betty Adrian** (Chair) – Associate Team Chief Scientist, Mineral Resources Team, Central Region 303-236-1806 [badrian@usgs.gov](mailto:badrian@usgs.gov)

**Mary Jo Baedecker**- External Research Scientist Emeritus, WRD 703-648-5858  
[mjbaedec@usgs.gov](mailto:mjbaedec@usgs.gov)

**Dave Brew**- GD Scientist Emeritus, Western Region 650-329-5726 [dbrew@usgs.gov](mailto:dbrew@usgs.gov)

**Laurel Bybell** - Associate Program Coordinator, National Cooperative Geologic Mapping Program 703-648-5281 [lbybell@usgs.gov](mailto:lbybell@usgs.gov)

**Karl Kellogg**- GD Research Scientist, Central Region 303-236-1305 [kkellogg@usgs.gov](mailto:kkellogg@usgs.gov)

**Art Schultz** - GD Team Chief Scientist, Mineral Resources Team, Eastern Region 703-648-6327  
[aschultz@usgs.gov](mailto:aschultz@usgs.gov)

**Tom Suchanek**, External Manager, BRD 916-278-9573 [tsuchanek@usgs.gov](mailto:tsuchanek@usgs.gov)

## Appendix 5.

### Team Chief Scientist/Project Chief Responses to Questionnaire (64 TCS/PC returned questionnaire)

#### General Information

1. What is your position at the USGS?

	<b>GD</b>	<b>WR</b>	<b>CR</b>	<b>ER</b>
<b>Team Chief Scientist</b>	13	4	5	4
<b>Project Chief</b>	46	17	20	9
<b>Other</b>	5	4	1	0

2. Are there any Scientist Emeriti on your project or Team?

	<b>GD</b>	<b>WR</b>	<b>CR</b>	<b>ER</b>
<b>Yes</b>	48	20	21	7
<b>No</b>	15	5	5	5

3. Do your Scientist Emeriti submit annual agreements?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Yes</b>	32	60%	16	76%	11	47%	5	56%
<b>Some</b>	2	4%	0	0%	2	9%	0	0%
<b>No</b>	3	6%	0	0%	2	9%	1	11%
<b>Don't know</b>	16	30%	5	24%	8	35%	3	33%
<b>Total</b>	53	100%	21	100%	23	100%	9	100%

4. Do your Scientist Emeriti report their volunteer hours every quarter?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Yes</b>	10	19%	5	24%	4	18%	1	12%
<b>Some</b>	9	17%	3	14%	6	27%	0	0%
<b>No</b>	8	15%	1	5%	3	14%	4	44%
<b>Don't know</b>	25	49%	12	57%	9	41%	4	44%
<b>Total</b>	52	100%	21	100%	22	100%	9	100%

5. Do your Scientist Emeriti prepare an Annual Review and Evaluation Form?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Yes</b>	8	16%	3	16%	4	17%	1	12%
<b>Some</b>	5	10%	1	5%	4	17%	0	0%
<b>No</b>	14	27%	6	32%	4	17%	4	44%
<b>Don't know</b>	24	47%	9	47%	11	49%	4	44%
<b>Total</b>	51	100%	19	100%	23	100%	9	100%

6. Have you read the Scientist Emeritus Policy Statement in the past two years?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Yes</b>	20	33%	9	39%	8	32%	3	23%
<b>No</b>	41	67%	14	61%	17	68%	10	77%
<b>Total</b>	61	100%	23	100%	25	100%	13	100%

## Appendix 5.

### Funding and Facilities Provided to Scientist Emeriti

7. Where do your Scientist Emeriti obtain USGS funding?

	<b>GD</b>	<b>WR</b>	<b>CR</b>	<b>ER</b>
<b>Program</b>	7	3	4	0
<b>Project</b>	37	14	18	5
<b>Team</b>	26	10	11	5
<b>Other</b>	7	3	4	0
<b>Don't know</b>	9	2	4	3
<b>No funding</b>	5	1	4	0

8. How would you rate the USGS **office and laboratory space** provided for your emeriti?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Very satisfactory</b>	18	34%	7	35%	9	37%	2	22%
<b>Satisfactory</b>	24	46%	10	50%	8	33%	6	67%
<b>Neutral</b>	5	9%	1	5%	3	13%	1	11%
<b>Somewhat unsatisfactory</b>	5	9%	2	10%	3	13%	0	0%
<b>Very unsatisfactory</b>	1	2%	0	0%	1	4%	0	0%
<b>Total</b>	53	100%	20	100%	24	100%	9	100%

9. How would you rate the USGS **office equipment** (i.e., phone, computer, internet access) provided to your emeriti?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Very satisfactory</b>	19	36%	11	55%	5	21%	3	33%
<b>Satisfactory</b>	26	49%	9	45%	13	54%	4	45%
<b>Neutral</b>	2	4%	0	0%	1	4%	1	11%
<b>Somewhat unsatisfactory</b>	5	9%	0	0%	4	17%	1	11%
<b>Very unsatisfactory</b>	1	2%	0	0%	1	4%	0	0%
<b>Total</b>	53	100%	20	100%	24	100%	9	100%

## Appendix 5.

10. How would you rate the **financial support** your emeriti receive for publications, field work, meetings, GIS, laboratory analyses, etc. that are needed to accomplish their Scientist Emeritus agreement?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Very satisfactory</b>	6	12%	4	20%	2	10%	0	0%
<b>Satisfactory</b>	23	46%	9	45%	11	51%	3	33%
<b>Neutral</b>	15	30%	6	30%	5	24%	4	45%
<b>Somewhat unsatisfactory</b>	5	10%	1	5%	2	10%	2	22%
<b>Very unsatisfactory</b>	1	2%	0	0%	1	5%	0	0%
<b>Total</b>	50	100%	20	100%	21	100%	9	100%

11. How would you rate the ability of your emeriti to complete **legacy studies** that predate their current Scientist Emeritus agreement?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Very satisfactory</b>	13	25%	8	40%	5	23%	0	0%
<b>Somewhat satisfactory</b>	23	45%	8	40%	12	54%	3	33%
<b>Neutral</b>	7	14%	0	0%	3	14%	4	45%
<b>Somewhat unsatisfactory</b>	6	12%	4	20%	0	0%	2	22%
<b>Very unsatisfactory</b>	2	4%	0	0%	2	9%	0	0%
<b>Total</b>	51	100%	20	100%	22	100%	9	100%

### Results/Products of the Scientist Emeritus Program

12. How **important** is the work that Scientist Emeriti are performing for your project/team?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Very Important</b>	22	40%	11	55%	9	35%	2	22%
<b>Important</b>	25	45%	8	40%	12	46%	5	56%
<b>Neutral</b>	6	11%	1	5%	4	15%	1	11%
<b>Not Important</b>	2	4%	0	0%	1	4%	1	11%
<b>Total</b>	55	100%	20	100%	26	100%	9	100%

## Appendix 5.

13. In what **activities** are your Scientist Emeriti involved?

	<b>GD</b>	<b>WR</b>	<b>CR</b>	<b>ER</b>
<b>Completing legacy science</b>	46	19	21	6
<b>Conducting new independent research</b>	42	13	14	5
<b>Active participant in USGS project/s</b>	37	16	17	4
<b>Providing advice/support/mentoring</b>	37	14	16	7
<b>Writing/speaking for general audiences</b>	19	9	7	3
<b>Serving on internal committees</b>	8	3	2	3
<b>Serving on external committees</b>	12	5	3	4
<b>Contributing to professional societies</b>	26	11	10	5
<b>Other</b>	9	1	4	4

### Evaluation of the Scientist Emeritus Program

16. How satisfied are you with the Scientist Emeritus Program?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Very satisfied</b>	24	42%	11	50%	11	48%	2	17%
<b>Somewhat satisfied</b>	20	35%	8	36%	6	26%	6	49%
<b>Neutral</b>	8	14%	2	9%	4	17%	2	17%
<b>Somewhat dissatisfied</b>	5	9%	1	5%	2	9%	2	17%
<b>Very dissatisfied</b>	0	0%	0	0%	0	0%	0	0%
<b>Total</b>	57	100%	22	100%	23	100%	12	100%

17. Are you satisfied with Scientist Emeriti interactions with Project members, Project Chiefs, Team Chief Scientists?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Very satisfied</b>	24	44%	10	50%	10	42%	4	36%
<b>Somewhat satisfied</b>	17	31%	7	35%	7	29%	3	28%
<b>Neutral</b>	10	18%	2	10%	4	17%	4	36%
<b>Somewhat dissatisfied</b>	3	5%	1	5%	2	8%	0	0%
<b>Very dissatisfied</b>	1	2%	0	0%	1	4%	0	0%
<b>Total</b>	55	100%	20	100%	24	100%	11	100%

## Appendix 5.

18. Are you satisfied with how the supervisors/managers at the USGS recognize and acknowledge the contributions of Scientist Emeriti to Bureau Programs?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Very satisfied</b>	9	16%	7	32%	2	9%	0	0%
<b>Somewhat satisfied</b>	21	38%	8	36%	9	39%	4	36%
<b>Neutral</b>	19	34%	3	14%	10	43%	6	55%
<b>Somewhat dissatisfied</b>	7	12%	4	18%	2	9%	1	9%
<b>Very dissatisfied</b>	0	0%	0	0%	0	0%	0	0%
<b>Total</b>	56	100%	22	100%	23	100%	11	100%

19. Are the organizational aspects (local committees, projected support mechanisms, etc.) contained in the 1996 Scientist Emeritus Policy Statement still appropriate?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Yes</b>	13	39%	8	53%	3	25%	2	29%
<b>No</b>	9	26%	1	7%	5	42%	3	42%
<b>Don't know</b>	12	35%	6	40%	4	33%	2	29%
<b>Total</b>	34	100%	15	100%	12	100%	7	100%

20. What is your opinion about creating a USGS web site that lists Scientist Emeriti and provides information about their backgrounds, current work, and bibliographies?

	<b>GD</b>	<b>GD%</b>	<b>WR</b>	<b>WR%</b>	<b>CR</b>	<b>CR%</b>	<b>ER</b>	<b>ER%</b>
<b>Good idea</b>	29	49%	5	21%	18	79%	6	50%
<b>Neutral</b>	22	37%	15	62%	4	17%	3	25%
<b>Bad idea</b>	8	14%	4	17%	1	4%	3	25%
<b>Total</b>	59	100%	24	100%	23	100%	12	100%

**Appendix 6.**

**FY05 Scientist Emeritus OE and Space Information**

<b>Eastern Region</b>	<b># of SE</b>	<b>OE</b>	<b>Space Costs</b>	<b>Space ft<sup>2</sup></b>
ERG	2	\$0	\$3,000	123
CMG-WH	6	\$5,000	\$9,154	398
EER	6	\$1,223	\$20,908	655
EMR	11	\$14,000	\$52,863	2600
ESP	18	\$20,000	\$52,750	2110
<b>Subtotal</b>	43	\$40,223	\$138,675	5,886
<b>Central Region</b>				
ERT	17	\$17,150	\$71,700	3494
CR MRT	18	\$20,000	\$58,400	3653
ESP	11	\$15,000	\$44,996	2329
Hazards	7	\$4,000	\$18,000	1080
CICT	8	\$15,000	\$18,000	1128
ORG	3	\$1,000	\$7,990	500
<b>Subtotal</b>	64	\$72,150	\$219,086	12,184
<b>Western Region</b>				
WRG	1	\$4,000	\$1,500	140
Astro	5	\$5,000	\$33,324	884
MRT	8	\$17,385	\$30,012	1441
CMG	14	\$15,000	\$29,000	1,050
EHZ	10	\$1,650	\$36,350	1173
VHZ	16	\$19,800	\$75,805	2368
ESP	28	\$20,000	\$65,000	2,600
ASC/MRS	5	\$6,000	\$9,900	477
<b>Subtotal</b>	87	\$88,835	\$280,891	10,133
<b>TOTALS</b>	194	\$201,208	\$638,652	28,203

## Appendix 7.

### Scientist Emeritus Comments to Questionnaire

#### 2. What are your reasons for participating in the Scientist Emeritus Program? Other category:

##### WR

- (1) Serve on NASA and NRC advisory panels.
- (2) Maintain active intellectual pursuits and geologic identity – the most important reason.
- (3) Participate in USGS outreach projects to encourage students and young professionals to get involved in USGS science project.
- (4) Maintain contacts with USGS science and colleagues.
- (5) Fun.
- (6) Help with outreach to other agencies/entities for emergency preparedness & mitigation; public speaking.
- (7) Support specific projects as requested.
- (8) Stay involved in petroleum system investigations.
- (9) Contribute to indexing and maintenance of office research library and archives.
- (10) Participate in USGS/Circum-Pacific Council cooperative projects.
- (11) Secure data at risk and provide web-based access for these data.

##### CR

- (1) Scientific curiosity.
- (2) Review USGS and outside papers.
- (3) I'm active in volunteer education and outreach.
- (4) Provide specialized (but not “high science”) analyses and maintain equipment. Provide photos and old information for textbook use.
- (5) Work with amateur mineralogists.
- (6) Develop and enhance the NGDB (National Geochemical Database).
- (7) Mentor younger scientists.
- (8) Complete projects to 1960s.
- (9) Review/edit manuscripts.

##### ER

- (1) Maintain my involvement in the profession, attend scientific meetings, etc.
- (2) Prepare extensive collections for transfer to the Smithsonian.
- (3) Document and transfer >3600 creede samples to Smithsonian and 12 universities.
- (4) Liaison with Smithsonian Natural History Museum on transfer of USGS rock and ore collections.
- (5) Provide information and respond to requests for information and participate in events related to video that I co-produced and related publications.

#### 3. How do you spend your time as a Scientist Emeritus? Other category:

##### WR

- (1) Acquiring and preparing large display specimens.
- (2) Acting as senior advisor (formerly PI) on NSF grant to provide funds for the emeritus work; acting as a liaison with Stanford University to promote and assist in collaborative research involving students, post-Docs and faculty; and participating in USGS-related outreach music groups.
- (3) Speaking at National meetings.

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- (4) Library and data archive maintenance.
- (5) Provide geologic input to Yosemite National Park.
- (6) Actively participate in CPC / USGS projects.
- (7) Evaluate and interpret analytical results in my specialty; compile and complete database in my specialty.
- (8) Reviewing papers and proposals.

### CR

- (1) Review USGS and outside papers.
- (2) Answer inquiries from the Public for the Ask-A-Geologist Program.
- (3) K-12 teacher training classes in seismology and earth science.
- (4) Peer reviews of internal and external geologic papers.
- (5) Writing 2 books and speaking.
- (6) Mapping wildlife sanctuary.
- (7) Develop and enhance the NGDB (National Geochemical Database).
- (8) Review manuscripts.
- (9) Review/edit manuscripts.
- (10) Review outside journal articles and proposals.

### ER

- (1) Preparation of reports and completing geologic maps; conferring with colleagues in other disciplines; organizing and leading field conferences.
- (2) Reviewing manuscripts, survey and outside; **plus moving and moving and moving labs.**
- (3) This form scarcely addresses outside activities that support science. For example, I served 6 years on the NAS report review committee helping evaluate academy reports, some of which concerned the USGS. I was also on the board on earth sciences and resources, another contact point for survey activity. I am now on an ad hoc committee reviewing functioning of the board on earth sciences and resources and its six standing committees. I am also on the board of the Museum of Natural History of the Smithsonian. This stuff does offer support for (and sometimes criticism of) survey activities.
- (4) Maintaining Geologic Division Retirees newsletter and directory
- (5) Liaison with Smithsonian.

## 5. Do you report your volunteer hours every quarter?

### WR

- (1) Every month.
- (2) I provided monthly hour reports for several years, but stopped doing so after it became apparent to me that they were not used for anything.
- (3) Every month.
- (4) My Team hasn't requested it so far. I will be happy to do so however.
- (5) I didn't know I had to.
- (6) Monthly.
- (7) Monthly.
- (8) Has not been requested.
- (9) I am reporting hours monthly this fiscal year, but did not do so previously.
- (10) Every month.

### CR

- (1) Wasn't aware that I was to do so.

## **Appendix 7.**

- (2) Monthly.
- (3) This year, I have just kept a running total for year-end report.
- (4) Every month by time sheet.
- (5) I have been rather sloppy in this, I'll improve though.
- (6) I was told to report them monthly.
- (7) Used to until team ceased requiring.
- (8) Reported time monthly 2002-2004.
- (9) Monthly.
- (10) Monthly.
- (11) I report time every month.
- (12) Monthly.
- (13) Every month.
- (14) Never asked to.

### **ER**

- (1) No one seems to care. I have > 9500 on-site hours since 1995.
- (2) Actually every month.
- (3) Every month, actually.

### **HQ**

- (1) No one made me aware of this.

## **6. Do you submit an Annual Review and Evaluation Form?**

### **WR**

- (1) As part of contract, and also a bimonthly report for team.
- (2) As part of the Emeritus renewal agreement.
- (3) My Team hasn't requested it so far. I will be happy to do so however.
- (4) I faithfully complete the "Geologic Discipline Scientist Emeritus--Individual Volunteer Services Agreement" form near the end of every fiscal year and get subsequent approval. Do the forms amount to the same thing?
- (5) I submit bimonthly reports to the team, as do all team members.
- (6) Through the volunteer service agreement each year.
- (7) I assume this form is different from the Geologic Division Scientist Emeritus Individual Volunteer Services Agreement, which I do complete annually.
- (8) I reported progress on the SEVA form for FY06, but have not seen the Annual Review and Evaluation Form, and did not find it on the Intranet.
- (9) I retired in part to complete my scientific work on my schedule and free of such administrative reporting requirements.

### **CR**

- (1) Every year before October 1.
- (2) Geologic Division Scientist Emeritus Individual Volunteer Service Agreement that I fill out annually seems to cover this.

### **ER**

- (1) No, but I do prepare such a summary for the annual emeritus agreement.
- (2) I reapply to the program annually.
- (3) No one asks me to.
- (4) Yes, particularly on official travels.
- (5) Hasn't come up yet.

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(6) Never heard of it.

### **HQ**

(1) No one made me aware of this.

## **7. Have you read the Scientist Emeritus Policy Statement in the past two years?**

### **WR**

(1) Yes, today.

(2) I just read it.

(3) Before I obtained a USGS VPN account, I could not access any of the material relevant to emeriti, including the Bradley Scholar material, as it resides on the USGS intranet. I think this material should be made generally available so that emeriti not at USGS offices could keep informed.

(4) It needs revision.

(5) The Scientist Emeritus Policy Statement is terribly out of date. It appears to have been written nearly 15 years ago.

(6) I was denied access when attempting to use the above link.

### **CR**

(1) Unaware of such a statement; poor communication.

(2) I would but I'm located in Oregon and not at my office in Golden! I get this message from the URL above: Access forbidden!

(3) First time December 5, 2005. I did not know about it before this.

(4) No, has it changed?

### **ER**

(1) Unaware of such a statement; poor communication.

(2) I just did.

(3) My Smithsonian computer was denied access to this site.

(4) I can't get into the web site.

### **HQ**

(1) When I try to access this site I get the message: "Access Forbidden."

(2) No one made me aware of this.

## **8. Where do you obtain your USGS Scientist Emeritus funding?**

### **WR**

(1) Has been <\$400 for this year.

(2) Team - I haven't required any funding to date. I was reimbursed for one trip to Southern California on the Team's behalf (SCEC meeting). Other - I was partially reimbursed by the Western States Seismic Policy Council (WSSPC) for a trip to St. Louis to participate in the 2004 National Earthquake Conference, for which I served on the Steering Committee.

(3) I pay almost everything myself, including meetings, Fedex, memory stick, and other items.

(4) National Park Service.

(5) Project informally provides publication support (mainly map digitization). I receive no funding over which I have control.

(6) Travel and project support by CPC.

(7) OFA - BLM, BOR, possibly NPS in future.

### **CR**

## **Appendix 7.**

- (1) Coop project between USGS (me) and UT Geol. Survey; also volunteering to map a quad on oil shale lands in WY for WY Geol. Survey.
- (2) Antarctic Program
- (3) I require little funding.
- (4) Funding has been very limited.
- (5) From 1995 to 2002, funding carried by Team budget. A project was set up in 2002 to fund alternative energy sources research.

### **ER**

- (1) I do receive team IT support and have a small office.
- (2) Project money was bootlegged.
- (3) I don't take much funding, primarily a small amount of travel costs. I also have received travel costs from outside agencies.
- (4) Funds for travel and office supplies only.
- (5) In-kind support by the PA DEP-BAMR at their Toby Creek facility for pilot tests, Southern Alleghenies Conservancy for Ozotec engineer site-visit cost, and Venture Capital Fund for patent lawyer cost (?).
- (6) Project Chief also has supported some travel and computer equipment.
- (7) Annually, usually in September, I am allowed to purchase supplies for the downtown retirees at the GSA store. I assume this comes from team funds.
- (8) I have only asked twice (once currently) for page costs.

## **9. How would you rate your USGS office and laboratory space?**

### **WR**

- (1) Very satisfactory for computer; somewhat unsatisfactory for data processing, figure prep help.
- (2) Very satisfied first year only, then worked out of home.
- (3) Have space at University.
- (4) I've been shuffled from "pillar to post" for some time; I think I will be getting something more secure in a matter of days.
- (5) No community lab is available.
- (6) I don't live near a USGS office. My summer work is field work. I spend an occasional day at the Cascades Volcano Observatory during the field season and a week or so for geologic-map compilation at some time during the year. Thus I don't have office or laboratory space.
- (7) Currently I have a spacious office but in a remote corner of the campus. Soon I will move back to the location of the team, but into a small office to be shared with another person.
- (8) I work at home.
- (1) I don't use any office or lab space now that I've moved away!
- (2) The USGS oil shale program will need some lab space and equipment for analyzing oil shale (microscopy, shale oil analyses, etc.).
- (3) Could use more space.
- (4) One emeritus in Flagstaff has not been well treated by management there. Lost office space that project couldn't afford to pay.
- (5) Work at home.
- (6) Too small.
- (7) 8' x 8' cubicle.
- (8) NOT Relevant—I live 2,000 miles away.

## **Appendix 7.**

### **ER**

- (1) We have had to move our lab and its collections 4 times, each time shrinking, wasting much time, and reducing the capability to do science; we don't even have a sink!
- (2) Office is fine; laboratory inadequate: small, no sink, restricts what kinds of work I can do and nearly impossible to both work in lab at same time.
- (3) The office and lab space is provided by the Smithsonian.
- (4) Current space is satisfactory; previous space (first 4 years) was very unsatisfactory.
- (5) At Smithsonian and space is free.

### **10. How would you rate your USGS office equipment (i.e., phone, computer, internet access)?**

#### **WR**

- (1) My computer is out of date, but otherwise everything is very satisfactory.
- (2) Poor computer.
- (3) I don't live near a USGS office. I spend an occasional day at the CVO, and I usually don't have a telephone when I'm there. I use my own cell phone if I need to call. I bring my USGS laptop and connect successfully to the internet and email when I'm at CVO and a connection is available.
- (4) Computer obsolete.
- (5) Outdated equipment.
- (6) I pay for my computer, peripherals, and internet access myself but I get computer support from the computer staff.

#### **CR**

- (1) It would help to be able to view "internal" documents like the one above.
- (2) Frustrating security requirements interfere with time spent on geology, specifically password on computer.
- (3) Inadequate computer equipment.

#### **ER**

- (1) But our mini-lab has a much-used computer that we have not been able to get connected to the net so we can transfer data efficiently.
- (2) Wonderful, actually.
- (3) Unable to get help hooking up computer to internet.
- (4) Phone, computer, internet access is provided by the Smithsonian.
- (5) Computer not working. I need to get a newer one.
- (6) Emeritus scientists usually get old, second-hand computers; I have had two total hard disc crashes in the past 5 years.
- (7) At Smithsonian and this is free.

### **11. How would you rate the financial support you receive for publications, field work, meetings, GIS, laboratory analyses, etc. that is needed to accomplish your Scientist Emeritus agreement?**

#### **WR**

- (1) I receive no Survey money. I have to propose to NASA for the few \$K that I need. This is a very burdensome process for the small amount involved. I am tempted to not go through the process but pay for all my own expenses.

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- (2) I have found my emeritus work very rewarding, and have obtained all the support needed from the project with which I am associated. Without that association, I expect that my view would be much less enthusiastic. This has required, of course, that I adjust my goals to mesh with those of the project, one result of which is having to defer continuing some old work that is less important to the project.
- (3) I usually find it to be less complicated to use my own funds for most office & assistance needs and for meetings than to have to ask for it from team leaders each time I need something. Funding for field work has been entirely from non-USGS sources (NSF, PG&E, Alyeska, University of Utah, New Orleans University, etc.).
- (4) I have spent several thousand dollars of my own funds for programming support to enable the efficient creation of animations of seismic data. Being aware of the constraints on the Program budget, I asked for only a portion of the necessary funds from that program.
- (5) No money for meetings, field work, or publications.
- (6) No meeting dollars.
- (7) Have not asked for very much.
- (8) I get adequate funds, but have difficulty making purchases of small items such as software, duplicating services, office supplies, etc. because I don't have a Gov. backed credit card and I generally end up spending my own money.
- (9) I have adequate financial support for my field work.
- (10) I spend most of my time on active projects, and financial support for ongoing work there is very satisfactory. The legacy work I am doing now fits into an active project and is funded there, which is also very satisfactory. It appears to be much harder to get support for legacy science that doesn't fit into an active project.
- (11) Financial support is difficult to obtain.
- (12) I receive space, computer support, and so far I have received funding for one meeting/year. Otherwise zero money. This means: no technical help (other than quick questions). Astrogeology is on soft money. If you do not receive grants from NASA, there is no money. For seven of the more than ten years as an emerita, I wrote successful grant proposals to NASA and kept up an active research schedule. I had enough money to fully support my research, technical help, even other colleagues, and to attend all the meetings and workshops I desired. However, about four years ago, I quit writing proposals and things have changed. The main culprit should be no surprise: MONEY.
- (13) I haven't yet used USGS financial support; however, modest funding for meeting attendance, field work, is available. GIS and publication support has been from other projects. Otherwise, I am self funded.

### CR

- (1) Very satisfactory - thanks.
- (2) Need more financial support.
- (3) Other than for occasional field work with my project chief, I receive no direct funding.
- (4) I've only requested \$320 since becoming emeritus. This was for AGU registration and was granted.
- (5) I understand no money is available for such activities especially since I work on projects unrelated to team projects.
- (6) No longer ask for financial support.
- (7) Very difficult to receive financial support.

## **Appendix 7.**

- (8) For several meetings and field trips, I used my personal funds, and for income tax purposes, I donated the cost to the Federal Government. In 2005, I attended a meeting in Vienna and in Casper, WY with full funding. For 10 years as Scientist Emeritus, funding was provided for two subscriptions costing \$1100 that were essential for all my research.
- (9) Funds difficult to obtain.
- (10) Receive no financial support.
- (11) Would appreciate more field support, plus some thin section funding.
- (12) No financial support.

### **ER**

- (1) I would prefer that additional financial support for emeriti be available that would fund several items: (1) "orphan maps and reports", (2) field finds for mapping projects that are not presently covered by a particular project, but which would be beneficial to a program, but may not be of immediate interest to that program; and (3) funds available for attendance to some scientific meetings.
- (2) The team leader has been very supportive of my modest needs.
- (3) To launch into a full blown, active, development of my emeritus project will require significant funding, personal and other resources. The project is not yet at the stage for reasonable consideration of such.
- (4) I get by with 'friends' = active researchers who subsidize my needs.
- (5) Very satisfactory because I don't ask for much.
- (6) If there are funds for emeriti, it would be nice to get some help with page charges and occasional short field trips. Although, in these difficult fiscal times, funding for emeriti can't be high on anyone's list.
- (7) Because my work is mostly in economic geology, I publish papers in symposium proceedings, open-file reports, and technical journals geared to a wider group of technical people including geologists, engineers, governmental agencies, than the audience for refereed scientific journals.
- (8) Project funding poor.
- (9) No financial support.
- (10) Have only asked twice for funding.

## **12. What is your most important contribution while you have been a Scientist Emeritus?**

### **WR**

- (1) I am writing a book that summarizes our current knowledge of Mars. The draft is 90% complete (already 130,000 words, 300 figures).
- (2) Nearing completion of manuscript on aspects of tectonic history of Los Angeles area that will be submitted as a Professional Paper.
- (3) Guiding completion of the 10-year USA-Japan cooperative study on deep underwater flanks of Hawaiian volcanoes, with many resulting publications; continuing study of large ignimbrite-caldera eruptions as "worst-possible-case" for catastrophic terrestrial volcanism; collaborative studies with younger scientists, both USGS and academia in USA, Japan, Switzerland, Germany, UK, and Russia.
- (4) Application of scientific knowledge in solving USGS problems in the SFBR.
- (5) Savage, J.C., W. Gan, W.H. Prescott, and J.L. Svarc, 2003, Strain accumulation across the Coast Ranges at the latitude of San Francisco, 1994-2000, *J. Geophys. Res.* v. 109, B03413, doi:10.1029/2003JB002612.

## Appendix 7.

- (6) Guidance to PhD's who took over my programs.
- (7) Discovery that the Quaternary alluvial section in the Santa Clara Valley, CA, contains 8 fining-upward cycles driven by cyclic climate change that correlates with the marine oxygen isotope record.
- (8) Perhaps the two books listed in #14.
- (9) Providing USGS with recognition as lead agency in overseeing the Antarctic-Treaty-mandated Antarctic Seismic Data Library System for Cooperative Research – with 12 branches in 10 countries. I lead this effort, from which large international collaborative earth science projects are spawned and conducted under the Scientific Committee on Antarctic Research (e.g., ANTOSTRAT, ACE).
- (10) Compilation of two 1:250,000-scale geologic quadrangle maps in digital format.
- (11) Co-authored USGS Circular 1249.
- (12) Tabor, Rowland and Haugerud, Ralph, 1999, *Geology of the North Cascades: A Mountain Mosaic: The Mountaineers*, Seattle, 143 p.
- (13) Service on various advisory panels to Red Cross, Association of Bay Area Governments, Collaborative for Disaster Mitigation, WSSPC and other groups. Public presentations to groups such as the World Affairs Council.
- (14) In collaboration with Fred Klein, I have created an enhanced understanding of the seismic history of Hawaii and deep magma transport paths for Kilauea and Mauna Loa volcanoes.
- (15) I contributed to the North American Gravity Database Workshops and associated extensive committee work. I supplied the software core of the most complex part of gravity data processing, terrain corrections.
- (16) Completion of surficial geologic mapping of Noatak National Preserve, northwestern Alaska.
- (17) Development of a plan for volcanic and seismic hazards assessment of Yellowstone National Park and vicinity and progress toward completion of the assessment. Geologic mapping studies and GIS compilation of geology of the Mount Shasta region, Calif., continuing on work done earlier as a USGS employee.
- (18) Have contributed to an understanding of the accretionary development of the western cordillera of North America.
- (19) I have interrupted my planned emeritus activities for 4 out of the 10 years I have been an emeritus to provide direct and irreplaceable participation in others funded projects at management's request.
- (20) Completed a paper on the Egret-Hibernia petroleum system that was published in the American Association of Petroleum Geologists. Completing the petroleum assessment work on the San Joaquin Basin Province. Initiating the petroleum assessment work on the Sacramento Basin Province, Cook Inlet basin in Southern Alaska Province, and the North Slope of Alaska
- (21) I completed (in press) a revised spatial database showing the status and distribution of historic and active phosphate mines in the core of the SE Idaho Phosphate Resource Area.
- (22) Advise and consult with project leader in USGS. Collaborate with and advise geologists at University of Michoacan, Mexico. Collaborate with and advise geologists at University of Madrid. Collaborate with and advise geologists at Nanjing University, China. Travel and expenses paid by host institutes.
- (23) Completed compilation of geologic quadrangle map by Clyde Wahrhaftig after his death and saw it through to publication.

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- (24) Estimating the yearly total global methane contributions to the atmosphere from geological sources and trying to have this information incorporated into the atmospheric global inventory of the intergovernmental panel on climate change.
- (25) Documenting radiogenic and stable isotopic variations and boundaries in igneous rocks in California, Nevada, Utah, and Oregon in order to characterize source materials of these rocks. These variations and boundaries are compiled into isotopic maps that image ancient deep crustal compositions.
- (26) Essentially, my only contribution is to continue work on a study--via geologic mapping--of the geology of Mount St. Helens. I began this project before retirement and continue the work every summer with non-retired USGS colleague who inherited leadership of this project when I retired. It's a long-term effort that will eventually lead to major scientific products.
- (27) Preparation of surficial geologic map of Municipality of Anchorage, Alaska (about the size of Rhode Island), still a work in progress although most line work is complete. Map scales 1:25,000 and 1:63,360.
- (28) Completion of the Circum – Pacific Map Projects and associated workshops and meetings.
- (29) Characterization of mercury speciation in gold placer mine tailings. The results have important implications for fish habitat restoration projects in northern California. In the past year I have given three talks and a poster on this subject for restoration project managers and ecologists.
- (30) As the chair of the Committee on Education of the International Association of Seismology and Physics of the Earth's Interior (1995-2000), I organized and served as the senior editor for its centennial publication, "International Handbook of Earthquake and Engineering Seismology", a two-volume large-format publication (1945 pages and 3 CD-ROMs) that was published by the Academic Press, in 2002 (Part A) and in 2003 (Part B).
- (31) Provide timescales for other USGS project.
- (32) Interaction and participation with several ongoing projects in GD and WRD. 1) Late Holocene Channel and Hillslope Processes, Coyote Wash, Arizona - Rich Reynolds. 2) Late Holocene Alluvial History of the Central Mojave Desert and Its Relation to the Southern Colorado Plateau - D.M. Miller and R.H. Webb. 3) Valjean Valley Runoff Frequency Field Trip Stop, FOP 2005 Field Trip - D.M. Miller and Chris Menges. 4) Historic Precipitation Patterns of the Four Corners Region - Margaret Hiza. Invited participant Geomorphology Symposium sponsored by Grand Canyon Monitoring and Research Center, Flagstaff, Arizona February 9-11, 2005. Topics presented 1) Erosion of archeological sites and terraces, Colorado River Grand Canyon and 2) Late Holocene alluvial history of the Colorado River in Grand Canyon.
- (33) Lucchitta, B.K., 2001, Antarctic ice streams and outflow channels on Mars. *Geophys. Res. Letters*, V. 28, no. 3, p. 403-406. The thesis that outflow channels on Mars are carved by ice rather than catastrophic floods made online news headlines around the world.
- (34) Contributions to the Geologic Map of Lassen Volcanic National Park and Vicinity, particularly the spatial data base (ArcInfo) and the Correlation of [250] Map Units (Adobe Illustrator). Doesn't sound like much, but was a hell of a lot of essential work.
- (35) Field work and data evaluation of geophysical features to evaluate the geologic framework in certain valleys of eastern Nevada.
- (36) Contribution to several collaborative publications.

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(37) International conference and edited proceedings book. (With NOAA colleague) "Benthic Habitats and the Effects of Fishing".

(38) Publication of legacy geologic maps:

Campbell, R.H., Blackerby, B.A., Yerkes, R.F., Schoellhamer, J.E., Birkeland, P.W., and Wentworth, C.M., 1996, Geologic map of the Point Dume quadrangle, Los Angeles County, California: U.S. Geological Survey Geologic Quadrangle Map GQ-1747, 1:24,000 (Includes 3 additional Figures and text Discussion on plate with map.) (RHC responsibility: Fieldwork – 80%, office compilation and ARC/INFO cartography – 100%, text, structure sections, and figures 100%).

Yerkes, R.F., and Campbell, R.H., compilers, 2005, Preliminary geologic map of the Los Angeles 30' x 60' quadrangle, southern California: U.S. Geological Survey Open-File Report 05-1019, 2 sheets, map scale 1:100,000 and correlation diagram, pamphlet 62 p.

(39) Actively promoting outreach efforts and coordinating same between the USGS and Stanford University.

### CR

(1) Continued research and writing in regard to results of research on natural and synthetic jarosites in relation to acid generation, crystallography.

(2) Networking with not only those in other disciplines of the USGS (e.g., geomorphologist Machette; hydrologist Scott Christenson, Oklahoma City; remote-sensing group, Denver; also, for example, staff of the Great Sand Dunes National Park, the new Baca National Wildlife Refuge, The Nature Conservancy.

(3) I was supported for 2 years by a Bradley Grant that provided funding to accomplish the research resulting in national and international publicity for the Survey, as described in next paragraph. Results of my research on a cometary impact have been disseminated on two occasions in more than 300 newspapers and scientific journals across the US and in Europe, as well as broadcast on radio stations, and even on TV (Discovery News). My affiliation with the Survey as an emeritus scientist has been cited in most articles and even headlined in some.

(4) I have been privileged to work with some great teams on their projects and to contribute to the overall success of the projects through discussion, advice, and writing and reviewing reports.

(5) Scientific publications.

(6) Completion of the Geologic map of North America.

(7) Completing a 1:100K map.

(8) Assisting three USGS Project Chiefs with either field investigations or in the preparation of USGS reports.

(9) Coeditor of a major symposium publication, and coauthor of two papers within it, cited in item 14 below. Turner, C.E., Peterson, F., and Dunagan, S.P., (eds.), 2004, Reconstruction of the Extinct Ecosystem of the Upper Jurassic Morrison Formation: *Sedimentary Geology*, v. 167, issues 3-4, p. 111-355.

(10) Public outreach in support of earthquake hazards reduction that reflects in a positive way on the USGS.

(11) Providing geologic information in the form of verbal discussions and published reports on oil shale and sodium carbonate minerals to governmental agencies and the public as the elder USGS oil shale 'expert'.

(12) Scientific reports; recovery of analytical data for national database.

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- (13) I have been able to provide a repository for the geologic files on the commodities, both metallic and nonmetallic, that represent the investigations made by past and present members of the USGS. I have been, to some degree, the custodian and source of information about the institutional history of the USGS, particularly for the Central Region, but also for the Eastern and Western Regions.
- (14) The publications listed below.
- (15) Completion and publication of Map I-2619 Geologic Map of the Tularosa Mountains 30 X 60 Minute Quadrangle, Catron and Grant Counties, New Mexico, 2001.
- (16) Completion of Miscellaneous Field Investigations Map MF-2415, Geologic Map of the Horse Mountain Quadrangle, Garfield County, Colorado
- (17) I have written and published 2 books on Antarctic research in the IGY period.
- (18) Completion of 4 surficial geologic maps (1:63,360 scale) of part of McCarthy quadrangle, lower Chitina Valley, Alaska.
- (19) Finishing final field checking (~ 1 month) and report of a 5-man job for outside agency.
- (20) Participation (field work) in pilot study for national soils geochemical landscapes.
- (21) Madole, R.F., VanSistine, D. Paco, and Michael, John A., 2005, Distribution of late Quaternary wind-deposited sand in eastern Colorado: U.S. Geological Survey SIM-2875, scale 1:600,000, booklet, 49 p.
- (22) Creating digital databases of published maps of the Quaternary Geologic Atlas.
- (23) I was asked to contribute a paper on the energy resources of the Gulf Coast to a new set of volumes being published by the Hart Institute at Texas A&M. That paper is currently through review.
- (24) Defined a new stratigraphic unit of Middle Jurassic age--- the Rehoboth Member of the Entrada Sandstone.
- (25) My most important contribution has been to decipher the structural geology of east-central Idaho and adjacent southwestern Montana. Structural studies are important to discern major geologic terranes that determine the distribution of strata-bound mineral deposits, to facilitate understanding of structural controls of base and precious metal deposits, and to conduct resource assessment in the large Mesoproterozoic basin of east-central Idaho.
- (26) The most significant contribution may be the summary report titled "Tectonic synthesis of the Ouachita-Marathon-Sonora orogenic margin of southern Laurentia: Stratigraphic and structural implications for timing of deformational events and plate-tectonic model" by Poole, Perry, Madrid, and Amaya-Martínez that was published in October 2005 as Chapter 21 in Geological Society of America Special Paper 393. Preparation of this large manuscript necessitated much of my time during the last three years. It required integration of voluminous data from detailed geologic mapping and regional stratigraphic and structural studies in Sonora, Mexico, which we collected over the past 23 years.
- (27) Studies of extensive erosion surfaces preserved in southwestern US during the early Pliocene; report incomplete.
- (28) Maintained the USGS expertise in uranium resources [which was not part of the USGS program] and published papers related to new developments and carried out new research as listed below.
- (29) Field work for Snowdon Wildlife Sanctuary.
- (30) Cooperative work with foreign scientists on invertebrate paleontology.
- (31) Maintain the NGDB, install/upgrade software, perform DBA tasks, and provide technical information regarding database technology.

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- (32) Mentoring, reviewing, expert advice.
- (33) Compiling the Arco 30'X60' quadrangle – Idaho – still in production.
- (34) Publication of the Geologic Map (1995, I-1898-D) and the Tectonic Lithofacies, Geophysical, and Mineral-Resource Appraisal Maps (1999, I-1898-F) of the Sherbrooke-Lewiston Area, Maine, New Hampshire, and Vermont, USA, and Quebec, Canada, with several co-authors. These reports and maps (scale 1:250,000) provide a detailed geologic framework for a large area of the Northern Appalachian region (I-1898-D) and a comprehensive analysis of bedrock-hosted mineral resources. The methodology modified from J.F. Slack (1990, USGS, Bull. 1887) and his co-workers, combines multi-disciplinary bedrock mapping, geophysical study, and exploration geochemistry\* in order to assess the potential of specific geologic units, or groups, for the occurrence of diverse types of mineral deposits. In principle, the adequate of complex terranes must be field based and involving all disciplines. Geochemistry for the Sherbrooke-Lewiston effort was done by Nowlan, et al (1990 a, b, c; USGS Maps I-1898-A, B, C, and L.J. Cox (1990, USGS Map I-2092)
- (35) Preparation of Precambrian basement maps of Rocky Mountain region.
- (36) Review/edit manuscripts; new idea for estimating Reserve Growth of petroleum.
- (37) Most important is probably my role as a mentor and advisor: 35 years of experience comes back in unexpected ways to provide guidance for younger and less experienced scientists—including GS-15's who have no experience on topics that were major for me. Most of this interaction comes through email communications because I am 2,000 miles off campus.
- (38) Developing an algorithm to extract mineral composition from MASTER/ASTER (aircraft/satellite) thermal infrared spectral data, applying it to the Mancos Shale Project Study Area, and mentoring in the use of the method.

### ER

- (1) I organized and led two days of a field conference on karst and hydrology in the Black Hills of South Dakota and Wyoming for the USGS Karst Interest Group in September, 2005, including coordinating ten contributors from the USGS, NPS, South Dakota Geological Survey, South Dakota School of Mines and Technology, and the Mammoth Site. Included preparation of three separate field guides and an additional two reports. I have additionally supported the National Karst Map Project.
- (2) Continued amplification of our understanding of eithermal ore deposits, creede in particular.
- (3) So far, council and advice to fellow workers both with regard to mundane operations and future directions....
- (4) I think my most important contribution has been my participation in the 3<sup>rd</sup> revision of “This Dynamic Planet” map graphic. I have contributed as an author (relatively minor rogue for back of the map sheet), and a great deal as an interface between the authors and Will Stetner who does the graphic design and cartography, and to a lesser extent working with Kate Schindler (editor) on content of the graphic.
- (5) I have a book in press as third of three authors. (“Economic Geology of Natural Gas Hydrates”, Springer).
- (6) Establishing, through reevaluation of the siderophile-element data for lunar meteorite-contaminated rocks, that: 1) the impactors of the lunar “cataclysm” (a proposed period of intense inner-solar-system bombardment that formed giant impact basins at about 3.9 Ga) were bodies having distinctive Au-rich compositions like those of modern-day enstatite chondrites and IAB iron meteorites; and 2) the impactors that predated and postdated the cataclysm were different, having compositions more like those of ordinary chondrites. The

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evidence for distinctive impactors in the 3.9-Ga impacts is strong evidence that there was indeed a “cataclysm” (in the past, not all workers have accepted this hypothesis).

Preservation of meteoritic compositions as contaminants in lunar impact melts indicates that the impactors were not vaporized, thus were low velocity, thus must have been very large (because they produced very large basins). Composition of the cataclysm impactors indicates an origin in the inner solar system. These results have relevance to understanding the evolution of the early solar system and processes that operated on the early Earth. The results have thus far been published only in extended abstracts.

- (7) The invention of a rapid method of precipitating nine metals (Mn, Fe, Ni, Co, Ag, Pb, Ta, Pd, Bi) from mine drainage waters by ozone; US Patent 6,485,696 B1 Nov. 26, 2002.
- (8) GSA Special Paper 346: ancient Lake Creede; evolution of the magmatic-hydrothermal system at Summitville, Colorado; documenting and archiving Creede collection - not yet complete.
- (9) My most important outreach publication was the booklet “Evolution and the Fossil Record,” coauthored with Dale Springer and published by AGI. At least 35,000 copies have been distributed and AGI gets 10,000 online hits per month accessing the booklet.
- (10) To advise USGS personnel on background of USGS nuclear waste disposal work.
- (11) Contributing to several studies of international importance.
- (12) Research on the upper mantle and lower crust of the Wyoming Craton in Montana.
- (13) This is my first year so I’m still working on papers.
- (14) Co-author of Lithotectonic map of the Appalachian orogen (north). Co-author of Lithotectonic map of the Appalachian orogen (south).
- (15) Publications and representing USGS in outreach activities.
- (16) Biography of C.D. Walcott.

### HQ

- (1) My most important contributions have been in giving advice to the management and scientists of the Earthquake Hazards Program.
- (2) Communicating international activities of importance to the USGS to International geology.

### 13. List your scientific accomplishments for the past three-to-five years while a Scientist Emeritus.

#### WR

- (1) For the first six months I worked as a Science Operations Working Group chair for the Mars Rovers.
- (2) Somewhat numerous; please see my emeritus agreements, if details desired.
- (3) Initiated and participated in the completion of a digital geologic map for the San Francisco Bay region, the largest urban area in the world with this kind of detailed coverage. Map detail sufficient for representation at 1:24,000-scale in much of the area. Map used to help prepare a 3-D geophysical representation of the data. Participated in the preparation of a book on magnetostratigraphy for the Tertiary of the Pacific Coast, the first such reference to be prepared. Provided details for type sections I have been working on since the 1950's. Received entire micropaleontology collection from Chevron for the Pacific Coast from Baja Mexico to the North Slope of Alaska, approximately 250,000 slides with accompanying locality maps, cross-sections, and paleo reports. The collection is the single most important source ever donated of new information about the paleontology of more than 27,000 surface localities in 600 7.5' quadrangles in California. The collection also provides new data for

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about 5,000 oil wells. California slides and data have been organized, digitized and put on the USGS Web site. The original slides and paleo data have been given to the California Academy of Sciences, The Burke Museum of the University of Washington, and the State of Alaska repository. Published reports in a Polish journal about the status of regional landslide hazard mapping in various countries, and my evaluation of the quality of the different programs. Also published my critique of various articles dealing with standards for digital geologic mapping. Directed and helped prepare a report on an interactive USGS web site for locating and determining the cost of coping with landslide hazards in San Mateo County, California, the only interactive web site of this type in the world.

- (4) Publication of major paper on Lunar Irradiance.
- (5) Quaternary alluvial cycles (see above) and their tentative correlation across the Santa Clara Valley, CA. Completion of the digital map of Quaternary deposits in the San Francisco Bay region (with others) – reports and Web site in preparation. Contributions to various aspects of the project 3-Dimensional Geologic Maps (chief – Bob Jachens) and associated Earthquake Hazards activities.
- (6) See answer for question 14.
- (7) Successfully operated the Antarctic Seismic Data Library System, coordinating the multinational effort and facilitating the production of about 40 SDLS CD-ROMs; co-authored several papers and edited two special volumes in Paleo3 on Antarctic earth science; presented papers at two international symposia on Antarctic earth science, with travel on personal money only; taught two classes on Antarctic Marine Geology at Stanford University; acted as PhD thesis advisor on student whose work partially included USGS activities; appointed to be head of publications for the 10<sup>th</sup> Antarctic Earth Science Symposium (held during IPY), Santa Barbara, CA September, 2007.
- (8) Major contributor to geologic map preparation and data interpretation for the Professional Paper on the Wrangell-Saint Elias National Park and Preserve. With Okal and Synolakis, provided first near-field tsunami run-up data for the disastrous 1946 Unimak Island earthquake and disastrous tsunami. With Bruhn and Pavlis, and others made major syntheses of tectonics along the Gulf of Alaska margin. With Carver and others, obtained field geologic data that establish a unique displacement history for the Denali fault at the Delta River area based on 2002 coseismic displacements, 1912 historic and tree-ring data, and paleoseismic data. With Lloyd Cluff and Stu Nishenko, carried out a reconnaissance of the near-field tsunami related to the cataclysmic 2004 Sumatra earthquake including extensive eyewitness data that suggest major complexities in the near-field tsunami source that caused most of the damage and loss of life in northern Sumatra.
- (9) Co-authored USGS Circular 1249, served as USGS Representative on the Geothermal Resources Council Board of Directors; gave Menlo Park Public Lecture, Nov 20, 2003, and set up OFR Website on USGS Heat flow data.
- (10) Advised in publication of several ABAG preparedness documents; organized 2 sessions at 2004 National Earthquake Conference.
- (11) Creation of a catalog of Hawaiian seismicity before 1959. My specific contribution was library research in Hawaii, discovering records of historical Hawaiian earthquakes dating back to 1790 in newspapers, magazines and missionary writings. I also assisted Fred Klein in reading old seismic records and maintained the spreadsheets on which all of the earthquake data was tabulated. Completed a study of the 2000 eruption of Miyakejima volcano, which was accompanied by a notable seismic swarm and formation of a new caldera. I made

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interpretations of the seismicity that differed from that of Japanese workers and proposed a new idea governing the formation of basaltic calderas. I revised for publication a study of deep magma transport at Kilauea. This paper contains novel earthquake classification system for Kilauea, identifies a particular class of deep earthquakes associated with presence of magmatic fluids, reconciles the geochemical differences between Mauna Loa and Kilauea and within Kilauea, and provides evidence for a moving thermal plume rather than a stationary hotspot. As part of my term as a Bradley scholar I learned to program in the IDL language and have since created animations of earthquakes for the Miyakejima 2000 eruption and a sixty year daily seismic history of Kilauea volcano. The former has been provided to Japanese researchers and the latter to USGS researchers at HVO and Menlo Park who have an interest in Kilauea volcano. The programs themselves can easily be adapted to animating seismic sequences at other volcanoes and to depiction of large earthquake-aftershock sequences. With Jane Takahashi (HVO) I continue to maintain a bibliographic database of all papers (including abstracts) published on the geology and geophysics of the Hawaiian-Emperor island chain and the adjacent seafloor. This database is widely used by Hawaiian researchers in and out of HVO, and by students and volunteers who visit HVO.

(12) See publications list.

(13) I devised and maintain a user-friendly, geographic-based computer system to store and retrieve U.S. Digital Elevation Model data. I wrote numerous UNIX computer scripts and FORTRAN programs to test, install, inventory, and utilize the database, including the primary application, gravity terrain corrections. The easily transportable ASCII files are stored with standard 7.5-minute map names in 1-degree directories/folders. I developed diverse applications including programs to access Alaska terrain data merged into Canada and to process raw recording-gravity-meter data in response to close coordination with Geophysical-Unit-Menlo-Park team members.

(14) 1. Mapping of Noatak Nat. Preserve. Preparation of volume illustrating, describing, and interpreting bluff exposures along Noatak River. Preparation of map and report for portion of Brooks Range north flank and foothills along Alyeska Pipeline. Publication of surficial geologic maps for Bettles and Hughes 1:250,000-scale quadrangles. Organized and led two field trips as part of Am. Quaternary Association biannual meeting (Anchorage, AK, Aug 2002).

(15) Development of a plan for volcanic and seismic hazards assessment of Yellowstone National Park and vicinity and progress toward completion of the assessment. Geologic mapping studies and GIS compilation of geology of the Mount Shasta region, Calif., continuing on work done earlier as a USGS employee.

(16) See list of publications.

(17) Compilation of almost all of 14 each 250,000-scale quads covering all of southeastern Alaska for publication at 1:500,000 and preparation of back-up material and of a unified Description of Map Units for the region.

(18) Completed a paper on the Egret-Hibernia petroleum system that was published in the American Association of Petroleum Geologists. Completing the petroleum assessment work on the San Joaquin Basin Province. Initiating the petroleum assessment work on the Sacramento Basin Province, Cook Inlet basin in Southern Alaska Province, and the North Slope of Alaska

(19) Since joining the emeritus program in January 2005, I have continued research work on the spatial distribution and quantity of phosphate resources present in selected 7 1/2' quadrangles

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in SE Idaho. To date, I have authored one publication (in press), I'm researching & processing data for 8+ additional publications, and I am shepherding one SIM (ready for technical review), authored by current and former USGS employees, to publication. I have also contributed to maintaining the Spokane Field Office research library and archives.

- (20) Three peer-reviewed publications in international journals in last 3 years.
- (21) Wrote articles for quarterly journal of Yosemite Association.
- (22) INVITED PRESENTATION - Global occurrences of marine gas hydrate beyond active and passive continental margins, Fall AGU meeting, 2003. WORKSHOPS - Shallow hydrocarbon migration, Geology and Engineering Depts., Univ. of California, Santa Barbara, California, 2003. Role of ocean methane and gas hydrate in global climate change, NOAA, Boulder, Colorado, 2004. USGS PUBLIC LECTURE - Gaia's breath—Methane and the future of natural gas, 2003.
- (23) Apparent offset of age and isotopic boundaries in Cretaceous igneous rocks exposed in the Salinian composite terrane along the San Gregorio and San Andreas Fault zones in coastal California document 102 mi. (160 km) of right lateral offset since 82 Ma.
- (24) Organized a vast amount of data covering about more than 250,000 sq km of western Alaska for publication as 1:500,000 scale digital maps and reports.
- (25) Essentially, my only contribution is to continue work on a study--via geologic mapping--of the geology of Mount St. Helens. I began this project before retirement and continue the work every summer with non-retired USGS colleague who inherited leadership of this project when I retired. It's a long-term effort that will eventually lead to major scientific products.
- (26) Continued work on 1:25,000-scale Anchorage maps. Compilation of surficial deposits mapping of Tyonek, Alaska, 1:250,000 quadrangle (about 2/3 of the quad); contribution to map being compiled by Peter Haeussler, Alaska Geology Section. Preparation of Nabesna C-6 Quadrangle, Alaska (1:63,360 scale) (Copper River Basin; about 2/3 in National Park below). Preparation of regional glacial-limits map, eastern Copper River Basin and Upper Cook Inlet Basin, partly as contribution to state-wide map (see below) and partly in cooperation with Paul Carrara, ESPT. Contribution to geologic map of Wrangell—St. Elias National Park and Preserve Subsurface studies of Fort Richardson-East Anchorage area in cooperation with Corps of Engineers personnel (work in deep recess).
- (27) Coop projects with USGS, CPC, Stanford and ARC, such as “Crowding the Rim”.
- (28) Investigated post-remediation environments in the Clear Creek area, northern Calif., identifying those where mercury methylation and bioaccumulation are taking place. Helped evaluate pre-remediation conditions and sources of mercury in present phase of Trinity River Restoration Program, northern Calif., resulting in modification of Bureau of Reclamation project plans, to minimize mercury release.
- (29) With colleagues in Taiwan, I helped to advance the science and technology of earthquake warning systems, so that accurate information of an earthquake can be obtained and disseminated to responsible emergency officials in about one minute. I have been active in conducting laboratory and field testing experiments on seismic instruments in Taiwan in order to better understand their long-term performance. With Gray Jensen and Woody Savage of USGS, I prepared a plan to develop technical Specifications of Accelerometer and Accelerograph for Advanced National Seismic System procurement consideration in early 2005. At the request of NOAA, I organized an ad hoc working group of USGS geophysicists and geologists convened a series of meetings in September 12-21, 2005 to characterize

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western Pacific subduction zones relevant to potential tsunami sources. This effort was in support of ongoing NOAA efforts to optimize the deployment of Deep-Ocean Assessment of Reporting of Tsunamis (DART) stations in the Pacific.

- (30) Cooperative work with WRD Caloosahatchee River Aquifer Core project (Kevin Cunningham) was rewarding because I was able to provide new coccolith and silicoflagellate Miocene and Pliocene timescales to correlate that set of cores. Established silicoflagellate productivity and paleoenvironmental indices and trends for the Gulf of California Holocene in a series of cores for the VHZ/ESD Holocene Climate Change of the Pacific Coasts project (John A. Barron). Used detailed coccolith biostratigraphy to show that a presumed Paleocene monoclinical section at Fairfield, CA, was actually a complicated thrust-faulted and overturned section of Late Cretaceous, late Paleocene and early Eocene age. Identified offshore northern California Holocene productivity and paleoenvironmental trends of coccoliths and silicoflagellates in ODP and OSU cores. Showed taxonomic differentiation of northern California Current floras and transition from carbonate to siliceous rich floras through the Holocene. Began cataloging silicoflagellate surface texture character by SEM for potential paleoecological indicators.
- (31) Completion of legacy research, publication of several reports, and interaction with projects in my area of expertise.
- (32) Ganymede Map. Collaborator on a 1:15,000,000-scale map of Ganymede based on Voyager and Galileo images. The project PI is Jim Head of Brown University. I have prepared a draft map and explanation based on Voyager images, which is incorporated into the mapping based on Galileo images. I am also scheduled to review the new maps because of my expertise in Ganymede geology. I contributed to an abstracts presented on this map at the Lunar and Planetary Science Conference and at this year's Meeting on Planetary Geologic Mapping.

**Valles Marineris Graben System on Mars.** The projects led to several new discoveries concerning the origin and evolution of the Valles Marineris. I have spent considerable time analyzing the recently released MOC, MOLA, Themis, and Mars Express data. Results seem to indicate that some of the interior deposits are composed of volcanic materials, but that others, located on the canyon floors, may be lacustrine or fluvial. I have a large amount of observations and data that need to be assembled, organized, annotated and placed into formats suitable for publication. These data include a compilation of possible mafic vents in the Valles Marineris, delineation and some measurements of inclined beds in outcrops of interior layered deposits, discovery of light colored flows on the plateau surrounding the Valles Marineris and recognition of a mare ridge apparently serving as a fissure vent line for flows burying light layers. I have given talks and posters on these subjects. Data from the MER landers are being incorporated into the studies.

Geologic maps of the central Valles Marineris are in progress by myself and several co-authors and are being updated based on an overwhelming amount of new data. The west Candor Chasma geologic map was drafted on a brown-line chronaflex and awaits digital recompilation of the base map. In the meantime I am recompiling a GIS set of data of this map area based on Themis and Mars Express images. I was collaborator on a project on the Valles Marineris by Mary Chapman and am collaborator on a proposal by her to produce a geologic map of Melas Chasma.

Antarctica. Coastal Change and Glacier Velocities. The project was a joint effort with J.G. Ferrigno and R.S. Williams of the USGS in Reston and Woods Hole, and Christine Rosanova

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of the USGS in Flagstaff. The study used sequential Landsat and ERS SAR (European Remote Sensing Satellite, Synthetic Aperture, Radar) images to monitor changes of the coastline and contribute data that helped in establishing the mass balance of the Antarctic ice sheets. The study is completed, and follow up work includes mostly correspondence with other researchers concerning the previous work and image data produced during this research. My assistant Rosanova and I showed that some of the Antarctic ice shelves are melting, and we were the first to document that the Pine Island Glacier is increasing in velocity. In honor of our work both of us had glaciers in Antarctica named after us.

- (33) Major contributions to the Geologic Map of Lassen Volcanic National Park and Vicinity and derivative talks. Leadership of a benchmark paper using  $^{40}\text{Ar}/^{39}\text{Ar}$  dating on a low-potassium olivine thoeiite of only 25,000 years age. Support to alteration studies on Brokeoff volcano by Dave John and Oregon State students. Preparation for the National Park Service of an inventory of hot springs in Little Hot Springs Valley and Sulphur Works in Lassen Volcanic National Park.
- (34) Gravity and magnetic measurements to characterize the geologic framework influencing ground-water resources in the Spring Valley area, eastern Nevada.
- (35) Contribution of my interpretations of geologic structure and history to several studies of the geology and earthquake and tsunamigenic potential of the southern Cascadia subduction zone. Completion of mapping of geologic structure and age of faulting in the metropolitan area of San Diego Bay from high-resolution seismic-reflection data using core-hole-based age control (with Mike Kennedy, emeritus, California Geologic Survey). Contribution of offshore geologic mapping to completion of the Oceanside (CA) 30' x 60' quadrangle. Collaboration producing a revised interpretation of the Neogene tectonic and depositional history of central and northern California, and presentation of this model at a regional meeting.
- (36) Co-Chaired 4 day international conference on "Benthic Habitats and Effects of Fishing". Reviewed and edited papers (60) and abstracts (a bunch) for the conference and proceedings volume. With colleagues completed detailed LIDAR maps of lake trout spawning reefs in Northern Lake Michigan. Reviewed a bunch of papers and other things. Provided input to clarify sample and data holdings from my field work.
- (37) Developed GIS procedure for preliminary delineation of debris-flow hazard areas using digital terrain data. Developed GIS procedure for mapping hourly rainfall using archival rain gage data.
- (38) Not a priority.

### CR

- (1) All new research on natural and synthetic jarosites and associated abstracts and reports.
- (2) That precludes the years 2004 - 2005, my sense; why? The field research for the 2005 publication listed below was conducted in September, 2003. Follow-on fieldwork was done this past summer, with USGS laboratory analyses pending and the likelihood of another publication that includes authorship by USGS chemists. Last year, 2004, I was asked by Ray Kokaly, USGS Remote-Sensing Group, to serve as plant taxonomist on a multi-agency team studying that year's post-burn recovery in the shrublands of the Sheldon National Wildlife Refuge, NW NV, and of the BLM Worland District, WY. Early this year I was asked to participate as a consultant for the extensive vegetation-mapping project of the new Great Sand Dunes National Park and environs; lead, Colorado Natural Heritage Program.

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- (3) Following are some of the more important contributions: Organized and chaired a prestigious Pardee Symposium and discussion session on the Role of Impacts on Extinction and Evolution at the national Geological Society of America (GSA) 2004 meeting. A GSA grant enabled me to invite several speakers from Australia, England, Germany, and Spain for a well-attended session that attracted many foreign and North American attendees. Spent almost the entire past year going through conodont collections to provide specimens for laser ablation and sulfur-isotope geochemical analysis by the Central Resources Team "Metals and Basinal Brines and Petroleum" project (Poul Emsbo, project chief) that is aiding gold exploration in Nevada. Contributed to the "Alternative Energy Resources of the Future" project (David Ferderer, project chief) data that were gathered during the past half-century through stratigraphic and conodont studies of Devonian and Mississippian source and reservoir rocks throughout the conterminous United States. Provided conodont processing and expertise to a Survey-supported emeritus project in Sonora, northern Mexico and Oaxaca, southern Mexico. The Oaxaca work changed the dating of a supposedly Devonian orogeny to Permian. The Sonora work has provided Mexican universities and gold mining companies with new or better conodont dates of stratigraphic units for mineral exploration. Coauthored talks or posters at the Lunar and Planetary Institute (LPI) Symposium on Large Impacts at Nördlingen, Germany and at the annual meetings of the LPI in Houston, Texas. In collaboration with scientists at the Cincinnati Museum and Morehead State University, conducted at my own expense field work and laboratory research on Mississippian Borden Delta Complex and on underlying Rockford Limestone in Ohio, Kentucky, and Indiana. This has resulted in accurate conodont re-dating that supplanted "conventional wisdom" dating of these units. Conducted joint research with University of Northern Colorado professor on Alamo Impact in Nevada, continuing study initiated under Bradley Scholarship, which terminated in FY 1999. This resulted in the award of a National Science Foundation grant for which I have agreed to provide continued office, laboratory, and field support. Working to complete joint geologic map, initiated in 1991, with F. G. Poole on Warm Springs, Nevada. Editing and publication of this map is supported by dedicated USGS funding. Contributed to thermal maturation (conodont CAI) map of Elko County, Nevada, and of the entire state of Nevada compiled by Anita G. Harris for Central Mineral Resources team. These maps are being published as USGS products. Provided Belgian scientists with previously unpublished data, resulting from work conducted in Belgium and elsewhere under two Gilbert Fellowships. Publication of these data helped evaluate a section that has been considered the stratotype for the Devonian-Carboniferous boundary. Presented invited lectures at two universities.
- (4) Scientific publications, Professional Society efforts. Particularly as Vice Chairman for planning of the First North American Conference on Landslides. Aiding Landslide Hazards Group in working with FEMA.
- (5) Completion of geologic map of North America. Publication of "Creation of the Teton Landscape" with Dave Love and Ken Pierce. Contribution on geology to captions in John Fielder's "Mountain Ranges of Colorado.
- (6) Completed USGS reports and gathered data for additional USGS reports.
- (7) Compiling a Morrison Formation biological data set for the National Park Service. Helping project chief in various ways to help her achieve her project duties and responsibilities.
- (8) Developed presentations for teacher professional development. Developed mechanisms for teachers to share their seismogram records in near-real-time. Established a web site for near-

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real-time educational seismograms. Consulting with team on legacy software still in use at NEIC.

- (9) Published a new evaluation of world oil shale resources. Co-chaired the First Oil Shale Symposium in Rock Springs that was attended by several hundred specialists in geology, mining, and processing of soda ash; published summaries of the Wyoming trona resources and published an exploration model for sodium carbonate minerals in the symposium proceedings.
- (10) Scientific reports; recovery of analytical data for national database.
- (11) Much of the stuff published in the past five years is largely based on work before that time period. During the past few years I have been working on the Central Colorado Assessment project. Some results are in products under review. I have been helping put together the Denver West 1:100,000 quadrangle, principally because modern projects do not contain the funds and manpower to do a lot of serious detailed remapping and I covered the some of the area in reconnaissance for the 1:250,000 Denver quad 30 years ago. I initiated and compiled a tabular database of isotopic ages for the Fort Collins, Estes Park, Denver, and Bailey 1:100,000 quadrangles. That database has been transposed to a digital version including maps as well as tables by a colleague in Central Minerals (probably not its up to date name). I am also helping out on the Bailey 1:100,000 quadrangle and have helped Wayne Premo to get started on a modern geochronologic study of the basement rocks in the Front Range that I think is producing some very interesting and important results.
- (12) Although I would not classify it as a scientific accomplishment, in the past 3 to 5 years while a Scientist Emeritus, my work for many years as the commodity geologist for lightweight aggregates provided the initial samples of vermiculite and tremolite from the deposit at Libby, Montana, when the USGS was asked by the EPA to look into the mineralogical relations at the vermiculite deposit, that caused the high number of fatalities in the region. In addition I was able to provide samples from some 50 other deposits of vermiculite throughout the contiguous USA for comparative data with Libby.
- (13) Made substantial contributions to the geology of Nevada.
- (14) Continuing to unravel the geologic history of the western part of the mid-Tertiary Mogollon-Datil volcanic field and caldera complex in southwestern New Mexico.
- (15) Structural interpretation of seismic reflection profiles from the Carbondale and Eagle evaporite collapse centers in west-central Colorado, and the western Centennial Mountains, southwest Montana.
- (16) I have (with co investigators ) shown that the volcanic rocks beneath the West Antarctic Ice Sheet are associated with ~1000 shallow source, high amplitude magnetic anomalies. Of these anomalies, >400 have glacier bed topography revealed by radar ice sounding. I have discussed the glaciological and tectonic implications of these subglacial volcanic centers in a number of publications.
- (17) Continuing the completion work on 10 surficial geologic maps (1:25,000 scale) of part of Anchorage and easternmost part of Tyonek quadrangles Alaska; completion of parts of 14 surficial geologic maps (1:63,360 scale) leading to completion of geologic map (1:250,000 scale) of Tyonek quadrangle Alaska under P.J. Haeussler; contribution to surficial geology of geologic map of Wrangell-St. Elias National Park and Preserve, Alaska.
- (18) Just providing a few microscope analyses for USGS.
- (19) Compiled additional chemical data bases and data plots for report on geochemistry of Patagonia Mountains, Arizona. Worked on cleaning up data for open-file report which is to

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include NURE and USGS stream-sediment data for Yellowstone National Park and adjacent areas, including data from RASS from wilderness, and other studies. Worked on cleaning up data for OFR for the Patagonia Mountains, Arizona.

- (20) Map of Surficial Deposits and Materials in the Eastern and Central United States (East of 102° West Longitude), GIS-2789.
- (21) While an Emeritus I have continued the cooperative arrangement between the USGS, the BEG, and the University of Houston to compile a biostratigraphic database for the Gulf coast of Texas. At the present, this effort entails a significant amount of time consuming data rescue and correlation but not a great amount of science. I have also begun the research on the final phase of my continuing investigation into the structure and tectonics of the San Juan Trough and Uncompahgre Uplift of the Ancestral Rocky Mountains. Much of this effort involves acquisition, analysis, and interpretation of seismic data which is currently underway.
- (22) From 1995 to date I have been associated with the publication of about 16 reports that have, among other things, clarified the stratigraphic relations of Jurassic rocks on the Colorado Plateau.
- (23) The following are accomplishments of my studies: (1) formulated an integrated understanding of the regional stratigraphic and structural framework of the east-central Idaho region, (2) delineated previously unrecognized thrust sheets, (3) determined that the fold structures in central Idaho are of a very large scale, (4) determined that the mountains of east-central Idaho have undergone a much greater extent of Cenozoic extension than was recognized previously, (5) worked out a sequence of compressional and extensional structural events for east-central Idaho, and (6) refined predictions for location of strata-bound mineral deposits in the region.
- (24) Documentation (mapping, sampling, and section measuring) of Laurentian-margin Ordovician-Permian ocean-basin and carbonate-shelf and –platform rocks, and Permian foredeep flysch in Sonora, Mexico. Research on stratiform barite and phosphorite, metalliferous shale, and sediment-hosted gold deposits in sedimentary terranes of Nevada and Sonora (including detailed mapping of selected areas). Worked on detailed maps of the Minas de Barita area in central Sonora, the Rancho El Bísani area in northwest Sonora, the Rancho Placeritos area in west-central Sonora, the Warm Springs-Milk Spring area in south-central Nevada, and the Bisoni-McKay area in central Nevada. Continued work with Ricardo Amaya-Martínez (University of Sonora at Hermosillo) on our newly recognized Paleozoic platform limestones west of Mina La Herradura (Peñoles-Newmont gold mine) in northwesternmost Sonora, and Permian flysch in the Mina México foredeep in central and east-central Sonora. Continued work with Charles Sandberg (Scientist Emeritus) on the stratigraphy and structure of the Warm Springs-Milk Spring and Bisoni-McKay areas in Nevada, and regional stratigraphy of Devonian and Mississippian rocks in the Great Basin. Continued work with Al Hofstra and Poul Emsbo (Project Managers, Mineral Resources Team) on sedimentary and chemical aspects of stratiform barite in Nevada and Sonora. Many manuscripts have been prepared and published (see list of publications) during the past five years. Two important invited manuscripts, which have Director’s Approval, should be published next year in a Geological Society of America Special Paper on “The Terrane Puzzle: New Perspectives on Paleontology and Stratigraphy from the North American Cordillera.” I have provided many Nevada and Sonora graphic measured sections to Don Sweetkind for digitizing into a standard format for the stratigraphic data base of the Basin and Range.

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- (25) General contributions to the geology of ground water Projects in Albuquerque, NM, and Las Vegas, NV; publication of geologic maps for USGS projects and of abstracts pertaining to legacy studies.
- (26) Developed new concepts of uranium provinces in North America, developed the role of uranium as a fuel to generate domestic and global electricity in the energy mix of coal, gas, oil, and other energy sources. Analyzed and reported the status of uranium for nuclear fuel in the year 2002.
- (27) Compilation and preparation of geologic maps of the Pinedale and Borrego Pass quadrangles for publication in the USGS MFS Series. Papers on regional stratigraphic studies of Jurassic Entrada Sandstone; also, regional distribution and stratigraphic implications of fluvial sandstone beds in the Petrified Forest Member of the Upper Triassic Chinle Formation. Study of Wind Power as an energy resource, and monitoring of the public utilities and governments in the development and use of wind power.
- (28) Ore mineral research with USGS colleague.
- (29) Preparation of 35 time-slice maps for the Western Interior Cretaceous Seaway.
- (30) Maintain the NGDB, install/upgrade software, perform DBA tasks, and provide technical information regarding database technology.
- (31) Co-author on three papers.
- (32) Was honored at a GSA session in 2004 (Denver, CO).
- (33) The mapping and resource studies cited under 12 identified, but did not completely resolve, a major geologic problem along the Connecticut Valley in a 100 km-tract extending from near Fairlee, Vermont, to near North Stratford, New Hampshire. Ever since I and associates defined the Piermont allochthon in the mid-1980's (Moench, Hafner-Douglass, Jahrling and Pyke, 1987) and defined it as a huge, east-derived, early Acadian thrust sheet, the existence of the feature has been hotly debated and mainly in many papers between me and Marland D. Billings (1992), and particularly between me and D.W. Rankins; in one of these (~10 papers/abstracts) have conclusively proven or ruled out the existence of the allochthon. The latest critique is a 2004 paper by Nicholas Timms in the GSA Bulletin; I have a Discussion of that paper now in review with editors of the Geological Society of America. My map of the allochthon (1:48,000) is now almost ready for USGS review. I plan to turn it in this winter. My 2002/2003 paper (with J.N. Aleinikoff) in *Physics and Chemistry of the Earth* (see 14) relates our northern New England work to our interpretation of the plate tectonic evolution of the northern Appalachians for Early Ordovician to Devonian time.
- (34) Recognized a major Precambrian shear system in North American continent, reactivation of which dramatically influenced subsequent tectonism and magmatism. Determined that North American continent basement structures primarily resulted from subcontinental mantle deformation rather than top-driven (ridge push and trench pull), i.e., plate tectonics per se. Subcontinental mantle deformation equates with bottom-driven deformation of Tikoff and others (2004). Demonstrated the significance of Precambrian shear zones and faults to younger tectonism in Rocky Mountain region and northern part of US cordillera.
- (35) I have been an Emeritus for 15 months; for two years I was a rehired annuitant, which has some similarities to Emeritus. In those three years I completed about five publications started while full time, and I have helped start up two new research tasks, contributing my experience and materials from Nevada and Idaho to staff who had not worked there previously.

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(36) In addition to the algorithm development I have conducted reviews of papers and proposals for outside institutions and completed several publications.

### ER

- (1) I am in the compilation or contemplation stage of several geologic maps.
- (2) Organizing old and new observations on the character of the Creede mineralizing system: Duration of mineralization applying solid state diffusion in sphalerite (with W.R. Campbell, soon to be published), Advancing the understanding of the thermal, chemical, and dynamic mechanisms for the formation of the chalcedony, amethyst, amorphous silica, and quartz that are so common in epithermal systems (several manuscripts in outline or draft form; authorship indeterminate), Identifying and characterizing the mineralogical patterns for the occurrences of base and precious metals and their associated gangue minerals at Creede as a pre-requisite to chemical modeling (with P.M. Bethke)
- (3) None
- (4) In addition to participating on the 3<sup>rd</sup> revision of "This Dynamic Planet" graphic, I have continued my legacy research with Klaus Schulz, Robert Tucker, and Robert Azuso, and have reviewed manuscripts and proposals for outside agencies, and participated in internal committees.
- (5) Chaired 2 sessions at GSA meeting, a session at Hedberg conference, etc. Participated in review panels for Naval Research Laboratory, NOAA National Undersea Research Program. Presented Lecture at National Defense University. Presented lectures and consulted with Chinese Academy of Science in Beijing. Reviewed a bunch of papers and other things that I can't recall right now. Getting old, you know.
- (6) Completed collaborative research on rare-earth distributions in minerals of lunar ferroan anorthosites, and prepared and published (in 2002) a manuscript presenting the results. Initiated, carried out, and completed collaborative research on the origin and history of a lunar meteorite with complex texture (Dhofar 026). The meteorite's history was misinterpreted by the initial investigators and I became involved when I reviewed their paper for publication. A manuscript was prepared and published in 2004 that presents the results. Began a collaboration with R. J. Walker and his colleagues at the University of Maryland on identifying lunar meteoritic impactors from siderophile-element components in meteorite-contaminated lunar rocks. Continued research on reevaluating siderophile-element data for lunar rocks to determine nature and composition of meteoritic bodies impacting the moon over time.
- (7) Repeated desk-top examination of the slow oxidation kinetics of aqueous solutions of multivalent metals such as Mn and Fe by free oxygen. Demonstrated probability of rapidly precipitating several dissolved metals by using ozone as oxidizer. Applied for and granted the US patent titled "Recovery/Removal of Metallic Elements from Waste Water Using Ozone" (Nov.26, 2002). To demonstrate the practicality of the above invention, a pilot-scale ozonation system was constructed with the help of several scientists of the EER Team at the Little Toby Creek coal-mine drainage treatment facilities owned by the Pennsylvania DEP-BAMR. The successful results of the project were presented at several scientific meetings.
- (8) GSA special paper 346: ancient Lake Creede.
- (9) Scientifically, my studies of early molluscan evolution based on the fossil record have expanded and now include studies of chitons (polyplacophorans). This effort has been fostered by working with amateur paleontologists in Illinois, Missouri, and Wisconsin; and, with colleagues in Mexico, U.S.A., China, Germany, and Australasia.

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- (10) None.
- (11) Contributing to several studies of international importance.
- (12) Mineralogy of Montana rare alkalic ultramafic intrusions and diatremes; mineralogy of upper-mantle xenoliths and xenocrysts in the potentially diamond-bearing Homestead kimberlite, central MT; leader of the Montana field trip for the 8<sup>th</sup> International Kimberlite Conference, Victoria, BC, Canada, 2003.
- (13) Studies leading up to the accomplishments listed below began more than five years ago, but have come to fruition in the last five years. Continuing contributions to the bedrock geologic map of Vermont. Completion of the compilation of the geology of New York and New England for the Lithotectonic map of the Appalachian orogen as well as being a member of the team that developed the explanation of that map. Documenting, with Steve Novak, a zoned magma chamber as the origin Neoproterozoic Wilburn Rhyolite Member of the Mt. Rogers Formation. Documenting, with others, an episode of late Silurian extension in the Upper Connecticut Valley and offering an explanation of that extension in terms of New England and Quebec geology. Documenting (in progress) that most of the large area recently interpreted to be Silurian rocks of the Piermont allochthon (Upper Connecticut Valley) is, in fact, underlain by autochthonous rocks of Ordovician or older age.
- (14) Completing work on publications (2 of which are stuck in Technical Reports).
- (15) Two papers in press (overseas) on Paleozoic scaphopods and a long article on the history of the National Museum of Natural History.

### HQ

- (1) Most of my scientific efforts have involved learning how to obtain digital seismic data from various sources and how to normalize that data to show ground response. This sound simple but it is rather difficult for someone working alone.
- (2) Serving on the ICSU Executive Board and the International Union of Geological Sciences Executive Committee, and the National Committee for Geology, work I was paid to do as an employee.

### 15. How would you rate your ability to get your Scientist Emeritus work published?

#### WR

- (1) New and somewhat baffling requirements (508, etc.) as well as funds needed to "publish" open file reports makes our participation much more difficult to the point that I wonder why I even try anymore.
- (2) It is difficult to impossible to obtain assistance for map and data compilation, particularly with computer-based graphic and data applications.
- (3) N/A in my case; not producing publishable stuff.
- (4) Problems with "deferred" papers.
- (5) Very satisfactory for outside publications; somewhat unsatisfactory because needed to get outside funding for a USGS pub.
- (6) I anticipate very satisfactory publication opportunities when the time is right.
- (7) Lassen map has been in Western Technical Reports Unit for over a year after Director's Approval.

#### CR

- (1) Very satisfactory.
- (2) Have published ONLY outside the USGS.
- (3) Mostly outside publications.

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- (4) If I publish anything, it would be related to earth-science teaching.
- (5) Map has waited at Pubs for 2! years.
- (6) My emeritus work does not relate to my team's mission and is therefore unfunded. However, it does relate to the missions of other teams and is quite significant for the geology of Nevada.
- (7) Legacy geologic maps are difficult to finance.
- (8) Difficult to obtain adequate funding for field work and map preparation (photo-geologic compilation, digitizing, CPG processing, etc.).
- (9) So far it's mostly up to me.

### **ER**

- (1) No trouble except that, considering the fiscal black hole (or maybe call it a red ink hole) that the program has experienced I have been reluctant to request such "extras" as highly desirable color illustrations. However I generally publish in the outside literature, so my favorable opinion does not address survey publications.
- (2) Have been some time delays getting isotopic data.
- (3) I have been able to get the short papers published and with the financial help of colleagues to get a couple of monographs published. It would be a great help if we had in-house outlets for both shorter papers and monographs.
- (4) Very satisfied so far!
- (5) One USGS-USDA Forest service brochure has not been processed by TRU (3 years). An outreach map that is part of the series of high-profile products related to the award-winning video, "The Southern Appalachians, Our Changing World," received Director's Approval several years ago, but has nothing else has been done.

### **HQ**

- (1) Very satisfactory, such as it is.

## **16. How would you rate your ability to accomplish the goals found on your FY 2005 Scientist Emeritus agreement?**

### **WR**

- (1) As usual, things take longer than expected.
- (2) Due to extenuating personal circumstances, the time that I devoted to my emeritus work was less than planned.
- (3) Somewhat unsatisfactory because of lack of laboratory assistance.
- (4) Everything takes far longer than anticipated; I have too many irons in the fire, both at the USGS and otherwise.

### **CR**

- (1) The emeritus agreement requires contributions to a specific Team project. For many of us, this would require abandoning our entire professional experience and learning a new skill from scratch. I would consider contributing to certain projects in other teams however.
- (2) Personally fell way down, not because of USGS limits.

### **ER**

- (1) My personal ability to accomplish the stated goals is limited by the amount of time I spend each day in the office, and by the welcome intrusions of those seeking advice (part of an emeritus duty), all taking time. Institutionally speaking, it may be problematical for the USGS to adopt and fund my emeritus project, when eventually such is requested, because of institutional funding inadequacies, and because of the national political climate.

## **Appendix 7.**

- (2) As I age, I can't get things done as quickly – my problem, nothing the USGS can do about it.
- (3) Hampered, by inadequate lab space.
- (4) For the most part, I am progressing nicely on that plan. As a favor to Chinese colleagues, the study of the giant Triassic clam from Tiber, took more time than anticipated.
- (5) Cannot complete publication process.

### **HQ**

- (1) Did not see an agreement.

### **17. How would you rate your ability to complete legacy studies that predate your current Scientist Emeritus agreement?**

#### **WR**

- (1) Very unsatisfactory because of the interruptions noted above and vanishing funding.
- (2) This depends greatly on at least two things - 1) the Spokane Field Office remains open, and 2) the SFO is properly staffed with sufficient GIS expertise.
- (3) Legacy studies are done.
- (4) The legacy work I'm doing is integral to an existing project, and ability to complete this work (i.e. support) is very satisfactory. I haven't really tested the system with respect to legacy studies that are not related to a current project, and I suspect this could be a lot less satisfactory.
- (5) Everything takes far longer than anticipated; I have too many irons in the fire, both at the USGS and otherwise.

#### **CR**

- (1) Not applicable – all research is new!!
- (2) I've no clue what they are.
- (3) I do not have much in the way of legacy studies to complete; those were mostly wrapped up within my first year or two as Emeritus.
- (4) I get numerous requests for oil shale information from the public, provide samples of oil shale to interested companies, serve on several oil shale committees, including most recently, the DOE oil shale steering committee to promote oil shale development of the Green River oil shale deposits. Last two years working on an oil shale database for the Utah Geological Survey. All of these activities take time away from scientific pursuits but still need to be done.
- (5) Hard to get maps out of Pubs.
- (6) There is no provision in the emeritus agreements for legacy studies. I have completed such studies outside the agreements.
- (7) Difficult to find time (from current project work) and funds for even limited lab work for legacy studies.
- (8) The Pecora Program made some promises when I retired to support and finance completion of three geologic quadrangle maps, involving some field work and costs of map preparation. The program functioned for about two years and then fell apart for lack of interest, funding, and commitment. It fell down completely in the costs of map digitizing and layout, and it has been a frustrating and lonely experience since to obtain any funding. I do not intend to endure any more agony.
- (9) I must complete my ongoing work before I can address my legacy.
- (10) I do not understand the question—legacy studies? Not in MRP?

#### **ER**

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- (1) Not enough time because of “commitments” to present project work and not having available stipulated funds.
- (2) Too many unnecessary complications; e.g., I have to wander around to find some willing colleague's lab with a sink (or the men's room), just to wash the dirt off a specimen; or, computer connections to the lab are inadequate for efficient operation; or, polished sections a few years old are tarnished, but we have no facilities to buff up the polish prior to photography; or, we have recurring need for electron microprobe analyses, but unless we go begging access is absent; or, fluid inclusion work is needed in an interactive mode, again, no facilities at hand; if I need a couple of sample vials, or a beaker to carry water, I must beg such from colleagues or get involved in buying them (this list could go on for pages). Back when the survey did science all of this and more was readily available, now far more time is spent on logistics than on science.
- (3) In general I have not focused on doing that, rather have done new things.
- (4) Not the fault of the USGS, however, that I get easily drawn into other studies that only postpone completion of my oldest research.
- (5) Hampered, by inadequate lab space.
- (6) Legacy studies tend to move more slowly than current agreement goals.
- (7) The charge system for the microprobe and SEM precludes my use of these analytical instruments.
- (8) All done long ago.

### **18. How important do you think your contributions are to the USGS?**

#### **WR**

- (1) Very important in the geopolitics of Antarctic and climate science.
- (2) This really depends on who you ask!!

#### **CR**

- (1) Providing expertise not available elsewhere in world.
- (2) USGS didn't care before, why would they now?
- (3) We'd all like to think our work is "very important", but in reality, the work is only important to those who are involved in some way with it.
- (4) Very great cost/benefit ratio!
- (5) New Big Bend National Park map will be very important.
- (6) USGS should stick to basic science which is its historic role and which I insist on doing.
- (7) This last year has been important but minor in scale.
- (8) Very important because work paid for must get out, I'm sure!
- (9) Moderately important.

#### **ER**

- (1) Studies such as mine are very important to the image of the survey as a scientific enterprise; not so many years ago the very best PhD graduates were clamoring to work with the survey. That day is history. We have become highly trained bean counters.
- (2) Will be very important when eventually actualized.
- (3) Somewhat satisfied with one exception.
- (4) As an expert on the geology of eastern Montana, I have been representing the agency in consultations with BLM, state, university, and industry personnel and private landowners. This involves communicating information on igneous rocks, structure, stratigraphy, mineral

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deposits, geochemistry, landforms, erosional processes, and hydrology. These activities have been at my own expense, with no USGS funding.

### 19. How do you plan to archive and preserve your scientific materials?

#### WR

- (1) No plan.
- (2) Eventually, all pertinent data will be offered to younger scientists with residual going to archives/universities. At this stage I am a "young" emeritus and hope to stay with it for some time.
- (3) Uncertain; USGS field and photo repository appears to be in serious disarray.
- (4) Much of it has been put on the Web. Other stuff is in file cabinets in the warehouse and our small office. No one in management is likely to help. Best hope is to find a project scientist who recognizes the value of keeping unique material. Help from management in scanning and digitizing materials, which I am doing but find overwhelming, would make a big difference.
- (5) Publication.
- (6) Publish; pass on to others.
- (7) Am attempting to publish it.
- (8) Copies of all materials go to my supervisor, as will the files that I maintain – I will put all digital files on CD-ROMs.
- (9) A major concern that has yet to be resolved satisfactorily.
- (10) Ship paper files and notebooks to EHZ Team Colleague.
- (11) All field notes and compilations (and associated digital materials) will be archived in Denver. I have archived North Cascade Range and Olympic Mountain rock sample collections (about 4500 samples total) with North Cascade and Olympic National Park respectively. All samples documented and locations digitized.
- (12) I don't know.
- (13) Publish or archive material where appropriate.
- (14) I continually announce via e-mail and advising our System Administrator locations and capabilities of newly developed programs and databases. Requests for developing new applications now supersede Open-Filing program documentation and archiving hard copies for old projects.
- (15) Through USGS Alaska Section Tech. Data collections, National Park Service archives, Alaska Geol. Survey, Denver Museum, and University of Alaska. Archive will depend on source of project funding.
- (16) USGS documents archive and Smithsonian sample archive.
- (17) Normal method.
- (18) Alaska Tech data Center.
- (19) Pass my material on to the scientists that I'm mentoring.
- (20) Products will be published as web-only Data Series or Scientific Investigations Maps and supporting data will be archived in the SFO warehouse archives.
- (21) Done.
- (22) Through CMG Data Management Group and publication.
- (23) Field maps and books will go to the Field Map and Photograph Libraries in Denver. Isotopically analyzed rock and mineral powders will go to still active colleagues for possible additional investigations.

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- (24) Field notes, field maps, geochemical data, thin sections, and fossil reports will be sent to the Alaska Science Center, Gould Hall, USGS, Anchorage, AK. I will send these data to USGS. AK, but it is not clear to me how and where or even if they will be archived.
- (25) Via publication.
- (26) Alaska Geology Section Technical Data Unit, Anchorage; Field Records Center, Denver. A fairly large amount of time will be needed, not presently allotted within my emeritus schedule, for selection and formal annotation of photos destined for the Field Records Center.
- (27) Mostly already done – submit photos to USGS library
- (28) Environmental samples collected in recent years will be discarded, as they have little long-term value. I have quite a bit of other legacy material that I haven't made plans for.
- (29) I have been publishing my scientific materials on books and journals, often with supplementary CD-ROMs. In addition, I have established a large-scale online data project called "SeismoArchives" at the IRIS Data Management Center:  
<http://www.iris.edu/data/SeismoArchives/>
- (30) At UCSD, SIO, Scientific Collections.
- (31) Mainly photographs that can be archived at the USGS library if its future is secure.
- (32) There is little of interest to official archives. I will try to place my Antarctica images with the Antarctic Resource Center (ARC) (the former SCAR Library) in Reston. Some of the material will go into the Planetary Data Facility in Flagstaff. Most of it will be thrown out or taken home. What to do with 40 year's worth of research materials is a problem.
- (33) Haven't a clue. Way down on my priority list.
- (34) Marine seismic data and related navigation will be archived with the Marine Data Group, Coastal and Marine Geology Team, Western Region.
- (35) Archived with the CMG Menlo Park Data Library. Not impressed with USGS guidance and support on what should be archived or tossed.
- (36) Publication and turn-over of materials to the Leads of the continuing projects.
- (37) By what ever procedure is in place when I am ready to archive them.
- (38) Chiefly through publication.
- (39) The few valuable items will be donated to an institution that wants them (if I can find one), some I will retain, and most will be tossed out.

### CR

- (1) Boxed in laboratory/offices of associates.
- (2) No clue.
- (3) USGS archives, and repositories in US National Museum, Forschungsinstitut Senckenberg, University of Iowa, Indiana Geological Survey.
- (4) Good question! In the past I have put some material in the Field Records archives, when they had an employee to accept and organize such material; I have some more material organized for eventual disposition, but am afraid to place it in the archives for fear it would be lost or destroyed. As long as no one is assigned to accept, organize, and provide access to field records, the archives are not a safe repository and they are not useful for research. Since most of the materials in the archive are from the Geologic Division, I believe GD should take responsibility for their care and use. These records do not belong in an organization that will not value and preserve them. If GD took such responsibility, the archives would be a great place for volunteers (including Emeriti) to work. The RMAG maintains a similar archive with volunteers, mostly retired petroleum geologists; their experience might be worth a look.

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- (5) I've run into considerable difficulty on this now that Photo Archives in the USGS Library are no longer operative. This past January, I carefully annotated (with captions) 350 color slides and 100 black-and-white photos for Photo Archives, but then found that there was no one to give them to.
- (6) Most are already in Field Records and Photo collections in Denver Library. However, with current threats to relocate these collections I am very reluctant to contribute the remaining records!
- (7) Haven't even considered that.
- (8) I'm not sure that USGS facilities are available locally for archiving and preserving scientific materials.
- (9) Library archives.
- (10) N/a
- (11) I have a valuable collection of oil shale data that will be saved, preferably as a separate collection, for the Energy Team.
- (12) Hopefully, the library will take field notes, etc. Field samples ???
- (13) At USGS.
- (14) I don't know. I have very little confidence in the field records file now that nobody tends it any more. One important reason to have such a file is to access data that were obtained during a project and not published. This becomes very important when we do not have the funds and manpower to map in detail in terranes where one cannot map without walking over the rocks, which takes time and money. I went over there with Jack Dyni to obtain some field sheets of mines from the Uinta Mountains where some samples were dated so that Jack could recollect the sites for dating by more accurate modern methods. We had the person in charge of the library let us in and look for my material. She could not locate it. I don't know whether I could have or not. According to her the 'system' used by the former head of Field Records was not to be deciphered. I want to look up some other material in that library now to possibly help in the production of a map, part of which was mapped and not published. Briefly, what is the sense of having an archive if it is not accessible? Now I would say that anything I think that I EVER might want to refer to in the future I had better archive in my office.
- (15) Although I would not classify it as a scientific accomplishment, in the past 3 to 5 years while a Scientist Emeritus, my work for many years as the commodity geologist for lightweight aggregates provided the initial samples of vermiculite and tremolite from the deposit at Libby, Montana, when the USGS was asked by the EPA to look into the mineralogical relations at the vermiculite deposit, that caused the high number of fatalities in the region. In addition I was able to provide samples from some 50 other deposits of vermiculite throughout the contiguous USA for comparative data with Libby.
- (16) I donated some of my collections to the Smithsonian and these were accepted. The remainder could go to USGS archives if possible, or to Nevada.
- (17) U.S.G.S. Field Records Library (if it survives), plus turning unpublished geologic quadrangles over to New Mexico Bureau of Geology as permitted by a Memorandum of Cooperation currently being devised, if permitted.
- (18) Primarily through publications.
- (19) USGS Field Records Unit. Need staffing of Field Records Unit and retaining of records and not sending them to National Archives.

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- (20) Requests for sample splits or processed samples have dwindled to virtually nil. I should discard them. Some with most paper on photo products.
- (21) I would deliver the materials to Archives (if that facility is operational).
- (22) Publishing digital databases.
- (23) USGS and National Archives.
- (24) Not sure.
- (25) USGS Archives.
- (26) Records to USGS Field Records archive, if such exists in near future. Antarctic in the Polar Rock Repository of NSF at Byrd Polar Research Institute at OSU, OH.
- (27) Several years ago we started an archival computer project for the very massive collection on uranium stuff [files, maps, well logs, uranium mine compilations, material in the field records, etc.] I collected over the past 50 years. This has been superceded by a new Uranium Data System project, J.K. Otton Chief. I will be an advisor to this new project.
- (28) Not sure. I would hope that there will be a field records office where photos, maps, field notes, etc. might be properly documented and filed. Apparently, such a facility is currently not staffed, is understaffed, or poorly managed.
- (29) Deposit with Field Records, Denver.
- (30) Deposit at Survey archives in USGS Library, Denver Federal Center.
- (31) Not applicable.
- (32) Very carefully.
- (33) Publish as much as possible – maps!
- (34) Vast materials, to 1961, but no plans yet.
- (35) No plans at present.
- (36) Through project chief.
- (37) Publication.

### **ER**

- (1) Yes—if time becomes available.
- (2) I have spent a lot on effort on this. My extensive collection of located specimens has been documented and transferred to the Smithsonian. We are gradually dispersing our collections, the best specimens going to Smithsonian (50 + boxes so far, many more to go, coordinated with their criteria for selection), and we are continuing to disperse other irreplaceable materials to 12 different universities in the U.S. and abroad (70 boxes so far). Lack of space has forced me to throw away essentially all of 50 year's correspondence. My books and reprints will be offered to my son (professor of geology).
- (3) In the excellent archive system in Woods Hole.
- (4) By assignment of specimens to US National Museum, and field notebooks to Denver archives library.
- (5) They have been archived in the Woods Hole Data Library - mostly seismic data.
- (6) No plans at present.
- (7) I have limited sets of reprints of my papers. If the USGS Library is interested to archive these sets, I would be glad to contribute them.
- (8) I have spent a great deal of effort and time documenting the collection and sending selected samples to the Smithsonian and 12 universities, as well as distributing samples to other USGS employees and universities. We are preparing a data base for those samples that were not discarded. The database includes xyz coordinates, a brief description, literature citations,

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links to analytical data bases and photographs. These will be distributed to all institutions receiving samples. Our notebooks, maps, cross sections etc, will be archived in Denver.

(9) My collections have been turned over to the Department of Paleobiology at the Smithsonian.

(10) Continue to store in USGS office.

(11) No plans yet.

(12) Send field notebooks, air photos, draft copies of maps to the Field Records Center, Denver.

Transmit collection of rare igneous rocks, upper-mantle and lower-crustal xenoliths to the Rocks and Ores Collection, Smithsonian Museum of Natural History. Compilation of databases of geochemical data (in Excel spreadsheet format) for publication in CD or DVD format.

(13) Pass on to scientists continuing my direction of research.

(14) Field Records Office: appropriate samples will be made available to the U.S. National Museum.

(15) Uncertain.

(16) Already done.

### **HQ**

(1) My journals are being given to foreign libraries. Any scientific results I achieve will be published.

(2) Most of these belong to the Smithsonian, which I will return. Written material I will get instruction.

## **20. How satisfied are you with your Scientist Emeritus experience?**

### **WR**

(1) Very satisfied, except for funding problems.

(2) Our space charges are very high, and so, for the last three years, I have been relegated to an obscure corner of our campus, effectively cut off from efficient interaction with colleagues (I will be moving back to the main building shortly, but will have to share a small office with another emeritus, which means finding a home for 40-years worth of research materials).

There is no funding to attend meetings, thus I stay only marginally engaged in the fast moving current developments in planetary research. However, I am grateful to have been funded so far to attend a conference in Houston, which takes place once a year. Another problem is (not having grown up with computers), I am not experienced in all the relevant computer techniques, and, lacking money to pay for help, I spend a good part of my time learning computer programs (there is no more secretarial, photo, drafting, or any other support). My equipment is old: it is recycled after being discarded by others. In addition, some more elaborate technical support is unavailable to me because I cannot pay for it.

Minor expenses I cover privately. On the positive side, I am asked to peer-review many articles and proposals, which takes time but keeps me positively engaged. The upshot is: it is difficult to keep up a successful research program and my publication record has suffered. The culprits: not working a full schedule, being out of the loop, spending much time doing reviews, and spending too much time fiddling with computers and processing data.

However, one should not neglect to mention that, as an "older" person, my energy level has decreased, and I am happy not to be fully engaged. In spite of the problems outlined above, I am grateful for the emeritus program, and I hope the USGS will be able to sustain it in the future. There is a place for emeriti even if they are not as productive in research as they have

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been in years past. They serve to provide continuity, mentoring, advice, and perhaps wisdom and common sense.

- (3) Unimpressed with USGS efforts to "use", "guide", "manage" the skills that Emeritus Scientists harbor. At the end of a science career at USGS is it easy to continue as a full time self-driven scientist, or to exit completely, but hard be a half or quarter-time scientist.

### CR

- (1) At first the program was quite satisfying, especially the first two years when I benefited from the Pecora grants and was able to complete maps and reports begun before retirement. Now the program is unsatisfactory.
- (2) Very satisfied the first few years. Somewhat dissatisfied now because have been spinning wheels the last couple of years.
- (3) I enjoyed the collegiality and sincere geologic interest among most fellow geologists. Some things worked out satisfactorily, but others did not. There was much frustration and disappointment, mainly involving funding for field work, map digitizing, and publication of maps and papers.
- (4) Wish non-Survey volunteer duties left more time for Survey work.
- (5) Not much program support—the important support comes from colleagues.

### ER

- (1) The support from the MR administration has been excellent, but the incessant crowding is very unsatisfactory (especially when so many of the refurbished labs are scarcely occupied).
- (2) Wonderful to be able to do my science on my own schedule!!!!
- (3) Very satisfied, but frustrated at inability to do some things and impediments to progress.
- (4) I'm very satisfied. As mentioned above, if possible some help with publications and minor field work would be much appreciated, if any funds are available in tough times.

## 21. Are you satisfied with your interactions with Project members, Project Chiefs, Team Chief Scientists?

### WR

- (1) Difficult project chief (PC) and non-responsive TCS.
- (2) Although I am co-located with key some project members, Project Chief, TCS, and various support people are at far-flung sites; this dispersal combined with my intermittent and variable office hours results in spotty communication.
- (3) Remote office locations impedes close contact.
- (4) Very satisfied - including Menlo Park Scientist-in-charge.

### CR

- (1) Very satisfied with Associate Chief Scientist.
- (2) Extremely satisfied and grateful for support.
- (3) Very satisfied except that several team members involved in the RIF are still hostile.
- (4) No interaction because none is sought.
- (5) Somewhat dissatisfied because advice was not taken by managers relative to dating in support of geologic map.
- (6) Rather isolated lately except "social" connections.
- (7) Uneven relations with project chiefs and chief scientists, some marginally good and some bad. Mainly related to disinterest or uncertain interest, and lack of funding for emeritus "legacy" work.

### ER

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(1) I don't interact.

### **22. Are you satisfied with how the supervisors/managers at the USGS recognize and acknowledge your contributions to Bureau Programs?**

#### **WR**

- (1) No interaction with anyone above Chief Scientist level.
- (2) A lot of time has gone by since I received an encouraging word.
- (3) I am not interested in recognition, just contribution.
- (4) There never has been acknowledgment for any volunteer work I have done—but I don't expect or need a pat on the back. However, as a minimum, I would like to see the contributions made by emeriti included in monthly team reports and similar summaries of general USGS contributions, just like those of anyone else in the organization. It would also contribute to USGS productivity.
- (5) I am very satisfied with my project chief's support of my work, both financially and in spirit. I don't know how managers higher up the line view it.
- (6) The PC and TCS mention the contribution about once a year, usually in connection with something else.
- (7) Very satisfied at the local level.
- (8) Very satisfied at the Team level. I have an exceptionally supportive Project Chief, Team Chief Scientist and Scientist-in-Charge, all of whom treat Emeriti as valued contributors to the Team and the USGS mission.
- (9) My expertise is not high on USGS agenda.
- (10) Neutral, it's not something I worry about.
- (11) Very dissatisfied because it is all anecdotal, nothing formal, and that is fine with me.

#### **CR**

- (1) Contributions never acknowledged before, why would they be now?
- (2) Very satisfied when I had real contributions. Was quite surprised when current Director spotted me in a crowd and came over and thanked me for some work I did ~8 years ago!
- (3) Received Team level recognition and acknowledgement throughout 1995-2005. From 1995 to 2001 or 2002?, I received neither recognition nor acknowledgement from the upper management.
- (4) Many think that the emeritus program is good for the USGS if it doesn't cost anything. I sense that there is a real lack of commitment to allocate enough funding to support the emeriti, individually or collectively. There are exceptions, to be sure, like where there are ongoing projects or programs. If the scientist emeriti are valued for the wealth of geologic knowledge they possess, then they should be supported adequately for the work they produce. Also, the USGS doesn't have to pay them a salary!
- (5) Sometimes I feel like a second class citizen, excluded from meetings, discussions, planning, etc. because I am not a research scientist. Case in point: this questionnaire does not ask the pertinent questions for my volunteer position(s), database administrator, data manager, IT specialist.
- (6) At least I've been able to get my existence here approved each year so far!
- (7) No recognition (same as when I was an employee).

#### **ER**

- (1) As far as I am aware, the contributions of emeriti are not officially recognized.
- (2) I doubt that most of them know we exist.

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- (3) Satisfied at the moment; somewhat apprehensive about the future.
- (4) I don't really contribute to Bureau programs.
- (5) Lack of funding.

### **23. What is your opinion about creating a USGS web site that lists Scientist Emeriti and provides information about their backgrounds, current work, and bibliographies?**

#### **WR**

- (1) The USGS could make a good public relation show by publicizing how many and how much retired employees come back and work for nothing. The public should know that there is a government agency that spawns enthusiastic civil servants. But focusing a website too much on individual accomplishments, might inspire competitive emeriti somewhat, but might not be as useful to the general public.
- (2) Might lead to spending too much time answering questions.
- (3) I would guess that most scientist emeriti are very satisfied with their engagement in USGS scientific research and in helping USGS employee/colleagues enhance their programs. A PR website for emeriti would not be particularly useful and is not really needed.
- (4) I think there are some benefits to the Survey, but not to the individual. Maintaining personal privacy has become increasingly difficult.
- (5) In Flagstaff we already have a website for this purpose.
- (6) Emeriti should be useful to ongoing USGS programs and scientists, as well as external colleagues. Not sure that such a website would be of much value in this effort.
- (7) Good idea, however, I would have trouble reconstructing my bibliography - I destroyed my PTR when I retired.
- (8) It seems like a lot of work and what will be accomplished? If there are specific needs not being met, design a program and a specific group of emeriti to achieve those specific goals. It seems to me where the emeritus works well, the individuals are almost seamlessly a part of the program.

#### **CR**

- (1) I suspect that many Emeriti would be contacted frequently by people wanting professional assistance or wanting information about the ongoing projects of the Emeriti. The requests could interfere with the professional and personal activities of the Emeriti.
- (2) Takes up Emeriti time because guess who has to prepare all of this junk to the administrators?
- (3) Good idea, but add geographic experience to information shown on a web site.
- (4) Should be voluntary; not a requisite for inclusion in the program.
- (5) Especially have where they have worked, whether in the field or not, have notes, produced reports etc. The present Central Region "geologist" needs this info to respond to requests for info on review from states, planning bodies, etc. where no one is presently doing geologic (or hydrologic) work. List name, team now, location now, past state, activity, main geologic type, dates, reports available, other notes and maps not published. Such crude records might be as/more useful also for not-yet-retired people. Seems to me some info on "other skills" was once gathered (ham radio, EMT/first aid, piloting, language...)
- (6) Significant information already reported in Geologic Division Retirees newsletter.

#### **ER**

- (1) BUT...it might create the illusion of very cheap available labor that may not be in the interest of the emeriti with some interesting consequences that are worth discussing.

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- (2) So long as it does not become time consuming.
- (3) Good idea if it does not drive the shy away, or create an institutional burden on those who wish to contribute, yet have retired from such burdens.
- (4) Emeriti should be useful to the active scientists in the USGS. They should also help scientists who are aware of their work outside the agency. This is best done on a personal basis. Creating a PR site will not help that. I get enough calls from crackpots as it is.
- (5) This is a great idea.

### 24. What are your suggestions for improving the Scientist Emeritus Program?

#### WR

- (1) It would be helpful if there were a "pool" person to whom we could go for help with data processing and figure preparation. Perhaps one "pool" person per 4-8 emeriti??? In present situation, I am not supposed to seek help from regular support staff who are busy assisting the full-time scientific staff. Things get done, but the pace of progress is much slower than otherwise would be the case.
- (2) While a USGS manager a decade ago, I considered it highly important, in absence of any mandatory retirement requirement, to provide attractive Emeritus Program incentives, so that senior scientists could be confident about remaining active (if desired) after retirement, yet free up resources to bring on new research staff. Such issues are even more critical at present.
- (3) Provide help with scanning and digitizing unique information of long-term value to the organization, as determined by an emeritus committee. Provide funding and help for Emeritus open-file reports deemed by team leaders to be important in furthering the goals of the USGS. Funds to come from the Division pot to relieve team leaders of conflicts with funds for their programs. Provide funds to maintain equipment used by Emeriti, or provide funds and procedures to let us use commercial equipment. The loss of the Xerox machine in bldg. 15 has been a big problem to me. This is the only machine at the USGS that will copy a 7.5' map entirely. I refuse to use my own money and time to go to Kinko's.
- (4) None, from my viewpoint. And do not impose any additional paperwork or equivalent. One of the joys of being an emeritus is not having to deal with that kind of thing. Also, being able to say NO to unwelcome requests.
- (5) Let it be.
- (6) Provide incentives for good, active people to stay and contribute more – these folks are a “bargain” for the USGS. Keep the program at the Team level, where managers truly know the people and the value of the work being done. If upper management wants to know more about an emeritus’s work, then ask the Team chiefs (or read the annual evaluations). Minimize (and ideally eliminate) micromanagement by upper management and committees – this is ineffective and irritating to the volunteer scientists. Ask team chiefs to be more proactive in talking with inactive people, to establish the best specific plan for each person (not the best general plan for the emeritus program) – closer interactions of team chiefs and emeritus scientist will lead to a more mutually compatible plan that is flexible to the needs of both parties.
- (7) Recognize contributions; provide technical assistance as needed to help complete USGS projects of importance; include contributions by Emeriti with those of employees in USGS lists of accomplishments; provide realistic guidelines regarding preservation of rock samples, thin sections, photos, maps, data bases, etc.; make part-time assistance available for routine

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sorting, packing, and shipment of material to be archived; provide technical and financial assistance for computer and software upgrades; and provide a fixed small annual stipend to Emeriti for discretionary expenditures in order to reduce the number of requests for incidentals that the team leaders or other funding sources have to deal with.

- (8) None come to mind.
- (9) More funding and recognition of achievement.
- (10) I am quite happy with the emeritus program. I have been able to complete the work that was not finished when I retired, and have been able to continue research studies on old subjects and to start research on new subjects. Some money for a new computer, field studies, attending scientific meetings, purchase of scientific books, FedEx, and other items would be helpful (most of these items I pay for currently).
- (11) It may no longer be applicable, but work of emeriti or other volunteers should only supplement and not replace that of active or, especially, RIF'd employees.
- (12) Some sort of low-level guaranteed funding would be helpful.
- (13) Continue at present level.
- (14) Build in emeriti funding at the project level or TCS level and stick with it; have each region nurture their emeriti some as a group; give all responsibility for emeriti to the Regional Geologists and their assistants; and revise the present emeritus policy to remove non-functioning parts. The better funded programs do a better job of supporting their emeriti and that causes some "envy." Whenever possible, an emeritus should have as much space as is appropriate to his/her emeritus activities and is also appropriate to his/her past activities (and his/her accumulation of research materials). This depends on and varies with the local space situation.
- (15) Since the amount of volunteer time that I have to devote to the emeritus is necessarily limited and intermittent, I have had difficulty finding the time to complete all of the required on-line training (computer security, purchasing, interpersonal social issues, etc.) recently required of all employees. Given the limited nature of emeriti involvement, I suggest that only the computer security be required.
- (16) Simply continue support as currently done.
- (17) The program seems to be functioning well as currently structured. Improvements can no doubt be made, but such improvements should not add any additional bureaucratic impediments.
- (18) Upon reading the Scientist Emeritus Policy Statement I discovered a number of provisions, procedures, and requirements of the program that I was not aware of, and since I probably would not have found the Policy Statement without the link you provided, I suspect I may not be the only one. It would be helpful to have information pertinent to Emeriti (e.g., program requirements, mileposts in annual cycle for seeking support, etc.) available on an easily accessible Intranet site.
- (19) Provide a spend-or-lose annual line-item stipend of \$2000, not contingent on project funding.
- (20) At this point maintaining office space is a major problem even though Team pays space charges. Office space is important for me as an SE because colleagues can reach me at a familiar address and research material is easily accessible. I think there are three things that are important to most emeriti: 1) Adequate office space along with reasonable assurance that the person's original office can be retained. 2) Funds for operating expenses and travel are necessary, although the amount need not be large. For example, radiocarbon dates and other

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analyzes could be important for completion of legacy work as well as new research. Field work requires some money, but again the amount is not large. 3) Money for publication expenses is needed in many cases, particularly for in-house publications and for journals that require page charges. One way to fund emeriti is to attach them to ongoing projects and then provide money for that particular person. My guess is that many project chiefs would welcome emeriti if some funds were provided for operating expenses. But, keep it simple. Many people are retiring simply to escape the bureaucratic overhead.

- (21) Provide adequate office space and support.
- (22) The concept of a "Program" Emeritus should be discarded. *De facto*, Emeriti are attached to Teams, in the same way that employed scientists are attached to Teams. Sure, both employees and emeriti ultimately get financial support from Programs. But the Emeriti are supported and managed by Teams, in the same way that employed scientists are supported and managed by Teams (even though the Teams ultimately get their funding from Programs). Emeriti funding should come from Team accounts, not from individual projects. This places the responsibility for Emeriti at the appropriate managerial level where there is some flexibility, and avoids the conflict-of-interest of an Emeritus being solely dependent on a specific project and project chief. The concept of a "Program" Emeritus appears to be a hold-over from the old Office structure and does not reflect the current Regional management structure. Emeriti *de facto* are attached to Teams, in the same way that employed scientists are attached to Teams. Sure, both employees and emeriti ultimately get financial support from Programs. But the emeriti are supported and managed by Teams, in the same way that employed scientists are supported and managed by Teams (even though the Teams ultimately get their funding from Programs). Emeriti funding should come from Team accounts, not from individual project accounts. This places the ultimate responsibility for Emeriti at the appropriate managerial level, where there is some financial flexibility, and avoids the conflict-of-interest and potential problems of an Emeritus being solely dependent on the priorities of a specific project chief. Furthermore, the Team Chief Scientist then can better guide the emeriti activities for the good of the entire Team and the Programs that support it.
- (23) Don't fool with it too much – it's successful as it stands. Keep emeritus volunteers free, to the extent possible, from "mandatory" training (e.g., 2005's poorly conceived and mostly irrelevant Safety training), administrative reporting, etc., keeping in mind that these people are volunteering their time, without compensation, for science.
- (24) A system that allows, and encourages Emeritus scientists to spend time in the office and laboratory, communicating with active workers and contribute where as they can is great for those with obvious links to ongoing programs. Many scientists may be emeriti because their program area is no longer active as the Survey moves in new directions. An informal listing of colleagues, projects or committees, or...? that staff or Programs/Projects feel would benefit from emeritus participation might be useful. Adding bureaucratic hurdles can only make it more unwieldy, unexciting and less valuable. Remember we aren't getting paid and mostly don't want/need full time work.
- (25) Ask the local managers what they want from the Emeritus program; perhaps those needs are not being met. The individuals in the EP represent a potentially valuable resource and many would not mind being asked to perform appropriate kinds of activities.

### CR

- (1) None in my case.

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- (2) Better cross-discipline networking/communication.
- (3) Need better financial and personnel support for activities that are at the cutting edge of geologic science. Shouldn't have to go begging for financial support of unpaid research that is providing more publicity and outreach for the survey than many funded projects by active employees.
- (4) Work on current projects: Overall, the program seems to run well for those who are interested in working on current projects. I don't recommend any changes. Legacy work: The need to fund legacy work may diminish over time, but some money should be set aside for publication of maps and reports that might otherwise be lost; I suggest that legacy publication funding be considered upon submittal of a proposal accompanied by an estimate of publication costs from the regional publication group. That means a manuscript must already exist. Criteria for acceptance (benefit to organization, etc) should be established and applied in judging which products receive support. I do not suggest committing funds for field and laboratory work required to bring legacy products to completion. Other volunteer opportunities: These should be identified (see question 19 response for a possibility; another possibility might involve helping with USGS workshops, courses, etc—this probably has already been done by some volunteers).
- (5) If it ain't broke, don't fix it!
- (6) Establish minimal standards for the amount of scientific or administrative contributions by the Emeriti. Failure to meet those standards during two successive years would result in the loss of Survey office space and other support. Acknowledge the contributions of the Emeriti, at least annually, to justify to salaried employees the expense of the Emeriti program, to provide additional status for the Emeriti, and to encourage productivity among the Emeriti.
- (7) Offhand, I cannot think of any improvements that need to be made.
- (8) Cut the office space for those Emeriti who don't use it. Provide space near to laboratories for Emeriti that need and use lab equipment including XRD, microscopes, etc. Although I realize these suggestions are mostly pie in the sky, I recommend assigning a PST to every 2 or 3 Emeriti for routine work including computer drafting, sample prep, errands, mailing, and all of the stuff such people used to do that was so valuable to getting the work done.
- (9) Newsletter.
- (10) It becomes extremely awkward to get locally available material, e.g. topo sheets, because we no longer have access to a credit card. Are we no longer trustworthy? Yet we work for nothing!
- (11) I am happy with my experiences as a scientist emeritus interacting with neat colleagues and working on subjects of interest to me.
- (12) I have no complaints about the allocation of my work space, but I know of others who are crowded into cubicles with insufficient space to work effectively. I know that it affects the amount of time that they give to volunteering. It might well be useful to provide each Team and Project chief with a directory of the available retirees, both those now Emeriti (and those who might become Emeriti) who have a function, or a skill, or a background that an active or projected activity could use productively. The USGS has an unparalleled wealth of information in the minds of its retirees, that could be obtained for a small amount of salary and/or OE (maybe the reverse emphasis—OE and/or salary).
- (13) Drop the requirement that emeriti align their work with existing team projects. At least, allow alignment with any USGS project. Publish the results of emeriti research.

## Appendix 7.

- (14) Pretty much preserve the status quo; don't try to make it a more highly structured program, which would tend to turn me off.
- (15) Newsletter.
- (16) Provide more funds.
- (17) Ok the way it is.
- (18) Somewhat contrary to what is said above, recognition within the Survey is welcome. "Retired geologists, continuing their work" (before formal emeritus status), used to be recognized for outstanding contributions at annual award ceremonies. The recognition would be welcome and would serve to introduce the Emeriti to the rest of the staff. I'm sure some of our young interns and employees wonder who are these old geezers?
- (19) The Program needs to put equal emphasis and funding on legacy and data capture efforts as it does on current program and research needs. For many retirees that is the hook that will keep them involved with the organization. Within the next 5-10 years a very large portion of what has been GD expertise will reside in the retired population with no new hires coming up to replace them. Without the Emeriti, the USGS could be in deep serious trouble.
- (20) None.
- (21) Need continued computer graphics support for preparation of illustrations for manuscripts.
- (22) A system of formal personal recognition award for outstanding emeriti contributions and possibly a routine personnel statement of appreciation for lesser emeriti contributions from the Director is needed for acknowledgment and recognition of emeritus contributions to the USGS program. Preparation of a report of the equivalent monetary value of the emeritus program for each individual emeriti and a total for the whole program is recommended. Preparation of an annual summary report of the significant emeritus scientific contributions is recommended.
- (23) Certain clear commitment of funding to support the emeriti work.
- (24) None.
- (25) This program needs to incorporate the retired support staff also. Issue Ecopass (bus pass) to emeritus status.
- (26) Eco passes - It costs a lot of money to commute from Boulder, and I do not have adequate office space at home in Boulder.
- (27) Ask emeriti for more input into project designs, personnel, and manuscript/map reviews.
- (28) Find more funds at high levels—the lack of funds is basically an insult to a former GS15.

### ER

- (1) There needs to be a point-source forum (person?) available for emeriti to express their needs (funds, equipment, space, labs, etc.) and not have to go begging to Program Coordinators or Project Chiefs or Chief Scientists who may have "more important" concerns about these issues.
- (2) I am not a Research Scientist, hence the Scientist Emeritus Program is not conceived for my particular project or sort of contributions, yet it should be. The Program should be more broadly conceived, recognizing the true nature of the scientific process, a not be limited to research scientists, but should instead include others who have, are, or can contribute to the scientific process in a useful way, and are willing to do so. In my view, as I understand it, the seemingly relaxed and unburdensome way that it is presently administered **is a wonderful thing in an over weary bureaucracy**. Please do not "improve it" by adding institutional obligation or bureaucratic burdens to retirees willing to serve. This will drive away and overtax those who can continue to contribute to the public good, yet wish to

## Appendix 7.

become unencumbered from these burdens of their late careers. And please, don't fix it up in some way that is intended for it to become emblematic of a "professional" USGS; emeriti should rise above institution, and be "nurtured and preserved" by the institution as a societal resource.

- (3) I would appreciate a dependable small source of funds (<2K/yr) for getting things finished.
- (4) The system as it is, allowing senior scientists to spend time in the laboratory, communicate with active workers and contribute as they can, is perfectly fine. Adding bureaucratic hurdles can only make it more unwieldy and less valuable. If any evaluation of emeriti is needed it should be done within the project and team, where their usefulness is known. Remember we aren't getting paid. It isn't broken; don't fix it.
- (5) None. I'm very, very happy as is.
- (6) Because of seasoned experiences, scientist emeriti are better at assembling multi-disciplinary factors. To take advantages of this fact, an independent super-regional and multi-disciplinary administration and funding structure should be encouraged.
- (7) Uniform guidelines relating resource (space, finances, help) allocation to production (too many emeriti seldom come in and use space needed by those emeriti who actually try to accomplish something); greater use of emeritus experience in program planning, staffing, evaluation, etc.
- (8) For the most part the emeritus program is not broken and does not need fixing. If possible, some minor funding for publications and short field trips would be welcome.
- (9) More communication and appreciation required to use the inexpensive talent that could be available.
- (10) Needs a better system for some funding of lab and research expenses.
- (11) I think it is an excellent program. My only suggestion is to fix the publication process.

### HQ

- (1) I think the program is in good shape. I think the collective body of Scientists Emeriti represents a reservoir of knowledge and experience that could be used more effectively by USGS management. The USGS loves to form committees and initiate studies which take up a lot of staff time and travel. I think many Scientists Emeriti would be willing and valuable contributors to these efforts.

### Additional Comments

#### WR

- (1) I am concerned that support for the emeriti program will decrease in the face of financial pressure on the Survey. Hopefully, recognition of the value of emeriti will prevail. Personally, I have at least 3-4 more manuscripts of new research topics I hope to complete before any axe falls—unfinished legacy work after that, conditions permitting.
- (2) Please don't send out anymore general questionnaires. Please do the evaluation quickly with rigid deadlines for completion and dissemination of results. Thank you. Question: if the results of this questionnaire will be compiled without listing names, then why did you ask that we take the time to list our publications? I sense that the answers herein will be used for other purposes too – is that correct?
- (3) Thanks for asking!
- (4) I was a victim of the 1995 RIF. On the plus side, my retirement made it possible to apply for and receive a fellowship at a university absent the issue of a USGS employee receiving money from a foreign source. On the negative side, I feel that I have been largely forgotten in

## Appendix 7.

the greater USGS. I would like to be able to participate in committees or other forums where I could contribute my expertise and historical perspective.

- (5) Being "At Large", I have no specific commitment to a specific project. On the other hand, I have been available to critique geologic manuscripts from various projects and teams and to serve on such committees as the Awards Committee that reviewed proposals for Meritorious and Distinguished Service Awards.
- (6) My emeritus career is probably atypical as I have no year-round connection with a USGS office or center. No doubt, my investment of time and intellect contributed to the Volcano Hazards Program would be greater if I had a permanent home in a USGS center. However, I'm delighted with the opportunity and support to continue my work at Mount St. Helens and to maintain a continuing working relationship with colleagues at CVO. I'm also grateful for the good support that I have had in staying connected through Lotus Notes and VPN connection to CVO. It may be of interest to note that I have found a productive non-USGS-related outlet for my geologic experience. I have become deeply involved--as an impartial scientist--in analysis of and public education about critical ground-water issues in north-central Arizona. In addition, I do respond to occasional opportunities to give presentations on volcanology to colleges and universities. Overall, the emeritus program is a great fit for me.
- (7) There have been rumors about paying "room rent" at the project level. My only sources of funding would not be able to pay this, so that in this event, other funding would be needed.
- (8) Why are there no managers or employed scientists from the Western Region on the Scientist Emeritus Program Review Panel? Most of the Emeriti are in Western Region, yet the Panel is dominated by personnel from Eastern and Central Regions. The Scientist Emeritus Program has the best benefit/cost ratio of any program in the USGS.
- (9) At the time of my retirement, I envisioned contributing 10 - 25 hours/week to the USGS, free of the need to submit reports, write proposals, and the like, with the understanding that I would be gone, traveling, for 2 - 3 months/year (after all, that was a major reason for my retirement). I didn't envision, at the time, marriage or a (partial) move from the Menlo Park area to Corvallis, Oregon, both of which came to pass during 2004. The year following, 2005, was necessarily busy and a time of change for me. I very much want to maintain my association with the USGS, with colleagues and, if possible, with my team. I have "legacy" work yet to do. I'd like to be able to keep my email account, access to office and work space, etc.
- (10) It has been wonderful to have this program operating.

### **CR**

- (1) I am appalled by recent reorganization of the library and the catastrophic decrease in full time staff!
- (2) I really shouldn't complain, because I've been quite successful in getting my research published one way or another. However, I fear for the future.
- (3) Production (and satisfaction) goes up and down. The Survey has surprising tolerance for such variation.
- (4) I am an unusual Emeritus in that I am one of the very few who live and work far off campus: I am 2000 miles from my former position in Denver. In many cases, email communications serve very well—but only when both ends work at the communication. The majority of my former associates stopped communicating, so I now choose to work only with those who communicate. Where or if there is good communication, it is as good as having an office

## Appendix 7.

down the hall. I can point to two specific issues that influence my work: 1). New security measures on USGS servers block my access to intranet and many web sites; I am able to maintain an email mail box at usgs.gov—but I must use my own internet provider and platform because Lotus Notes really is not effective from a remote post (and I prefer a simpler system). I really miss access to library and library-web tools that most Emeritus scientists have. 2). Travel to work face-to-face with colleagues is important a few times a year, as is fieldwork—and funds for travel have been very hard to identify. Most projects opt to spend sparse funds on other activities, so my support has shrunk about 30% per year and may get to the point of not covering basic travel. I can work for at least \$7,500 a month as a consultant (with expenses paid)—an attractive alternative to being desk-bound in New England.

### ER

- (1) It would seem wise for the committee to examine the history of science a bit, to develop an accurate understanding of how scientific knowledge is gained, accumulates, and evolves, including the technical and engineering aspects of the advancement scientific of understanding. In my view, this may lead to a useful and societally responsible broadening of the concept of emeritus in the USGS.
- (2) Overall the program is running well from my perspective. Most of the issues I face are faced by non-emeriti - and that's how it should be. As long as individuals are contributing they should be treated in the same way as active scientists.

## Appendix 8.

In Reply Refer To:  
Mail Stop 807

### MEMORANDUM

To: All U.S. Geological Survey Employees

From: Karen Siderelis  
Associate Director for Geospatial Information

Subject: Tips for Ensuring Proper Records Management During Change

The USGS Records Management Office receives numerous inquiries requesting guidance on records management practices, especially during planned reorganizations and from employees who are considering retirement from Federal Service.

To help employees, the USGS Records Management Office developed the following tips to properly manage records, in all media. USGS records are important because they document USGS science and contain information needed to protect the rights and interests of the Government, USGS collaborators, and individual citizens. Records also provide valuable evidence that support the USGS and the Department of the Interior during litigations.

- If you are involved in initiatives such as competitive sourcing, ensure that your office retains official record copies. An official record copy is the copy for which the office is assigned primary custody in order to document the office or program functions and operations as related to the initiative.
  - Definition: Competitive sourcing, a priority under the President's Management Agenda, is a process which subjects commercial activities performed by the Government to competition in an effort to ensure maximum value to the taxpayer.
- Before you retire or move to a new office, or when any of your duties are reassigned, you should:
  - Conduct an inventory of your records, if you have not already done so.
  - Determine whether any of your files are official record copies or convenience copies. A convenience or extra copy is a copy circulated to an office(s) or person(s) interested in but not acting on a matter.
- After a determination is made regarding the record copy you should:
  - Relate the records to the appropriate USGS records schedule to determine the disposition of the record.
  - Create a file plan, which is a guide or map to the records. Information on USGS records schedules and file plans is available at <http://internal.usgs.gov/gio/irm/files.html>.
  - Ensure that all of your records adhere to the current USGS policy that requires the official record to be maintained in a paper recordkeeping system, unless otherwise scheduled in

## Appendix 8.

an approved USGS records schedule. This means that the record copy of the document, i.e., word processing, spreadsheet, and e-mail, must be maintained as a paper copy, not as an electronic copy.

- If the records are no longer needed for everyday use and have at least a 1-year retention period, you should:
  - Transfer them to the nearest Federal Records Center (FRC). If the records have less than a 1-year retention period, maintain them in office space until the retention period is met. A listing of FRC's is available at <http://www.archives.gov/facilities/index.html> .
- If the records have exceeded the retention period (based on the appropriate USGS records schedule), and are not involved in any USGS litigations, you should:
  - Appropriately dispose or destroy the records. Remember to shred anything containing personal, privacy, or restricted data.
- If the functional responsibility of the records has changed within the USGS because of reorganization or another reason, you should:
  - Contact the appropriate office and discuss who and how best to manage those records.

If you have questions on any of these tips or have other records management questions, more information is available on the USGS Records Management website at <http://internal.usgs.gov/gio/irm/files.html> or contact your appropriate Records Liaison Officer at <http://internal.usgs.gov/gio/irm/fmassis2.html> .

**Appendix 9.**

**GD SCIENTIST EMERITUS TIME LOG**

**Second Quarter 2006**  
**QUARTERLY REPORTING**  
**PERIOD**

\_\_\_\_\_  
**VOUNTEER NAME**

\_\_\_\_\_  
**OFFICE**

\_\_\_\_\_  
**LOCATION**

<b>CALENDAR OF WEEKS 2005</b>	<b>NO. HOURS WORKED</b>	<b>VOLUNTEER'S INITIALS</b>
Week of January 2 - 6		
Week of January 9 – 13		
Week of January 16 – 20		
Week of January 23 – 27		
Week of Jan 30 – Feb 3		
Week of February 6 – 10		
Week of February 13 – 17		
Week of February 20 – 24		
Week of Feb 27 – March 3		
Week of March 6 – 10		
Week of March 13 – 17		
Week of March 20 – 24		
Week of March 27 – 31		

**Please provide your Team secretary with this completed and signed form each quarter. Please also keep a copy for your files. If you have any questions please don't hesitate to contact \_\_\_\_\_ at \_\_\_\_\_.**

\_\_\_\_\_  
**VOULNTEER'S SIGNATURE**

\_\_\_\_\_  
**TOTAL HOURS FOR QUARTER**

\_\_\_\_\_  
**SUPERVISOR'S SIGNATURE**

**Appendix 9.**

**GD SCIENTIST EMERITUS TIME LOG**

**Third Quarter 2006**  
**QUARTERLY REPORTING**  
**PERIOD**

\_\_\_\_\_  
**VOUNTEER NAME**

\_\_\_\_\_  
**OFFICE**

\_\_\_\_\_  
**LOCATION**

<b>CALENDAR OF WEEKS 2005</b>	<b>NO. HOURS WORKED</b>	<b>VOLUNTEER'S INITIALS</b>
Week of April 3 – 7		
Week of April 10 – 14		
Week of April 17 – 21		
Week of April 24 – 28		
Week of May 1 – 5		
Week of May 8 – 12		
Week of May 15 – 19		
Week of May 22 – 26		
Week of May 29 – June 2		
Week of June 5 – 9		
Week of June 12 – 16		
Week of June 19 – 23		
Week of June 26 – 30		

**Please provide your team secretary with this completed and signed form each quarter. Please also keep a copy for your files. If you have any questions please don't hesitate to contact \_\_\_\_\_ at \_\_\_\_\_.**

\_\_\_\_\_  
**VOULNTEER'S SIGNATURE**

\_\_\_\_\_  
**TOTAL HOURS FOR QUARTER**

\_\_\_\_\_  
**SUPERVISOR'S SIGNATURE**

**Appendix 9.**

**Fourth Quarter 2006**  
**QUARTERLY REPORTING**  
**PERIOD**

\_\_\_\_\_  
**VOUNTEER NAME**

\_\_\_\_\_  
**OFFICE**

\_\_\_\_\_  
**LOCATION**

**GD SCIENTIST EMERITUS TIME LOG**

CALENDAR OF WEEKS 2005	NO. HOURS WORKED	VOLUNTEER'S INITIALS
Week of July 3 – 7		
Week of July 10 – 14		
Week of July 17 – 20		
Week of July 24 – 28		
Week of July 31 - August 4		
Week of August 7 – 11		
Week of August 14 – 18		
Week of August 21 – 25		
Week of August 28 – Sep 1		
Week of September 4 – 8		
Week of September 11 – 15		
Week of September 18 – 22		
Week of September 25 – 29		

**Please provide your Team secretary with this completed and signed form each quarter. Please also keep a copy for your files. If you have any questions please don't hesitate to contact \_\_\_\_\_ at \_\_\_\_\_.**

\_\_\_\_\_  
**VOULNTEER'S SIGNATURE**

\_\_\_\_\_  
**TOTAL HOURS FOR QUARTER**

\_\_\_\_\_  
**SUPERVISOR'S SIGNATURE**

**Appendix 9.**

**First Quarter 2006**  
**QUARTERLY REPORTING**  
**PERIOD**

\_\_\_\_\_  
**VOUNTEER NAME**

\_\_\_\_\_  
**OFFICE**

\_\_\_\_\_  
**LOCATION**

**GD SCIENTIST EMERITUS TIME LOG**

CALENDAR OF WEEKS FY2006	NO. HOURS WORKED	VOLUNTEER'S INITIALS
Week of October 3 - 7		
Week of October 10 - 14		
Week of October 17 - 21		
Week of October 24 - 28		
Week of Oct 31 – Nov 4		
Week of November 7 - 11		
Week of November 14 - 18		
Week of November 21 - 25		
Week of November 28 – Dec 2		
Week of December 5 - 9		
Week of December 12 - 16		
Week of December 19 - 23		
Week of December 26 - 30		

**Please provide your Team secretary with this completed and signed form each quarter. Please also keep a copy for your files. If you have any questions please don't hesitate to contact \_\_\_\_\_ at \_\_\_\_\_.**

\_\_\_\_\_  
**VOULNTEER'S SIGNATURE**

\_\_\_\_\_  
**TOTAL HOURS FOR QUARTER**

\_\_\_\_\_  
**SUPERVISOR'S SIGNATURE**

## **Appendix 10.**

# **Proposed Policy Statement**

## **GD Scientist Emeritus Program**

### **Introduction**

The GD Scientist Emeritus volunteer program is an important element in the U.S. Geological Survey's service to the Nation. It allows individuals to contribute their time and wisdom to enhance U.S. Geological Survey (USGS) programs and to serve the public in various ways.

### **Program Goals**

The purpose of the Scientist Emeritus Program is to utilize the expertise, intellect, and creativity of individuals retired from the Geological Survey to enhance the programmatic activities of the Bureau. The program is open to all individuals who have demonstrated leadership and a high level of productivity during their employment at the USGS and who desire to continue working as a volunteer at the USGS. The program is part of the Volunteer for Science Program as defined in Chapter 500.23 of the Survey Manual.

Volunteers can contribute in a number of ways (which are not limited to the following) such as:

1. Continue scientific investigations and complete products
2. Start new areas of research that are of importance to the USGS and the Nation
3. Provide expertise in support of USGS projects and programs
4. Provide seasoned counsel to managers and individual scientists
5. Mentor current or new employees and students
6. Provide an institutional memory within the Federal Government
7. Contribute to professional societies
8. Serve on scientific advisory committees
9. Provide outreach to community groups about USGS activities and on topics related to scientific expertise

### **Categories of Scientists Emeriti**

The Scientist Emeritus program includes four categories of Scientist Emeritus: Scientist Emeritus -Team; Scientist Emeritus – at-Large; Scientist Emeritus - Bradley Scholar; and Scientist Emeritus - Honorary.

#### **Scientist Emeritus – Team**

Most Scientist Emeriti will be associated with teams and address priority issues established through the leadership of the supporting Program and Team. This category is designed for those individuals who wish to remain active project members in order to complete publications or conduct project-specific work.

## **Appendix 10.**

Scientist Emeriti will be assigned to specific projects and will work on agreed upon tasks in BASIS+ projects. Emeriti will be active members of the project team and will be encouraged to participate in meetings and project activities.

### **Scientist Emeritus – at-Large**

Scientist Emeriti who pursue activities primarily in such areas as outreach, staff support to management, library assistance, or to oversee a special project. Also, included here is completing work from the past (experimental, mapping, interpretive) that is no longer associated with a project and new work that does not fit into an existing project. These activities may be associated with a project, team, program, or region.

### **Scientist Emeritus – Bradley Scholar Program**

This category is competitive and requires a proposal to obtain funding and recognition. Emeriti in this category may investigate science research frontiers that have potential future importance to the Nation or may provide specialized scientific expertise and research that is of long-range importance to the USGS and the Nation. The agreement will be for durations up to three years, but progress and resource requirements will be reviewed annually. A call for proposals for the Bradley Scholar Program will be announced by the Associate Director for Geology's Office along with the procedure for submitting proposals and review.

### **Scientist Emeritus – Honorary**

This recognition is reserved for scientists who have had long, distinguished careers with the USGS and who are less active in science activities than previously. Emeriti in this will be assigned to an organizational unit based upon their geographic location and will require few resources other than email access. As the title is honorary, it will be conferred by the Regional Executive. Appointments to this class need not be reviewed.

## **Funding and Support**

Funding for supplies, laboratory analyses, field work, and staff support will be needed for emeriti, except for those recognized as Scientist Emeritus - Honorary. Only the Bradley Scholar Program has funding associated with the appointment. Support for Scientist Emeritus - Team will primarily come from team/project funds. If funds are needed for legacy work that is not associated with a project, the Scientist Emeritus can apply for the Scientist Emeritus – Bradley Scholar Program funds if the work fits the program guidelines. Scientist Emeritus – at-Large will be funded by the group, team, region, or program that is supportive of the appointment. Additional support (including computer, office space, and administrative) will be dealt with at the team or project level. Issues beyond the team/ project level will be dealt with at the Regional

## Appendix 10.

level. Limited funds may be available to attend scientific meetings, as long as the SE is an active participant at the meeting and funding is available.

Funding for emeriti should be synchronous with the operational funding cycle. Although funding the work of the SE is a priority, funding cannot supercede the needs of the projects defined in Basis+. It is likely that several sources of funding will be used to fulfill the needs of SE. If the Scientist Emeritus is pursuing project research and the project does not have enough funds to cover this activity or the work is not associated directly with an on-going project in Basis +, the emeriti scientist will be encouraged to seek funding through the Bradley Scholar fund with the approval of the appropriate manager.

### **Admission and Review of Emeritus Agreements**

Uniform procedures and standards will be used to administer the Scientist Emeritus Program. Regulations applying to the Volunteer for Science Program (Survey Manual, 500.23.10D, dated 11/5/87) and the Volunteer for Science Program Handbook, 500- 23-H (10/87) are used in the Scientist Emeritus Program. Volunteers are required to record hours worked on USGS work and the emeriti should report their hours on a quarterly basis using the time log forms [*hot link to another location on web site*] or they can be obtained from their team management office.

#### *Admission:*

The Regional Executive is the authorizing USGS official and will review and approve applications for SE appointments. A retiring or retired individual may apply to the Scientist Emeritus Program by submitting a USGS Scientist Emeritus Individual Volunteer Services Agreement, Form 9-2080 (3/06) [*hot link to another location on web site*] to the Regional Executive through the cost center manager. The Bradley Scholars can have agreements for 1, 2, or 3 years depending on the nature of the work; all other agreements are on a yearly basis. Funding and other resource needs will be evaluated on a yearly basis. The appropriate team chief scientist/project chief/program coordinator/headquarters manager/or regional manager will be consulted about the appointment depending on the nature of the work proposed.

#### *Annual Progress Review:*

The annual progress review will coincide with each cost center's/program's funding proposal cycle where applicable. Scientists Emeriti will submit an Annual Progress Review form (Form ????, 3/06) [*hot link to another location on the web site*] to the cost center manager or to the appropriate management office with whom the Emeritus agreement is made. The Annual Progress Review will include the accomplishments of the previous fiscal year.

The TCS or TCS designee will sit down with Scientist Emeritus and go over the “Checklist for Managers, New Scientist Emeritus” for new emeriti [*hot link to another location on the web site*] or the “Yearly Checklist for Managers” [*hot link to another location on the web site*] for continuing appointments. A key outcome to this discussion is to come to an understanding of what Scientist Emeriti need and what the cost center is able to provide.

## Appendix 10.

### Conduct and Ethics Issues

Scientists Emeriti are expected to follow ethics rules applicable to their status and position. Written agreement to abide by the Ethics Rules for Scientist Emeriti <http://internal.usgs.gov/ops/hro/ethics/index.html> is an expected "condition of acceptance" into the Emeritus Program and continued adherence to them is a "condition of continuation" in the Emeritus Program.

### National Consistency

The regions will play a larger role in the Scientist Emeritus program and, in order to keep track of the program members and ensure consistency across regions, these mechanisms will be used:

**Database** – a national database will be implemented through a web-based application process to track who is recognized as a emeritus scientist and the type of agreement they are on.

**Advocate** – a volunteer scientist emeritus will serve as an advocate for all SE in the discipline and to keep management informed about their needs.

**Website** – a website will be developed to recognize the contributions of the scientist emeriti to the USGS.

**Appendix 11.**

**Scientist Emeritus Program  
Annual Progress Review  
FY 20\_\_**

Scientist Emeritus Name: \_\_\_\_\_

USGS Telephone #: \_\_\_\_\_

Accomplishments during FY 20\_\_:

Contributions during FY 20\_\_:  
Publications:

Outreach:

Other:

## Appendix 12.

### Geologic Discipline Scientist Emeritus Agreement Form Information

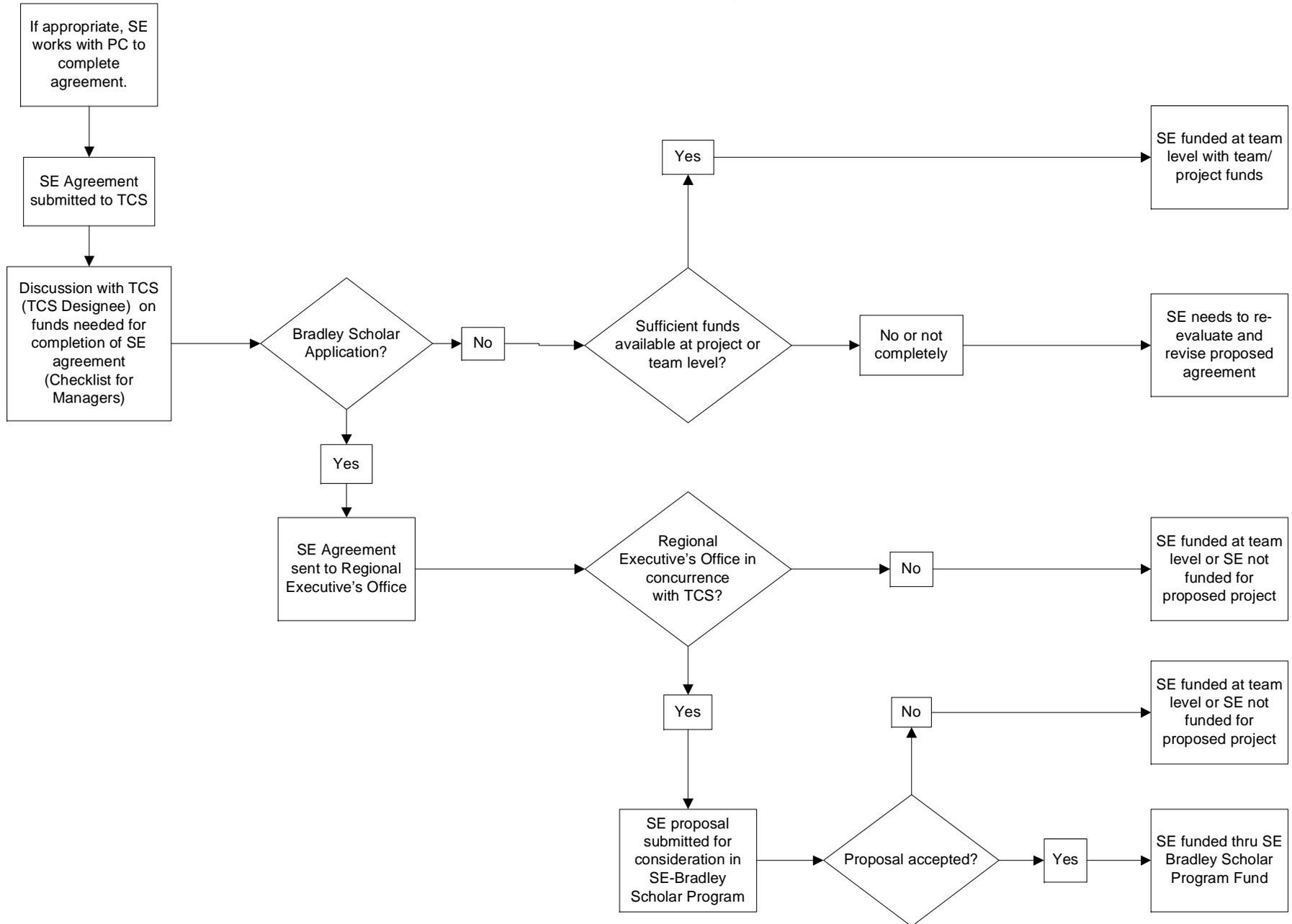
1. Name of Volunteer
  - a. Home address
  - b. Home telephone number
  - c. Grade upon retirement
2. USGS Mailing address
  - a. Phone number
  - b. Physical location (assignment of space)
3. Person to notify in case of emergency
  - a. Name
  - b. Phone numbers (home/work/cell)
4. Type of Appointment
  - a. *Team*
  - b. *at-Large*
  - c. *Bradley Scholar*
  - d. *Honorary*
5. E-mail
  - a. Provide e-mail where you want to be reached (home? office?)
  - b. GD-Emeritus
  - c. GD-All
  - d. Team
  - e. Other \_\_\_\_\_
6. Non-Bradley Scholar Project Description
  - a. Brief summary of proposal (include project chief(s), if appropriate)
  - b. Work Plan (include objectives and products)
  - c. NOTE: Annual Progress Reviews are required.
  - d. Funding request \$ \_\_\_\_\_
  - e. Identify what funds are for, i.e., purchase of maps, field work, etc.
  - f. Acct # \_\_\_\_\_
  - g. Publication needs (include anticipated technical support costs, page charges, etc.)
  - h. Account number for publication charges \_\_\_\_\_
7. Bradley Scholar Project Description
  - a. Summary of proposal
  - b. Length of proposal – 1yr.    2 yrs.    3 yrs.
  - c. Work Plan (include objectives and products to be reached in accordance with length of proposal)
  - d. Funding Request \$ \_\_\_\_\_
  - e. Identify what funds are for, i.e., purchase of maps, field work, etc.
  - f. NOTE: Annual Progress Reviews are required at which time provide pans for next year (include funding requested).
  - g. Publication needs (include anticipated technical support costs, page charges, etc.)
8. Other planned activities (such as mentoring, education, outreach, speaker's bureau)
9. Contribution of services from \_\_\_\_\_ to approximately \_\_\_\_\_ (date).

## **Appendix 12.**

10. Received/read copy of Policy Statement.
11. Recommend approval/disapproval by TCS or TCS designee
12. Recommend approval/disapproval by Regional Executive for Geology
13. A separate page will include the “legalize” found in the current document (discussion of Federal Tort Claims Act, etc.)

**Appendix 13.**

**Scientist Emeritus Funding Mechanism**



## Appendix 14.

### Team Chief Scientist and Project Chief Comments to Questionnaire

#### 1. What is your position at the USGS? Other category.

##### WR

- (1) Scientist-in-Charge
- (2) Office Chief
- (3) Former Team Chief Scientist.

##### CR

- (1) Project scientist, with an Emeritus colleague.
- (2) Associate Team Chief Scientist.

##### ER

#### 2. Are there any Scientist Emeriti on your project or Team?

##### WR

- (1) Team, but none on my project.
- (2) None on my project--there are on my team.
- (3) 8 current and 5 recent past.

##### CR

- (1) Not currently on project; maybe next year.
- (2) None on my specific project but several in the Team.
- (3) No, but I have benefited greatly from technical reviews by Emeriti scientists.
- (4) Six emeriti.

##### ER

- (1) Formerly had an emeritus. Because I currently have no emeriti on my project, I will comment below based on past experience and on current impressions of emeriti present in my location.

#### 5. Do your Scientist Emeriti prepare an Annual Review and Evaluation Form?

##### WR

- (1) NEW POSITION for my supervision, we'll try and make sure it happens.
- (2) This is done on annual agreement to some degree.
- (3) Don't know of any such requirement other than the annual proposal.
- (4) Yes (as part of their renewal form).

##### CR

- (1) I didn't even know there was an annual review and evaluation form. Where can I get a copy of the form?

#### 7. Where do your Scientist Emeriti obtain USGS funding?

##### WR

- (1) Small amount of funding from projects.
- (2) They receive **very little** funding.
- (3) Small amount (\$1 to 3 K) from NASA, reviewed annually.
- (4) Project - OE, some facility charges for one. Team - a couple have no project connections so virtually no OE. OFA provides OE for one or two.

##### ER

## **Appendix 14.**

- (1) When needed, they request funding from appropriate sources within and without the team & discipline.

### **8. How would you rate the USGS office and laboratory space provided for your emeriti?**

#### **WR**

- (1) Office in lab crowded and has no tables for maps, etc.
- (2) Office space is very limited in some cases.
- (3) Most of our emeriti are engaged in office work. Give them an office, a computer, a telephone and their files and they are up and running. Those who are engaged in field activities have been successful entrepreneurs.

#### **CR**

- (1) Dark, interior space.
- (2) They seem to have basic support—office space, computers, but often older vintage equipment.
- (3) The funding for space has been reduced, offices moved, and the existing facilities are cramped, and not effective for full activity and research. Some Emeriti share offices.
- (4) Very satisfactory for some; very unsatisfactory for one emeritus.

### **9. How would you rate the USGS office equipment (i.e., phone, computer, internet access) provided to your emeriti?**

#### **WR**

- (1) Very satisfactory because I am providing most of it.
- (2) Same as any other research scientist if on campus.

#### **CR**

- (1) Obsolete computers.
- (2) They seem to have basic support—office space, computers, but often older vintage equipment.
- (3) The equipment is generally dated.
- (4) Emeriti need better computer equipment than we can afford.
- (5) Very satisfactory for some; very unsatisfactory for one.
- (6) Computer is dated and printer needs to be replaced.

#### **ER**

- (1) Several computers are not up to date.

### **10. How would you rate the financial support your emeriti receive for publications, field work, meetings, GIS, laboratory analyses, etc. that are needed to accomplish their Scientist Emeritus agreement?**

#### **WR**

- (1) There is seldom enough \$ for emeritus OE
- (2) Satisfactory because I am providing most of it.
- (3) Employee funding is satisfactory and Emeritus get similar funding.
- (4) It depends on the degree the emeritus is linked to an active project. We do not provide much OE for persons finishing up old work who are not actively involved with a project. For active project members, we provide some level of support as for paid research scientists. So...your answers for our team should be variable. For off-site emeriti, not critical to projects, we provide very little.

## **Appendix 14.**

### **CR**

- (1) I accord my emeritus scientist the same access to OE as salaried members of the project. He is equally as important to completing the goals of the project as salaried members, if not more so.
- (2) Not enough money for the work.

### **ER**

- (1) They do not have sufficient, regular funding to do anything of significance, nor can they count on sufficient, regular funding to plan to do anything of significance.
- (2) It is difficult for me as a Team Chief to generate funds from my team accounts if my funding Programs do not give me any money to cover these activities. Consequently, funding for emeriti is very low or non-existent.

### **11. How would you rate the ability of your emeriti to complete legacy studies that predate their current Scientist Emeritus agreement?**

#### **WR**

- (1) In most cases, their assignments are very specific and these are not necessarily the completion of Legacy work, although that may be a component of the Agreement.
- (2) Most are engaged in new work, not legacy work.
- (3) Not really interested.
- (4) Somewhat satisfactory (about 30% of the time, this has been true). Somewhat unsatisfactory (about 70% of the time, this has been true. As a result, our NASA funding for emeritus activities has been declining.)
- (5) Some planned legacy studies were not completed.
- (6) Our most active emeriti are not finishing legacy studies; they are collaborating on current team studies. Legacy projects, unrelated to actively funded projects, seem to proceed more slowly, as might be expected, because the scientists do not have the added benefit of Project-funded GIS, etc. We have no way of supporting non-project-related products except from overhead. Off campus Emeriti, are virtually free collaborators who zoom in from time to time to talk with co-authors of miscellaneous products-in-progress.
- (7) He and we need help archiving isotopic data collected over his career.

#### **CR**

- (1) Not enough money for the work and a number of the Emeriti have given up trying to get some funding or interest in completing the work.

#### **ER**

- (1) My answer to question 11 presumes I fully understand what legacy studies are.
- (2) Unless they can do the work themselves, most often it doesn't.
- (3) Only funds available are those provided by the Team and those are very limited.

### **12. How important is the work that Scientist Emeriti are performing for your project/team?**

#### **WR**

- (1) An important MRP project would not meet its goals, including OMB PART requirements, without the Emeriti.
- (2) Those emeriti actively involved with projects are absolutely vital to the team health.

#### **CR**

- (1) Some is very important.

## **Appendix 14.**

- (2) Products cover a wide spectrum of quality and importance—some good, others of marginal value, so assigning a single rating is difficult and probably inaccurate. The range of products and contributions for the Emeritus scientists varies considerably in terms of quality, utility, and value. It is difficult to assign a specific ranking for all of the Emeriti contributions and products.
- (3) Important – in some instances, not directed enough. Neutral – could be a lot better.

### **ER**

- (1) With some recent exceptions, not applicable to team projects.

### **13. In what activities are your Scientist Emeriti involved?**

#### **WR**

- (1) Providing paleontological service work.
- (2) I don't "have" any emeriti, but the emeriti in our team are completing legacy science and appear to active participants in ongoing current USGS projects. Emeriti have reviewed scientific products and I know that Ted has mentored and provided advice for externally funded projects.

#### **CR**

- (1) Really don't know what many of them do.
- (2) Providing technical reviews.
- (3) Contributing to international organizations.
- (4) Heading up a group research and publication effort.

#### **ER**

- (1) Reviewing Publications for scientific validity and writing quality. Also developing creative new concepts and helping project staff to think outside the box. Also documenting the history of our organization.
- (2) Being the face of USGS in non-professional activities.
- (3) Translating foreign language papers.
- (4) Editorial work for the team pubs.

### **14. List some of the accomplishments that Scientist Emeriti have made to your team in recent years.**

#### **WR**

- (1) Organizing meetings, completing maps, completing publications.
- (2) Mainly completion of important publications (including a few high profile book publications) that were in preparation at the time of retirement.
- (3) Geological and geophysical field work in Southern Arizona and Sonora, USGS Bulletin publication on Tucson Basin deep borehole, Committee work for the Geological Society of America, liaison with local action groups in Tucson, Sierra Vista, and Sonoita areas (mostly on hydrologic issues), detailed geologic mapping and geochronologic work on the depositional history of basins in southeast Arizona.
- (4) The ones I have been involved with have accomplished a lot of geologic mapping. Some is legacy work, other is new.
- (5) Publication in *Science*, review of project 5 yr plan, contribution of ideas.
- (6) Compilation of geologic maps; publication of papers in Survey and International journals.
- (7) Completed and published important geologic maps and other scientific reports.

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- (8) *Geologic Mapping* - Rowland Tabor – As an emeritus Scientist with the Pacific NW Urban Corridor Geologic Mapping Project in WESP, Tabor was awarded the 2005 Thomas Dibblee Medal for outstanding geologic mapping. Between 2000 and 2004 he published three major geologic maps as an Emeritus. Rowland also published a geologic guide to the North Cascades with USGS colleague Ralph Haugerud in 1999 and updated web version of his guide to the geology of Olympic National Park in 2005. Parke D. Snavely, Jr. (deceased) – as an Emeritus; Parke also won the Dibblee Medal for outstanding geologic mapping in 1997. Before he passed away, Parke also provided data for a comprehensive digital compilation of 60 years of foraminiferal and calcareous nannoplankton databases for the OR-WA Coast Ranges
- (9) Service on National Academy panels and boards; service to national and international scientific societies; service on USGS committees; continuing high-level of publication in peer reviewed journals (one emeritus produce 3 or more papers every year); leadership of high-profile, multi-institutional field campaigns; internal review of scientific papers in field of expertise; technical leadership and training of younger operational scientists; development of time-critical products for both internal and external customers.
- (10) Co-authored 8 papers with myself and other USGS employees in past 5 years.
- (11) A comprehensive history of the Astrogeology Team was completed and is ‘in press’ as an online USGS OFR. Numerous abstracts and meeting presentations have been made on current research topics. A few research publications have been released.
- (12) Plate tectonic influence on Carlin-type deposits; stratigraphy of deep basins, SW US; western North America Neoproterozoic stratigraphy and tectonism; Hg-As geochemistry of mining-impacted drainages; detection of concealed faults by gas emissions; stratigraphy, structure, and mineral resources of the Ione Formation (CA)
- (13) Completed editing of a special publication book.
- (14) Papers, abstracts, talks at scientific meetings, talks to public, dealing with requests from consultants and public agencies, reviewing papers, providing historical USGS perspective on recurring issues, problems, questions.
- (15) Emeriti in the Volcano Hazards Program in Menlo Park are critical to on-going project work at Mount St. Helens, Lassen Volcanic National Park, Mount Shasta, Yellowstone National Park, and Sequoia National Park. I assume that current Emeriti will provide you with their accomplishments. A number of Emeriti are no longer associated with the USGS, and here are some of their publications in the last 5 years for Roy Bailey, Wendell Duffield, George Smith, and Bob Tilling:
- (16) Research into gas hydrates of the Bering Sea (numerous publications and abstracts); comprehensive volume on fish habitat of the Great Lakes; continued leadership on the Antarctic Seismic Data Library System; research into worldwide occurrence of gas hydrate; research on coastal erosion.
- (17) Numerous maps and manuscripts, scientific leadership within team, mentoring.
- (18) Lanphere has published geochronology on several active volcanic centers and detailed manuscripts on standards. These products will stand for many years.

### CR

- (1) Note: The following accomplishments only pertain to those Scientist Emeriti on my project.
  - 1) Generating publications from research begun prior to retirement. 2) Providing field assistance for ongoing projects.
  - (2) Completion of publication of legacy studies.

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- (3) Only know how they have helped me. Identified SE – Has reviewed several of my Tok area surficial maps – a job that has become increasingly difficult to find willing reviewers over the last several years. Identified SE – Has extensive knowledge of Alaskan glaciations and a good knowledge of the Tok area – we are working on a manuscript together.
- (4) Publication of USGS maps and Professional Papers, collaboration and publication of maps with state surveys, publication of journal papers. Active encouragement of project members to consider the bigger picture based on their broad experience. Contributing specialties in discipline or regional expertise otherwise lost or considered obsolete. Keeping morale up through enthusiasm for the agency and its work.
- (5) He uses vast knowledge of Front Range geology, as well as unpublished data, to complete maps of the Bailey and Denver West 1:100,000 quadrangles. He performs valuable petrographic work on Proterozoic rocks to help interpret new geologic relationships.
- (6) Completed legacy maps, Professional Papers, actively worked on ongoing projects.
- (7) Person of whom I'm speaking is new (this year) to Scientist Emeriti program.
- (8) I had an ambitious 400+ page manuscript with 7 chapters that had been reviewed by mostly people outside of my team on a chapter by chapter basis. But no one on the team had actually read it. In addition, because of the politically-charged nature of the topic (water availability), I needed an umbrella reviewer within the team who was comfortable with a broad range of topics (geology, geophysics, geochemistry, and hydrology) and could evaluate the manuscript from a USGS agency perspective. None of the other scientists had the time or a broad enough background to take on this time-consuming task. Identified SE was approached by TCS. I was barely acquainted with SE and had not worked with him before, even though he is just a few offices down the hall from me.

It turned out not only that SE was an excellent reviewer, but was able to turn the manuscript around quickly and made numerous thoughtful suggestions on how to improve the readability and overall flow of the manuscript. In the process I got to know SE and would certainly say that I was informally mentored in the process. All of us get mentored in one way or another at different points in our career, and this was a good one at this time. It was not set up that way, it just happened. There is no question in my mind that I have benefited enormously from this whole experience, not only by getting such a talented and experienced reviewer, but by getting to know SE and benefiting from his wealth of experience. I now go down to his office occasionally to talk with him about other related topics and consider him a great sounding board. It makes me wonder which other Emeritus scientists I should be talking to.

- (9) Many publications, but I can't remember off the top.
- (10) Pursued USGS and USDOE uranium data rescue; provided guidance on establishing a web-based uranium information system; provided institutional knowledge on past USGS and DOE uranium resource and research activities; served as USGS uranium commodity geologist. Served as USGS representative to the IAEA, OECD/NEA; contributed to U.S. text for the biannual international uranium resource review (The Redbook); published uranium resource updates in various venues; served on committees in the Energy Minerals Division of the AAPG; maintained a zeolite bibliography, served as the contact person for zeolite queries.
- (11) Geologic Map of North America – Jack Reed  
Historic Trail Maps series – Glenn Scott  
Map of Eolian Deposits, Eastern Colorado – Rich Madole

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Contributions to various geologic maps, Front Range of Colorado – Bruce Bryant  
K-T boundary studies – Chuck Pillmore

Digital versions of Quaternary Atlas maps – Chuck Bush

- (12) Oil Shale and Uranium Archives; Participation on Professional committees; Reimbursable funding and contract opportunities; Oil and gas assessment contributions; Geologic field mapping contributions; Meteorite and geothermal research contributions; Alternative fuel contributions; Geochemistry sampling and lab analysis; Publications review; Public Inquiries and responses
- (13) By keeping involved in ongoing work, the SE has provided a wealth of information on mine production, history, and ore deposit genesis. This work is not quantifiable but is invaluable.
- (14) Geophysicists: Interpretation of aerogeophysical surveys over the West Antarctic ice sheet and Alaska; gave talks at national and international venues, wrote papers reporting research, informal advisors to USGS and other government organizations; teaching; lecturing; geophysical liaison between USGS and a state Geophysical Bureau; conservation projects; community outreach with the National Park Service Trails and Rails Program.  
Botanist: Volunteer consultant for the Great Sand Dunes National Park; produced USGS publication.  
Chemist: Works with project chiefs on a number of projects with organic chemistry related to the environment and minerals scientific questions; completed paper and abstract.  
Geologist: Investigation of volcanic hazards and characterization of gold mineralization associated with systems in the eastern Alps, Austria and Slovenia.
- (15) Many products--reports to National Park Service, outside journal papers, USGS maps and publications, a few presentations at regional and national meetings, contributions to project website; ideas for project direction.
- (16) State-of-the-art mineralogical research that could not have been achieved with our current staff. Abstract and presentation for the Geological Society of America. Proceedings paper currently in revision. Two journal articles soon to be submitted to the journal.
- (17) Journal article in preparation. They offer alternative/unconventional interpretations that stimulate discussion and inquiry.

### ER

- (1) As far as I know identified SE Dr. Richard Meyer is the only person working on heavy oil, extra heavy oil and natural bitumen in USGS Energy Program. The 2000 World Petroleum Assessment ignored these extra heavy oil and natural bitumen resources, but identified SE is completing a comprehensive survey and analysis of those resources.
- (2) Our Scientist Emeriti tend to be teachers, mentors, and upholders of standards, instead of prima donnas who get credit for accomplishments.
- (3) Completion of manuscripts for publication in peer-reviewed journals (especially review papers), review of manuscripts for other USGS scientists, completion of USGS publications including maps, participation in planning of complex field operations (e.g., Poag--Chesapeake crater drilling; Dillon--Gulf of Mexico and Mackenzie delta hydrate drilling), speaking to the public and media, providing access to older publications and field data, providing ties to other retired USGS and non-USGS scientists.
- (4) Development of a patented method for removing Mn from mine waste water; continuing to update and upgrade our coal production data base; continued publication of English translations of Russian oil field literature; publication of research on heavy oils and bitumen.
- (5) Translating foreign language papers.

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- (6) Identified SE has mapped four quads in VT/NH and written a paper for AJS. He is one of the co-authors of the new Hank Williams map.
- (7) Answer science requests from outside the USGS; complete a major I-Map and Professional paper; prepare a major collection of samples for the Smithsonian.

### **15. How do you plan to archive and preserve your Scientist Emeriti's unpublished scientific materials?**

#### **WR**

- (1) Some original valuable data (e.g., cruise data) are automatically archived as a Program/Team commitment. For other data, we have staff allocated to archiving. What we archive/preserve is largely dependent on what the Emeritus can organize and deliver.
- (2) Same as other project personnel.
- (3) This is a good question not only for Scientist Emeriti, but any scientist who retires/dies before completion of scientific projects.
- (4) At the Alaska Technical Data center.
- (5) I don't know of any.
- (6) I am unaware how this is done and will be done in the future.
- (7) The Alaska Technical Data Unit.
- (8) We are attempting to compile critical data as web-accessible digital databases (fossil calls, chemistry, thin sections, etc. Ideally, we would like to scan all field sheets and field notebooks as pdfs before shipping to Denver archives.
- (9) No systematic plans. My experience has been that each individual puts a serious effort into preserving the most important materials.
- (10) Provide computer, scanner, and other equipment for him to do this.
- (11) In several cases (mostly using NASA funding), we are scanning (digitizing) portions of their research collections to make them available publicly. We are also placing some of the materials in a local data library and making them known to other researchers for their use.
- (12) Again, I don't "have" any emeriti, but I hope their unpublished materials do get preserved for future research.
- (13) Notify the archiving office Reston (can't remember name) when a scientist retires. Archived "files" need to be thoroughly indexed for future use; otherwise, they have very limited utility.
- (14) Archiving is handled at the team level not the project level.
- (15) Have not faced that problem yet.
- (16) If part of an active project, it will be turned over to an employee. If it backs up a published field study, records will go to field records center. Otherwise it gets tossed.
- (17) The identified team has a mature system for inventorying and archiving unpublished scientific material, including both digital and analog data. Refer: [walrus.wr.usgs.gov/infobank](http://walrus.wr.usgs.gov/infobank)
- (18) No special plans other than normal archiving. We are developing plans for migrating lab data-at-risk in general.
- (19) This is a major undertaking, and one that is difficult for Lanphere to do alone. Several scientists have offered help, but archiving 30 years of isotopic data properly would involve someone good at designing a database. Several of us are happy to input legacy data, but some focused funding would help us enormously. Lanphere's data are somewhat unique

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because they bear on many active studies, but are organized in a way only he understands. Working on this soon would help projects enormously.

### CR

- (1) No idea.
- (2) I think this activity is beyond the scope of a Project Chief.
- (3) Don't know.
- (4) Through USGS archives/library.
- (5) This brings up a major problem we have in the Central Region: present inability to archive material in our field records section of the library. Currently, there is no one to perform this task.
- (6) Where possible, and within project, trying to get that data into digital form.
- (7) We need a contractor/student to work with our Emeritus Scientist to input records into a database. The funds for this person were cut from the project by the TCS before the proposal even left our Team. I was told that this was done in order to accommodate the Program Coordinator's stated cap on funds to be allocated for this project. Without these much needed funds, we are in danger of losing unpublished science that only our Emeritus Scientist knows!
- (8) We hope that they are completed. There is no formal procedure in place at this time.
- (9) An informal uranium library exists in the emeritus' office. Other materials are archived in Bldg 20. If the emeritus gives up his office space, the library will continue, either in the former emeritus space or elsewhere in team space. Some material will be submitted to Field Records if that part of the USGS library is resurrected.
- (10) We're not doing a good job of this. I encourage Emeriti to complete and publish legacy products when possible and appropriate. I suppose we should make a point of meeting with each Emeritus scientist and triage their materials and write up a plan for disposition, including archival, pass on to other scientists, etc.
- (11) Some materials and collections are preserved in house and captured as part of Oil Shale Projects, Uranium Archive Projects, while others had been distributed to Field Records, Repositories, and other State entities that shepherded the resources. However, because of lack of funding, priority, and commitment, most of the contents are stagnated in the office space vacated by the scientist and there is such a backlog to archive important materials. The field records avenue has been disrupted and so the material sits.
- (12) The Team will work with them on how to best preserve their scientific materials.
- (13) Not yet an issue. Responsibility of individual scientists.
- (14) I do not feel that this is the responsibility of a Project or a Team. Preserving the scientific legacy must be a Bureau or discipline function so that later access is not limited to a small group. I have and am using field records to rescue analytical data that was never digital, offer insights into ore-deposit and regional geological investigations. If these maps, thin sections, and field records are not inventoried and kept for our internal use it will severely curtail their use in helping us fulfill our mandated activities.

### ER

- (1) We plan to publish everything important and he is collaborating with the project chief and readily shares data.
- (2) The same way we archive and preserve unpublished scientific materials from other scientists: If the scientist has taken the initiative to get them organized, classified, and put in good

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condition, they are preserved in the Program databases and archive. Otherwise, our archive receives a heap of stuff and it may never see the light of day.

- (3) In our local data library, maintained by Nancy Soderberg.
- (4) Organized storage and incorporation (where appropriate) into ongoing research.
- (5) I have not done this planning.

### **16. How satisfied are you with the Scientist Emeritus Program?**

#### **WR**

- (1) The Scientist Emeritus Program is an extremely important program and helpful to managers. It allows scientists, who have the ability to perform important project/mission critical work, a home in which to continue to provide useful data after they retire. Without the program, many would face the agonizing decision of whether to retire and leave the Survey or not retire and use critical resources. This is a graceful compromise for both scientists and managers.
- (2) Although parts of this program are good, the scientists at times are not given the respect that their number of years and productivity should entitle them to.
- (3) The transition from employee to emeritus scientist is nearly an invisible one. Those who put in 40+ hour weeks receive the same support as salaried employees. Those who are cutting back on hours willingly move to smaller offices and make fewer demands on team resources.
- (4) The USGS provides no support for our Emeriti.
- (5) We have few emeriti, and they sometimes (depending on NASA programmatic funding for annual Team activities) receive support for operating expenses from our Team. They are not often involved in collaborative research with Team members, and they tend not to be responsible for work that must get done in the Team in any given year. In some cases they continue to serve in advisory capacities (i.e., as external proposal reviewers) with NASA. In one case, an Emeritus changed his status with us (after the waiting period expired) so that he could receive funding for his research as part of ongoing NASA research.
- (6) Very satisfied as a bystander.
- (7) Scientist emeriti in other Teams contribute greatly to various ongoing landslide research projects. There is a severe shortage of landslide researchers in the Western Region and scientist emeriti help fill on-going needs.

#### **CR**

- (2) Funding from SIR sources specifically for this program would add much legitimacy to it and make it more attractive to our senior staff. The emeritus program is a wonderful situation – everybody wins with little expense. As I see it, we have three basic types of emeritus scientist. The first is the person who is off campus doing completion work or consultation with projects. The second is the person who is either doing their own thing – not really priority work for the program, but still very good science for the USGS. This would also include those finishing up “legacy” work. The third is the scientist who works on program driven projects – and at times is as effective as or even more effective than the salary personnel. In all cases, good science for the USGS and the nation is accomplished at minimal cost.
- (3) There are many reasons. First we do not fund enough of the work to get out legacy materials. We try to align the research to fit the program and the expertise and interest may not exist. Some renowned expert’s research does not fit the program priority. We do not actively manage the Emeriti nor introduce accountability or track their work very well. We do not

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provide enough technical, publication or computer support – they are not a priority in most cases to get the best.

- (4) Contributions to Project result from highly motivated retired scientists and our ability to get adequate funding and other support to them.

### **ER**

- (1) It is not entirely clear to me, and I believe too many of the emeriti themselves, what the expectations of them are, and what the appropriate mechanisms are for them to obtain funding to support their work from year to year. Most arrangements seem quite informal and ad hoc. It also seems rather difficult to get rid of emeriti that are not making useful contributions to ongoing projects or legacy studies, and may just be draining resources and creating personnel or morale problems.
- (2) I am called on to provide computer support.
- (3) As budgets get tighter, and our workforce continues to shrink through attrition, they provide an increasingly valuable component to our research. Please continue their support.
- (4) I need for Regional management to be more engaged in this. We need a common use space for those emeriti that do not need their own office or lab.
- (5) I currently have geologists on my Team; both are highly experienced (GS15 & 14) and very well regarded in their field, and both have chronic underfunded issues. There is presently a geologist emeriti affiliated with another Team who provides free services to multiple projects- this in effect undercuts the 2 active employees and makes their funding more difficult. Is this in the spirit and intent of the Emeritus Program?

## **17. Are you satisfied with Scientist Emeriti interactions with Project members, Project Chiefs, Team Chief Scientists?**

### **WR**

- (1) Haven't had much interaction.

### **CR**

- (1) Not enough time, money, guidance, and interaction. The Emeriti are an untapped resource and do not get the type of commitment and interaction because we are all too busy and they have not been the priority.

## **18. Are you satisfied with how the supervisors/managers at the USGS recognize and acknowledge the contributions of Scientist Emeriti to Bureau Programs?**

### **WR**

- (1) I have no information on this.
- (2) Some managers treat the emeriti and their support (OE, offices, etc) as a burden. I personally resent the way 30 year employees are sometimes treated as disposable entities.
- (3) I don't believe that productive Emeriti are given the recognition they deserve.
- (4) Can't say I've heard anyone in upper levels of management acknowledge that an emeritus program exists.
- (5) I guess we could do a better job of this, as I think of it.

### **CR**

- (1) I am not sure their contributions are recognized or appreciated fully by the USGS or, perhaps more to the point, by DOI.
- (2) Not enough attention paid, not enough accountability introduced, not enough support given.

### **ER**

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(1) This is not being done at the present time.

### **19. Are the organizational aspects (local committees, projected support mechanisms, etc.) contained in the 1996 Scientist Emeritus Policy Statement still appropriate?**

#### **WR**

- (1) Not really sure what this question is asking (didn't see any local committees in the Policy Statement for the Program. Seems like most of the Policy Statement is still applicable.
- (2) Or perhaps not entirely, as we are entirely on our own.
- (3) Don't know since I haven't read the policy statement.

#### **CR**

- (1) Haven't read the policy statement recently.
- (2) Not sure.
- (3) I need to check Policy Statement.
- (4) This is the first I have heard of this committee, although I read in the link given above that it is a standing committee.
- (5) Doesn't seem to be very relevant to what actually happens when an emeritus scientist remains active on a project or a team. In spite of being involved with emeriti for years, I was only minimally aware of the policy statements.
- (6) 1996 policy is both too formal and too restrictive.
- (7) I believe that improvements can and should be made, especially to provide more support and availability of good work space.

#### **ER**

- (1) Should be revisited in light of current funding and science planning/organizational environment.
- (2) Probably not.
- (3) We need to review all aspects of the program.

### **20. What is your opinion about creating a USGS web site that lists Scientist Emeriti and provides information about their backgrounds, current work, and bibliographies?**

#### **WR**

- (1) My experience is that most Emeritus scientists are relatively inactive after 1-2 years of retirement. Much of the work listed as "current" would not be so, and the web site would require lots of updating. An outdated emeritus web site would be a negative.
- (2) Most emeriti that I've talked with want to get away from the paperwork, so why add any?
- (3) It might help separate wheat from chaff. The productivity of some emeriti is excellent; although it might be embarrassing to the USGS to find out how much can be done when one does not have to deal with the increasing bureaucratic "overhead" that is a big part of the USGS today. Many scientists joke that they would like to retire and come back as an emeritus, so they could get some work done.
- (4) Unless we were to do the same for active employees, why burden the emeriti with this?
- (5) Many of our emeriti are already featured on our Astrogeology Web pages. See <http://astrogeology.usgs.gov/About/People/BaerbellLucchitta/> for example.
- (6) But only if emeriti agree to have that information on the web. I don't think it should be mandatory.
- (7) Bad idea, if it means more paperwork for the emeriti.
- (8) Don't have this for most employees.

## **Appendix 14.**

(9) Our web sites are hard to navigate. It will be hard to keep current. Unless we make a big deal of volunteers in general, from USGS home page, it might not be worth the effort.

### **CR**

- (1) Why don't we do this for all employees?
- (2) But I recommend inclusion on list be voluntary.
- (3) We generally treat them as regular Team members and list them as staff, more or less. I think that's a better way to handle it.
- (4) This kind of info would be more useful in project websites.

### **ER**

- (1) Some avoid the limelight.
- (2) Why single out Scientist Emeriti for this when we don't do it for anybody else? Scientist Emeriti have earned the right to schedule their own days, and we shouldn't advertise them to the world as people to bother.
- (3) Not sure. Would have to get agreement of S.E. that they want that information on the web. What is the purpose?
- (4) This would have to be maintained and therefore would detract from program operations.

## **21. What are your suggestions for improving the Scientist Emeritus Program?**

### **WR**

- (1) Perhaps make it easier for emeritus scientists to be get funding their first 1-2 years after retiring. Otherwise, I think it is a good program. I recently held a meeting with our Emeritus scientists and similarly solicited suggestions but received nothing substantial. Are current Emeritus complaining?
- (2) It has actually worked quite well for my project as it is.
- (3) Why not allow for approval at the Program/Team level instead of the Regional level? If Program/Team is where the funding is, this is the best group to determine if the position is needed. For the more competitive positions, Bradley Scholar, go ahead and keep that at the Associate level. I'm making an assumption that this is a Survey-wide program—if not, it should be.
- (4) As I move into this phase of my career, I am sure I will have suggestions. Had I emeriti on my Project, I would likely have something to say. Now, I do not. I have answered the questions from knowing several emeriti on the Team, on other projects. However, I have none on my own Project. As a result, my knowledge of the program is somewhat less than informed.
- (5) Somehow find a way to supplement the funding so that the financial burden does not fall entirely on individual projects. I don't think the current system necessarily fosters the completion of Legacy research - if there is not an active project needing the work and is willing to support it financially, it is not likely to get completed.
- (6) Recognize all productive emeritus scientists; some are especially outstanding. Keep paperwork to a minimum, but prune rolls every couple of years to ensure all are active and/or classified appropriately. Annual progress report and renewal could be the same document.
- (7) A travel fund that they could apply to for support to attend national meetings, conferences, workshops, etc. would be a nice addition. They tend not to ask for financial favors, and this would be a way of supporting them all in a small way.

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- (8) I think there should be some formal mentoring. The small number of ‘young’ (i.e., under 50) scientists we have are pretty weak in the corporate memory department; they ought to have some help learning about the legacy of this organization.
- (9) Provide some general funding through the Team (funds requested through Programs with recommendations of Project Chiefs). Acknowledge contributions of emeriti in Programs.
- (10) Don't cut funding for this and leave it alone.
- (11) Identify significant investigations that were never completed or published, convince the scientist to complete them, and provide the necessary financial and logistical support. I would emphasize such legacy project completion over new project work.
- (12) Just don't create anything that causes the emeriti to have to deal with any paperwork.
- (13) Leave it as is. It is working just fine.
- (14) If USGS wants to encourage Emeriti to finish up legacy products (not a bad idea for certain-not all-investments), then someone ought to be providing teams some funding for rent, desk top support, field OE, GIS, publication costs etc. etc. Otherwise, the only method we have for funding Emeriti is through project work--where they are worth their weight in gold.
- 15) Some funding for archiving data.

### **CR**

- (1) Increase visibility of activities and accomplishments by Scientist Emeriti. This could be accomplished by 1) a web site as proposed in item 20 above; 2) regularly scheduled presentations by Scientist Emeriti to showcase their current activities; 3) Encouraging them to become mentors to younger scientists in the USGS.
- (2) Evaluate each emeritus scientist on an individual basis. The potential interaction of younger scientists with an emeritus employee is good. However, a few emeritus scientists do not contribute that much to the growth of our project work, project production, or do not take advantage of the use of offices or USGS facilities.
- (3) As stated above, we need an organized way to archive material, not only for emeriti, but for all employees. It also appears that arrangements for space are not universally available to all emeriti (e.g., some emeriti in Flagstaff do not have office space provided). Can this be improved?
- (4) Are “Disability retirements” eligible for the emeritus program? Are there funds for emeritus scientists to help with unfinished maps and reports (but particularly maps)? I am concerned about what will happen if some employees retire before their legacy mapping projects are published. In some cases there are decades of work in jeopardy.
- (5) More funds for legacy collections, identify and inventory activities, develop more mentorship, and allow transfer of unique knowledge that may not fit the Program priority, simplify renewals, introduce more accountability; make it easier to remove and cut ties with Emeriti; filter out the non-performers in the Emeriti and Volunteers. Prioritize and save the resources for the producers – identify key knowledge bases we want to support and maintain.
- (6) Retired USGS scientist tend to have a wonderful historical perspective on many topics (for example the development of analytical methods), first hand information of ore deposits (for example underground mapping and mineral collections from now closed mines), and a network of contacts in industry, academia, and other government agencies. A strong Emeritus program helps link this information with current projects and younger scientists. Setting up a formal mentoring program with young scientist would be a way to keep this valuable information from getting lost as well as providing a newer person with a historical perspective of USGS work.

## **Appendix 14.**

- (7) I know of a few geologists, rified in 1995, who were emeriti thereafter but who have fallen off because managers have recently taken their office space. Some still have great legacy work to complete. I would like to see accommodation for these individuals to complete legacy work outside project activities, pending acceptance of proposals.
- (8) Give them more support. The work done by an emeritus on my Project/Task could not have been accomplished without him. Our current staff does not have the mineralogical expertise to conduct the research that this emeritus has performed. The research results will be an important contribution to the literature.
- (9) Foster better communication between the Emeriti and those who might use there experience and expertise.

### **ER**

- (1) Don't kill it.
- (2) It needs to be managed more intensively. In some cases, emeriti are making significant contributions with inadequate resources and recognition; in others they are just taking up space, working on pet projects that are not aligned with USGS priorities, and posing obstacles to change and moving forward.
- (3) I would like to know the degrees of freedom I have as a cost center chief in permitting and funding research done or proposed to be done by the scientist emeriti. That would help me more than anything. I really need to know how to handle somebody who wants to be an emeritus and has earned the right be an emeritus, but doesn't want to do anything of substance (in my way of thinking). Can I just say no thank you?
- (4) Find a way to provide computer support for the emeriti without using team personnel.
- (5) A rewrite of the policy document and more uniformity across the Teams and regions.

### **Additional Comments**

#### **WR**

- (1) I lead a large, multi-disciplinary field project that currently does not participate in the Scientist Emeritus Program, but could conceivably do so in the future. The questionnaire is designed for projects/teams that are already participating, so I have only been able to respond to 3 of the 21 questions.

#### **ER**

- (1) Either the Scientist Emeriti are volunteers or they are not. Managing a group of volunteers requires substantially different techniques than managing a salaried work force. If we seek to consider the emeriti as an integral part of our work force, then they should be governed by the same elements that govern our salaried work force - and should receive the same level of compensation for their contributions. If the emeriti receive appropriate compensation, then they should also receive the appropriate oversight, which should include project management and accountability, which would then probably make ALL of my emeriti unvolunteer. If they are not volunteers (a volunteer being defined as one providing a service or product with no expectation for appropriate compensation), and they are not on the pay roll, what are they doing here? The real heart of the emeriti program is to allow scientists who still want to do their science (not somebody else's science) on their own free time an outlet to do so. It has been common practice for some Programs to have to rely on emeriti to cover important, but not essential, elements of energy research for the USGS in order to be ready when (not "if") the call from Congress or the Department comes (it came this year). I personally think the nation deserves better than a systematically unfunded ("free") but important scientific

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research component for many programs. On the other hand, some Programs do not have the funding (amount or flexibility) to adequately compensate emeriti for their contribution on an equal basis across the program.

It appears to me that the Scientist Emeritus Program had substantial benefits in the past, when there was sufficient (or at least adequate) people and funding to do the regular, expected work, and to give a retiree a place to finish a seminal report summarizing decades of research or to extend prior research into new areas where outcomes and expectations were purposefully not predefined. It also added the distinction of being a "scientist emeritus," synonymous with "graduate with high distinction" from the best geological survey in the world. It appears, now, that the program ranges from a stop-gap measure to keep unfunded, but definitely needed, aspects of a program alive until funding is authorized in the future to giving scientists a place to play science and be inventive to providing a place to check email from old colleagues, review a few manuscripts, have lunch, and go home for the day.