

**U.S. Office of Personnel Management  
Office of Merit Systems Oversight and Effectiveness  
Classification Appeals and FLSA Programs**

**Philadelphia Oversight Division  
600 Arch Street, Room 3400  
Philadelphia, PA 19106-1596**

**Classification Appeal Decision  
Under Section 5112 of Title 5, United States Code**

<b>Appellant:</b>	[appellant's name]
<b>Agency classification:</b>	Research Physiologist GS-413-13
<b>Organization:</b>	[name] Branch [name] Research Laboratory Office for Mine Safety and Health Research National Institute for Occupational Safety and Health Centers for Disease Control and Prevention Public Health Service U.S. Department of Health and Human Services [location]
<b>OPM decision:</b>	Research Physiologist GS-413-13
<b>OPM decision number:</b>	GS-0413-13-01

\_\_\_\_\_  
Robert D. Hendler  
Classification Appeals Officer

/s/ 11/19/99  
\_\_\_\_\_  
Date

As provided in section 511.612 of title 5, Code of Federal Regulations (CFR), this decision constitutes a classification certificate that is mandatory and binding on all administrative, certifying, payroll, disbursing, and accounting officials of the Government. The agency is responsible for reviewing its classification decisions for identical, similar, or related positions to ensure consistency with this decision. There is no right of further appeal. This decision is subject to discretionary review only under the conditions and time limits specified in the Introduction to the Position Classification Standards (PCS's), appendix 4, section G (address provided in appendix 4, section H).

### **Decision sent to:**

[appellant's name] M.S., CPE  
[appellant's address]

Ms. Evelyn M. White  
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## **Introduction**

On August 9, 1999, the Philadelphia Oversight Division of the U.S. Office of Personnel Management (OPM) accepted a position classification appeal from [appellant's name], who is employed as a Research Physiologist, GS-413-13, position description (PD) number 137830, in the [name][acronym], [name] Research Laboratory [acronym] of the Office for Mine Safety and Health Research (OMSHR), National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services, in [location]. He requested that his position be classified as Research Physiologist, GS-413-14. This appeal was accepted and decided under the provisions of section 5112 of title 5, United States Code (U.S.C.).

## **General Issues**

Using the Research Grade-Evaluation Guide (RGEG), the appellant claims that his position should be credited at Degree E on Factor I and at Degree D on Factors II, III, and IV, yielding a total of 44 points. This falls within the "borderline" gap between GS-14 and GS-15 grade levels. He believes the evidence he presented with his appeal shows that he is an internationally recognized researcher, one of the world's foremost authorities in mining ergonomics, and a leading expert in research establishing the physical limitations of humans working in restricted spaces. He states that his immediate supervisor has submitted him for promotion on three separate occasions since June 1996. The appellant says that he was told that he was not put forward by management for promotion because he has been accepted into a long term training program offered by NIOSH and not because of his lack of qualifications for promotion. Although the long term training program is recognized by the appellant as an excellent benefit, he does not believe participation in the program should have any bearing on a participant's promotion or the grade of the position.

These submissions have raised procedural issues warranting clarification. By law, we must classify positions solely by comparing their current duties and responsibilities to OPM standards and guidelines (5 U.S.C. 5106, 5107, and 5112). Therefore, other methods or factors of evaluation are not authorized for use in determining the classification of a position. Therefore, recommendations about promotion by members of management are not germane to the classification appeals process.

We conducted a telephone audit with the appellant on October 15, 1999. He submitted additional written comments relating his work to the specific degree definitions of each of the four factors in the RGEG. We conducted a telephone interview on October 18, 1999, with the appellant's first-line supervisor, [name], Team Leader, Human Factors Team, and on October 22, 1999, with the appellant's second-level supervisor [name], Chief, [acronym]. We considered the audit findings and all information of record furnished by the appellant and his agency, including his current assignments, a listing of citations of his work, and his official PD of record. In addition, telephone interviews were conducted during the period of October 20, 1999, to October 27, 1999, with eight scientists recommended by the appellant, his immediate supervisor, and/or the agency as familiar with various aspects of the appellant's research.

**Position Information**

The purpose of [acronym] is to conduct applied and preventive, multi-faceted laboratory, and field-based research, into the causes, mechanisms, prevention, and control of traumatic injuries and fatalities of miners. Research is conducted on fundamental human factors issues to provide up-to-date guidance and expertise in the application of modern human factors research methods to existing problems in the mining community.

The appellant engages in identifying ergonomic problems related to a wide range of mining injuries that can be addressed by research on issues of biomechanics and work physiology. He is responsible for proposing, planning, and conducting research on ergonomics as it applies to the work of miners, and may also serve as the Lead Project Officer of a project. The research is designed to identify and solve the underlying ergonomic problems that cause mining injuries and impairments that can be addressed through research on issues of biomechanics and work physiology. The purpose of the research is to ultimately reduce musculoskeletal injuries in the mining industry through the development of new equipment, techniques, or methods to supplement or establish a theoretical basis for the design of miners' jobs and equipment. The appellant maintains liaison with ergonomics researchers at the [acronym] and other NIOSH Divisions. He performs follow-up studies to establish the efficacy of proposed solutions and conducts technology transfer of the research findings through peer-reviewed journal articles, trade magazine articles, workshops, and other media.

The appellant reports to a Supervisory Research Psychologist, GS-180-14. Project assignments are broad in scope. They may be vague and poorly defined at times, requiring the appellant to apply his technical expertise to define the problem and develop approaches to its solution. The appellant has considerable freedom in the planning and execution of research projects, but the project plan or protocol must be approved by the Branch Chief. After commencing research, the appellant is expected to advise his supervisor of progress and receive approval before making substantive changes in the work. The appellant has wide latitude to technically implement the project and is responsible for the accuracy of his findings so that they are accepted as authoritative within and outside the government. The work is reviewed in terms of results and for compliance with the project protocol and NIOSH policy. Both the appellant and his immediate supervisor agree that the appellant's PD is essentially accurate, and we incorporate it by reference into this decision.

**Series, title, and guide determination**

The agency determined the appellant's position is allocated properly as Research Physiologist, GS-413 because it is: (1) covered by the Physiology Series, GS-413; (2) is titled Research Physiologist; and (3) is evaluated by application of the RGEF, which is used across series lines to determine the grade levels of research positions. The appellant does not disagree, and we concur. Therefore, the position is allocated properly as Research Physiologist, GS-413.

## **Grade Determination**

Part I of the RGEG is used to evaluate positions at GS-11 through GS-15 that are engaged in basic or applied research in the sciences, when the functions involve the personal performance, as the highest level function and for a substantial portion of the time, of professionally responsible research. Part I includes four factors that are considered and rated separately, with the total point value then being converted to a grade level by use of the grade conversion chart provided in the RGEG.

Each factor is evaluated at one of five degree levels. Three of these levels (A, C, and E) are defined in the RGEG. An intermediate level (B or D) may be assigned when a position is evaluated between levels A and C or levels C and E, respectively.

### *Factor I: Research Situation or Assignment*

This factor deals with the nature, scope, and characteristics of the studies being undertaken by the employee. It is intended to reflect the situation or assignment in the current job, rather than a summation of the employee's assignments over a long period of time. It is the inherent difficulty and complexity of the research problem(s) which determine the level to be assigned for this factor, not the question of whether research is basic or applied.

At Degree C, the scientist is responsible for formulating and conducting a systematic research attack on a problem area of considerable scope and complexity. Problems of this scope must be approached through a series of complete and conceptually related research studies carried out by the scientist or by a team led by the scientist. Complexity is such that problems are typically difficult to define, require unconventional or novel approaches, require sophisticated research techniques, and/or present features of more than average difficulty. Research studies of this scope will result in a series of publishable contributions to the knowledge that will: (1) answer important questions in the scientific field, account for previously unexplained phenomena, and/or open significant new avenues for further study; (2) represent an important contribution to the validation or modification of scientific theory or methodology; (3) result in important changes in existing products, processes, techniques, or practices; and/or (4) be definitive of a specific topic area.

The difficulty and complexity of the appellant's research meets Degree C. The appellant's current independent research involves back injuries and other musculoskeletal disorders occurring in the restricted vertical workspace encountered in many underground coal mines. Often these mines will only have three to four feet of distance from floor to ceiling. The walking, lifting, and carrying heavy supplies in the awkward postures, e.g., stooping and kneeling, dictated by this environment are enormously demanding and create great and unusual musculoskeletal stresses. Many of the traditional methods of back injury control, e.g., training workers to lift properly by keeping their backs in a vertical position, cannot be considered as a potential solution in this restricted environment. Similarly, many of the traditional ergonomics interventions used to reduce

injury risk, such as use of mechanical lifting aids or tables for storage at higher than floor level, are difficult, if not impossible, to implement in the restricted underground environment. When the appellant began exploring these problems, the existing technique used to measure spinal stress and develop lifting limits - measurements of intra-abdominal pressure - had long been contentious and the prevailing consensus was that it was not a good technique for the conditions of work being researched by the appellant. Consequently, the appellant developed methods of measuring stress of working in restricted postures which were new or modifications of existing methodologies. He used the data he obtained from his research to develop practical recommendations for control of back injuries in the underground mining environment. Thus, as is typical of Degree C, the problems dealt with by the appellant are difficult to define, require unconventional or novel approaches, require sophisticated research technique, and/or present other features of more than average difficulty. Also, as is typical of Degree C, the appellant's research resulted in a series of publishable contributions that answer important questions in the field and open significant new avenues for further research.

Three types of research situations are described at Degree E. The first situation ordinarily involves leadership of a team conducting applied research, and the third situation necessarily involves team leadership. In either case, the appellant's role is not considered to meet the intent of the RGEG in its discussion of team leadership responsibilities. The appellant does not have team leadership responsibilities. Although the appellant acts as principal investigator on some collaborative projects, such as in 1997-1998 on the project entitled "A System Approach to Reduce Manual Tasks Injuries," thereby receiving first authorship on any resultant publications, such arrangements are common to scientific endeavor and do not constitute the type of formalized, continuous team leadership, including attendant administrative and management responsibilities, intended in the first and third situations.

The second Degree E situation, that does not include team leadership, involves responsibility for attacking basic research problems that have been recognized as exceptionally difficult and unyielding to research analysis so that their solution would represent an advance of great significance. Our fact-finding revealed that the appellant's current research areas are not considered to be exceptionally difficult to the point that they have been unyielding to research analysis. The amount of prior research in the specific area of ergonomics in restricted postures within vertical constraints has been limited. His independent research may be characterized as novel, representing an extension of his continuing work in ergonomics, rather than an area where a level of exceptional difficulty has been demonstrated through many previous unsuccessful research attacks. His collaborative research likewise represents an expansion and refinement of other earlier research rather than the type of unyielding problem resolution intended at Degree E. The term "great significance" is not defined in the RGEG, but it would involve an advance significantly beyond that described at Degree C, which includes accounting for previously unexplained phenomena, opening significant new avenues for further study, or contributing in an important way to validating or modifying scientific theory. The appellant's research at this time does not go beyond these Degree C characteristics, in that its potential impact is to further understanding of the effects on the musculoskeletal system of working in environments requiring

the work be done in unusual postures. While of significant practical impact for coal mining and other work activities requiring similar lifting and hauling in restricted space, it does not go beyond the indices typical of Degree C. Therefore, Degree C (6 points) is assigned.

*Factor II: Supervision Received*

This factor deals with the supervisory guidance and control exercised over the researcher in the current job situation.

At Degree C in basic research, the scientist has substantial freedom to identify, define, and select specific problems for study, being responsible for determining what appear to be the most fruitful investigations and approaches to the problem area. The researcher is responsible, with little or no supervisory assistance, for formulating hypotheses, for developing and carrying out the plan of attack, for coping with novel and difficult problems requiring modification of standard methods, for analyzing and interpreting results, and for preparing comprehensive reports of findings. The supervisor is kept informed, through occasional discussions, of general plans and the progress of the work. The supervisor approves plans that call for considerable investments of time or equipment and is responsible for final decisions concerning direction of the work and changes in, or discontinuance of, important lines of investigation. The researcher has full responsibility for decisions regarding the use of equipment and other resources, and his completed work and reports are reviewed principally to evaluate overall results.

The appellant's level of supervision received fully meets Degree C. As at that level, within the broad objectives of the [acronym]'s mission, the appellant is free to select his specific areas of research, to determine the methodologies to be employed, and to interpret and report the results. His project plans and protocols require prior approval by his supervisor and he is expected to advise his supervisor of progress and get approval before making substantive changes in the work. His work is accepted as authoritative, but is reviewed in terms of use for furthering the overall objectives of the group, and compliance with the project protocol and NIOSH policy.

At Degree E, technical supervision is nominal and consultative. The researcher works under broad administrative supervision, which is generally limited to approval of staffing, funds, and facilities, and to broad agency policies. Within the framework of management objectives, priorities, and pressures for results, the researcher is expected to locate and explore the most fruitful areas of research in relation to the agency's program needs and the state of the science involved; to take complete responsibility for formulating research plans and hypotheses and for carrying them through to completion; and to take full and final technical responsibility for interpreting findings, including interpreting their applicability to activities and interests of the agency, and their broader applicability to basic scientific methodology. Within the agency, these interpretations are accepted as technically authoritative and become the basis for necessary administrative action.

The appellant works under technical supervision that is primarily consultative in nature. His immediate supervisor reported that the appellant's work is technically reliable and that he reviews the appellant's manuscripts primarily for information purposes. However, the appellant does not have the latitude to select his overall area of research in relation to the agency's program needs. Rather, he selects the specific problem areas and lines of inquiry on which he will concentrate, within his primary area of interest, as is characteristic of Degree C. He takes complete responsibility for formulating his research plans and hypotheses and for carrying them through to completion, but only after obtaining approval of the research plans and protocols from his supervisor. He takes full technical responsibility for interpreting findings, as would be expected at Degree E. However, that level includes the additional criteria that the scientist has recognition within the agency as a technical authority within his or her research area, such that the agency is compelled to respond administratively to his or her research conclusions or progress. For example, this may include the agency assigning significant additional resources to the scientist's work, redirecting broader agency efforts to support or complement the research, or appointing the scientist to head important committees or serve as a spokesperson or expert witness in extra-agency dealings. Although the appellant is recognized among his peers as an expert in the area of ergonomics, especially as it applies to work in space-restricted environments, the record does not show he has the degree of administrative support within his agency and attendant impact on agency programs found at Degree E. Accordingly, Degree C (6 points) is assigned.

### *Factor III: Guidelines and Originality*

This factor deals with the creative thinking, analyses, syntheses, judgment, resourcefulness, and insight that characterize the work performed by the employee in the current job situation.

At Degree C in basic research, available guidelines and precedents are limited in usefulness or may be largely lacking because of the novel character of the work being done. A high degree of originality is required in defining problems which are very elusive and/or highly complex, in developing productive hypotheses for testing, in identifying significant problems for study, in developing important new approaches, methods, and techniques, and in interpreting and relating the significance of results to other research findings.

The appellant's current research is primarily applied. Within this context, the availability of guidelines and the originality required in the appellant's work meet Degree C. There are limited reliable procedures for making the measurements required by the appellant's line of research. Existing procedures must be modified and multiple measurements, frequently from different measurement procedures, must be carefully made and synthesized. Originality is required in designing studies that can reliably measure very small changes in multiple parts of the person performing the work in the postures necessitated by the restricted working environments.

At Degree E, originality is represented by creative extension of existing theory or methodology, or significant contribution to the development of new theory or methodology which is of such scope as to supplant or add new dimensions to a previous framework of theory or methodology.

Alternatively, Degree E originality, particularly in applied research, may be represented by responsibility for applying a very high degree of imagination and creativity in the solution of problems of marked importance (e.g., to the scientific field, to national defense, to health, to major segments of the national economy) for which there is an almost complete absence of applicable guidelines, pertinent literature, and methodology.

The distinction between Degrees C and E relates primarily to the manner in which originality is expressed. Degree C focuses on the creativity, analysis, and insight required to define the research problem, and to develop the approaches, methods, and techniques to carry out the work. There is no question that the appellant's research fully meets that level. Degree E, however, includes the additional element of results, i.e., the contributions made to the scientific field in the form of new theories and methodologies that are developed during the course of the work. To fully meet Degree E, the research must have gone considerably beyond Degree C to extend or develop theory or methodology to the extent that existing theory or methodology is replaced or significantly altered. Although the appellant's research may potentially approach this level, the work cannot be so credited at this time. Specifically, a number of scientists with whom we spoke commented that the appellant's ongoing work is not expected to resolve any long-standing controversies in the field of ergonomics. Rather, it is expected to develop more accurate measurement techniques through creative modifications of existing techniques and to yield new or modified procedures for reducing musculoskeletal injuries among miners. Accordingly, Degree C (6 points) is assigned.

#### *Factor IV: Qualifications and Scientific Contributions*

This factor measures the total qualifications, professional standing and recognition, and scientific contributions of the researcher, insofar as these bear on the dimensions of the current work situation and work performance. It is given twice the weight of the other factors. The RGEG instructs that although the total history of accomplishment is to be considered under this factor, recent research is essential to yield full credit for past accomplishments.

At Degree C, the researcher has demonstrated his ability as a mature, competent, and productive worker and will typically have authored one or more publications of considerable interest and value to the field, as evidenced by favorable reviews, by citation in the work of others, by presentations of papers to professional societies, etc., and/or will have contributed inventions, new designs, or techniques which are of material significance in the solution of important applied problems. Contributions at this level derive from highly productive, in terms of both quantity and quality, personal performance of research of such originality, soundness, and value as to have marked the researcher as a significant contributor to the field.

The appellant's most notable accomplishments were developing a corrected formula for evaluating the illumination provided by luminaires on underground mining equipment; demonstrating a reduction in prolonged psychophysical lifting capacity in the kneeling posture; quantifying the increasing strain on the lumbar spine that occurs as vertical workspaces become more restricted;

and demonstrating that the relative lifting capacity of asymmetric versus symmetric lifting in limited vertical space is the opposite of that in unlimited vertical space. In addition, he first demonstrated the reduction in both static and dynamic trunk strength in the kneeling posture as opposed to upright standing, helped establish the interaction between working posture and the lifting task on the physiological cost of working in confined spaces, and established that the wet bulb temperature of the inspired air was the best single metric to use in establishing the likelihood of burns on the tissues of the tongue and hard palate. His research on manual materials handling has not resulted in the development of new techniques, but has made contributions in terms of the application of many of the existing techniques.

All of this work has demonstrated the appellant's ability as a mature and competent researcher, fully consistent with Degree C. Regarding professional recognition, researchers at the Degree C level are beginning to be sought out for consultation by colleagues who are professionally mature researchers. The RGEF speaks of "emerging recognition" in the field at Degree C. The appellant's level of professional recognition fully meets and slightly exceeds this criterion. He has been an invited speaker at several symposia and conferences dating back to 1986, received five invitations to chair, and three to co-chair, sessions at meetings of professional societies since 1987, serves as reviewer for four refereed journals, and has held committee assignments in his professional area. He has published more than 70 papers, 11 of which were in refereed journals, thus making him the most published author in the field of ergonomics with respect to the stresses associated with physical work in restricted postures. He was asked to prepare a chapter on ergonomics issues in mining for The Occupational Ergonomics. He has in recent years been invited by the Panama Canal Commission to analyze stresses on line handlers and by the Vietnamese Institute for Occupational and Environmental Health to be a speaker at an ergonomics seminar.

Thus, the appellant exceeds this aspect of Degree C to some extent in that he has had an established reputation in the ergonomics community for some time, as opposed to the just-emerging recognition typical of this level. However, there are certain considerations that temper this assessment. The appellant's formal consultant and advisory activities have not been extensive, and the record fails to show that he is informally consulted by other researchers with any degree of frequency. Citations of his work are not particularly frequent and have occurred at a relatively constant rate over the past several years as discussed below, showing no steady increase or isolated periods of significantly heightened interest on the part of other researchers. His work is recognized by his peers for being of uniformly high quality, but would not be considered as highly productive in terms of the quantity normally expected at Degree C. Thus, while the appellant exceeds one of the Degree C criteria, i.e., having an established rather than developing reputation, he does not attain one of the other Degree C criteria, i.e., the quantity of his productions is below that expected at Degree C.

At Degree E, the researcher has demonstrated outstanding attainment in a broad, or in a narrow but intensely specialized, field of research. He will typically have authored a number of important publications, of which at least some have had a major impact on advancing the field, or are

accepted as definitive of important aspects of it, and/or he will have contributed inventions, new designs, or techniques which are regarded as major advances in basic or applied research, and which have opened the way for extensive further developments, or have solved problems of great importance to the scientific field, to the agency, or to the public. The appellant's work does not yet approach this level of accomplishment and impact. Although the appellant has authored a number of publications of interest to other scientists in his field, there is no indication that these publications have as yet had a major impact on advancing the field or are regarded as definitive of important areas of it. Among the scientists we consulted who are familiar with the appellant's work, most described his studies as interesting, well-designed, and solidly executed, but considered the findings to be contributory to a larger body of knowledge rather than as seminal in the understanding of the physiology or its subspecialty of ergonomics as a whole.

Another limiting aspect in the appellant's case is the absence of **major** new inventions, designs, or techniques that can be credited to him. The appellant adapts and refines methodologies and techniques developed by other researchers for application to his work. For example, he used standard measurement techniques to demonstrate the breakdown of the inverse square law of lighting within certain distance parameters and corrected the formula to allow its correct application to those circumstances. His findings of the unexpected results of ergonomic measurements when confined spaces are involved required precise and multiple measurements, and may contribute to the overall reduction of stress-related injuries for miners and workers in similar environments. However, they did not entail new inventions or devices and were essentially modifications of existing techniques. Instruments designed by the appellant were not prototypes but were adaptations of others. Although the appellant's studies require careful and refined technique, the types of measurements performed are in no way unusual or unique to the field.

The Degree E researcher is sought as a consultant by colleagues who are specialists in his field, and speaks authoritatively regarding his field in contacts within and outside the Government. Invitations to address national professional organizations, and recognition in the literature of his field through favorable reviews and numerous citations by others, are further typical evidences of attainment. The appellant's advisory and consulting activities and his level of professional recognition do not approach this level. The record does not show that he is routinely sought as a consultant by other researchers (e.g., that he receives requests from other scientists to study in his laboratory or to assist them in the application of particular techniques). Invitations to address or chair sessions at meetings of professional associations are not as frequent as would be expected at Degree E. Citations of his work in professional journals are limited, averaging approximately three per year since 1990. Since 1993 the appellant has had 28 publications, most as professional society or conference proceedings abstracts or contributions to manuals, bulletins, or handbooks. The appellant selected five of his publications from 1993 to the present as those he considers his most important for that period, all in major peer reviewed journals or handbooks. These five appeared at the rate of approximately one each year of the period. In three of them the appellant was senior co-author, and was solitary author of two: a chapter in the peer-reviewed Handbook

of Occupational Ergonomics and the other in a journal devoted to medical research on disorders of the spine.

All of the above indicate an impact on the field consonant with, but not exceeding, that envisioned at Degree C. Accordingly, Degree C (12 points) is assigned.

### *Summary*

In summary, we have assigned a total of 30 points, which falls within the GS-13 grade level point range of 26-32 points on the Grade-Determination Chart provided in the RGEG.

### **Decision**

The appealed position is properly classified as Research Physiologist, GS-413-13.

