

POSITION DESCRIPTION							
1. Position Number			2. Explanation (show any positions replaced)				
3. Reason for Submission <input type="checkbox"/> New <input type="checkbox"/> Redescription <input type="checkbox"/> Reestablishment <input type="checkbox"/> Standardized PD <input type="checkbox"/> Other							
4. Service <input type="checkbox"/> HQ <input type="checkbox"/> Field	5. Subject to Identical Addition (IA) Action <input type="checkbox"/> Yes (multiple use) <input type="checkbox"/> No (single incumbent)						
6. Position Specifications Subject to Random Drug Testing <input type="checkbox"/> Yes <input type="checkbox"/> No Subject to Medical Standards/Surveillance <input type="checkbox"/> Yes <input type="checkbox"/> No Telework Suitable <input type="checkbox"/> Yes <input type="checkbox"/> No Fire Position <input type="checkbox"/> Yes <input type="checkbox"/> No Law Enforcement Position <input type="checkbox"/> Yes <input type="checkbox"/> No			7. Financial Statement Required <input type="checkbox"/> Executive Personnel-OGE-278 <input type="checkbox"/> Employment and Financial Interest-OGE-450 <input type="checkbox"/> None required		10. Position Sensitivity and Risk Designation <u>Non-Sensitive</u> <input type="checkbox"/> Non-Sensitive: Low-Risk <u>Public Trust</u> <input type="checkbox"/> Non-Sensitive: Moderate-Risk <input type="checkbox"/> Non-Sensitive: High-Risk <u>National Security</u> <input type="checkbox"/> Noncritical-Sensitive: Moderate-Risk <input type="checkbox"/> Noncritical-Sensitive: High-Risk <input type="checkbox"/> Critical-Sensitive: High-Risk <input type="checkbox"/> Special Sensitive: High-Risk		
		8. Miscellaneous Functional Code: -- BUS: --	9. Full Performance Level Pay Plan: Grade:				
11. Position is <input type="checkbox"/> 2-Supervisory <input type="checkbox"/> 4-Supervisor (CSRA) <input type="checkbox"/> 5-Management Official <input type="checkbox"/> 6-Leader: Type I <input type="checkbox"/> 7-Leader: Type II <input type="checkbox"/> 8-Non-Supervisory		12. Position Status <input type="checkbox"/> Competitive <input type="checkbox"/> SES <input type="checkbox"/> Excepted (specify in remarks) <input type="checkbox"/> SL/ST		13. Duty Station			
		14. Employing Office Location		15. Fair Labor Standards Act <input type="checkbox"/> Exempt <input type="checkbox"/> Nonexempt			
		16. Cybersecurity Code #1:                    #2: --                    #3: --		17. Competitive Area Code: Competitive Level Code:			
18. Classified/Graded by	Official Title of Position		Pay Plan	Occupational Code	Grade	Initial	Date
a. Department, Bureau, or Office							
b. Second Level Review			--		--		
19. Organizational Title of Position (if different from, or in addition to, official title)				20. Name of Employee (if vacant, specify)			
21. Department, Agency, or Establishment U.S. Department of the Interior				c. Third Subdivision			
a. Bureau/First Subdivision				d. Fourth Subdivision			
b. Second Subdivision				e. Fifth Subdivision			
22. Supervisory Certification. I certify that this is an accurate statement of the major duties and responsibilities of this position and its organizational relationships and that the position is necessary to carry out Government functions for which I am responsible. This certification is made with the knowledge that this information is to be used for statutory purposes relating to, but not limited to: FLSA determinations; position sensitivity and requirements; and appointment/payment of public funds. False or misleading statements may constitute violations of such statutes or their implementing regulations.							
a. Typed Name and Title of Immediate Supervisor				b. Typed Name and Title of Higher-Level Supervisor or Manager (optional)			
Signature			Date	Signature			Date
23. Classification/Job Grading Certification. I certify that this position has been classified/graded as required by Title 5, U.S. Code, in conformance with standards published by the U.S. Office of Personnel Management or, if no published standards apply directly, consistently with the most applicable published standards.				24. Position Classification Standards Used in Classifying/Grading Position			
Typed Name and Title of Official Taking Action							
Signature			Date				
25. Position Review	Initials	Date	Initials	Date	Information for Employees. The standards, and information on their application, are available in the personnel office. The classification of the position may be reviewed and corrected by the agency or the U.S. Office of Personnel Management. Information on classification/job grading appeals, and complaints on exemption from FLSA, is available from the personnel office or the U.S. Office of Personnel Management.		
a. Supervisor							
b. Classifier							
26. Remarks							

**DOI Standard PD**  
**PD# DN00300**

**Classification: Geophysicist, GS-1313-11**

**INTRODUCTION**

Position performs scientific work involving intense investigation of recognized phenomena. The work is typically complex, involving conventional methods and techniques, but going beyond clear precedents. Physicist specializes in one or more subdisciplines of geophysics, e.g. seismology, seismic network operations, engineering geophysics, earthquake hazards and strong motion studies. The purpose of this position is to perform a range of geophysical studies and provides technical review and oversight of tasks or programs.

**MAJOR DUTIES** (include percentages of time equal to 100)

Performs data acquisition, processing, archiving and retrieval activities for a complex, multi-station monitoring network with hundreds of channels of continuous seismic, geodetic or other geophysical data. Coordinates activities with other monitoring networks, evaluates potential hazards. Plans monitoring station locations, installation, and repairs to be conducted by field staff. Ensures efficient operation of real-time and near real-time data acquisition, processing, reporting and post-reporting activities. \_\_\_\_\_%

Designs and implements geologic, geophysical, and/or geochemical studies. Projects may be internal to the bureau or through partnerships with other agencies. Work typically goes beyond clear precedent and requires some adaptation of standard equipment and methodologies to meet project requirements. Studies include the integration of different methods and techniques. Defends findings to the scientific community, senior DOI and US Government officials. \_\_\_\_\_%

Analyzes seismic, geodetic or other geophysical data in context of other data streams; participates in geophysical data analysis to improve forecasting strategies. Develops geophysical approaches to visualizing, reporting, and understanding volcanic, geodetic or seismic processes in an active geographic area. Applies seismic methods to the needs of the assigned network. Develops geophysical models from available data in relatively complex geophysical domains. Using specialized interpretive software tools, generates geophysical models and associated data products over specific geographic areas. \_\_\_\_\_%

Applies processing algorithms for analysis of multichannel, high resolution reflection and refraction data. Participates in application of signal processing techniques, data acquisition methods and interpretation in marine, continental margin, and/or terrestrial systems. Uses computational tools and creates automated alarms to provide notification when seismic activities exceed determined thresholds. Uses interactive processing software to analyze data and determine parameters to be used in processing flow; uses amplitude versus offset analysis to infer rock and fluid properties to enhance geologic interpretations. \_\_\_\_\_%

Processes and interprets large sets of multispectral and hyperspectral remotely sensed data using computer and manual techniques for terrestrial or planetary systems. Analyses immense data sets. Uses commercial and in-house remote sensing analysis software to process and interpret complex data sets. \_\_\_\_\_%

Provides ground motion estimates, foundation performance, seismic source characterization, earthquake spectra time histories and soil liquefaction assessments for use in engineering analysis of existing or proposed structures. Investigates the use of strong ground motion information to define appropriate ground

motions for use in the analysis of design of engineered structures. Reviews and applies data pertaining to seismic hazard characterization, including recurrence information, zonation source characteristics, wave propagation, site attenuation and response. \_\_\_\_\_%

Conducts detailed subsurface analyses to determine the resource and reserve potential using geophysical interpretation of seismic and well data. Activities include the identification of lands subject to drainage; the determination of the areal extent-and characteristics of potential geological plays; reservoirs resources (discovered or undiscovered); and/or reserves underlying leased and unleased lands. Interpretations are typically computer based using a range of existing software applications. \_\_\_\_\_%

Conducts complex and novel geophysical investigations incorporating information and data from lease, field, and other studies in conjunction with geological data to produce geophysical and geological maps for resource evaluation. Represents the organization in technical discussions regarding geophysical data. \_\_\_\_\_%

Participates in major data collection activities used in earthquake hazards, coastal change, engineering projects, environmental hazards studies, and assessments. Interprets data, fault geometry of active zones and other important geologic features. Applies data management and interpretation tools to geophysical models and geophysical applications. \_\_\_\_\_%

Performs studies involving surface and borehole geophysics to evaluate foundation conditions, materials engineering properties, stratigraphic correlations, including the identification and orientation of open partings, joints, clay seams, fractures, cavities, top of rock, seismic and electric properties. Results of studies inform the evaluation of existing structures and design and construction of planned structures. \_\_\_\_\_%

Conducts seismological and geophysical investigations and reports of geotechnical engineering applications at various sites. Works with staff geophysicists, geologists, and engineers to correlate geophysical data with geologic data and engineering materials properties. \_\_\_\_\_%

Provides training, makes presentations, and participates in communications and coordination activities with scientists and engineers. Reads and analyzes a wide variety of technical information. May publish results in peer reviewed journals, open file reports, and other media. Publishes curated datasets to interactive web platforms or data repositories. \_\_\_\_\_%

## FACTOR STATEMENTS

### FACTORS 1 - KNOWLEDGE REQUIRED BY THE POSITION

FL 1-7 1250 points

Position requires knowledge of geophysics and related physical sciences such as geology, oceanography, or physics to design, conduct, and interpret investigations. Areas of specialization may include seismology, active source seismic methods, strong motion instrumentation and analysis, electromagnetism, potential fields, radiometrics, electrical methods, spectroscopy, physics of the earth, geodesy, and resources assessments for petroleum, geothermal, and mineral exploration.

Knowledge of data collection methods, data base management and computer sciences and programming language(s) as they relate to the field of geophysics. Knowledge of mathematics, statistical sampling and statistical modeling techniques applied to geophysical, physical, and/or geochemical processes. Knowledge of probabilistic geophysical hazard analysis, source characterization, site response, and spatial variability of ground motions. Knowledge of risk assessments techniques applied to one or more areas of geophysics, which may include methods of assessing economic risk.

Knowledge of a range of data analysis methods applied to geosciences, including such techniques as velocity analysis and modeling, coherence filtering and depth migration. Knowledge of principles and techniques of real-time data telemetry signal processing. Skill in computer operating systems and hardware platforms, with a strong background in experiment design, to interface field and laboratory geophysical instrumentation with computers for data acquisition and processing is required.

Knowledge of geophysical instrumentation, electronics, and communications as related to the acquisition, recording, transmission, storage and analysis of geophysical data. Knowledge of one or more specialized areas of geophysical studies such as those involving seismic reflection and refraction, tomography, electrical, electromagnetic, and borehole geophysics.

Ability to plan, organize, and independently projects involving geophysical interpretation, mapping, hazard prediction, and other complex projects within the area of geoscience.

Knowledge of and skill in using a broad range of techniques to collect, store, retrieve, and analyze diverse geophysical data, including non-seismic data such as gravity, magnetics and electromagnetics. Familiarity with the full range of equipment used in geophysics and seismology to visualize movement of the earth. Knowledge of current practices in geophysical studies and current literature and sources.

#### **FACTOR 2 - SUPERVISORY CONTROLS**

FL 2-4 450 points

The supervisor sets overall objectives, priorities, and deadlines for the work of the position in accordance with bureau and agency objectives. The employee independently plans the work, coordinating with other scientists to resolve problems. The employee plays a key role in resolving significant issues and keeps the supervisor informed of any unusual situations or potential adverse publicity.

The scientist's analysis, recommendations, and conclusions are relied upon on as technically accurate and authoritative. Completed work is reviewed for overall adherence to policy, compatibility with other studies, and attainment of study objectives.

#### **FACTOR 3 – GUIDELINES**

FL 3-3 275 points

Guidelines consist of bureau, agency, and government-wide policy, regulations and operating procedures; technical reports, and published and unpublished scientific reports. Guidelines also include technical documentation related to mapping and visualization systems, statistical modeling software, and mainframe and desktop computers. Precedents are typically available, but not always directly applicable.

The employee must use judgment adapting guidelines to resolve specific, complex issues. While equipment and software are generally commercially produced, such equipment and software may require adaptation to suit the needs of the work. The scientist must apply judgment in adapting equipment, devising new techniques and developing methods that depart from established practices.

#### **FACTOR 4 – COMPLEXITY**

FL4-4 225 points

Work consists of range of duties requiring the employee to apply different, unrelated processes, methods, and technologies. Work may present conflicts between different requirements or problems and situations for which no precedent exists.

The scientist must often devise techniques to resolve discrepancies between data systems and interpret data requiring unique approaches and extension of existing methods. The scientist must consider conflicting information and select approaches from several possible alternatives.

The employee must exercise judgment and resourcefulness to modify, adapt, and refine techniques in order to provide cogent advice on changing systems and technologies, improvements to techniques and abilities in the field of geophysics.

**FACTOR 5 - SCOPE AND EFFECT**

FL 5-3 150 points

Work of the position involves applying precedents and established techniques to projects involving protection of life and property, design and construction of engineering projects, exploration and management of valuable petroleum and mineral resources, and provision of science information tools and technologies.

Products of the work may include data sets, maps, models, and recommendations. The work affects the safety of people, safe operation of facilities or equipment directly impacted by work products, and agency credibility with external customers.

**FACTOR 6 & 7 – NATURE AND PURPOSE OF CONTACTS**

FL 6-3 & 7-C, 180 points

Contacts are with technical, administrative, and scientific personnel within and outside the immediate organization. Other contacts typically include scientific and technical personnel from other Federal and State Agencies, regulatory bodies, industrial and consulting firms, professional and scientific societies and academic institutions.

The purpose of contacts is to gain acceptance or obtain compliance with recommendations. The employee must use persuasion, negotiation, and/or establish rapport with resource managers, administrative personnel and other scientists.

**FACTOR 8 - PHYSICAL DEMANDS**

FL 8-1 or 8-2, 5 or 20 points

Some work of the position takes place mostly in an office or laboratory setting. No special physical effort is required. Field work may require hiking distances of several kilometers over uneven surfaces, the use of proper personal protective gear, working in dusty, hot, humid, and extreme cold environments, occasional off-road driving of 4-wheel drive vehicles, traveling to remote field sites in helicopters or small fixed wing planes, and/or boats. Lifting of equipment and objects weighing up to 20 kilograms may be necessary.

**FACTOR 9 - WORK ENVIRONMENT**

FL 9-1 or 9-2, 5 or 20 points

Most work takes place in office or laboratory settings with adequate heat, light, and ventilation. Office conditions do not require special safety precautions; field conditions may include extreme heat or cold, rain or snow, and hazardous conditions such as exposure to extreme temperature, noxious or toxic gasses, ice or flooding. Field work may occasionally also involve encounters with snakes, bears, and other wilderness dangers. International field work may be conducted in culturally hostile areas.

Note: Positions involving field work under arduous conditions and those involving on-site emergency response require a pre-employment medical examination to ensure the applicant can perform the essential duties and responsibilities of the position, with or without accommodation.

**TOTAL POINTS: 2540-2570**

**GS-11 = 2355-2750**

## EVALUATION STATEMENT

### STANDARD APPLIED

Job Family Standard (JFS) for Professional Work in the Physical Science Group, GS-1300 December 1997; Introduction to the Position Classification Standards, revised 8/09

### SERIES AND TITLE DETERMINATION

The standard defines the Geophysics series as work requiring application of knowledge of the principles and techniques of geophysics and related sciences in the investigation, measurement, analysis, evaluation, and interpretation of geophysical phenomena and artificially applied forces and fields related to the structure, composition, and physical properties of the earth and its atmosphere. Like work described in the standard, positions covered by this standard PD perform a broad range of geophysical studies and provide technical review and oversight of tasks or programs related to geophysics, seismology, geodesy, hazards assessments and other areas related to physical properties of the earth. The title for such positions is Geophysicist.

### GRADE LEVEL DETERMINATION

The 1300 JFS is a narrative standard. When applying narrative standards each position is placed at the grade with the descriptive material that best represents the overall work of the position. Work of this position exceeds the GS-09 level where work involves independent responsibility for applying established technology in routine ways to well-defined, moderate sized physical science projects. At the GS-09 level scientists are responsible for independent and accurate application of standard methods, techniques, and procedures.

At the GS-11 level the standard states professional scientists plan and execute complex studies. The work typically involves conventional methods and techniques, though going beyond clear precedents, and requires adapting methods to the problems at hand and interpreting findings in terms of their scientific significance. Finished products are reviewed for adequacy of conclusions and soundness of the procedures and methods used. Like work described at the GS-11 level, employees assigned to this PD conduct complex and novel geophysical investigations, develop geophysical approaches to visualizing, reporting, and understanding volcanic, geodetic or seismic processes in an active geographic area, review and apply data pertaining to geophysical characterization as applies to safety of structures, identification of resources, and/or general advancement of scientific understanding of geophysical processes.

Work does not reach the GS-12 level where complexity of assignments requires extensive modification and adaptation of standard procedures, methods, and techniques, and development of totally new methods and techniques to address problems for which guidelines or precedents are not substantially applicable. Scientific recommendations are normally accepted as sound without close review, unless matters of policy or program resources are involved. Study reports and scientific papers are considered to be authoritative scientific documents.

**FINAL CLASSIFICATION** Position classifies as GS-1313-11, Geophysicist