

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			15. Fair Labor Standards Act <input type="checkbox"/> Exempt <input type="checkbox"/> Nonexempt	
	13. Duty Station	14. Employing Office Location	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		
a. Supervisor						
b. Classifier						
26. Remarks						

DOI Standard PD
PD# DN01300

Classification: Geologist, GS-1350-12

Introduction

This position performs scientific work of marked difficulty, exercising independent judgment in support of a DOI Bureau/Office or an operating subdivision of a Bureau/Office. Position serves as a source of expertise to other scientists or program specialists, resolving and/or evaluating issues that impact scientific projects and programs. Provides expertise and coordination in one or more subdisciplines of geology: Geomorphology, Sedimentology, Stratigraphy and Geochronology, Sedimentary/Igneous/Metamorphic Petrology, Structural Geology, Economic and/or Mining Geology, Petroleum Geology, Engineering Geology, Paleontology, Geochemistry, or Volcanology. The position performs a range of geologic studies and provides technical review and oversight of tasks or programs.

Major Duties (Accounts for the minimum of 25% of work time)

Methods and Procedures: Applies a variety of sophisticated processes and analytical methods to the preparation and analysis of field/remote sensing observations and/or laboratory samples. Methods employed may include scanning electron microscopy; laser diffraction; bathymetry, real time kinematic GPS, lidar and other scanning techniques. Methods may also include geologic and geomorphic field mapping, both detailed and reconnaissance; subsurface investigations such as drilling, hydrocarbon development, trenching or other excavations; analysis of orbital and aerial remote sensing data; stratigraphic and soil profile descriptions; and utilization of radioisotope and relative dating techniques. Determines stratigraphic, structural, geochemical, framework geology, sand and gravel resources, productive facies, depositional styles, and magmatic or thermal evolution of terranes and reservoirs through mapping, well log correlation, field sampling, and/or compilation of existing geoscience data. Keeps abreast of state-of-the-art technological development and may train others in the use of advanced techniques, software, and equipment.

Data Collection/Analysis/Synthesis: Applies a broad range of geologic and/or geochemical techniques to acquire data and samples. Makes geological observations, computations, and measurements. Determines adequacy of data collected, identifies apparent anomalies and investigates conditions that may have caused anomalies. Assesses the validity of procedures and techniques to correct for errors and improve results. Reviews the validity of operator submitted data and analysis; establishing an independent analysis of geological attributes Areas of investigation varies widely depending on particular assignment; examples may include geomorphology, paleo seismology, planetary sciences, paleontology, paleoclimatology, sedimentology, limnology, resource assessments, geologic mapping, structural assessments and specifications, and safety assessments related to new or existing major structures such as dams , depth of water tables and other types of conditions which impact projects. May review applications and issues permits for prelease data. Provides technical advice on data acquisition and procurement programs. Provides technical advice on geologic and geophysical data for preliminary basin analysis and resource assessment, for track selection and evaluation, and for reserves inventory. Works with data sets from varied sources, including data published by various State, Federal, and International entities.

Synthesizes data using techniques such as meta-analysis, descriptive synthesis, and other methods of qualitative and quantitative syntheses, depending on study type and expected end products.

Geologic Interpretation: Analyzes and interprets geological and geophysical data and independently carries out detailed investigations of considerable scope. Investigations may involve but are not limited to: reservoir identification and classification, well log analysis and correlation, seismic and other geophysical data interpretation, surficial and subsurface mapping, developing geologic cross sections, and reserves and resource estimation, conservation of resources, lease sale evaluations for fair market value determination, and worst-case discharge analyses. Solves and reviews complex geological problems, such as those associated with geologic structure and stratigraphy, hydrocarbon and exploitation, and environmental geology, while in conformance with safe operating procedures, economic considerations, environmental factors, and statutory and regulatory requirements. Analyses require integration of all available geological, geochemical, geophysical, petrophysical, paleontological, environmental and engineering data. Utilizes and is proficient in data interpretation software and various PC-based software applications in order to adequately evaluate geologic-related projects, make determinations, and for the purpose of inputting, displaying, and organizing geological, geophysical and/or engineering data for retrieval and evaluation. Prepares detailed technical exhibits, presentation, and reports of geological findings.

Reporting/Documenting: Personally prepares or contributes to complex, technically authoritative reports on geologic and related studies, which may require development of new methods of field, remote sensing and/or laboratory investigation and that convey complex geologic, geomorphic, geochemical, biological, and/or hydrologic information. Audiences for reports may be academic researchers, government entities, commercial concerns, cooperating entities, or other users of government data and reports. Reports may serve as the basis for decision-making by Bureau and DOI management officials, resource managers, other Federal Agencies, state, and local entities, and major industrial or commercial concerns. May develop or edit geologic maps for digital or print publication.

Communication of Findings: Communicates findings in a variety of formats and settings. Makes oral presentations of technical documentation at professional meetings, coordination meetings, design briefings, or other technical briefings, in some cases in support of enforcement activities as part of federal oversight of regulatory programs. Provides guidance and expert advice to management and other officials on technical, systems, or process related topics. May make presentations to senior management officials, in public forums, and under other circumstances where technical information must be presented in a way that is comprehensible to non-technical personnel. Topics communicated may be technical, environmental, safety and emergency management oriented, address permitting and compliance issues, or other purposes of interest to the Bureau, DOI, cooperating agencies, Federal contractors, or the general public and commercial concerns.

Proposal Writing/Project Design/Science Planning: Develops new and original science investigations related to geological sciences, including defining the hypotheses to be tested, methods to be used, and estimating the budget and schedule required to complete the investigation. Develops project guidelines, protocols, and procedures that are specific to the project; and may review for comment or propose draft Bureau directives, standards, and policies. Prepares, or oversees the preparation of, and reviews technical documentation such as technical memoranda and reports, study analyses and results, correspondence,

publications, design criteria, calculations, operating procedures, evaluation and oversight reports, value studies reports, inspection and assessment reviews, impact assessments, permit applications, emergency action plans and exercises, construction plans and reports, quantity estimate worksheets, specifications, solicitation packages, required planning, design, and cost estimates such as Independent Government Cost Estimates (IGCE) and contract correspondence including responses to submittals and Request for Information (RFI). Makes oral presentations of technical documentation at coordination meetings and other technical briefings, in some cases in support of enforcement activities as part of Federal oversight of regulatory programs. Serves an advisor to management on planning of future projects in accordance with DOI priorities and bureau resources and priorities.

Mentoring and Development: Provides technical reviews, peer reviews, and checking of project designs, technical documents, specifications, and contract correspondence, ensuring documents are accurate and scientific quality assurance processes were followed. Provides technical mentorship, guidance, training, and advice to scientists, engineers, and technicians and other internal and external stakeholders. May sign documentation for technical approval in accordance with Bureau and Department policies, directives, and standards.

Other Duties (Cannot account for more than 75% of work time)

- **Project Management:** Develops, monitors, and manages project plans that outline the scope, schedule, and/or budget of assigned projects. This includes: permitting, data acquisition and procurement, coordinating and communicating with other groups and offices throughout the organization such as program and project managers, finance, maintenance, permit compliance, and acquisition; managing changes to the project plans with external stakeholders, tribes, and regulatory authorities; identifying and addressing issues prior to adverse impacts to the schedule and/or budget; and participating on and/or leading technical teams.
- **Contracting Officer's Representative/Grants Management/Awards Management:** Works with Contracting Officer/Grants Officer/Awarding Official to implement and administer a variety of assigned contracts, including construction contracts, service or supply contracts, P.L. 93-638 Indian Self Determination and Education Assistance Act as amended contracts/agreements, interagency agreements, and financial assistance agreements. Initiates timely actions and technically monitors the contract/agreement to ensure that they are carried out to completion as outlined in the contract/agreement. Researches the background on problems, identifies and devises courses of action in coordination with the Contracting Officer, Grants Officer, or Awarding Official as appropriate, and prepares recommendations for decision by management.
- **Compliance:** Provides support in connection with regulatory program oversight, policy and rulemaking efforts, review of regulatory compliance issues, and resolution of geology related issues as they are encountered. This may include review of lands unsuitable for mining petitions, subsurface development, and seafloor anomalies.
- **Database Development/Management:** Develops, modifies, and utilizes relational databases to maintain geologic data for conducting operational and planning analyses. Oversees development and operation of geologic data collection systems directly and/or in coordination with other government agencies and non-Federal sources. Ensures necessary data is collected, transmitted, downloaded, decoded, and received for its intended purpose. May populate a reserves inventory database for estimating fair market value.

- **Participation in Conferences/Representation at Technical Meetings:** Participates on and/or leads technical work groups or teams. May provide technical organizational representation and collaboration on teams external to the organization, including external stakeholders and partners.

Performs other duties as assigned.

FACTORS 1 - KNOWLEDGE REQUIRED BY THE POSITION

FL1-7 1250 points

Position requires knowledge of geology and related physical sciences such as geophysics, oceanography, physics, volcanology, hydrology, or chemistry to design, conduct, interpret, and document scientific investigations. Areas of specialization may include geomorphology; structural geology; sedimentary, igneous or metamorphic petrology; planetary geology; economic or mining geology; engineering geology; petroleum geology; oceanography; geomorphology; paleoclimatology; paleontology; geochemistry; geochronology; soil science; volcanology; geodesy; and resource assessments for petroleum, geothermal, and engineering geologic analysis of infrastructure, subsurface, and geotechnical investigations.

Knowledge of a wide range of geologic concepts, principles, and methods applicable to investigate and characterize geologic conditions associated with varied and complex problems, projects, or studies that may involve diverse geologic, engineering, hydrologic, biologic, chemical, man-made or other environmental conditions and varying processes. Problems encountered demand skills sufficient to apply and modify standard practices, adapt precedents, and make significant departures from existing approaches and techniques. Knowledge of agency and industry-accepted scientific standards and guidelines. Knowledge of applicable environmental and cultural statutes and regulations and agency safety standards. For positions responsible for public safety, the position requires knowledge of common failure modes and processes to evaluate risk of failure for various types of critical infrastructure and/or geologic hazards. For positions responsible for construction support, knowledge is required to provide recommendations for, and documentation of geologic conditions related to construction activities and foundation treatment; and knowledge to provide formal approval of foundations. For positions responsible for Outer Continental Shelf resource development, knowledge of seismic, subsurface, structural, and well log interpretation, petrophysical analysis, reservoir analysis and characterization, salt tectonics, wavelet analysis and reflectivity, key sequence stratigraphic surfaces and systems, spatial data, synthetic seismograms, regional hydrocarbon plays and trends, hydrate and sulfur evaluation, prospect risking and economics, and resource assessment is essential.

Knowledge of data collection methods, data management, computer sciences and programming language(s) as they relate to the field of geology. Skill in computer systems and hardware platforms, with a strong background in experiment design, to interface field, remote sensing and laboratory instrumentation with computers for data acquisition and processing is required. Ability to use software applications for seismic interpretation, creation of structure, isochore, attribute maps, and structural and stratigraphic cross sections, familiarity with computerized display and mapping packages and the integration of digital databases. Knowledge of mathematics, statistical sampling and statistical modeling techniques applied to geophysical, physical, and/or geochemical processes. Knowledge of probabilistic geological hazard analysis, resource and environmental assessment analysis, source characterization, site response, and spatial variability of structural, stratigraphic. and (or) framework geology. Knowledge of

risk assessments techniques applied to one or more areas of geology, which may include methods of assessing economic risk, environmental risk, dam safety risk.

Knowledge of geological, geochemical, engineering geology, and instrumentation, electronics, and communications as related to the acquisition, recording, transmission, storage and analysis of geological data. Knowledge of one or more specialized areas of geologic studies such as those involving geophysics; remote sensing; sediment chemistry and radio geochemistry; volcanology; paleontology and paleoclimatology; or minerology.

Knowledge of a range of data analysis methods applied to geosciences, incorporating such techniques as remote sensing, field mapping and modeling, geochronology, coherence filtering, depth migration, and geochemical characterization. Ability to apply statistical models to large data sets and analyze data consistent with scientific and statistical principles.

Ability to plan, organize, evaluate, and independently acquire and analyze data to document geologic processes and provide data and tools to support effective management strategies. Ability to plan, organize, and analyze a variety of geologic data to interpret, map, and predict a variety of hazards within the area of geoscience.

FACTOR 2 - SUPERVISORY CONTROLS

FL2-4 450 points

The supervisor provides guidance on overall objectives based on mission priorities. The employee and supervisor, in consultation, develop deadlines, projects, and work to be done. The employee independently plans, conducts and documents the work; coordinating with other scientists and engineers to resolve problems and characterize geologic conditions.

The employee plays a key role in resolving significant issues and keeps the supervisor informed of any unusual situations, potential adverse publicity or the potential for increase to public risk. The scientist's analysis, recommendations, and conclusions are relied upon on as technically accurate and authoritative.

Completed work is reviewed for integrity of scientific methods employed, overall adherence to policy, compatibility with other studies, and attainment of study objectives.

FACTOR 3 – GUIDELINES

FL3-4 450 points

Guidelines consist of bureau, agency, and government-wide policy, regulations and operating procedures; industry technical standards, technical reports, and published and unpublished scientific reports. Guidelines also include technical documentation related to mapping and visualization systems, instrumentation, geologic characterization, statistical and chemical modeling software, and computers. Most available guidelines are not directly applicable to the work and require adaptation to apply to specific projects.

The employee must use judgment and creativity in interpreting and applying guidelines. While equipment and software are generally commercially produced, such equipment and software frequently require extensive adaptation to suit the needs of the work. The scientist must apply experienced judgment in

adapting equipment, devising new techniques and developing methods that depart from established practices.

FACTOR 4 – COMPLEXITY

FL4-5 325 points

Work consists of a wide range of duties requiring the employee to apply different, unrelated processes, methods, technologies, and complex analytical techniques. Work is sometimes further complicated by volume of data and may include the need to react almost instantaneously to changing conditions that may represent serious threats to life and property. The scientist is often faced with conflicts between different requirements requiring a high degree of technical judgment or problems and situations for which no precedent exists. Problems studied are often highly visible.

The scientist must often devise techniques to resolve discrepancies between data systems and interpret multi-parametric data requiring unique approaches and extension of existing analytic methods, often in limited timeframes or with few resources. Problems are frequently difficult to define due to the novelty of techniques or the lack of available data and previous research in the given geographic or topical area.

The employee must exercise judgment and resourcefulness to provide cogent advice on changing systems, concepts, theories, and technologies, improvements to techniques and abilities in the field of geology and related fields and provide advice on how these changes can impact programs, policy, regulation, and bureau or agency priorities.

FACTOR 5 - SCOPE AND EFFECT

FL5-4 225 points

Work of the position is critical to one or more bureau and/or agency priorities such as protection of life and property, planning, design and construction of engineering projects, dam safety and infrastructure evaluation, management of valuable petroleum and mineral resources, and provision of science information tools and technologies to inform decisions of the Federal government, State and local governments, and all manner of resource managers and users.

The projects, analyses, maps, and other products are used by resources managers and bureau and agency leadership to inform decision making.

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

FL6-3 & 7-C 180

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. Positions involved in disaster response may have contact with emergency responders, land managers, and counterparts from foreign governments. Some positions require contact with the media and general public, sometimes in emergency response situations.

The purpose of contacts is to provide technical direction and coordination of work related to projects, monitoring networks, and geoscience investigations. Contacts outside the government may be skeptical about trusting government employees, have competing interests with the bureau or agency, and may be

unwilling to cooperate or comply. The scientist must be diplomatic in presenting ideas and employ skill and professionalism to establish rapport with uncooperative contacts.

FACTOR 8 - PHYSICAL DEMANDS

FL8-1 or 8-2 5 or 20 points

8-1 Some work of the position takes place mostly in an office or laboratory setting. No special physical effort is required.

OR

8-2 During emergency response periods, training of personnel on new equipment, or field work, the scientist may be expected to hike distances of several kilometers over uneven terrain while carrying equipment. Field work may require working in remote field sites with limited to no services.

Field work may require 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 50 pounds may be necessary.

FACTOR 9 - WORK ENVIRONMENT

FL9-1 or 9-2 5 or 20 points

9-1 Some 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.

OR

9-2 Field work may involve encounters with dangerous fauna and flora, and other wilderness dangers. International field work may be conducted in culturally hostile areas.

Geology position with duties that involve subsurface investigation require geologists to work near drill rigs and heavy equipment. Geology positions with duties that involve construction support require geologists to work near heavy equipment and construction hazards. Some work is carried out in proximity to explosives.

Total Points and Grade Conversion

Total Points = 2890 to 2930

Point Range = 2755-3150

Grade = GS-12

Other Significant Facts

Incumbent may be required to have certification as a Contracting Officer's Technical Representative (COTR) or Contracting Officer's Representative (COR) and/or Agreements Technical Representative (ATR) depending on bureau/office requirements.

EVALUATION STATEMENT

STANDARDS APPLIED

Job Family Standard (JFS) for Professional Work in the Physical Science Group, GS-1300 December 1997; JFS for Work in the Engineering and Architecture Group, 0800, November 2008; Introduction to the Position Classification Standards, revised 8/09

SERIES AND TITLE DETERMINATION

The 1300 JFS defines the Geologist series as work requiring application of knowledge of the principles and techniques of geology and related sciences in the investigation, measurement, analysis, evaluation, and interpretation of geologic data, and chemical, biological, and physical phenomena 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 geological studies and provide technical review and oversight of tasks or programs related to sedimentary, metamorphic, and (or) igneous petrography, geology, mineralogy, structural and framework geology, resources assessments and other areas related to physical properties of the earth or other planets. The title for such positions is Geologist.

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.

The standard describes the GS-11 position as performing responsible work of considerable difficulty requiring somewhat extended professional, scientific, or technical training and experience which has demonstrated important attainments and marked capacity for independent work. 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.

The standard describes work at the GS-12 as typically involve planning, executing, and reporting on original studies or ongoing studies requiring a fresh approach to resolve new problems. The 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. Like illustrations at GS-12 in the standard, the position plans significant projects, advises on improvements to instrumentation or methods, receives assignments in terms of broad, general objectives, time limitations, and policy instructions. Discusses the general method of approach with the supervisor and the aspects to be emphasized. Determines when new equipment or procedures are needed. Works free from technical supervision, although informs the supervisor of general progress and any unusual findings, problems, or results.

Work does not rise to the GS-13 level, where the scientist has demonstrated leadership and attainment of a high order in professional, scientific, or technical research, practice, or administration. At the GS-13

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.

Note: The 1300 JFS does not provide detailed descriptions and illustrations in the field of geology that fit many aspects of work covered by this PD. As such the 0800 JFS grading criteria was used to confirm grade level. The score derived from application of the 0800 JFS ranges from 2890 to 2930 points which equates to the GS-12 level on the grade conversion table.

FINAL CLASSIFICATION

Position classifies as GS-1350-12, Geologist