

Job Class Profile: **Manager of Petroleum Geoscience**

Pay Level: **CG-45** **Point Band:** **1136-1189**

Factor	Knowledge	Interpersonal Skills	Physical Effort	Concentration	Complexity	Accountability & Decision Making	Impact	Development and Leadership	Environmental Working Conditions	Total Points
Rating	8	7	2	5	8	7	6	4	3	
Points	373	117	13	24	240	152	124	86	32	1161

JOB SUMMARY

The Manager of Petroleum Geoscience is responsible for managing and supervising activities within the petroleum geology or petroleum geophysics disciplines as well as providing expert technical geoscientific and policy advice on issues related to petroleum exploration development and production.

Key and Periodic Activities

- Plans, organizes, directs and supervises the activities and staff of the Petroleum Geology/Geophysics Section.
- Provides advice and consultation to senior officials in the field of petroleum geology.
- Reviews “Authority to Drill a Well” applications (ADW), Final Well Reports, Petroleum Production Development Plans (Production Lease) and Petroleum Exploration Surveys submitted and/or undertaken by exploration companies to determine whether they meet the requirements of the regulations and/or identify deficiencies.
- Reviews down-hole well abandonment plans and makes recommendations with regard to the setting of down-hole abandonment plugs upon well termination (determining correct intervals for well abandonment plugs).
- Assesses well information supplied by the operator to determine whether drilling results conform to original drilling prognosis and if not, determine the reasons why they don't.
- Monitors geoscience aspects of onshore drilling activity; interprets drilled lithologies; interprets hydrocarbon shows; views/interprets wireline logs.
- Assesses provincial Natural Areas Systems Plan (NASP) selected areas for their petroleum potential; creates maps and writes reports with respect to petroleum potential of NASP areas.
- Evaluates and makes geoscience related recommendations concerning offshore drill projects (mostly exploration related) and results of this drilling.
- Provides input as part of the selection committee for the Petroleum Exploration Enhancement Fund (PEEP); develops explanatory materials in support of the PEEP Program.
- Conducts regional geoscience petroleum assessment of province's onshore geology and petroleum potential, both conventional and unconventional hydrocarbon resources: creates graphical lithology logs and cross-sections from subsurface drilling data; tabulates hydrocarbon seep / show information gathered from written articles, exploration assessment report, mining drill logs and field visits; tabulates source rock thermal maturity data from

Key and Periodic Activities

- published articles; creates thermal maturity maps for onshore basins; performs shale gas / shale oil assessments for the three onshore basins; performs coal bed methane assessment for applicable onshore basins; undertakes basin analysis from gathered geoscience data (i.e. review maps and geoscience information in order to assess / create charts and/or maps depicting timing of subsurface hydrocarbon generation, volumes of generated hydrocarbons, subsurface hydrocarbon migration pathways, etc.); examines and interprets seismic sections and evaluates reservoir traps; constructs graphics in support of basinal hydrocarbon assessment (i.e. surface and subsurface geology maps, lithology logs, subsurface cross sections, various other maps, etc.) creates digital geoscience presentations in support of Departmental hydrocarbon assessment files (i.e. Shale Gas Assessment for onshore basins).
- Plans and conducts geoscience field trips.
 - Responds to information requests and supplies information through producing maps, making presentations, granting interviews, providing reports, burning CDs and packaging brochures, emailing PowerPoint presentations and writing information pieces.
 - Represents the Department at international, national & local conferences, trade shows, symposiums or workshops; gives presentations; mans display booths and meets with client representatives with respect to petroleum resources of the province.
 - Attends meetings with petroleum exploration companies, other government agencies, petroleum related service companies, and Natural Gas Utilization Study; performs required background research, prepares notes, graphics (maps, cross sections), tables or presentation slides; actively participates in discussion, provides geoscience input and on occasion, oversees/conducts meetings.
 - Visits drill rig in western NL to monitor progress; tours local service company facilities (i.e. geochemistry labs, core storage labs, etc.); attends presentations (i.e. MUN 3-D visualization centre, academic talks by professors); tours seismic vessels when in port or other research vessels collecting alternate forms of geoscience data (i.e. CSEM electromagnetic surveys).
 - Participates in administering the petroleum core storage requirements for province; examines (visual or microscope) rock hand samples, core samples and drill cuttings; conducts hydrocarbon analyses on rock hand samples, core samples and drill cuttings.
 - Performs duties related to the Oil & Gas Symposium; researches and contributes to and compiles the field trip guidebook; acts as field trip co-leader for Symposium 1-day field trip, responsible for trip logistics, narration on petroleum history, geological history and mining history for trip region.
 - Performs as lead instructor for classroom theory, laboratory exercises and field geology interpretive trips for the Prospectors Training Course; also, responsible for field trip site selection and narration onsite and field demonstrations.

SKILL

Knowledge

General and Specific Knowledge:

- Knowledge of petroleum exploration and development.
- Knowledge of relevant Legislation and Regulations.

- Knowledge of petroleum geoscience theories, practices and technology.

Formal Education and/or Certification(s):

- Minimum: Undergraduate Degree in Petroleum Geology or Geophysics and Registration as P.Geo with the APEGNL.

Years of Experience:

- Minimum: 10 + years.

Competencies:

- Analytical and assessment skills.
- Written and oral communication skills.
- Computer software packages.

Interpersonal Skills

- A range of interpersonal skills are used to: listen to information from other people (from divisional staff members on day to day projects or other issues); ask questions to get information (when meeting with exploration companies to find out where they are in their programs); provide routine information and direction to others (to fellow staff members, general public or while instructing courses or leading field trips); provide expert advice or counseling to others and communicate complex information and direction to others (interpreting lithology strip logs or wireline logs to other people); coach or mentor (constantly imparting aspects of NL geology / petroleum knowledge to staff petroleum technologist); make formal presentations to groups of people (at international, national, regional & local conferences, seminars, etc.; instructing (Prospectors Training Course); conduct formal interviews (when hiring summer students or filling petroleum technologist position); promote services, products or ideas (promote petroleum related services of NL government at various conferences); instruct, teach or train (field trip leader for Oil and Gas Symposium western NL petroleum field trip; lead instructor for NL government's 2 week Prospectors Training Course); facilitate geoscience related meetings; and gain the cooperation of others to complete tasks (utilize NRCan employees and university professors to help in creation and completion of field guide book for Oil and Gas Symposium field trips).
- Most significant contacts are with: client group – technical staff of petroleum exploration and development companies; employees in the immediate work area and Division; and other employees in the Department to provide geoscience advice and information related to drilling operations and exploration.

EFFORT

Physical Effort

- The demands of the job do not result in considerable fatigue, requiring periods of rest.
- Lifting or moving objects 10 - 25 lbs. occurs occasionally when conducting geological field work and preparing booths for conferences.
- Using hand tools, gross motor skills and maintaining physical balance are occasionally required in cutting rock core samples and conducting geological field work.
- Standing, walking, driving and climbing is required on an occasional basis when visiting

exploration sites, conducting geological field work, attending meetings and delivering presentations.

- The use of fine finger/precision work is regularly required when utilizing a computer and mouse to develop spreadsheets, produce maps and geological cross sections.

Concentration

- **Visual** concentration is a regular requirement for the computer related aspects of the work environment; typing e-mails, Excel spread sheets for geochemical data, constructing Corel Draw graphics requiring exact precision for placement of lines, lettering, etc. and when examining rock / core samples, drill cuttings, etc.; and when reading geoscientific articles, maps, wireline logs and seismic sections.
- **Auditory** demands result from handling telephone enquiries and conversations with staff and clients.
- Examples of **repetition requiring alertness** are: entering data into spreadsheets; examining wireline and lithological logs; reading well log lithology descriptions; creating Corel Draw graphics; and visiting field locations or drill rig sites.
- **Higher than normal level of attentiveness/alertness for health and safety** is required when either in the field undertaking geological evaluation, participating in field trips or organizing / leading field trips; also, while conducting drill site visits.
- **Precision and accuracy** are important when creating Corel Draw graphic diagrams; or entering geochemical data into spreadsheets.
- **Time pressures and deadlines** are experienced occasionally. **Interruptions** are typically caused by phone calls, co-workers and staff seeking information and travel.

Complexity

- Tasks and activities range from well defined to quite different but allow for the use of similar skills and knowledge. Some challenges/problems/issues have obvious solutions and can be addressed by following procedures and/or guidelines as work is performed within defined and standard work processes. However, many issues are encountered for which there are no, or a limited number of guidelines or procedures; may be unique; and/or have policy significance.
- A typical challenge is defining petroleum bearing zones from exploration wells to determine prospective zones (from logs need to determine permeable zones, resistive zones, zones with overall good net and effective porosity, percentage of water saturation, etc.) in order to deduce whether the subsurface well interval is hydrocarbon bearing or water wet.
- Work requires keeping abreast of trends and developments in petroleum exploration techniques to review reports and data and provide expert advice, and has responsibility for reviewing legislation and guidelines and making recommendations to senior officials of the department.
- Challenges/problems/issues can be addressed by referring to Petroleum and Drilling regulations related to the Oil and Gas Act and draft exploration guidelines; C-NLOPB staff and website; technical manuals from service companies; consultant reports; internet websites; published geoscientific journals; personal geoscience knowledge and highly variable work experience.

RESPONSIBILITY

Accountability and Decision-Making

- Work is conducted independently and requires exercising considerable professional discretion and judgment in performing duties.
- Without formal approval decisions can be made regarding approving leave requests by staff under direct supervision; assigning work duties to geoscience staff; undertaking departmental onshore petroleum assessment projects; creating and dispersing written materials at trade shows, conferences, etc. and in most instances, speaking at conferences.
- Requires formal approval on purchase orders.
- Has some discretion to exercise within predetermined limits and procedures for most every activity related to the dissemination of non-confidential petroleum related geoscientific information related to the overall promotion of the onshore and offshore petroleum regions of the province.
- Discretion and judgement is required when reviewing geoscientific information as submitted by exploration companies as part of an exploration license, ADW (Authority to Drill a Well)/ DPA (Drilling Plan Approval) documentation, final well reports, etc.
- A high degree of independent discretion and judgment is exercised when interpreting wire-line logs, lithology logs, etc. in order to assess potential adverse down-hole conditions.
- Provides expert technical and professional advice and consultation to senior officials of the department.

Impact

- Impacts are felt internally within the immediate work area and department as well as externally with clients in the industry, the economy and the general public.
- Work activities impact resources such as finances, processes and systems, information, material resources and corporate image.
- Assessment of geological data is used in part for promotion of onshore and offshore petroleum resources of the province. Data must be current and accurate. This will impact slightly on the material resources of the province and more importantly, on the human resources (i.e. project completion times, number of staff working on project, etc.).
- The consequences of a mistake or error can have an extreme impact. Mistakes which filter out to industry or the general public may have severe repercussions leading to lawsuits, etc. or at the very least negative local, national or international press for government. If resource estimates are inaccurate it could result in companies bidding for lands or could lead to individuals, etc. buying shares in companies that have exploration permits in those basins. Either way companies or individuals are spending their money on incorrect data supplied by government.
- Members of the general public (assuming no geological background knowledge) would not notice or understand errors or potential errors in the resource estimate numbers and consequently, keep buying shares into exploration companies operating in those basins under question.

Development and Leadership of Others

- Typically is responsible for direct and ongoing bargaining unit supervisory activities for a small size work group of employees, contractual staff and students (1 to 4 employees).

WORKING CONDITIONS

Environmental Working Conditions

- Safety precautions must be taken and some protective equipment must be worn when in the field.
- The likelihood of injury or illness is limited.
- Work is performed in a variety of environments. As most work is conducted in an office environment there is exposure to environmental conditions such as glare from computer. Occasionally is required to travel using a variety of transportation modes; truck, car, plane and ATV. Occasionally geological field work is performed involving exposure to dangerous heights, slippery surfaces, physical dangers, sharp objects (i.e. flying rock chips), adverse weather conditions and travel.