

EMPLOYMENT EVALUATION GUIDE

(please keep this guide for your records)

Association of Professional Engineers
and Geoscientists of British Columbia

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INTRODUCTION

This point score guide has been developed as a technique for providing members with an accurate yet easy-to-use system for evaluating the level of responsibility of engineering and geoscience careers. Usage will undoubtedly reveal useful improvements. Used objectively, this guide provides a base whereby any particular engineering or geoscience career can be classified and ranked relative to other engineering and geoscience positions. This same employment evaluation system can be used to evaluate other professional and near professional careers thus making comparisons with these occupational groups more systematic and credible.

CAUTION IN SELF-EVALUATION

In self-evaluation, there will be a tendency toward overrating on some factors, particularly duties, as well as recommendations, decisions and commitments. Where doubt exists, the grade or half grade next lower in line will usually prove to be the more accurate choice.

A rather special situation develops with the factors of education and experience. Under these factors, *do not* rate on the basis of level of education and years of experience actually attained by yourself. You may have a Master's degree and thirty years of experience. However, if the position requires neither an advanced degree nor long experience, rating according to your own qualifications will result in a point score that is unreasonably high. Members should estimate the education and experience combination required for the position.

EMPLOYMENT RATING SUMMARY

To provide the most objective rating for your position, the following procedure is recommended.

- 1) Rate your position in accordance with the points allocated for each factor: duties, education, experience, and record points in the left-hand column of the chart on the survey.
- 2) Compare the results with ratings assigned to the benchmark in the guide.
- 3) Make any necessary adjustments and record the final points in the right-hand column of the chart.

BENCHMARK EMPLOYMENT DESCRIPTIONS

An employment evaluation guide is difficult to use without guidance from an experienced employment analyst. To assist you in determining your level of responsibility, sample benchmark employment descriptions have been provided. Positions range from the most junior to that of a fairly senior manager.

As your employment will not match exactly with any of these, the points you give your position will vary from the benchmark samples evaluated both on the various factors and in total points.

EMPLOYMENT RATING FACTORS

A. DUTIES

This factor is concerned with the general nature of tasks assigned. The range is from duties performed in entrance-level positions to those carried out at an advanced level of administration. Select the grade that fits your position most appropriately. Carefully consider the relationship that your duties have to those of others in your organization. If you cannot decide between two adjoining grades, use the half grade between.

Grade	Points
1	<p>Receives training in the various phases of office, plant, field, or laboratory engineering, or geoscience work as on-the-job assignments. Tasks assigned include: preparation of simple plans, designs, plots, calculations, costs, and bills of material in accordance with established codes, standards, drawings, or other specifications. May carry out routine technical surveys or inspections and prepare reports.</p> <p style="text-align: right;">10</p>
1½	..... 15
2	<p>Normally regarded as a continuing portion of an engineer's or geoscientist's training and development. Receives assignments of limited scope and complexity, usually minor phases of broader assignments. Uses a variety of standard engineering or geoscience methods and techniques in solving problems. Assists more senior engineers or geoscientists in carrying out technical tasks requiring accuracy in calculations, completeness of data, and adherence to prescribed testing, analysis, design or combination of methods.</p> <p style="text-align: right;">20</p>
2½	..... 30
3	<p>This is typically regarded as a fully qualified professional engineering or geoscience level. Carries out responsible and varied assignments requiring general familiarity with a broad field of engineering or geoscience and knowledge of reciprocal effects of the work upon other fields. Problems usually solved by use of combinations of standard procedures, modifications of standard procedures, or methods developed in previous assignments. Participates in planning to achieve prescribed objectives.</p> <p style="text-align: right;">40</p>
3½	..... 55
4	<p>This is the first level of direct and sustained supervision of other professional engineers or geoscientists or full specialization. Requires application of mature engineering or geoscientific knowledge in planning and conducting projects having scope for independent accomplishment, and coordination of difficult and responsible assignments. Assigned problems make it necessary to modify established guides, devise new approaches, apply existing criteria in new manners and draw conclusions from comparative situations.</p> <p style="text-align: right;">70</p>
4½	..... 90
5	<p>Usually requires knowledge of more than one field of engineering or geoscience or performance by a specialist in a particular field. Participates in short- and long-range planning. Makes independent decisions for devising practical and economical solutions to problems.</p> <p>May supervise large groups containing both professional and nonprofessional staff; or may exercise authority over a small group of highly qualified professional personnel engaged in complex technical applications.</p> <p style="text-align: right;">110</p>
5½	..... 130

Grade	Points
6	Usually responsible for an engineering or geoscience administrative function directing several professional and other groups engaged in interrelated engineering or geoscientific responsibilities; or as consultant, has achieved recognition as an authority in an engineering or geoscience field of major importance to the organization. Independently conceives programs and problems to be investigated. Participates in discussions determining basic operating policies, devising ways of reaching program objectives in the most economical manner and of meeting unusual conditions affecting work progress. 150
6½	..... 175
7	Within the framework of general policy, conceives independent programs and problems to be investigated. Plans or approves projects requiring the expenditure of a considerable amount of manpower and financial investment. Determines basic operating policies, and solves primary problems or programs to accomplish objectives in the most economical manner to meet any unusual condition. 200

B. EDUCATION (See "Caution in Self-Evaluation", page 1)

Under this factor, rate the minimum university qualifications in an engineering or geoscience discipline required in order to begin your position.

Grade	Points
No degree but with standing as Engineer-in-Training or registration in APEGBC	65
Bachelor's Degree	65
Master's Degree	90
Doctorate Degree	125

C. EXPERIENCE (See "Caution in Self-Evaluation")

Under this factor, rate the minimum number of years in full-time, permanent engineering or geoscience work and/or work wherein an engineering or geoscience background was a distinct asset that would normally be required by a person starting the position. Take your count to the nearest whole or half year.

Grade	Points	Grade	Points	Grade	Points	Grade	Points
<1 year	25	3 years	45	7-8 years	70	15-17 years ...	113
1 year	30	4 years	50	9-10 years	80	18-20 years ...	125
1½ years ...	35	5 years	55	11-12 years	90	21-24 years ...	138
2 years	40	6 years	60	13-14 years	100	25 years	150

D. RECOMMENDATIONS, DECISIONS AND COMMITMENTS

Under this factor, select the grade that fits your position most appropriately. If you cannot decide between two adjoining grades, use the half grade between.

Grade		Points
1	Few technical decisions called for and these will be of routine nature with simple precedent or clearly defined procedures.	35
1½	.....	40
2	Recommendations limited to solution of the problem rather than end results Decisions made are normally within established guidelines.	45
2½	.....	50
3	Makes independent studies, analyses, interpretations and conclusions. Difficult, complex, or unusual matters or decisions are usually referred to more senior authority.	55
3½	.....	63
4	Recommendations reviewed for soundness of judgment, but usually accepted as technically accurate and feasible.	70
4½	.....	80
5	Makes responsible decisions not usually subject to technical review, on all matters assigned, except those involving large sums of money or long-range objectives. Takes courses of action necessary to expedite the successful accomplishment of assigned projects.	90
5½	.....	105
6	Makes responsible decisions on all matters, including the establishment of policies and expenditures of large sums of money and/or implementation of major programs, subject only to overall policy and financial controls.	120
6½	.....	135
7	Responsible for long-range planning, coordination and making specific and far-reaching management decisions. Keeps management associates informed of all matters of significant importance.	150

E. SUPERVISION RECEIVED

This factor is concerned with the degree to which independent action is required or permitted. This will be limited by the amount of direction received from supervisors or provided through standard-practice instructions, precedents or practice. Select the grade that fits your position most appropriately. If you cannot decide between two adjoining grades, use the half grade between.

Grade		Points
1	Works under close supervision. Work is reviewed for accuracy and adequacy and conformance with prescribed procedures.	20
1½	.....	25
2	Duties are assigned with detailed oral and occasionally written instructions as to methods and procedures to be followed. Results are usually reviewed in detail and technical guidance is usually available.	30

Grade	Points
2½	35
3	40
3½	45
4	50
4½	55
5	60
5½	70
6	80
6½	90
7	105

F. LEADERSHIP AUTHORITY AND/OR SUPERVISION EXERCISED

This factor is concerned with the character of the supervisory responsibility. This may be direct (line) or indirect (staff). Select the grade that fits your position most appropriately.

Grade	Points
1	0
2	5
3	10
4	15
5	20
6	40
7	60
8	80

G. MANAGEMENT SCOPE

This factor is concerned with the size of the direct (line) responsibility and is rated in terms of the total number of persons falling in that category. Count your immediate subordinates together with all employees reporting to them, either directly or through other levels of supervision. If numbers vary seasonally or for other reasons, compute an average for the year. Exclude persons, such as students, for whose work you have no continuing responsibility. As well, do not count persons to whom you give occasional technical direction or functional guidance. In short, count persons only for whose work you are fully accountable.

Employees Managed	0	1	2-3	4-7	8-13	14-20
Points	0	3	5	8	10	15
Employees Managed	21-30	31-40	41-50	51-75	76-100	101-200
Points	20	25	30	35	40	45
Employees Managed	201-400	401-750	751-1200	1201-2000	Over 2000	
Points	50	55	60	65	70	

H. PHYSICAL DEMANDS

This factor is concerned with the intensity and severity of the physical effort required of the position and with the continuity and frequency of that effort. For each of the demands listed below, choose the level that most closely describes your situation. Then select the one value checked that carries the highest point score.

Demand	Level of Exposure			
	Limited	Occasional	Frequent	Continuing
Standing or moving about (inside position)	5	8	10	15
Walking over rough ground, climbing, etc. (outside position)	8	10	15	20
Heavy physical exertion	10	15	25	40
Uninterrupted visual concentrations (as in drafting work)	5	10	20	30
Uninterrupted and intense mental concentration	5	8	15	20

I. JOB ENVIRONMENT

Under this factor, select the grade that describes most clearly the conditions under which your work is normally carried out.

Grade	Points
1 Office and comparable conditions	0
2 Best shop, plant or laboratory conditions. Little exposure to dirt, heat, noise, fumes or other disagreeable factors.	3
3 Average shop, plant or laboratory conditions. Would cover positions that are generally conducted under clean and pleasant conditions, but with some exposure to noise, severe weather, dust, wet, fumes or other disagreeable factors.	5

- 4 Conditions that are especially dirty, oily, noisy or otherwise disagreeable. Would cover positions involving continuous outside work in all weather. 10
- 5 Conditions involving continuous exposure to heat and fumes, cold and wet, or to combinations of other disagreeable factors, but where continuous attention to work is possible. 20

J. ABSENCE FROM BASE OF OPERATIONS

Under this factor, select the grade that most closely describes the demands of your position for travelling and being absent from your base of operations.

Grade	Points
1 Seldom absent.	0
2 Occasionally absent, perhaps a day a week on average.	5
3 Frequently absent, commonly for a couple of days a week, sometimes longer, with considerable travel.	10
4 Absent more than 50 per cent of the time, sometimes including weekends, with much travel.	15
5 Absent for long periods from base of operations and/or travel on an almost continuous basis.	20

K. ACCIDENT AND HEALTH HAZARDS

Under this factor, rate your position in terms of conditions that might result in accident or occupational disease. Consider the most prevalent hazard to which you are exposed, not some unlikely possibility. Take the point score assigned.

Hazard Level	Level of Exposure			
	Limited	Occasional	Frequent	Continuing
Low	0	3	5	10
Moderate	3	5	10	15
High	5	10	15	20
Extreme	10	15	20	25

SAMPLE BENCHMARK EMPLOYMENT DESCRIPTIONS AND CORRESPONDING RATINGS

	ENGINEER-IN-TRAINING	DESIGN ENGINEER	JUNIOR GEOSCIENTIST
Summary	For training and development in various phases of engineering work in office, sales, plant, field or laboratory, performs various assigned tasks of comparatively low complexity, normally assisting other engineers.	Assists in the design of new or revised products, equipment, installations, or processes, based on established engineering principles to meet functional requirements or performance specifications. Using a variety of standard engineering methods and techniques, will usually handle design problems of moderate complexity or assist more senior engineers to solve difficult problems.	Assists in the accumulation, analysis and interpretation of geological, geophysical or geochemical data. Keeps up to date on current activities in the industry.
Duties	Performs a variety of tasks such as the preparation of simple plans, designs, calculations, costs and bills of material, catalogues, in accordance with established codes, standards, drawings or other specifications.	<p>Receives assignments of limited scope and complexity, usually minor phases of broader assignments that may include one or more of:</p> <ul style="list-style-type: none"> - The design of components within the particular branch of engineering (civil, mechanical, electrical, etc.) of a larger design project. - The modification of tooling, plant equipment, imported designs or prototypes of new development, to permit economical manufacturing or to meet performance specifications and requirements or serviceability. - The design of ancillary parts, not within the particular branch of engineering or equipment pertaining to the branch (e.g., foundations and supports for heavy machinery, transports for heavy machinery, transformer housings, etc.). - Confers with shop and departmental personnel while gathering information, seldom outside the company. - May prepare reports such as equipment surveys, cost estimates, process investigations, within the scope of assigned work. 	<ol style="list-style-type: none"> 1. Maintains appropriate databases. Suggests field or laboratory programs to the immediate supervisor. 2. Makes field studies as assigned and prepares both surface and subsurface maps. 3. Performs laboratory examinations of samples and cores in relation to field studies. 4. Assists with the accumulation and analysis of geoscience data for an exploratory and/or drilling program. 5. As requested, guides the work and assists in the training of first-year geoscientists. 6. Assists the immediate supervisor to keep informed in current activities of the industry that might affect company performance.
Recommendations, Decisions and Commitments	Normally decisions that are made will be of a routine nature invariably having ample precedent or in line with clearly defined procedures.	Recommendations are limited to the solution of the problems rather than the end results. Work requires accuracy in calculations, completeness of data and adherence to prescribed testing, analysis, design or computation methods. Refers unusual problems to more senior engineers. Errors in work would usually be detected before results become serious.	Recommendations limited to the solution of immediate problems relating to a phase of a project. Decisions relate to the selection of data and the application of techniques. Such judgments are normally made by following established guidelines and practice. Refers unusual problems to more senior geoscientists.
Supervision Received	Works under supervision where the work is reviewed for accuracy, adequacy and conformance with prescribed procedures.	Tasks and duties are assigned in detail and work is under close review by more senior engineers.	Work is assigned in detail and the incumbent works under close supervision. Work is normally checked for accuracy and completeness.
Leadership Authority	May give work assignments and check work of 1-5 technicians or helpers.	May check the work of one or two junior engineers or draftsmen.	May check the work of one or two more junior geoscientists and assist them with the application of standard techniques and the interpretation of data.
Guide to Entrance Qualifications	Bachelor's degree in Engineering or Applied Science or its equivalent; little or no practical experience.	Bachelor's degree in Engineering or Applied Science or its equivalent, normally with two to three years, working experience from the graduation level.	Appropriate B.Sc. degree, normally with two years of relevant experience since graduation.
Job Rating Factor			
A. Duties	A - 20	A - 40	A - 40
B. Education	B - 65	B - 65	B - 65
C. Experience	C - 25	C - 45	C - 40
D. Recommendations	D - 45	D - 50	D - 50
E. Supervision Received	E - 25	E - 30	E - 30
F. Supervision Exercised	F - 5	F - 10	F - 10
G. Supervision Scope	G - 0	G - 0	G - 0
H. Physical Demands	H - 10	H - 10	H - 10
I. Job Environment	I - 5	I - 0	I - 5
J. Absence from Base	J - 0	J - 0	J - 5
K. Accident and Health Hazards	K - 5	K - 0	K - 5
Total Points	205	250	260

ELECTRICAL DESIGN ENGINEER	MANUFACTURING ENGINEER	SENIOR GEOSCIENTIST	CONSTRUCTION DESIGN ENGINEER
Performs assigned duties associated with electrical layout design of projects. These projects include complete substation and diesel station layouts, proposals for the same and modifications to those stations. Will use a variety of standard engineering methods and techniques and will assume responsibility for moderately complex layouts.	Performs a variety of engineering tasks including the development of plant layouts, work methods and manufacturing processes; designing tools; selecting, procuring and installing machines, tools and material-handling equipment; establishing standard time values for production and non-production operations.	Conducts special geoscience studies and makes recommendations based on the findings. Conducts geological, geophysical or geochemical investigations on problems that have been approved for study. May carry out programs necessary for the development of proven and semi-proven discoveries.	In a specialized field of experience within a branch of engineering (e.g. Civil, Mechanical, Electrical, etc.) develops design for complicated components of engineering works, structures, installations and processes. Develops plans for the modification or extension of existing facilities.
<p>The electrical engineering work includes:</p> <ol style="list-style-type: none"> preparing preliminary, and detailed electrical layout, other than that performed by Protection and Control, based on Assignment Sheets and one-line diagrams supplied by client; liaising with Civil Engineering Section to achieve compatibility of respective proposals; writing specifications, usually for installation work; checking information provided by contractors who are bidding on contracts to ensure adequacy of proposals and recommending contract awards based on that information, past experience with the contractor, capability (equipment, etc.) and price; investigating complaints, re: design received from the field during construction and from operating staff following construction, and making design changes if justified; making design calculations as required applying standardized details and devising nonstandard details as necessary; and reviewing manufacturers' drawings on request by the Equipment and Materials Branch. 	<p>Under general direction, makes independent studies, analysis, interpretations and conclusions in one or a combination of the following assignments:</p> <ol style="list-style-type: none"> Process Engineering - determines tools, equipment and dies required for shaping, finishing and assembling an assigned product, thus planning the sequence of operations. Machine and Tool Design - designs and develops machinery, machine tools, gages, dies, jigs, fixtures and special tools required as most suitable to the prescribed volume of production, materials and surfaces. Gage Design - develops special gages and instruments and applies statistical methods in order to attain precision specified. Plant or Layout Engineering - arranges machines, lays out plant facilities and setups to ensure the most efficient and productive layout. Designs material-handling methods. Develops, designs and recommends long- and short-term plans for maintenance, repair and expansion of buildings, equipment and facilities including power plant and utilities. Time and Motion Study - makes studies to determine standard rates and eliminate waste of time, labour and materials. Quality Control - develops, recommends and administers quality control techniques. Utilizes industrial statistics for the presentation and analysis of quality control and other manufacturing data. Prepares cost estimates, makes studies of feasibility and provides information, advice and engineering assistance within the scope of assigned work. 	<ol style="list-style-type: none"> Prepares, and reviews with senior personnel, recommendations for special geological, geophysical or geochemical studies, which may involve recommendations for property acquisition or exploratory drilling. Assists in making economic analyses or other comparable evaluations relevant to further planning decisions. Collaborates with other company personnel, as appropriate, in matters of mutual interest. Maintains contacts with external geoscience personnel, associations and others. 	<ul style="list-style-type: none"> - Makes independent studies, analysis, interpretations and conclusions within the scope of various assigned projects. - May design structural frames in steel reinforced concrete, timber, make layouts and designs of municipal services, industrial buildings, mining plants. - May design mechanical or electrical services of buildings, material-handling installations, power installations, industrial drives. - May be concerned with the design of communications circuitry or power generation and/or transmission, including repeater stations or transformer substations. - May be concerned with the design of chemical or metallurgical process plant installations. - Based on knowledge of site conditions, methods and materials available, time factors and costs, works up a design and/or alternative designs to achieve the desired end, recommending optimum solution. - Prepares reports, cost estimates, specifications. - Consults with and provides specialized instruction for Drafting Department in respect of design notes and sketches. - Confers with more senior design engineers and one of a design project team and with Manufacturing and Purchasing people in the company, as necessary to exchange information. - Confers with senior members of consultant's (or client's) organization; with contractors and suppliers.
Recommendations will include complete solutions within the scope of the job. Unusual problems and techniques of a novel nature will normally be referred to the senior engineer.	Recommendations and decisions are usually based on operational experience. Work is relied upon as sound and authoritative within the scope of an assignment. Difficult, complex or unusual decisions are usually referred to higher authority. Errors of judgment could cause serious loss of manufacturing time and material.	Recommendations are usually based on operational experience and are relied upon as sound and authoritative within the scope of an assignment. Errors of judgment could have significant financial consequences.	Assignments are responsible and varied. Within the scope of an assignment, work is relied upon as sound and authoritative. Recommendations and decisions are usually based on precedent. Difficult, complex or unusual decisions are usually referred to more senior authority. Errors of judgment might cause serious losses.
Projects are assigned and work will be reviewed in detail by more senior engineers.	Work is not generally supervised in detail and the amount of supervision varies depending upon the assignment. More senior supervision is usually available to review work programs and give guidance.	Work not generally supervised in detail. Consultation with more senior geoscientists is available when required.	Work is not generally supervised in detail and the amount of supervision varies with the assignment. Usually more senior supervision is available to review work programs to give guidance.
Checks the work of one or two junior engineers and technicians.	May guide the work of several more junior engineers or technicians when they are employed on the same projects.	May guide the work of several more junior geoscientists and/or technologists when they are assigned to the same project.	May guide the work of several more junior engineers or technicians when they are employed on the same projects.
Bachelor's degree in Applied Science or its equivalent, normally with three years' working experience since graduation.	Bachelor's degree in Engineering or Applied Science or its equivalent, normally with three to five years of related working experience from the graduation level.	Appropriate B.Sc. degree, normally with three to five years' working experience since graduation.	Bachelor's degree in Engineering or Applied Science or its equivalent, normally with three to five years of related working experience from the graduation level.
<p>A - 40 B - 65 C - 45 D - 55 E - 40 F - 10 G - 0 H - 10 I - 0 J - 0 K - 0</p> <p style="text-align: center;"><u>265</u></p>	<p>A - 55 B - 65 C - 50 D - 63 E - 40 F - 15 G - 5 H - 10 I - 3 J - 0 K - 3</p> <p style="text-align: center;"><u>309</u></p>	<p>A - 55 B - 65 C - 50 D - 63 E - 40 F - 15 G - 0 H - 10 I - 5 J - 5 K - 3</p> <p style="text-align: center;"><u>311</u></p>	<p>A - 55 B - 65 C - 50 D - 63 E - 40 F - 15 G - 8 H - 10 I - 3 J - 0 K - 3</p> <p style="text-align: center;"><u>312</u></p>

SAMPLE BENCHMARK EMPLOYMENT DESCRIPTIONS AND CORRESPONDING RATINGS

	SALES ENGINEER	SPECIALIST GEOSCIENTIST	PRODUCTION ENGINEER
Summary	Responsible for field sales of apparatus and other delegated products to prospective and established customers. Discusses product application with a good knowledge of customers' technical problems. Determines customers' requirements and takes orders or reports to own department. Expedites deliveries and follow-up to ensure satisfaction.	Conducts comprehensive geological, geophysical or geochemical studies and prepares recommendations that form the basis for significant corporate decisions.	Directs the operation of two or more production units comprising a distinct area or segment of the total process, each unit being supervised by a foreman or a series of foremen, one or more of whom may be an engineer. Maintenance and control systems based on engineering principles, as well as the susceptibility of the process to variations from standard, require an engineering background for sustained successful direction of the operation.
Duties	<ul style="list-style-type: none"> - Visits new or prospective customers to discuss products on the basis of the company's experience in similar fields and a knowledge of the customer's technical requirements. - Investigates product applications, recommends modifications; ensures proper servicing; proposes adjustments as required. - For fairly standardized products and adaptation, quotes prices, terms and deliveries. - May conduct correspondence on product applications and adjustments. - Transmits all pertinent information to Sales Department to facilitate cost-estimating, proper design or modifications where necessary, and ensures that the requirements will be met. - Acts as technical consultant to customers on their problems to ensure best use of the company's products. May participate in the sales planning of the department. - May be required to travel extensively and to entertain customers' representatives. 	<p>In collaboration with other company personnel:</p> <ol style="list-style-type: none"> 1. Prepares and reviews with senior personnel recommended strategies for furthering the corporate objectives. 2. Synthesizes geoscience data, possibly incorporating other relevant information, in order to recommend appropriate development procedures. 3. Prepares and/or supervises the preparation of interpretations, including surface and subsurface maps, as aids to the making of decisions for further development. 4. Maintains contact with outside geoscience personnel, associations and others in order to keep up to date on current events in the industry. 5. Assists in making, or makes, economic analyses pertaining to exploration and development, acquisition of properties or other comparable activities. 	<ul style="list-style-type: none"> - Instructs foremen regarding objectives. Participates with technical control, development, design and maintenance engineers in analyzing off-standard conditions and the feasibility of new procedures. - Accountable for quality, quantity, cost, safety and employee relations in the area under direction.
Recommendations, Decisions and Commitments	Within the scope of the assigned working area, work is relied upon by customers and employer superiors as accurate and sound. Recommendations and decisions are usually based on precedent. Difficult, complex or unusual decisions are usually referred to more senior authority. Errors of judgment might cause serious losses to a customer, which could result in large losses to the employer.	Recommends to senior personnel in the organization, lease acquisitions, geoscience investigations, exploratory well programs and technical studies to further the corporate objectives.	Recommends improvements in procedures and changes in policy. Participates in formulation of policy. Approves transfers and promotions. Recommends salary increases. May approve wage rate changes. Major problems normally referred to higher supervision but in emergency must be decided directly and quickly.
Supervision Received	Work is not generally supervised in detail and the amount of supervision varies with the assignment. Usually more senior supervision is available to review work programs to give guidance.	General supervision is provided. Work is assigned in terms of well-defined objectives and the results desired. Informed guidance is readily available.	Daily contact with next level of supervision shared with other area supervisors.
Leadership Authority	May guide the work of several more junior sales engineers or technicians.	Supervision is incidental to other work performed. May train and direct junior professionals and technologists in work methods relating to assigned projects. May allocate and check work for accuracy and completeness. May assist in the training and development of geoscience personnel.	General supervision over area. Available for consultation by subordinates on 24-hour basis, but normally constantly available during day shift only.
Guide to Entrance Qualifications	Bachelor's degree in Engineering or Applied Science or its equivalent, normally with three to five years' related working experience from the graduation level.	B.Sc. in Geology, Geophysics or Geochemistry with normally five to ten years' related experience, or a Master's degree in Geology, Geophysics or Geochemistry with four to six years of related experience.	Bachelor's degree in Engineering or Applied Science or its equivalent, normally with five to eight years' experience from graduation, preferably including three to five years in a supervisory capacity.
Job Rating Factor:			
A. Duties	A - 70	A - 70	A - 70
B. Education	B - 65	B - 65	B - 65
C. Experience	C - 50	C - 70	C - 70
D. Recommendations	D - 63	D - 80	D - 80
E. Supervision Received	E - 40	E - 45	E - 45
F. Supervision Exercised	F - 15	F - 20	F - 20
G. Supervision Scope	G - 5	G - 3	G - 5
H. Physical Demands	H - 5	H - 8	H - 8
I. Job Environment	I - 0	I - 0	I - 0
J. Absence from Base	J - 10	J - 5	J - 5
K. Accident and Health Hazards	K - 0	K - 3	K - 3
Total Points	323	369	371

PROJECT ENGINEER	SUPERVISING ENGINEER	SUPERVISING HWY CONST. ENGINEER	SENIOR ENGINEERING SPECIALIST
Acts in a staff roll in the design of buildings and machinery. Coordinates design work of subordinates and supervises construction in the course of duties, may supervise a group of 10 other engineers, technicians and draftsmen.	Supervises an engineering group of up to about 10 professional and/or nonprofessional technical people performing a variety of duties, normally in a single field of engineering, e.g., structural design, mechanical design, electrical design or concerned with a single product design.	Supervises highway construction project. Responsible for hiring, firing, promotion, training and discipline of about 70 professional and other subordinates. Designs certain non-complex structures. Department representatives in control of contractor's work.	Under administrative and/or high technical direction, works as a senior engineer specialist or consultant in a particular field of engineering development or research. Participates in planning, organizes work methods and procedures. Makes independent decisions within own sphere, usually exercising technical authority over a small group of engineer specialists.
<ul style="list-style-type: none"> - Prepares studies and financial analysis of proposed capital expenditures. Advises management on choice of equipment and process design for these expenditures. - Prepares specifications and orders for material and machinery for new installation. - Designs buildings and machinery, assisted by subordinates. - Prepares contracts, advises on choice of contractors, directs and supervises the selected contractors. Evaluates machinery. - Controls the project until it is completed. 	<ul style="list-style-type: none"> - Plans detailed methods of solving assigned problems such as: the design of new structures; modifications or additions to existing structures; project concerned with product improvements, manufacturing method changes, equipment or process changes. - Delegates components to staff, sees the work through to meet schedules and coordinates assignments with other groups. - Prepares or requests preparation of design notes, drawings, specifications and occasionally prototypes or models. - May give technical direction to construction or installation or design projects to ensure adherence to specifications. - Prepares or requests preparation of cost estimates, engineering studies and reports as required. - Responsible for the maintenance of engineering office files, equipment and procedures. - Confers as required with senior engineers and management of the company, occasionally with contractors, consultants and suppliers. 	<ul style="list-style-type: none"> - Through subordinates, supervises field crews and control equipment. Administers the personnel aspect for group. - Ensures that contractors observe the terms of the contract and adhere to the specifications. Authorizes changes to specifications where necessary and negotiates bids for work not covered by the contract. - Liaises between own crew or contractors and other agencies or groups. - Designs certain structures such as retaining walls, culverts and super-span culverts. - Checks claims from contractors when these refer to extras or alterations to contract. 	<ul style="list-style-type: none"> - Provides specialized advice of an advanced technological nature for the solution of specific problems. - Participates in planning by providing original and ingenious approaches to the practical and economical solution of problems. - Within own specialized sphere, directs research into new resources, products, processes or methods. - Interprets and evaluates data obtained from various engineering and/or research investigations. - Keeps well informed of the latest technological developments relating to field of practice. - Ensures that staff morale is maintained at a high level by building a reputation for efficient planning and a high level of creative thinking.
Recommendations include choice among alternatives in design, machinery and process. Will be required to devise new approaches to methods of reaching solutions. Errors could cause extra expenditures in money or time.	Recommendations will normally relate to alternatives in design or use of different materials to achieve the same purpose and are subject to review to ensure accordance with overall plans and company policies. Modifies existing engineering criteria as occasion demands by devising new approaches to the solution of problems. Errors could cause delays, possibly extending into areas where expenditures might be involved.	Recommendations are of broad scope in achievement of objectives. Required to make decisions in the field when plans and contract require alteration. Responsible for the overall performance of crews.	Makes responsible decisions, subject only to highest technical review, on all matters assigned to jurisdiction. Decisions involving large sums of money or the selection of long-range objectives are usually referred to higher authority. Takes courses of action necessary to expedite the successful accomplishment of assigned projects.
Works under general direction and guidance in order to reach objectives. Reacts to priorities. Cooperates with peer groups.	Works under general direction and guidance following instructions relating to objectives, relative priorities and necessary cooperation with other units.	Works from generally accepted departmental policy and from established priorities. Needs to consider relations with municipalities and other agencies affected by the construction.	Work is assigned in terms of broad objectives to be accomplished, leaving wide authority within sphere, with virtually no technical guidance, but subject to general administrative control.
Outlines work for subordinates and review of adequacy. Responsible for those assigned to him on a permanent or temporary basis. Acts as company representative in dealing with contractors.	Makes recommendations concerning selection and termination, and is responsible for the training, rating and discipline of staff. Outlines and assigns work, and reviews it for technical adequacy.	Responsible for all aspects of the work of assigned subordinates.	Gives technological advice and direction to a group of professional specialists. With an appreciation of the necessity of maintaining an atmosphere of free-thinking creativity, outlines difficult problems and methods of approach. Coordinates work programs and directs use of equipment and material.
Bachelor's degree in Applied Science or the equivalent, normally with seven to 10 years' experience in the related field since graduation.	Bachelor's degree in Engineering or Applied Science or its equivalent, normally with five to eight years' experience related to the type of work since graduation.	Bachelor's degree in Engineering or Applied Science or its equivalent, normally with seven to 10 years' related experience since graduation.	Bachelor's degree in Engineering or Applied Science or its equivalents, normally with nine to 12 years' (or Master's or other advanced degree with six or more years) of diversified research-development and/or design experience from the graduation level.
A - 90 B - 65 C - 70 D - 80 E - 55 F - 20 G - 10 H - 5 I - 0 J - 0 K - 0 <hr/> 395	A - 90 B - 65 C - 70 D - 80 E - 55 F - 20 G - 10 H - 5 I - 0 J - 0 K - 0 <hr/> 395	A - 70 B - 65 C - 80 D - 70 E - 50 F - 30 G - 35 H - 10 I - 5 J - 12 K - 5 <hr/> 432	A - 65 B - 90 C - 90 D - 80 E - 60 F - 40 G - 10 H - 5 I - 5 J - 0 K - 5 <hr/> 450

SAMPLE BENCHMARK EMPLOYMENT DESCRIPTIONS AND CORRESPONDING RATINGS

	SENIOR PRODUCTION ENGINEER	CHIEF DESIGN ENGINEER	ENGINEERING/GEOSCIENCE MANAGER
Summary	Directs the operation of two or more complex continuous processes, i.e., chemical, mining, etc., producing large quantities of product with reliance upon engineering control and maintenance systems.	and coordinates the work of the design staff with that of field staff including several professional functions. - Plans and allocates work on broad	professional and/or mechanical trades functions. - Works independently on broad, general assignments with responsibility for
Duties	- Plans production in coordination with other operations and customer demand. - Assists technical control personnel in establishing standards and field tests. - Coordinates, specifies and schedules production and maintenance. Analyzes and corrects off-standard conditions with specialized technical assistance. - Accountable for quality, quantity, costs, safety and employee relations.	general assignments with the limits of company policy. - Establishes working programs to attain objective in the most economical manner. - Acts as engineering consultant and advisor to the company. - Assists in developing and maintaining contacts inside and outside the company. - Makes direct contact with clients. Makes responsible decisions within the	planning associated activities, limited only by company policy. - Participates in establishing objectives and basic operating policies. Devises ways of reaching program objectives in the most economical manner and of meeting any unusual conditions affecting work progress. - Conducts the normal administrative functions related to position. - Acts as engineering/geoscience consultant and advisor to the organization. - Develops and maintains top-level contacts inside and outside the company. Makes responsible decisions without reference to superiors. Implements
Recommendations, Decisions and Commitments	Recommends improvements in plant procedures and changes in policy. Participates in policy formulation. Approves salary increases. Has wide latitude for decisions affecting operations.	limits of company policy. Recommends changes in company policy. Implements policies affecting company expenditure and makes decisions affecting operations. Broad direction from President or Vice	approved major programs involving expenditures of large sums of money. Errors in judgment could cause grave losses. Work is reviewed for accomplishment, adherence to company policy and
Supervision Received	Broad direction received from Plant Manager in a small plant varying to limited supervision from Production	President of company. Work is reviewed for adherence to company policy. Occasional review of technical matters. Selects, rates, disciplines and terminates	coordination with other phases of company's operations. Makes decisions regarding the selection, development, rating,
Leadership Authority	Superintendent in a large plant. Directs activities of from 50 to over 200 people, depending upon complexity of operation.	staff. Reviews and evaluates technical work. Coordinates staff requirements and disposition to suit schedule of work in hand and work planned. Allocates work to various section or project heads. Bachelor's degree (Honours preferred) in	discipline and termination of staff. Reviews and evaluates technical work. Selects, schedules and coordinates to attain program objectives. Bachelor's degree in Engineering or Applied Science or its equivalent,
Guide to Entrance Qualifications	Bachelor's degree in Engineering or Applied Science or its equivalent, normally with nine to 12 years' experience from the graduation level including five to 10 years in a supervisory capacity. Directs the staff of an engineering office	Engineering and broad engineering experience of 15 years or more, of which about three to five years should have been in responsible administrative duties. Manages a large staff, administers and coordinates several professional, sub-	normally with broad engineering experience including responsible administrative duties.
Job Rating Factor:			
A. Duties	A - 90	A - 130	A - 130
B. Education	B - 65	B - 65	B - 65
C. Experience	C - 90	C - 113	C - 138
D. Recommendations	D - 90	D - 90	D - 105
E. Supervision Received	E - 60	E - 70	E - 80
F. Supervision Exercised	F - 40	F - 60	F - 60
G. Supervision Scope	G - 40	G - 20	G - 40
H. Physical Demands	H - 5	H - 5	H - 5
I. Job Environment	I - 5	I - 0	I - 0
J. Absence from Base	J - 5	J - 5	J - 0
K. Accident and Health Hazards	K - 3	K - 3	K - 0
Total Points	493	561	623

**Association of Professional Engineers
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