

JUNE 2002 SALARY SURVEY

FOREWORD

To the 84 APEGGA Permit Holders and other Employers who contributed to this year's Salary Survey and to others who have contributed in the past, we thank you for making APEGGA's salary survey a high-demand product on an ongoing basis. We also appreciate your adaptation to its changing requirements, enabling the survey to maintain its value as trends and needs develop.

Our main publication - The Value of Professional Services June 2002 - has introduced a new classification of employee – Coop / Intern Students - in response to requests from Salary Survey users and participants. This is also the second year in which the Industry category – Advanced Technologies – has been included in the data tables.

The survey is intended to provide guidelines for both Alberta Employers and individual Members of the three professions (P. Eng, P. Geol, P. Geoph) in setting salary and other payroll and benefits rates and programs.

APEGGA believes individual members are responsible for establishing with their employer the level of remuneration to be received in return for professional services provided. Using the information in the Value of Professional Services plus any other information accessible to you, you can judge if you are adequately paid given your industry sector and the economic activity within that sector, working conditions, responsibility, performance, utilization and situation.

Members work in a wide variety of organizations and carry out tasks which vary just as greatly. It is therefore impossible for the Association to judge whether any given member should get or be given a salary increase. However, to stay at par in terms of purchasing power, you could expect an increase equal to the Consumer Price Index (CPI) increase in your geographic area. If you are eligible for a performance increase and/or responsibility increase, these could be in addition to the CPI.

Program effectiveness is dependent on the integrity of the data in this booklet and your ability to incorporate it with other information obtained to provide your full compensation picture. It is recognized that not all employment sectors will be readily identified within the sample job descriptions and corresponding rates. However, using these as guidelines should enable you to arrive at a reasonable relationship between your situation and industry equivalents.

With the sustained support of members and employers, the Association believes this program will continue to be a positive influence in helping to maintain a reasonable balance between professional quality services, working conditions and remuneration.

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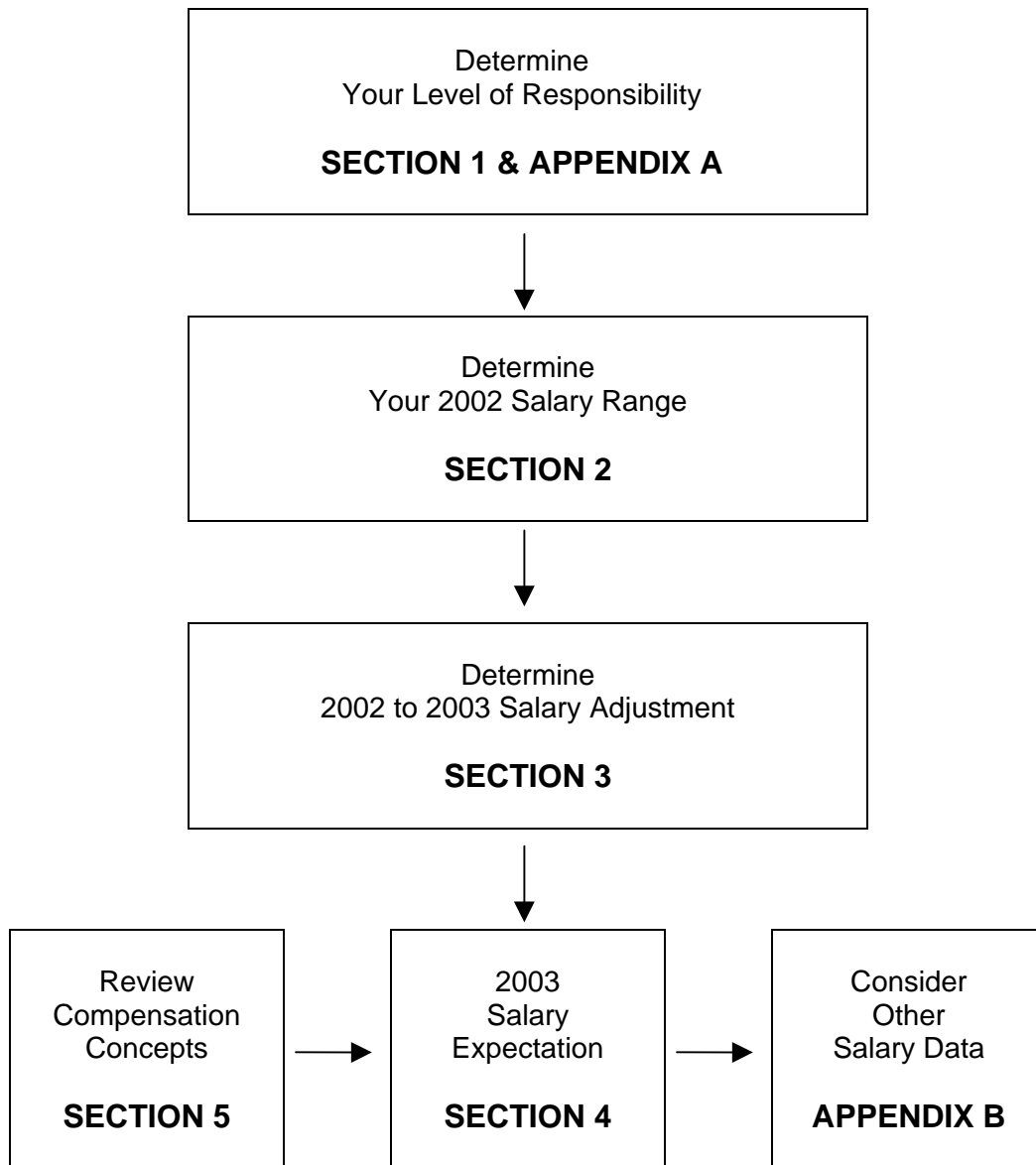
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FIGURE 1
PROCEDURE FOR USING THIS GUIDE



SECTION 1

DETERMINING YOUR LEVEL OF RESPONSIBILITY

Two methods of determining the level of responsibility of a job are outlined in this section.

The Job Evaluation Guide, which uses point scores to assess a job, is more precise and accurate. The Job Classification Guide is used by many companies but is less precise.

It is recommended the Job Classification Guide be used to verify the results obtained through job evaluation.

METHOD 1: JOB EVALUATION GUIDE

Introduction

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

Job Rating Summary

To provide the most objective rating for the job, the following procedure is recommended:

- rate the job in accordance with the points allocated for each factor: duties, education, experience, etc. on pages 3 to 9. Record points in the left hand column of the chart on the following page.
- compare the results with ratings assigned to the benchmark jobs in the tables on pages 10 to 16.
- make any necessary adjustments and record the final points in the right hand column of the chart.
- determine your classification (A,B,C, etc.) using the chart on page 17.
- Figure 2 is provided as additional information to be used for comparison.
- Method 2: The Job Classification Guide can be used to verify self-evaluation.

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 next lower grade or half-grade lower in line will usually prove to be the more accurate choice.

Factor	Preliminary Rating Points	Final Rating Points
A. Duties		
B. Education		
C. Experience		
D. Recommendations, Decisions and Commitments		
E. Supervision Received		
F. Leadership Authority and/or Supervision Exercised		
G. Supervision Scope		
H. Physical Demands		
I. Job Environment		
J. Absence from Base of Operations		
K. Accident and Health Hazards		
Total Points		

Benchmark Job Description

A job evaluation guide is difficult to use without guidance from an experienced job analyst on how to apply the guide. To assist you in determining your level of responsibility, sample benchmark job descriptions have been provided on pages 10 to 16. The jobs range from the most junior, to that of a fairly senior manager.

As your job will not match exactly, the points you give your job will vary from the sample jobs evaluated (both on the various factors and in total points).

Job Rating Factors

A. DUTIES

This factor is concerned with the general nature of tasks assigned. The range includes duties performed in an entry level jobs to those carried out at an advanced level of administration. Select the description that fits your job most appropriately. Carefully consider the relationship that your duties have to those of others in your organization. If you cannot decide between two adjoining descriptions, use the midpoint value.

DESCRIPTION	POINTS
1.0 Receives training in the various phases of office, plant, field, or laboratory engineering, geological or geophysical 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.	10
1.5 Midpoint value.....	15
2.0 Normally regarded as a continuing portion of an engineer's, geologist's or geophysicist's training and development. Receives assignments of limited scope and complexity, usually minor phases of broader assignments. Uses a variety of standard engineering, geological or geophysical methods and techniques in solving problems. Assists more senior engineers, geologists or geophysicists in carrying out technical tasks requiring accuracy in calculations, completeness of data, and adherence to prescribed testing, analysis, design or combination of methods.	20
2.5 Midpoint value.....	30
3.0 This is typically regarded as a fully qualified professional engineering, geological or geophysical level. Carries out responsible and varied assignments requiring general familiarity with a broad field of engineering, geology or geophysics, as well as 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.	40
3.5 Midpoint value.....	55
4.0 This is the first level of direct and sustained supervision of other professional engineers, geologists or geophysicists or of full specialization. Requires application of mature engineering, geological or geophysical 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.	70
4.5 Midpoint value.....	90

DESCRIPTION		POINTS
5.0	Usually requires knowledge of more than one field of engineering, geology or geophysics 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. May supervise large groups containing both professional and non-professional staff, or may exercise authority over a small group of highly qualified professional personnel engaged in complex technical applications.	110
5.5	Midpoint value.....	130
6.0	Usually responsible for an engineering, geological or geophysical administrative function; directing several professional and other groups engaged in interrelated engineering, geological or geophysical responsibilities; or as consultant, has achieved recognition as an authority in an engineering, geological or geophysical 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
6.5	Midpoint value.....	175
7.0	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

Rate the minimum university qualifications in an engineering, geological or geophysical discipline required in order to begin your job.

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

LEVEL OF EDUCATION	POINTS
Bachelor's Degree, or equivalent	65
Master's Degree	90
Doctorate Degree	125

C. EXPERIENCE (See "Note" in Education on previous page)

Rate the minimum number of years in full-time, permanent engineering, geological or geophysical work and/or work where an engineering, geological or geophysical background was a distinct asset which would normally be required by a person starting the job. Take your count to the nearest whole or half year.

EXP.	POINTS	EXP.	POINTS	EXP.	POINTS	EXP.	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 yrs & plus	150

D. RECOMMENDATIONS, DECISIONS AND COMMITMENTS

Select the category that fits your job most appropriately. If you cannot decide between two categories, use the midpoint value.

DESCRIPTION	POINTS
1.0 Few technical decisions called for and these will be of routine nature with ample precedent or clearly defined procedures.	35
1.5 Midpoint value.....	40
2.0 Recommendations limited to solution of the problem rather than end results. Decisions made are normally within established guidelines.	45
2.5 Midpoint value.....	50
3.0 Makes independent studies, analyses, interpretations and conclusions. Difficult, complex, or unusual matters or decisions are usually referred to more senior authority.	55
3.5 Midpoint value.....	60
4.0 Recommendations reviewed for soundness of judgement, but usually accepted as technically accurate and feasible.	70
4.5 Midpoint value.....	80
5.0 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
5.5 Midpoint value.....	105
6.0 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
6.5 Midpoint value.....	135
7.0 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. It will be limited by the amount of direction received from supervisors or provided through standard practice instructions, precedents or practice. Select the category that fits your job most appropriately. If you cannot decide between two categories, use the midpoint value.

DESCRIPTION	POINTS
1.0 Works under close supervision. Work is reviewed for accuracy, adequacy and conformance with prescribed procedures.	20
1.5 Midpoint value.....	25
2.0 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
2.5 Midpoint value.....	35
3.0 Work is not generally supervised in detail and amount of supervision varies depending upon the assignment. Usually technical guidance is available to review work programs and advise on unusual features of assignment.	40
3.5 Midpoint value.....	45
4.0 Work is assigned in terms of objectives, relative priorities, and critical areas that impinge on work of other units. Work is carried out within broad guidelines, but informed guidance is available.	50
4.5 Midpoint value.....	55
5.0 Work is assigned only in terms of broad objectives to be accomplished, and is reviewed for policy, soundness of approach and general effectiveness.	60
5.5 Midpoint value.....	70
6.0 Receives administrative direction based on organization policies and objectives. Work is reviewed to ensure conformity with policy and coordination with other functions.	80
6.5 Midpoint value.....	90
7.0 Operates with broad management authority, receiving virtually no technical guidance and control; limited only by general objectives and policies of the organization.	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 category that fits your job most appropriately.

DESCRIPTION	POINTS
1 Has no supervisory role.	0
2 May assign and check work of one to five technicians or helpers.	5
3 May give technical guidance to one or two junior engineers, geologists or geophysicists or technicians assigned to work on a common project.	10
4 May give technical guidance to engineers, geologists or geophysicists of less standing or technicians assigned to work on a common project. Supervision over other engineers, geologists or geophysicists not usually a regular or continuing responsibility.	15

DESCRIPTION		POINTS
5	Assigns and outlines work; advises on technical problems; reviews work for technical accuracy and adequacy. Supervision may call for recommendations concerning selection, training, rating and discipline of staff.	20
6	Outlines more difficult problems and methods of approach. Coordinates work programs and directs use of equipment and material. Generally makes recommendations as to the selection, training, discipline and remuneration of staff.	40
7	Reviews and evaluates technical work; selects schedules, and coordinates to attain program objectives; and/or as an administrator, makes decisions concerning selection, training, rating, discipline and remuneration of staff.	60
8	Gives administrative direction to subordinate supervision, and contact with the work force is normally through such levels rather than direct.	80

G. SUPERVISION 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 into 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 Supervised	0	1	2-3	4-7	8-13	14-20
Points	1	3	5	8	10	15

Employees Supervised	21-30	31-40	41-50	51-75	76-100	101-200
Points	20	25	30	35	40	45

Employees Supervised	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 job and with the continuity and frequency of that effort. Of those listed below, choose the level of exposure that most closely describes your situation and select the one value that carries the highest point score.

DEMAND	LEVEL OF EXPOSURE				
	Not Applicable	Limited	Occasional	Frequent	Continuing
Standing or Moving About (Inside Position)	0	5	8	10	15
Walking over Rough Ground, Climbing, etc. (Outside Position)	0	8	10	15	20
Heavy Physical Exertion	0	10	15	25	40
Uninterrupted Visual Concentration (as in drafting work)	0	5	10	20	30
Uninterrupted and Intense Mental Concentration	0	5	8	15	20

I. JOB ENVIRONMENT

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

DESCRIPTION	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, wetness, 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.	20

J. ABSENCE FROM BASE OF OPERATIONS

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

DESCRIPTION	POINTS
1 Seldom absent.	
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 percent 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 job in terms of conditions that might result in accident or occupational disease. Consider the most prevalent hazard to which you are exposed, not some remote possibility. Select one value only.

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 JOB DESCRIPTIONS AND CORRESPONDING RATINGS

	Engineer-In-Training	Jr. Design Engineer
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.
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 which 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.
Recommendations, Decisions and Commitments	Normally, decisions 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.
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.
Leadership Authority	May give work assignments and check work of 1-5 technicians or helpers.	May give technical guidance to one or two junior engineers or draftspersons.
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.
Job Rating Factor		
A. Duties	A — 20	A — 40
B. Education	B — 65	B — 65
C. Experience	C — 25	C — 45
D. Recommendations	D — 45	D — 50
E. Supervision Received	E — 25	E — 30
F. Supervision Exercised	F — 5	F — 10
G. Supervision Scope	G — 0	G — 0
H. Physical Demands	H — 10	H — 10
I. Job Environment	I — 5	I — 0
J. Absence from Base	J — 0	J — 0
K. Accident and Health Hazards	K — 5	K — 0
Total Points	205	250

Jr. Geologist	Electrical Design Engineer	Manufacturing Engineer
Assists in the accumulation and analysis of geological data, conducts geological surveys and keeps up-to-date on current activities in the industry.	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; and establishing standard time values for production and non-production operations.
<ul style="list-style-type: none"> - Maintains subsurface information on a current basis and suggests lease purchases and geophysical programs to the immediate supervisor; - Makes field studies as assigned and prepares both surface and subsurface maps; - Performs microscopic examinations of samples and cores of wells for stratigraphic and reservoir studies; - Assists with the accumulation and the analysis of geological data for an exploratory and/or development drilling program; - Assists the immediate supervisor to keep informed of current activities in industry that might affect company performance. 	<p>The electrical engineering work includes:</p> <ul 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 regarding 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 non-standard details as necessary; - reviewing manufacturers' drawings on request by the Equipment and Materials Branch. 	<p>Under general direction, makes independent studies, analyses, interpretations and conclusions in one or a combination of the following assignments:</p> <ul 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, gauges, dies, jigs, fixtures and special tools required as most suitable to the prescribed volume of production, materials and surfaces; - Gauge design - develops special gauges and instruments and applies statistical methods in order to attain precision specified; - Plant or Layout Engineering - arranges machines, lays out plant facilities and set-ups 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 Studies - 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.
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 a more senior geologist.	Recommendations will include complete solutions within the scope of the job. Unusual problems and techniques of a novel nature will normally be referred to a 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 judgement could cause serious loss of manufacturing time and material.
Work is assigned in detail and the incumbent works under close supervision. Work is normally checked for accuracy and completeness.	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.
May check the work of one or two more junior geologists and assist them with the application of standard techniques and the interpretation of data.	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.
Appropriate B.Sc. degree, normally with two years of relevant experience since graduation.	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 since graduation.
A — 40 B — 65 C — 40 D — 50 E — 30 F — 10 G — 0 H — 10 I — 5 J — 5 K — 5	A — 40 B — 65 C — 45 D — 55 E — 40 F — 10 G — 1 H — 10 I — 0 J — 0 K — 0	A — 55 B — 65 C — 50 D — 60 E — 40 F — 15 G — 5 H — 10 I — 3 J — 0 K — 3
260	266	306

	Senior (Petroleum) Geologist	Design Engineer
Summary	Conducts special geological studies and prepares recommendations for lease acquisitions. Conducts geophysical investigations and exploratory well drillings in areas that have been approved for a geological program. Carries out necessary geological work for the development of proven and semi-proven leases.	In a specialized field of experience within a branch of engineering (e.g. civil, mechanical, electrical, etc.) develops designs for complicated components of engineering works, structures, installations, processes. Develops plans for the modification of extension of existing facilities.
Duties	<ul style="list-style-type: none"> - Prepares and reviews with the District Geologist, recommendations for lease acquisitions, geophysical investigations, exploratory well drillings and other special geological studies; - Assists in making economic analyses pertaining to exploration projects, exploratory well proposals, farm-ins and farm-outs, drilling contributions, rental payments and the purchase and sale of oil and gas leases as well as other financial interests; - Reviews proposals for the abandonment of wells and/or dropping of leases and makes recommendations for company action to the District Geologist; - Collaborates with other company exploration personnel including landmen, geophysicists and engineers in matters of mutual interest; - Maintains contacts with external geological personnel, associations and others. 	<ul style="list-style-type: none"> - Makes independent studies, analyses, 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; materials 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 personnel, as necessary to exchange information; - Confers with senior members of consultant's (or client's) organization; with contractors and suppliers.
Recommendations, Decisions and Commitments	Recommendations are usually based on operational experience and are relied upon as sound and authoritative within the scope of an assignment. Errors of judgement could cause considerable financial loss.	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 judgement might cause serious losses.
Supervision Received	Work not generally supervised in detail. More senior geological expertise is generally available for consultation.	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.
Leadership Authority	May guide the work of several more junior geologists 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.
Guide to Entrance Qualifications	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' related working experience since the graduation level.
Job Rating Factor	A — 55 B — 65 C — 50 D — 60 E — 40 F — 15 G — 0 H — 10 I — 5 J — 5 K — 3	A — 55 B — 65 C — 50 D — 60 E — 40 F — 20 G — 8 H — 5 I — 3 J — 0 K — 3
Total Points	308	309

Sales Engineer	Specialist (Petroleum) Geologist	Production Engineer
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 follows up to ensure satisfaction.	Conducts comprehensive geological studies and prepares recommendations relative to lease acquisitions and exploratory activities in areas approved for activity.	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 foreperson or a series of forepersons, 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.
<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 technical customer's 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, including landmen, geophysicists and engineers:</p> <ul style="list-style-type: none"> - Prepares and reviews with the District Geologist, recommendations for lease acquisitions, geo-physical investigations, drilling of exploratory wells and other technical studies to further the district exploratory effort; - Collects and analyses, or directs, the preparation and analysis of geophysical data in order to recommend appropriate development procedures to the District Geologist; - Prepares and/or supervises the preparation of maps and provides interpretations to aid the Production Department in making economic analyses and reserve estimates; - Maintains contact with outside geological personnel, associations and others in order to keep up to date on current events in the industry; - Assists in making or makes economic analyses pertaining to exploration plays, exploratory well proposals, farm-ins and farm-outs, drilling contributions, rental payments, and purchase and sale of oil and gas leases. 	<ul style="list-style-type: none"> - Instructs forepersons 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.
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 judgement might cause serious losses to a customer which could result in large losses to the employer.	Recommends to the District Geologist and other senior personnel in the company, lease acquisitions, geological investigations, exploratory well drilling programs, and technical studies to further the district exploratory effort.	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 authority but in emergency must be decided directly and quickly.
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.
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 geological personnel.	General supervision over area. Available for consultation by subordinates 24-hour basis, but normally constantly available during day shift only.
Bachelor's degree in Engineering or Applied Science or its equivalent, normally with three to five years' related working experience since the graduation.	B.Sc. in Geology or Geophysics with normally five to ten years of related experience, or a Master's Degree in Geology or Geophysics 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.
A — 70 B — 65 C — 50 D — 60 E — 40 F — 15 G — 5 H — 5 I — 0 J — 10 K — 0	A — 70 B — 65 C — 70 D — 80 E — 45 F — 20 G — 3 H — 8 I — 0 J — 5 K — 3	A — 70 B — 65 C — 60 D — 70 E — 50 F — 20 G — 20 H — 10 I — 5 J — 0 K — 5
320	369	375

	Project Engineer	Supervising Engineer
Summary	Acts in a staff role 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 ten other engineers, technicians and draftspersons.	Supervises an engineering group of up to about ten professional and/or non-professional 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.
Duties	<ul style="list-style-type: none"> - Prepares studies and financial analyses 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.
Recommendations, Decisions and Commitments	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.
Supervision Received	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.
Leadership Authority	Outlines work for subordinates and review of adequacy. Responsible for personnel assigned 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.
Guide to Entrance Qualifications	Bachelor's degree in Applied Science or its equivalent, normally with seven to ten years' experience in the related field since graduation.	Bachelor's degree in Engineering or Applied Science or its equivalent, normally with nine to twelve years' experience related to the type of work since graduation.
Job Rating Factor	A — 70 B — 65 C — 70 D — 80 E — 55 F — 20 G — 10 H — 5 I — 5 J — 2 K — 5	A — 70 B — 65 C — 90 D — 80 E — 55 F — 30 G — 10 H — 5 I — 0 J — 0 K — 0
Total Points	387	405

Supervising Highway Const. Engineer	Senior Engineer - Specialist	Senior Production Engineer
Supervises highway construction projects. Responsible for hiring, firing, promotion, training and discipline of about 70 professional and other subordinates. Designs certain non-complex structures. Department representative 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.	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.
<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 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 group; - 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. 	<ul style="list-style-type: none"> - 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.
Recommendations are of broad scope in achievement of objectives. Required to make decisions in the field when plans and contact 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.	Recommends improvements in plant procedures and changes in policy. Participates in policy formulation. Approves salary increases. Has wide latitude for decisions affecting operations.
Works from generally accepted departmental policy and from established priorities. Considers relations with municipalities and other agencies affected by 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.	Broad direction received from Plant Manager in a small plant varying to limited supervision from Production Superintendent in a large plant.
Responsible for all aspects of the work of assigned subordinates.	Gives technological advice & direction to a group of professional specialists. Understanding 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.	Directs activities of from 50 to over 200 people depending upon complexity of operation.
Bachelor's degree in Engineering or Applied Science or its equivalent, normally with seven to ten years' related experience since graduation.	Bachelor's degree in Engineering or Applied Science or its equivalent, normally with nine to twelve 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.	Bachelor's degree in Engineering or Applied Science or its equivalent, normally with nine to twelve years' experience since graduation including five to ten years in a supervisory capacity.
A — 70 B — 65 C — 70 D — 70 E — 50 F — 30 G — 35 H — 10 I — 5 J — 12 K — 5	A — 90 B — 90 C — 90 D — 80 E — 60 F — 40 G — 10 H — 5 I — 5 J — 0 K — 5	A — 90 B — 65 C — 90 D — 90 E — 60 F — 40 G — 40 H — 5 I — 5 J — 5 K — 3
422	475	493

	Chief Design Engineer	Engineering Manager
Summary	Directs the staff of an engineering office and coordinates the work of the design staff with that of field staff including several professional functions.	Manages a large staff, administers and coordinates several professional, sub-professional and/or mechanical trades functions.
Duties	<ul style="list-style-type: none"> - Plans and allocates work on broad 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. 	<ul style="list-style-type: none"> - Works independently on broad general assignments with responsibility for 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 consultant and advisor to the organization; - Develops and maintains top level contacts inside and outside the company.
Recommendations, Decisions and ComCommitments	Makes responsible decisions within the limits of company policy. Recommends changes in company policy. Implements policies affecting company expenditure and makes decisions affecting operations.	Makes responsible decisions without reference to superiors. Implements approved major programs involving expenditures of large sums of money. Errors in judgement could cause grave losses.
Supervision Received	Broad direction from President or Vice President of company. Work is reviewed for adherence to company policy. Occasional review of technical matters.	Work is reviewed for accomplishment, adherence to company policy and coordination with other phases of company's operations.
Leadership Authority	Selects, rates, disciplines and terminates 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.	Makes decisions regarding the selection, development, rating, discipline and termination of staff. Reviews and evaluates technical work. Selects, schedules and coordinates to attain program objectives.
Guide to Entrance Qualifications	Bachelor's degree in Engineering and broad engineering experience of fifteen years or more, of which about three to five years should have been in responsible administrative duties.	Bachelor's degree in Engineering or Applied Science or its equivalent, normally with broad engineering experience including responsible administrative duties.
Job Rating Factor	A — 130 B — 65 C — 113 D — 90 E — 70 F — 60 G — 20 H — 5 I — 0 J — 5 K — 3	A — 130 B — 65 C — 138 D — 105 E — 80 F — 60 G — 40 H — 5 I — 0 J — 0 K — 0
Total Points	561	623

Use of Point Count Results

After completing the Job Rating Summary, refer to the chart below in order to determine the **classification** of the job. As it is not practical to have a pay range for each point count, jobs are classed together in one level or classification.

Point Count	Classification
0 to 250	A
251 to 300	B
301 to 375	C
376 to 480	D
481 to 595	E
596 to 700	F
over 700	F+

The following table correlates responsibility level with years of experience. This table is provided for use as a general check of self-evaluation.

FIGURE 2

APEGGA 2002 Employer Salary Survey Years of Experience by Level of Responsibility All Professions - All Organizations							
Level	Total Eng,GI,Gp	2002 Years of Experience					
		Mean	D ₁	Q ₁	Median	Q ₃	D ₉
A	304	2.0	1.0	1.0	1.0	2.0	5.0
B	409	5.0	2.0	3.0	4.0	6.0	9.0
C	645	10.0	4.0	5.0	8.0	12.0	19.0
D	837	17.0	8.0	11.0	15.0	22.0	28.0
E	813	22.0	13.0	17.0	21.0	26.0	31.0
F	545	25.0	16.0	20.0	24.0	29.0	34.0
F+	203	26.0	19.0	22.0	25.0	30.0	34.0

See Section 2 for definition of survey statistical measures (D1,Q1, etc.)

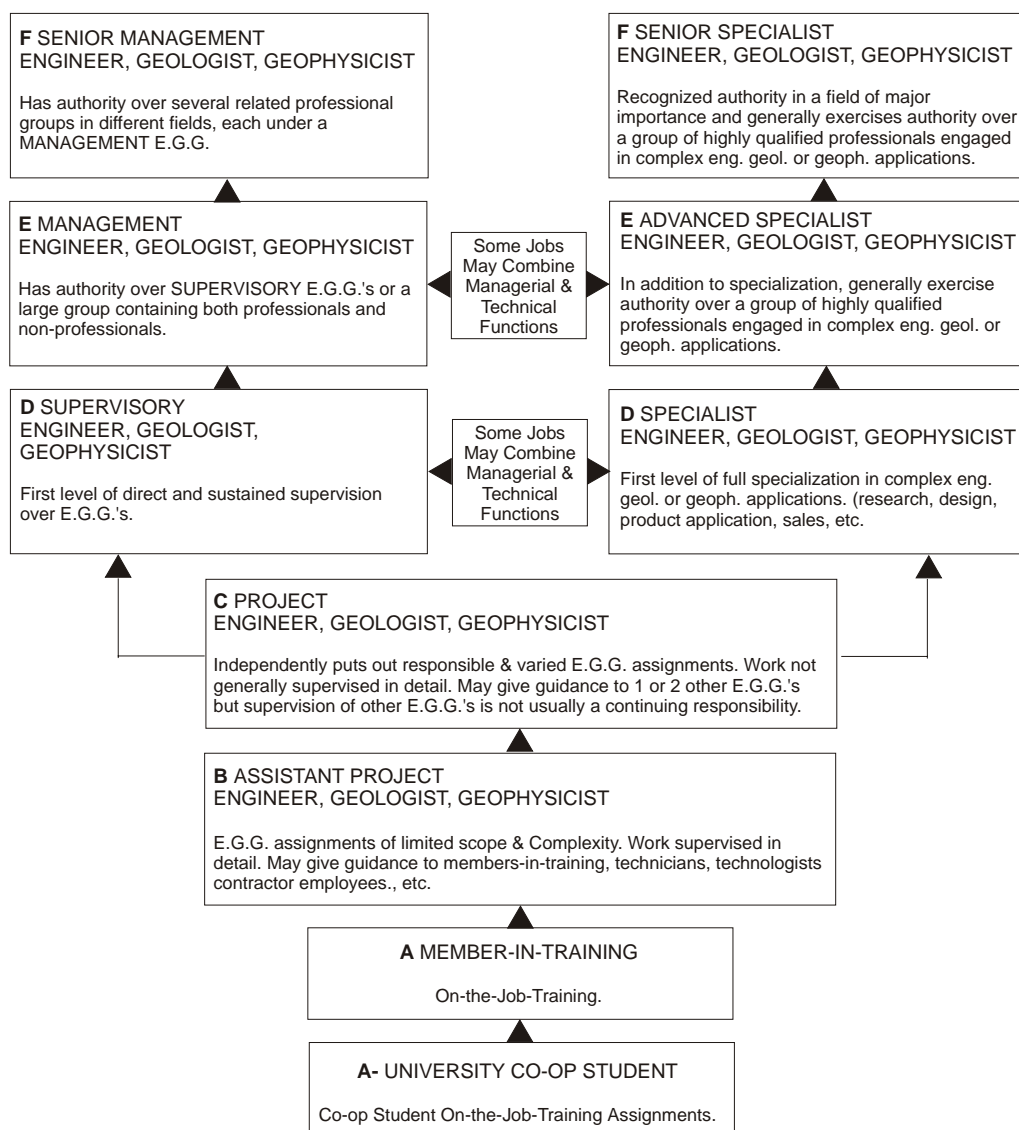
METHOD 2: JOB CLASSIFICATION GUIDE

Many companies use the generally adequate and less time consuming (but less precise) classification system commonly called the ABC system. This system broadly describes each level of responsibility according to five factors: Duties; Recommendations, decisions and commitments; Supervision received; Leadership authority and/or supervision exercised; and Guide to entrance qualifications. A copy of the description for each level of responsibility is provided in Appendix A. An abbreviated Job Classification Guide of the ABC system is shown below.

As many salary surveys are carried out using the ABC system, it is useful to be able to equate the results of the Point-Count Job Evaluation system and the Job Classification system. Application of the two systems has not been completely standardized across companies so absolute relationships cannot be set. A reasonable relationship between the two systems can be established and this is shown in the chart below. Individual companies will vary to some degree.

FIGURE 3

Note: Ideally this Classification Guide applies to large and medium sized corporations or government agencies. However, with some extrapolation, most Engineering, Geological and Geophysical jobs can be classified as shown.



SECTION 2 DETERMINING YOUR 2002 SALARY RANGE

INTRODUCTION

The most important variable operating to determine salary ranges for any given occupational group is the market, the relationship between the supply of and the demand for the services of a particular occupational group: a single supply/demand market.

There are many factors affecting the market and those affecting the market for one occupational group are different from those affecting the market for another occupational group. Market surveys to determine the salaries paid by similar companies to members of the occupational group being studied are therefore widely used and consulted.

APEGGA MARKET SURVEY

In June of 2002 APEGGA conducted its annual Employer Salary Survey. A total of 7,690 salary statistics for Alberta engineers, geologists and geophysicists were supplied by 84 employers who are identified in Appendix B (Page 49).

Participating organizations provided salary information based on the level of responsibility of each employee's position, data on year of graduation, if available, and information on the classification of their organization.

Selected salary range tables from this year's survey are reported here and various demographic survey results are given in Appendix B.

USING SURVEY RESULTS TO DETERMINE YOUR 2002 SALARY RANGE

To use salary survey data as a guideline it is important to consider all reported results and to keep in mind the following remuneration concepts.

- Salary is basically determined by the level of responsibility of the position.
- Salary levels vary between professional groups. Survey results are reported in Figures 4, 5 and 6.
- Salary levels also vary among industry sectors. Survey results are reported in Figures 7 and 8.
- Data on weekly hours of work and overtime payment is given in Figures 12, 13, and 14 in Section 5.
- Data on Additional Cash Compensation is noted in Figure 15.
- Salaries by year of graduation should only be used as a check on career progress relative to others of an equivalent age and as a check on the more basic level-of-responsibility concept. Figure B2 in Appendix B provides survey results on salaries by year of graduation and level of responsibility.

SURVEY NOTES

- The salaries quoted in the tables that follow are base salaries in effect as of June 2002. Base salaries include cost of living allowances, bonuses which have a continuing relationship to salary, pay for holiday days (statutory and declared) and vacation days. The base salary does not include bonuses based on unusual performance or which do not become, for the next year or the next pay period, part of the base salary. Commissions, fringe benefits, profit sharing are not included. **Bonuses with a continuing relationship to salary** would have the following characteristics:
 - They are performance based.
 - All employees in the reporting category are eligible to receive the bonus, but do not necessarily receive it every year (or bonus period).
 - Although the bonus does not have to be proportional to salary, it generally is; i.e. higher salaried people generally receive higher bonuses.
- The statistical measures used in compiling the tables are:
 - Mean:** Numerical average. The mean is not shown where there are fewer than three observations.
 - Low Decile (D1):** 90% of the salaries were above this point and 10% were below it. The decile rate is not shown where there are fewer than 11 observations.
 - Low Quartile (Q1):** 75% of the salaries were above this point and 25% were below it. The low quartile rate is not shown where there are fewer than 11 observations.
 - Median:** 50% of the salaries were above this point and 50% were below it. The median rate is not shown where there are fewer than five observations.
 - High Quartile (Q3):** 25% of the salaries were above this point and 75% were below. The high quartile rate is not shown where there are fewer than five observations.
 - High Decile (D9):** 10% of the salaries were above this point and 90% were below it. The high decile rate is not shown where there are fewer than 11 observations.
- Where no significant differences were found between salaries paid to engineers, geologists and geophysicists in a particular industry sector, or where there was insufficient data to break responses down by professions, data from all three professions were combined into a single table for that specific industry sector. Resource Exploitation (oil & gas) was the only industry sector where sufficient data was available to report professions separately.
- Negative figures are indicated by parentheses.

ANNUAL SALARIES BY LEVEL OF RESPONSIBILITY

FIGURE 4

Engineers - All Industries								
Level	# of Engs.	% Mean Chge '01-'02	Mean \$	D ₁ \$	Q ₁ \$	Median \$	Q ₃ \$	D ₉ \$
A-	204	N/A	35,816	30,000	33,192	36,672	39,000	41,400
A	519	5.9	48,122	40,912	44,357	48,600	51,960	55,200
B	598	4.2	56,101	48,000	52,152	55,900	59,976	63,900
C	1,193	2.6	67,795	57,720	63,000	68,100	72,800	75,755
D	1,561	7.9	82,849	70,500	75,765	82,438	89,000	96,000
E	1,448	2.2	98,336	81,952	89,772	100,000	106,600	111,900
F	853	4.5	117,936	95,992	108,072	118,800	126,200	137,000
F+	259	4.1	138,814	115,000	126,000	133,800	145,600	165,000

FIGURE 5

Geologists - All Industries								
Level	# of Geols.	% Mean Chge '01-'02	Mean \$	D ₁ \$	Q ₁ \$	Median \$	Q ₃ \$	D ₉ \$
A-	29	N/A	37,309	30,225	33,600	37,800	40,800	43,200
A	37	(3.0)	47,156	38,600	42,994	48,993	51,650	53,608
B	90	1.3	53,873	47,000	51,224	54,000	57,000	60,000
C	118	(1.5)	67,268	57,460	63,000	66,600	71,820	76,728
D	110	(0.8)	87,226	70,224	81,596	90,500	93,250	99,372
E	170	1.6	106,337	95,400	102,780	108,399	112,000	115,524
F	157	4.1	125,922	115,200	120,240	126,000	130,500	145,000
F+	37	(1.7)	142,124	126,480	132,000	139,000	155,000	160,000

FIGURE 6

Geophysicists - All Industries								
Level	# of Geophs.	% Mean Chge '01-'02	Mean \$	D ₁ \$	Q ₁ \$	Median \$	Q ₃ \$	D ₉ \$
A-	20	N/A	36,800	31,000	33,600	36,200	39,000	41,400
A	8	(5.2)	47,845		49,860	50,000	52,000	
B	17	(1.3)	55,444	53,000	53,500	55,200	55,800	58,500
C	27	(1.9)	69,825	63,000	64,300	68,000	70,224	76,620
D	42	2.3	90,971	80,000	87,000	92,000	95,500	100,000
E	107	3.9	109,269	100,200	105,800	110,300	115,000	117,705
F	77	3.8	127,627	120,000	122,300	125,700	130,000	136,740
F+	9	5.6	143,798		137,700	140,000	145,860	

ANNUAL SALARIES BY INDUSTRY SECTOR

FIGURE 7

Engineers by Industry Sector								
CONSULTING SERVICE								
Level	# of Engineers	% Change in Mean '01-'02	Mean \$	D ₁ \$	Q ₁ \$	Median \$	Q ₃ \$	D ₉ \$
A-	16	N/A	29,789	24,000	25,200	30,160	31,200	32,136
A	95	3.2	41,429	37,003	39,600	42,000	44,000	45,986
B	96	3.7	48,938	43,992	46,010	48,900	52,000	55,078
C	96	1.1	57,640	51,000	53,970	57,325	61,776	65,000
D	103	0.9	69,310	59,010	63,000	70,304	74,648	80,288
E	153	5.8	83,829	72,000	77,724	83,000	88,525	95,014
F	100	3.4	98,142	84,000	91,200	96,000	105,498	115,000
F+	23	3.1	126,119	108,546	115,000	123,000	130,042	145,000
ENGINEERING, PROCUREMENT AND CONSTRUCTION								
Level	# of Engineers	% Change in Mean '01-'02	Mean \$	D ₁ \$	Q ₁ \$	Median \$	Q ₃ \$	D ₉ \$
A-	43	N/A	38,532	35,100	37,170	39,000	40,560	42,000
A	141	6.0	49,262	43,200	45,820	59,596	52,200	55,120
B	178	0.6	57,780	51,000	53,472	56,514	61,800	64,800
C	312	(0.3)	70,299	60,240	64,580	69,000	73,840	79,200
D	441	6.0	90,187	77,100	81,600	87,720	96,000	105,600
E	321	1.6	101,721	90,540	96,000	101,640	107,400	112,200
F	243	(0.2)	116,906	105,240	110,400	116,100	122,700	127,800
F+	86	2.6	137,900	121,580	128,280	132,600	143,196	159,900
RESOURCE EXPLOITATION - EXCEPT OIL & GAS								
Level	# of Engineers	% Change in Mean '01-'02	Mean \$	D ₁ \$	Q ₁ \$	Median \$	Q ₃ \$	D ₉ \$
A-	8	N/A	35,100		34,944	35,776	35,984	
A	13	11.3	42,861	38,120	40,000	43,000	46,350	46,430
B	23	4.4	50,714	45,150	47,720	51,400	53,240	54,060
C	36	0.1	60,851	56,000	57,200	60,010	64,190	66,000
D	27	3.3	74,626	65,970	70,967	74,800	78,000	79,570
E	22	(3.4)	92,305	81,410	86,930	94,130	96,690	97,740
F	11	(10.6)	106,835	95,130	101,900	106,090	110,760	122,060
F+	5	N/A	153,174		114,400	124,360	205,000	

FIGURE 7 (con't.)

Engineers by Industry Sector								
RESOURCE EXPLOITATION - OIL & GAS								
Level	# of Engineers	% Change in Mean '01-'02	Mean \$	D ₁ \$	Q ₁ \$	Median \$	Q ₃ \$	D ₉ \$
A-	115	N/A	36,997	30,225	34,125	37,800	40,100	41,760
A	153	6.9	52,135	48,240	50,160	52,020	55,080	55,428
B	206	6.8	58,186	53,500	55,600	58,080	60,590	64,044
C	372	1.3	69,208	62,400	65,040	69,330	72,000	75,737
D	442	1.4	86,980	77,760	82,000	87,400	92,000	97,044
E	774	2.4	106,148	96,464	101,300	106,500	111,858	115,000
F	582	5.3	128,119	115,900	121,000	126,000	132,200	146,880
F+	144	0.4	145,762	128,304	132,000	140,000	155,000	168,100
MANUFACTURING - DURABLES (Includes machinery, equipment, tools, furniture, wood, concrete, steel and plastic products.)								
Level	# of Engineers	% Change in Mean '01-'02	Mean \$	D ₁ \$	Q ₁ \$	Median \$	Q ₃ \$	D ₉ \$
A-								
A								
B								
C								
D								
E								
F								
F+								
NO DATA REPORTED AT THESE LEVELS (Only one organization in 2002 classified itself as Manufacturing – Durables. Data was not significant.)								
MANUFACTURING - NON-DURABLES (Includes food products, beverages, rubber, leather, textiles, pharmaceuticals, chemicals, plants, and pulp & paper.)								
Level	# of Engineers	% Change in Mean '01-'02	Mean \$	D ₁ \$	Q ₁ \$	Median \$	Q ₃ \$	D ₉ \$
A-	8	N/A	35,655		32,400	37,200	37,200	
A	20	9.0	51,845	45,980	49,590	49,620	57,342	57,702
B	22	12.1	59,852	53,600	53,952	56,256	61,293	68,094
C	36	1.7	70,877	62,400	63,792	67,900	78,754	82,914
D	60	3.6	82,395	75,432	77,016	80,056	86,595	94,484
E	88	6.6	97,099	86,460	88,272	93,744	105,492	109,716
F	19	12.9	119,355	100,212	107,604	122,916	122,916	129,060
F+	6	24.9	150,522		137,316	155,916	160,548	

FIGURE 7 (cont'd.)

Engineers by Industry Sector								
SERVICE - NOT FOR PROFIT (Includes governments and their controlled R & D organizations, regulatory agencies, educational and health care organizations, and Crown corporations.)								
Level	# of Engineers	% Change Mean '01-'02	Mean \$	D ₁ \$	Q ₁ \$	Median \$	Q ₃ \$	D ₉ \$
A-	9	N/A	28,030		24,770	27,318	30,103	
A	59	9.7	46,917	44,117	44,424	47,410	48,648	50,868
B	88	6.4	53,097	47,315	50,323	53,184	55,608	58,176
C	278	6.3	67,405	57,512	63,696	68,800	73,632	73,632
D	381	5.0	76,386	68,808	72,338	75,938	81,276	83,580
E	208	4.4	86,104	75,858	80,256	86,928	89,772	93,964
F	72	3.5	101,918	87,555	92,092	100,260	111,253	119,000
F+	14	9.7	122,224	109,728	112,462	118,245	128,300	132,500
SERVICE - FOR PROFIT (Includes transportation companies [pipeline, truck, etc.], storage, computer sales / maintenance, financial services, general sales and supply-wholesale or retail-manufacturers' associations.)								
Level	# of Engineers	% Change in Mean '01-'02	Mean \$	D ₁ \$	Q ₁ \$	Median \$	Q ₃ \$	D ₉ \$
A-	14	N/A	35,811	31,105	33,192	36,852	37,080	38,064
A	25	3.6%	43,407	39,933	40,520	41,949	46,217	48,048
B	3	N/A	NO DATA REPORTED AT THIS LEVEL					
C	36	6.0	60,847	53,694	56,807	60,540	62,601	68,916
D	52	8.0	74,544	64,620	69,002	74,502	80,004	83,916
E	15	(0.3)	86,249	81,072	82,344	85,404	88,128	91,872
F	7	3.9	110,986		99,228	106,272	120,000	
F+	0	N/A	NO DATA REPORTED AT THIS LEVEL					
UTILITY - RATE CONTROLLED								
Level	# of Engineers	% Change in Mean '01-'02	Mean \$	D ₁ \$	Q ₁ \$	Median \$	Q ₃ \$	D ₉ \$
A-	36	N/A	36,054	32,184	34,269	36,672	37,594	37,884
A	32	1.9	47,500	42,000	45,000	48,840	49,716	50,640
B	27	7.7	56,361	53,568	55,164	56,500	57,660	59,976
C	44	7.2	69,412	64,032	64,620	68,100	70,248	80,000
D	98	5.9	83,372	76,428	80,196	83,052	87,360	89,796
E	96	7.7	101,733	92,000	98,500	102,552	105,876	108,444
F	41	5.7	112,369	101,112	108,700	111,900	118,800	121,800
F+	19	(3.8)	125,144	110,000	114,816	121,000	135,600	145,000

FIGURE 7 (con't.)

Engineers by Industry Sector								
ADVANCED TECHNOLOGIES								
Level	# of Engineers	% Change in Mean '01-'02	Mean \$	D ₁ \$	Q ₁ \$	Median \$	Q ₃ \$	D ₉ \$
A-	5	N/A	30,960		30,000	33,600	33,600	
A	25	2.7	47,570	43,900	45,600	48,000	48,300	52,000
B	62	8.4	56,839	50,500	52,100	56,000	59,740	64,000
C	127	11.1	68,562	58,500	63,000	69,484	74,077	76,587
D	105	12.7	85,966	71,700	78,000	88,000	92,751	98,000
E	46	17.0	103,705	88,000	96,400	106,000	110,438	113,298
F	11	1.7	104,300	95,000	95,700	108,000	113,000	115,000
F+	8	N/A	124,750		100,000	108,000	153,000	

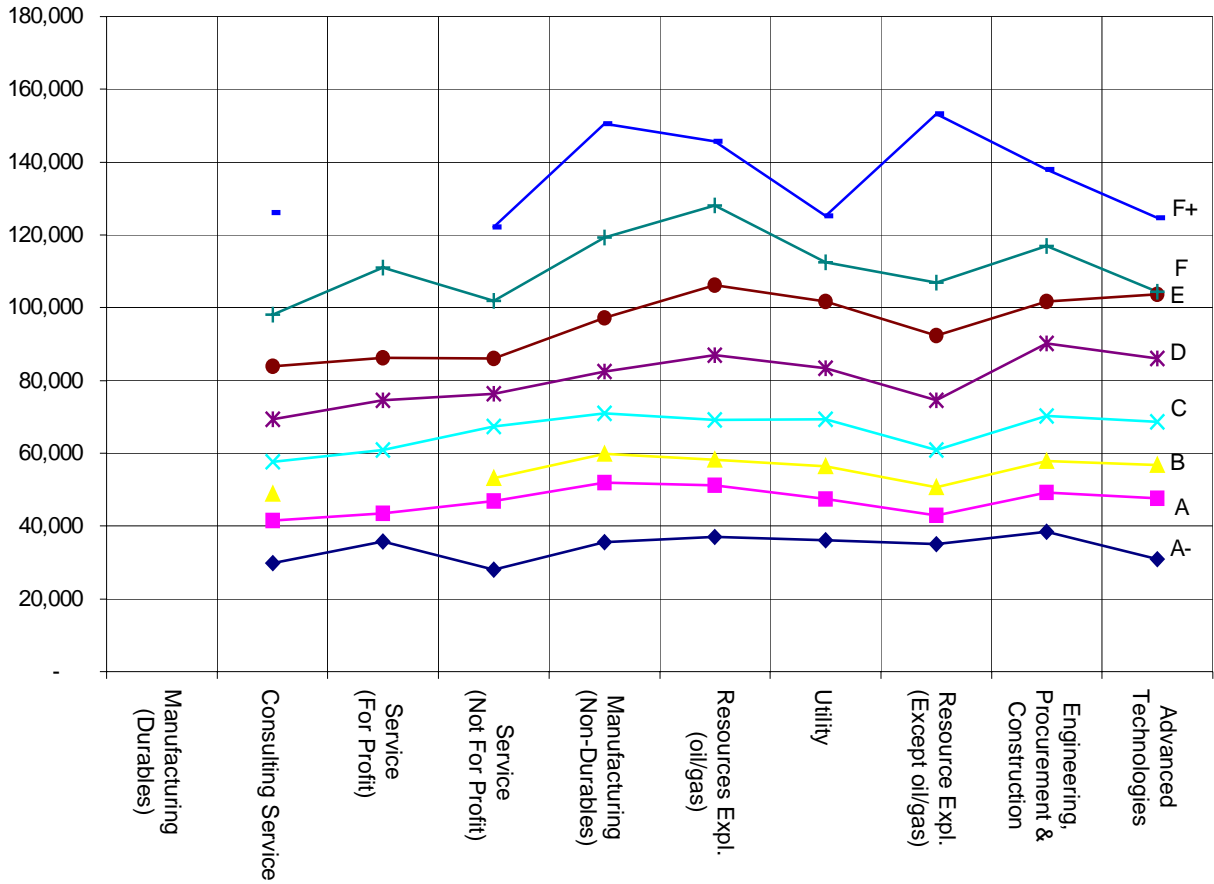
FIGURE 8

Geologists by Industry Sector								
RESOURCE EXPLOITATION - OIL & GAS (Only category of geoscientists with significant data)								
Level	# of Geols.	% Change in Mean 01-02	Mean \$	D ₁ \$	Q ₁ \$	Median \$	Q ₃ \$	D ₉ \$
A-	28	N/A	37,528	30,225	33,600	37,800	40,800	43,200
A	19	5.3	51,283	48,500	50,500	51,650	53,160	54,000
B	53	4.3	55,920	52,500	53,700	55,750	58,800	60,000
C	72	3.2	69,388	63,000	64,900	67,248	72,500	78,000
D	78	2.1	90,349	79,600	84,630	91,356	95,000	100,000
E	158	3.3	108,014	99,645	103,825	108,840	112,284	115,560
F	147	5.4	127,276	116,865	121,000	126,000	131,220	145,000
F+	36	(3.5)	142,617	127,200	132,000	139,000	155,000	160,000

NOTE: Annual Salaries by Industry - Geophysicists - see Figure 6, Page 21.

FIGURE 9

Mean Yearly Salaries of Engineers, Geologist & Geophysicists
by Industry Type-June 2002
(Including Co-op and Intern Students - A-)



SECTION 3

DETERMINING 2002 TO 2003

SALARY ADJUSTMENT

The market varies from year to year. After identifying your market salary for 2002 (Section 2), you should then examine the current market pressures on salaries.

1. INFLATION FACTOR

The inflation factor adds an amount (usually expressed in percent) to allow for the percentage increase in the Consumer Price Index (a restoration of the value of the dollar concept). National CPI increases as well as those for Alberta, Edmonton and Calgary are supplied below.

FIGURE 10

Consumer Price Increase Index (1992= 100)				
Year-Over-Year Percent Change				
	Canada	Alberta	Edmonton	Calgary
1992	1.5	1.5	1.8	1.4
1993	1.8	1.2	0.8	1.3
1994	0.2	1.5	1.6	1.4
1995	2.5	2.4	1.9	2.7
1996	2.3	2.3	2.0	2.8
1997	1.8	1.8	1.6	2.0
1998	1.0	1.5	1.2	1.9
1999	1.8	2.1	2.1	2.0
2000	3.0	4.0	3.7	4.4
2001	2.8*	2.7*	2.7*	2.7*
2002	2.3	2.9	2.0	3.6

* Estimated

2. PRODUCTIVITY FACTOR (Increase in Gross Domestic Product)

In addition to the percentage increase in the CPI, an amount is added to allow for sharing in economic growth. (The Gross Domestic Product is now used as the main aggregate for measuring Canada's economic development.)

Note: In its August 2002 report, the BMO Financial Group reported an expected 3.8 percent real GDP growth in the Alberta economy for 2002, a forecast (BMO Nov. 02) 4.8 percent real GDP growth for 2003, and a 4.3 growth for 2004.

3. DEMAND FACTOR

It is anticipated in 2003, that there will be reasonable demand in Alberta for many of the engineering and goescience disciplines, despite Kyoto, and despite considerable economic uncertainty in the world. While it is expected that demand factors for specific professions and industry sectors will vary considerably, an overall demand factor for the three professions is estimated at 0.8%. Members who are aware that their expertise is in short supply may want to uses a higher estimate for their demand factor; members who are aware that supply in their field of practice is abundant, may want to use a lower estimate.

EXAMPLE

Using the factors outlined under our example, the June 2002 survey data in Section 2 can be adjusted to June 2003 by adding what you estimate the increase will be for each of three factors for the 12-month period.

The salary adjustment estimates (as explained under each factor) are as follows:

Inflation Factor (CPI)	2.9%
Productivity Factor (GDP)	4.8%
Demand Factor	<u>0.8%</u>
Estimated Salary Adjustment from 2002 to 2003	8.5%

This example is illustrative only. Individual situations may vary considerably.

For you as a Human Resources Manager, these factors should be considered, but may not necessarily be incrementally assessed for your salary pool. Besides these external factors, pooled salary behaviour also depends on such factors as: new hires, attrition, internal promotions, etc.

FIGURE 11

<p align="center">APEGGA Employer Salary Surveys Percent Change in Mean Salaries By Level of Responsibility – 1992 to 2002</p>										
<p>ENGINEERS <i>No A- data in 2002 – category started this year.</i></p>										
Level	92-93 %	93-94 %	94-95 %	95-96 %	96-97 %	97-98 %	98-99 %	99-00 %	00-01 %	01-02 %
A	0.8	(0.7)	0.8	1.2	5.3	6.8	0.6	4.2	1.9	5.9
B	2.2	1.8	0.3	1.7	4.0	5.0	(0.5)	1.9	6.7	4.2
C	0.8	0.6	1.2	0.1	1.8	5.4	2.5	2.8	5.4	2.6
D	2.2	1.6	(0.5)	1.4	2.3	5.3	3.6	2.6	3.3	7.9
E	2.5	1.6	0.0	2.2	2.1	6.3	2.8	4.6	3.2	2.2
F	3.2	1.4	1.5	0.2	2.3	6.7	4.6	1.9	4.6	4.5
F+	3.9	2.2	1.6	(5.0)	4.3	7.6	5.1	0.6	5.8	4.1
<p>GEOLOGISTS <i>No A- data in 2002 – category started this year.</i></p>										
Level	92-93 %	93-94 %	94-95 %	95-96 %	96-97 %	97-98 %	98-99 %	99-00 %	00-01 %	01-02 %
A	6.1	0.5	7.6	5.1	0.6	9.2	1.3	1.1	8.2	(3.0)
B	0.7	0.7	1.4	5.8	1.3	5.4	2.5	1.6	8.7	1.3
C	(0.8)	1.3	6.4	1.6	(0.3)	6.4	1.9	2.0	9.9	(1.5)
D	2.1	1.4	3.3	1.8	0.2	5.9	(2.5)	4.6	11.6	(0.8)
E	1.7	(1.2)	2.0	4.1	2.5	7.0	(0.7)	4.5	5.3	1.6
F	0.6	0.9	2.3	(0.9)	3.7	5.1	(0.1)	5.5	3.6	4.1
F+	(0.9)	(11.2)	7.2	(1.8)	1.0	12.7	0.9	(0.7)	5.3	(1.7)
<p>GEOPHYSICISTS <i>No A- data in 2002 – category started this year.</i></p>										
Level	92-93 %	93-94 %	94-95 %	95-96 %	96-97 %	97-98 %	98-99 %	99-00 %	00-01 %	01-02 %
A	-	-	1.0	1.6	-	4.4	0.9	1.7	10.9	(5.2)
B	2.5	3.4	4.5	1.1	1.6	6.8	(0.6)	3.2	7.5	(1.3)
C	(2.1)	1.3	14.4	(0.5)	(0.2)	0.6	5.1	5.2	6.2	(1.9)
D	1.4	4.4	6.0	2.4	2.1	1.2	0.3	4.5	8.2	2.3
E	5.3	1.5	1.4	1.9	2.7	4.9	1.7	5.7	2.7	3.9
F	4.3	(2.0)	1.9	(0.7)	(0.1)	7.2	1.1	4.3	5.8	3.8
F+	0.0	(0.2)	6.2	(6.8)	2.8	3.0	(1.6)	15.5	(2.6)	5.6

NOTE – Two organizations that have previously participated in the survey changed their internal job categorizations in 2002 so that level B and C were combined into one category. This change may have been a contributing factor to the unusual change in the 2002 Geosciences 01-02 mean as shown above.

SECTION 4

2003 SALARY EXPECTATION

STEP 1

DETERMINE YOUR LEVEL OF RESPONSIBILITY

Determine your level of responsibility (see Section 1) as you will want to make comparisons which relate to your level.

STEP 2

DETERMINE YOUR 2002 SALARY RANGE

Consult the salary survey data reported for your professional group (engineer, geologist or geophysicist) and the salary survey data reported for your industry sector in Section 2. This data plus other salary survey data on engineers, geologists and geophysicists in Appendix B will help you to determine your 2002 salary range.

STEP 3

DETERMINE 2002 TO 2003 SALARY ADJUSTMENT

Using the Example in Section 3 and/or other information available to you, determine what the estimated increase may be in salary from 2002 to 2003 Use this value to adjust your 2002 salary range in order to arrive at your 2003 salary range.

For example, the 2002 salary range for a level "C" engineer (all industries) ranges as follows:

D ₁	Median	D ₉
\$57,720	\$68,100	\$75,755

If the 2002-2003 increase in salaries is estimated to be 8.5% as shown in Example (page 28), the 2003 salary range for the level "C" engineer would be:

D ₁	Median	D ₉
\$62,626	\$73,888	\$82,194

STEP 4 2002 SALARY EXPECTATION

Performance

At this step you turn from evaluating the job to evaluating yourself, and how well you are performing the job you hold.

Performance can range from:

- (a) very low - new in the job, new in the company, with a minimum of directly related experience so that considerable and fairly close supervision is required, to
- (b) very high - five or six years in the job (assuming a "C" Level of Responsibility) so that you perform quickly (you don't have to double-check because you've handled that kind of problem before), you accomplish a great deal, it's accurate and you need little supervision (people know that you will get the job done and that it will be done well).

To illustrate further, if the level "C" engineer noted in Step 3, has a few years' experience in the job, brought no or very little directly relevant experience to the job, has come to the job from outside the company and is still having trouble arriving at a decision or makes poor decisions, submits reports that still need to be checked for accuracy, the level "C" engineer should expect to be paid in the range of \$63,000 to \$68,000 (Decile 1 to Quartile 1) in 2002.

On the other hand, if after two years, the level "C" engineer makes good decisions quickly, presents reports and recommendations that are normally accepted, starts to see and suggest ways to improve the work and is generally accepted as a strong member of the team, the level "C" engineer should expect to be paid in the area of \$68,000 to \$79,000 (Quartile 3 to Decile 9) per year.

Salary Trends

The APEGGA Survey collected additional information from employers on anticipated salary adjustments over the next 12 months:

- 74% of our 84 respondents estimated salaries will increase. (average increase – 2.3%)
(Note – the weighted average rate of increase is 3.0%). After reviewing the calculation method used in previous surveys, APEGGA is adopting this weighted average method for future surveys rather than the simple average that has been used in the past.
- 19% of our 84 respondents estimated salaries will remain stable.
- 1% of our 84 respondents indicated that salaries would decrease.
- 6% of our 84 respondents had no response.

Other Considerations

- Salary is one of two major components of remuneration received by an employee; the other being benefits. In order to determine your total compensation, it is important to consider both parts. Section 5 contains information on employee benefits and compensation concepts.
- A weakness of the single market survey is that a strong market demand for the services of a single occupational group will push salary rates for that group to unacceptably high levels (in relation to the level of responsibility assumed) causing dissatisfaction in related occupational groups and setting up high turnover rates later when demand declines. The opposite also happens when demand is low.

As such, salaries of an occupational group (determined by a strict application of the single market approach) are not efficient in encouraging a steady inflow of quality persons nor in encouraging persons already practicing the occupation to continue to practice. Both of these factors are of concern.

In order to stabilize salaries, some companies consider changes in the economy and actual salaries paid to a variety of other occupational groups, as well as the trends in these.

There are many factors to consider and only some have been referred to above. However, using these factors and/or those considered important by your supervisor or company, you should be able to arrive at a dollar figure which will equate to the value of professional services you are providing for your company.

SECTION 5

COMPENSATION CONCEPTS

The total compensation of any employed individual or the total payroll cost of an employee is made up of two major segments — salary and benefits. Payroll costs do not include office space, secretarial help, insurance etc., which are created or added to when an employee is on or added to the payroll.

Salary is also made up of two parts - regular salary and overtime compensation (some employers do not provide overtime compensation). Figure 13 summarizes data obtained from the 2002 Employer Salary Survey regarding overtime compensation.

The benefit segment is made up of two parts - the time-not-worked benefits and what might be called the general benefits. Details of what is included in each segment are provided in Employee Benefits which follow.

The percentage (of the total compensation) proportions given in Figure 14 are averages which reflect values for 2002. No given company (or employee) will exactly match these.

EMPLOYEE BENEFITS

There is a wide variation of practice and opinion as to what should be classed as an employee benefit. The definitions described below have been used in this publication.

1. Quoted Yearly Salary or Base Salary

Pay for time worked at normal rates plus the cost of the time-not-worked benefits. Quoted yearly salary does not include payment of overtime.

2. General Benefits

A payment by the employer to the employee directly or to a third party on behalf of the employee to secure for the employee, an advantage or protection of benefit to the employee.

Provision by the employer or the making available of (at no or reduced cost) some facility, object or service of benefit to the employer.

(a) Cash Benefit Payments made by the employer on behalf of the employee for:

- i) pension or superannuation provisions.¹
- ii) a hospital, medical, dental, sickness, disability, life, income maintenance, etc., plan.
- iii) the Canada Pension Plan, Unemployment Insurance, Workers' Compensation plans (compulsory in Alberta).
- iv) termination or severance pay, the premium portion of premium pay, relocation assistance.

(b) No Cash Benefit Provision by the employer, at no or reduced cost to the employee, of: recreation facilities and/or equipment, food, lodging, loans, parking, transportation, educational opportunities, discounts on company products, etc.

¹ This category should not include amounts which the employer sets aside to fund what might be called incentive or productivity plans such as profit sharing plans and one-time bonus plans which are based on productivity measure. These plans should be considered and administered apart from the basic salary and benefit system in order to preserve the integrity of the basic system.

**3. Time-Not-Worked Benefits
(payments made by the employer to the employee for time not worked)**

This is included as part of the Quoted Yearly Salary.

- (a) For Monthly or Yearly Paid Employees:
Time off from work (the employee does not have to be at the place of work), or periods when the employee is at work but not working and for which there is no reduction to the quoted yearly salary.
- (b) For Hourly Paid Workers:
Payments in lieu of holiday days and vacation days.
- (c) Holiday Days
Includes the nine statutory (also called general) holidays in Alberta and declared holidays which may be declared by federal, provincial or municipal authorities (but they become a work holiday only if the employer so declares).
 - i) Statutory Holidays: New Year's Day, Family Day, Good Friday, Victoria Day, Canada Day, Labour Day, Thanksgiving Day, Remembrance Day, and Christmas Day.
 - ii) Declared Holidays: Boxing Day and Heritage Day.
- (d) Vacation Days
- (e) Other Days and/or Periods Sick Leave not covered by 2 (a)ii, travel time, clean-up time, rest and/or coffee periods, personal leave (jury duty, voting, bereavement, maternity, paternity, etc.).

EMPLOYER SALARY SURVEY COMPENSATION DATA

The APEGGA survey collected additional information on other compensation provided to employees. (see Figures 13, 14 and 15). This data indicated 99% of the organizations provide a comprehensive benefits package which includes dental, drug, long-term disability, life/accident insurance and medical plans. At least 80% of employers offered some form of pension plan.

Additional cash compensation was disbursed to approximately 32.6% of the engineers, 68.0% of the geologists and 71.0% of the geophysicists. Figures 15 reports other details on cash compensation.

Information from the survey pertaining to weekly hours of work and overtime compensation are reported in Figures 12, 13, 14, and 15. Vacation entitlement data is report in Figure 16.

FIGURE 12

**Weekly Hours of Work Based on No. of Employers (84)
June 2002**

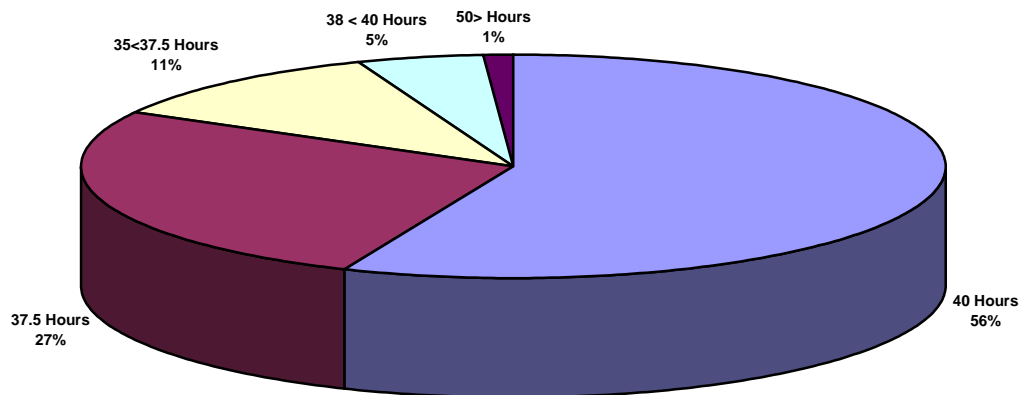


FIGURE 13

Percent of Employers Providing Overtime Compensation* (Based on Level of Responsibility - All Industries)		
Level	Cash	Time Off in Lieu
A-	27%	20%
A	38%	40%
B	38%	46%
C	30%	45%
D	24%	37%
E	18%	32%
F	14%	34%
F+	12%	28%

* In some cases an employer may provide either cash or time off in lieu.

FIGURE 14

Number of Organizations Providing Additional Compensation & Benefits								
Organization Size: 1 - 500+ employees					Total Organizations: 84			
Additional Compensation		Level of Responsibility						
	A-	A	B	C	D	E	F	F+
Additional Cash Compensation								
a. Cash Bonus Payments	4	22	23	26	29	30	30	18
b. Profit Sharing Payments	2	18	20	22	18	25	25	21
c. Performance/Merit Bonus	8	27	31	34	35	37	42	35
d. Productivity/Gain Sharing	1	3	3	4	4	2	4	2
e. Commissions	0	0	0	1	1	0	1	0
f. Other	0	1	2	2	2	2	5	5
Overtime Compensation								
g. Cash	23	32	37	25	20	15	12	10
h. Time Off In-Lieu	27	34	39	38	31	27	29	24
Other Compensation								
i. Stock Options/Purchases	4	4	16	20	22	35	31	27
j. Car/Car Allowance	2	3	4	7	8	13	21	22

k. Vehicle Allowance	2	3	3	5	4	1	13	13
l. Consulting Fees	0	1	1	1	1	1	1	0
m. Other	1	3	3	3	3	3	4	3
Benefits Package								
n. Pension Plan	6	40	42	44	42	45	45	26
o. Employer Contribution to RRSP	10	20	21	21	21	21	21	17
p. Medical Beyond AHC	20	61	66	67	69	70	68	48
q. Long Term Disability	15	67	71	73	74	75	73	50
r. Life/Accident Insurance	23	68	73	75	76	77	75	53
s. Drug Plan	19	68	72	73	74	75	75	51
t. Dental Plan	19	68	72	73	74	75	74	50
u. Vision Care	12	49	52	55	55	56	55	39
v. Legal Plan	1	6	7	7	7	7	6	5
w. Savings Plan	1	23	25	27	27	28	26	18
x. Other	4	15	16	16	16	17	17	17

FIGURE 15

Additional Cash Compensation Disbursed June 2002							
ENGINEERS							
Level	# of Engs.	Mean \$	D ₁ \$	Q ₁ \$	Median \$	Q ₃ \$	D ₉ \$
A-	7	600		600	600	600	
A	139	3,155	900	1,577	2,700	4,000	5,568
B	173	4,058	1,000	1,800	3,477	4,948	6,701
C	390	6,021	896	3,000	5,412	7,400	11,340
D	507	14,220	1,600	3,400	6,900	10,530	16,016
E	546	14,094	1,955	5,000	12,424	18,600	26,399
F	274	25,154	2,567	8,088	17,000	30,721	51,000
F+	128	24,347	3,886	11,000	19,100	28,000	37,350

GEOLOGISTS							
Level	# of Geols.	Mean \$	D ₁ \$	Q ₁ \$	Median \$	Q ₃ \$	D ₉ \$
A-	0	NO DATA REPORTED AT THIS LEVEL					
A	15	4,163	541	1,800	2,378	3,400	5,000
B	50	5,106	1,154	2,579	4,860	6,700	8,039
C	79	6,865	863	2,730	4,036	8,302	14,211
D	79	13,576	1,788	4,113	7,300	18,186	27,794
E	129	17,666	6,800	9,808	15,300	24,136	31,018
F	122	25,660	8,874	12,900	21,000	33,428	41,910
F+	34	27,758	9,164	13,694	25,500	34,000	48,461

GEOPHYSICISTS							
Level	# of Geophs.	Mean \$	D ₁ \$	Q ₁ \$	Median \$	Q ₃ \$	D ₉ \$
A-	0	NO DATA REPORTED AT THIS LEVEL					
A	4	NO DATE REPORTED AT THIS LEVEL					
B	9	5,049		2,518	5,418	7,234	
C	20	6,283	2,700	3,948	7,077	7,600	8,315
D	27	11,100	3,860	5,400	8,140	14,000	17,332
E	80	19,258	6,800	9,000	16,500	27,951	30,946
F	70	26,566	7,900	11,930	21,000	33,000	59,907
F+	8	26,643		23,292	24,900	35,853	

FIGURE 16

Vacation Entitlement		
Vacation Entitlement	Minimum Years of Service to Qualify	% of Employers Providing Entitlement
2 Weeks	0 - 1 Years 1 - 5 Year	40% 1%
3 Weeks	0 - 1 Year 2 - 3 Years 4 - 15 Years	60% 18% 19%
4 Weeks	0 - 4 Years 5 - 7 Years 8 - 10 Years 11 - 20+ Years	4% 15% 68% 5%
5 Weeks	0 - 9 Years 10 - 15 Years 16 - 19 Years 20 - 25 Years	2% 14% 28% 21%
6 Weeks	15 - 20 Years 21 - 24 Years 25 Years 25+ Years	4% 12% 21% 6%
7+ Weeks	20 - 30 Years	4%

APPENDIX A

DETAILED JOB CLASSIFICATION GUIDE

LEVEL OF RESPONSIBILITY	LEVEL A -	LEVEL A
DUTIES	<p>Receives training in the various phases of office, plant, field or laboratory engineering or geoscience work as classroom instruction or as supervised "on-the-job" assignments, often accompanied by a pre-assigned "A" or higher level "buddy". Tasks assigned and well supervised include: preparation of simple plans, designs, calculations, costs and bills of material in accordance with established codes, standards, drawings or other specifications. Under supervision, may carry out routine technical surveys or inspections and prepare reports. Recognizing short duration of Co-op/Intern Student placements, assignments are usually non-complex projects with deadlines that finish within the Co-op/Intern term.</p>	<p>Receives training in the various phases of office, plant, field or laboratory engineering / geoscience work as classroom instruction or "on-the-job" assignments. Tasks assigned include: preparation of simple plans, designs, 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>
RECOMMENDATIONS, DECISIONS AND COMMITMENTS	<p>Few if any technical decisions called for and these will be of routine nature with ample precedent or clearly defined procedures as guidance. All such responsibilities usually cleared through "buddy" and supervisor before being accepted.</p>	<p>Few technical decisions called for and these will be of routine nature with ample precedent or clearly defined procedures as guidance.</p>
SUPERVISION RECEIVED	<p>Works under close supervision, often side-by-side with a pre-assigned "A" or higher "buddy". Work is reviewed for accuracy and adequacy and conformance with prescribed procedures.</p>	<p>Works under close supervision. Work is reviewed for accuracy and adequacy and conformance with prescribed procedures.</p>
LEADERSHIP AUTHORITY AND/OR SUPERVISION EXERCISED	<p>None</p>	<p>May assign and check work of one to five technicians or helpers.</p>
GUIDE TO ENTRANCE QUALIFICATIONS	<p>Enrolled in an accredited University Engineering /Geosciences or Applied Sciences Bachelor degree program and on a structured Co-Op/Intern Student assignment. May have no practical experience except previous co-op assignments.</p>	<p>Bachelor's degree in Engineering / Geosciences or Applied Sciences, or its equivalent, with little or no practical experience.</p>

LEVEL OF RESPONSIBILITY**LEVEL B****LEVEL C****DUTIES**

Normally regarded as a continuing portion of an engineer's/geoscientist's training and development.

Receives assignment of limited scope and complexity, usually minor phases of broader assignments. Uses a variety of standard engineering methods and techniques in solving problems. Assists in carrying out technical tasks requiring accuracy in calculations, completeness of data and adherence to prescribed testing analysis, design or computation methods.

This is typically regarded as a fully qualified professional engineering level. Carries out responsible and varied engineering / geoscience assignments, requiring general familiarity with a broad field of engineering and knowledge of reciprocal effects of the work upon other fields. Problems usually solved by use of combination of standard procedures, or methods developed in previous assignments. Participates in planning to achieve prescribed objectives.

RECOMMENDATIONS, DECISIONS AND COMMITMENTS

Recommendations limited to solution of the problem rather than end results. Decisions made are normally within established guidelines.

Makes independent studies, analyses, interpretations and conclusions. Difficult, complex or unusual matters of decisions are usually referred to more senior authority.

SUPERVISION RECEIVED

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.

Work is not generally supervised in detail and amount of supervision varies depending upon the assignment. Usually technical guidance is available to review work programs and advise on unusual features of assignment.

LEADERSHIP AUTHORITY AND/OR SUPERVISION EXERCISED

May give technical guidance to one or two junior engineers / geoscientists or technicians, assigned to work on a common project.

May give technical guidance to engineers / geoscientists of less standing, or technicians assigned to work on a common project. Supervision over other engineers / geoscientists not usually a regular or continuing responsibility.

GUIDE TO ENTRANCE QUALIFICATIONS

Bachelor's degree in Engineering / Geosciences or Applied Sciences, or its equivalent, normally with two to three years working experience from the graduation level.

Bachelor's degree in Engineering / Geosciences, or Applied Sciences, or its equivalent, normally with a minimum of five to six years related working experience from the graduation level.

LEVEL OF RESPONSIBILITY	LEVEL D	LEVEL E
DUTIES	This is typically the level of direct and sustained supervision of other professional engineers / geoscientists or the first level of full specialization. Requires application of mature engineering / geoscience knowledge in planning and conducting projects having scope for independent accomplishment and coordination of the 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 for comparative situations.	Usually requires knowledge of more than one field of engineering / geoscience or performance by an engineering /geoscience specialist in a particular field of engineering / geoscience. Participates in short and long range planning; makes independent decisions on work methods and procedures within an overall program. Originality and ingenuity are required for devising practical and economical solutions to problems. May supervise large groups containing both professional and non-professional staff; or may exercise authority over a small group of highly qualified professional personnel engaged in complex technical applications.
RECOMMENDATIONS, DECISIONS AND COMMITMENTS	Recommendations reviewed for soundness of judgment but usually accepted as technically accurate and feasible.	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.
SUPERVISION RECEIVED	Work is assigned in terms of objectives, relative priorities and critical areas that impinge on work of other units. Work is carried out within broad guidelines, but informed guidance is available.	Work is assigned only in terms of broad objectives to be accomplished, and is reviewed for policy, soundness of approach and general effectiveness.
LEADERSHIP AUTHORITY AND/OR SUPERVISION EXERCISED	Assigns and outlines work; advises on technical problems; reviews work for technical accuracy, and adequacy. Supervision may call for recommendations concerning selection, training, rating and discipline of staff.	Outlines more difficult problems and methods of approach. Co-ordinates work programs and directs use of equipment and material. Generally makes recommendations as to the selection training, discipline, and remuneration of staff.
GUIDE TO ENTRANCE QUALIFICATIONS	Bachelor's degree in Engineering / Geosciences or Applied Sciences, or its equivalent, normally with a minimum of seven to eight years of experience in the field of specialization from the graduation level.	Bachelor's degree in Engineering / Geosciences, or Applied Sciences, or its equivalent, normally with a minimum of ten to twelve years of engineering / geosciences, and/or administrative experience from the graduation level.

LEVEL OF RESPONSIBILITY	LEVEL F	LEVEL F+
DUTIES	Usually responsible for an engineering / geoscience administrative function, directing several professional and other groups engaged in interrelated engineering / geoscience responsibilities; or as an engineering / geoscience consultant, achieving recognition as an authority in an engineering/geoscience field of major importance to the organization. Independently conceives programs and problems to be investigated. Participates in discussion determining basic operating policies, devising ways of reaching program objectives in the most economical manner and of meeting any unusual conditions affecting work progress.	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.
RECOMMENDATIONS, DECISIONS AND COMMITMENTS	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 company policy and financial controls.	Responsible for long range planning, co-ordination, making specific and far-reaching management decisions. Keeps management associates informed of all matters of significant importance.
SUPERVISION RECEIVED	Receives administrative direction based on organization policies and objectives. Work is reviewed to ensure conformity with policy and co-ordination with other functions.	Operates with broad management authority, receiving virtually no technical guidance and control; limited only by general objectives and policies of the organization.
LEADERSHIP AUTHORITY AND/OR SUPERVISION EXERCISED	Reviews and evaluates technical work; selects, schedules, and co-ordinates to attain program objectives; and/or as an administrator, makes decisions concerning selection, training, rating, discipline and remuneration of staff.	Gives administrative direction to subordinate managers and contact with the work force is normally through such levels rather than direct.
GUIDE TO ENTRANCE QUALIFICATIONS	Bachelor's degree in Engineering / Geosciences or Applied Sciences, or its equivalent, with broad engineering / geoscience experience, including responsible administrative duties.	Bachelor's degree in Engineering / Geosciences, or Applied Sciences, or its equivalent with many years authoritative engineering / geoscience and administrative experience. The incumbent is expected to possess a high degree of originality, skill and proficiency in the various broad phases of engineering / geoscience applications.

APPENDIX B

APEGGA SALARY SURVEY DATA

Additional results from APEGGA's June 2002 Employer Salary Survey are included along with a list of the 84 organizations, which supplied data for the survey. Other survey results are published in sections 2, 4 and 5 of this booklet.

FIGURE B-1

Annual Salaries by Highest Degree All Professions June 2002							
Highest Degree Completed	Count	Mean \$	D ₁ \$	Q ₁ \$	Median	Q ₃ \$	D ₉ \$
Ph.D.	136	94,287	59,000	73,500	90,000	113,700	130,008
MAsc, MEng	626	92,256	55,000	69,306	89,282	115,000	130,042
BAsc, BEng	7,690	85,029	50,500	63,840	82,728	105,000	122,520

FIGURE B-2

APEGGA JUNE 2002 EMPLOYER SALARY SURVEY
Mean Salaries by Year of Graduation and Level of Responsibility
All Professions (Eng., Geol., Geoph.)

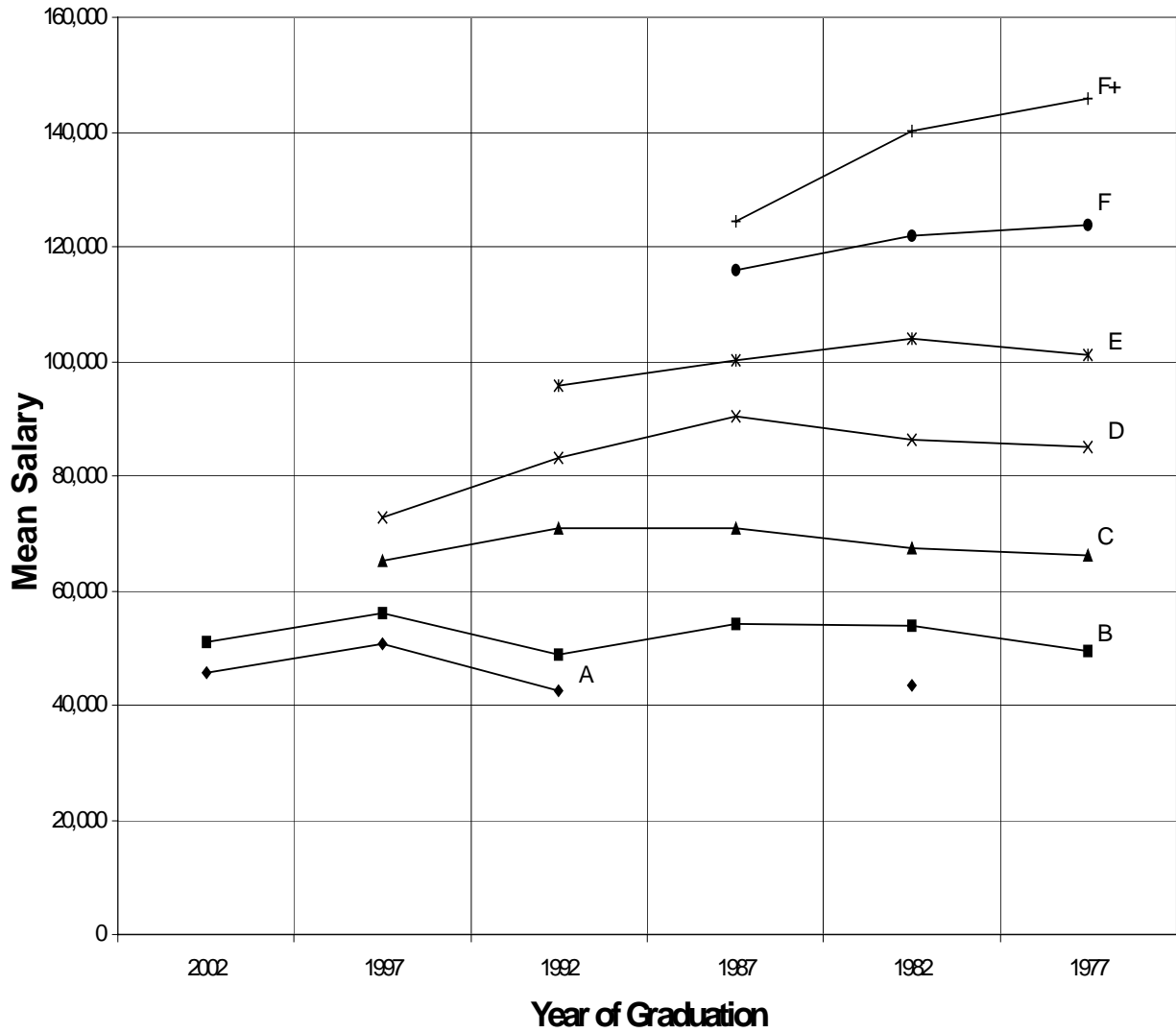


FIGURE B-3

Size of Organizations June 2002	
Size of Organization (All Employees)*	No. of Organizations Reporting
1 - 10	4
11 - 20	2
21 - 50	4
51 - 100	6
101 - 250	14
251 - 500	15
Over 500	39
TOTAL	84

* Includes all support and non-technical staff.

FIGURE B-4

{Please add the A- column & data to this table}

Size of Organizations and Amount of Data Reported by Level of Responsibility June 2002									
Size of Organization (All Employees)*	Amount of Data Reported By Level of Responsibility								
	A-	A	B	C	D	E	F	F+	TOTAL
1 - 10	0	0	1	1	0	2	3	1	8
11 - 20	0	0	3	0	2	1	2	0	8
21 - 50	3	6	6	20	6	7	11	2	61
51 - 100	7	20	29	27	34	27	14	14	172
101 - 250	52	109	173	208	358	322	316	17	1,555
251 - 500	15	68	83	195	222	165	112	58	918
Over 500	176	361	410	887	1,091	1,201	629	213	4,968
TOTAL	253	564	705	1,338	1,713	1,725	1,087	305	7,690

* Includes all support staff and non-technical staff.

FIGURE B-5

Annual Salaries by Size of Organization							
June 2002							
Level & Size	No. of Engs., Gls.,Gps.	Mean \$	D₁ \$	Q₁ \$	Median \$	Q₃ \$	D₉ \$
A 2-10 Employees	0	0	0	0	0	0	0
11-20 Employees	0	0	0	0	0	0	0
21-50 Employees	3						
51-100 Employees	7	31,441		31,290	32,000	33,600	
101-250 Employees	52	34,859	30,000	30,160	34,800	37,800	40,200
251-500 Employees	15	38,897	32,184	36,000	39,400	41,700	42,000
501+ Employees	176	36,422	30,905	34,269	37,170	39,585	41,400
A 2-10 Employees	0	0	0	0	0	0	0
11-20 Employees	0	0	0	0	0	0	0
21-50 Employees	6	43,042		40,658	46,920	48,000	
51-100 Employees	20	45,651	41,600	44,000	45,344	48,000	48,048
101-250 Employees	109	46,315	39,000	43,000	47,650	51,000	52,500
251-500 Employees	68	48,346	38,400	41,880	47,508	53,040	57,702
501+ Employees	361	48,741	41,995	45,000	48,993	52,000	55,200
B 2-10 Employees	1						
11-20 Employees	3						
21-50 Employees	6	52,479		47,820	54,600	57,600	
51-100 Employees	29	53,324	45,500	50,400	53,664	55,300	58,200
101-250 Employees	173	54,806	47,000	51,000	55,250	58,320	62,400
251-500 Employees	83	57,150	48,600	52,800	56,500	61,293	65,998
501+ Employees	410	56,265	49,470	53,184	55,920	59,900	63,000
C 2-10 Employees	1						
11-20 Employees	0	0	0	0	0	0	0
21-50 Employees	20	57,001	43,500	47,000	55,200	64,000	68,400
51-100 Employees	27	60,570	51,000	56,160	60,000	63,600	68,500
101-250 Employees	208	65,800	57,000	61,200	65,500	69,600	73,800
251-500 Employees	195	71,247	57,180	64,580	70,850	76,000	81,615
501+ Employees	887	67,969	58,812	63,718	68,400	72,800	74,834
D 2-10 Employees	0	0	0	0	0	0	0
11-20 Employees	2						
21-50 Employees	6	72,089		69,120	76,080	77,215	
51-100 Employees	34	73,932	63,000	69,680	73,000	77,168	85,000
101-250 Employees	358	87,377	71,700	80,056	87,445	91,190	103,200
251-500 Employees	222	86,835	72,480	77,258	85,000	92,000	98,782
501+ Employees	1,091	81,688	70,607	75,432	81,480	88,000	93,500
E 2-10 Employees	2						
11-20 Employees	1						
21-50 Employees	7	74,165		69,300	71,525	81,969	
51-100 Employees	27	88,058	80,704	83,200	83,200	87,984	90,000
101-250 Employees	322	100,065	80,080	93,000	104,207	109,500	113,000
251-500 Employees	165	101,011	85,500	93,200	101,920	109,200	112,140
501+ Employees	1,201	100,045	84,752	92,000	101,500	108,040	113,700
F 2-10 Employees	3						
11-20 Employees	2						
21-50 Employees	11	85,661	69,300	69,800	76,875	98,251	109,580
51-100 Employees	14	101,884	91,140	91,836	95,700	101,352	123,600
101-250 Employees	316	122,666	97,000	113,840	123,600	130,000	145,000
251-500 Employees	112	115,669	100,000	106,090	113,000	123,600	131,000
501+ Employees	629	120,218	101,504	112,800	121,080	127,360	134,520
F+ 2-10 Employees	1						
11-20 Employees	0	0	0	0	0	0	0
21-50 Employees	2						
51-100 Employees	14	122,723	100,000	105,000	118,296	129,600	129,600
101-250 Employees	17	133,818	105,000	123,000	130,000	145,000	165,000
251-500 Employees	58	137,054	116,000	121,000	132,000	145,000	168,000
501+ Employees	213	142,086	124,200	130,042	137,592	150,000	163,500

Note: Organization size is based on total number of employees.

FIGURE B-6

**Frequency Distribution of Annual Salaries by Level of Responsibility
Engineers, Geologists, Geophysicists
June 2002**

UPPER LIMIT	A-	A	B	C	D	E	F	F+	TOTAL
\$ 22,800	2								2
\$ 24,000	7								7
\$ 26,400	3	3							6
\$ 28,800	27	2							29
\$ 31,200	24	3							27
\$ 33,600	42	5	1						48
\$ 36,000	68	8	2						78
\$ 38,400	43	36	3	1	1				84
\$ 40,800	30	52	5	3	1				91
\$ 43,200	4	73	16	4	1				98
\$45,600	2	60	42	4	3				111
\$ 48,000	1	120	43	6	2				172
\$ 50,400		92	79	17	1				189
\$ 52,800		54	134	33	9				230
\$ 55,200		35	121	62	2				220
\$ 57,600		14	99	64	6				183
\$ 60,000		4	62	106	20	2			194
\$ 62,400		2	46	152	30	1			231
\$ 64,800			30	180	28	6			244
\$ 67,200			12	159	34	8	2		215
\$ 69,600			3	168	73	13	4		261
\$ 72,000			2	188	123	14	1		328
\$ 74,400			3	72	146	23	3		247
\$ 76,800				37	127	30	2		196
\$ 79,200			2	29	164	53	3		251
\$ 81,600				19	166	40	1		266
\$ 84,000				14	145	55	10		224
\$ 86,400		1		4	139	80	6		230
\$ 88,800				3	135	100	15	2	255
\$ 91,200				5	103	76	21		205
\$ 93,600					65	85	24		174
\$ 96,000					50	104	14		168
\$ 98,400				2	47	126	27	3	205
\$ 100,800				1	21	128	23	1	174
\$ 103,200					17	181	29	3	230
\$ 105,600				1	11	140	31	2	185
\$108,000					14	158	47	6	225
\$110,400					8	103	44	5	160
\$112,800				1	1	105	56	5	168
\$115,200					4	37	66	9	116
\$117,600					2	27	62	4	95
\$120,000				1	6	26	424	82	539
\$132,000				2	2	1	93	88	186
\$144,000					3	1	47	47	98
\$156,000					3	2	25	19	49
\$168,000							6	12	18
\$180,000							1	17	18
TOTAL	253	564	705	1,338	1,713	1,725	1,087	305	7,690

2002 EMPLOYER SALARY SURVEY - LIST OF 84 PARTICIPANTS

AD Williams Engineering Inc.
Advanced Measurements Inc.
Agrium Inc.
Alberta Energy & Utilities Board
Alberta Research Council
AltaSteel Ltd.
AMEC Earth & Environmental Ltd.
Amtech Aeronautical Ltd.
Associated Engineering Group Ltd.
ATCO Electric Ltd.
ATCO Gas
ATCO Pipelines
ATCO Power Ltd.
Bank of Montreal Oil & Gas Department
Bantrel Co.
Bel-MK Engineering Ltd.
Beta Machinery Analysis Ltd.
Burlington Resources Canada Ltd.
Calgary Board of Education
CANSPEC Group Inc.
Celanese Canada Inc.
CH2M HILL Canada Ltd.
Chevron Canada Resources
City of Calgary
City of Edmonton
City of Lethbridge
City of Medicine Hat
City of Red Deer
Cochrane Group Inc.
Colt Engineering Corporation
Conoco Canada Ltd.
Devon Canada Corporation
Dow Chemical Canada Inc.
DPH Engineering Inc.
Duthie, Newby, Weber & Associates
Earth Tech (Canada) Inc.
EBA Engineering Consultants Ltd.
Enbridge Pipelines Inc.
EnCana Corporation
Enerplus Global Energy Management Company
ENERSUL Inc.
EPCOR
EXH Engineering Services Ltd.
Field, Field & Field Architecture-
Engineering Ltd.
Fluor Canada Ltd.
Fording Coal Inc.
General Dynamics Canada
Golder Associates Ltd.
Government of Alberta
Halliburton Group Canada Inc.
Hampson-Russell Software Services Ltd.
Hyprotech Ltd.
Imperial Oil Ltd.
IXL Industries Ltd.
Kenonic Controls
Lehigh Inland Cement Ltd.
Luscar Ltd.
Macdonald Engineering Group Ltd.
Mentor Engineering Inc.
Micrologic Ltd.
Nexen Inc.
Nordic Acres Engineering
NOVA Chemicals Corporation
NovAtel Inc.
O'Connor Associates Environmental Inc.
Pembina Pipeline Corporation
Petro-Canada
Propak Systems Ltd.
Ryan Energy Technologies Inc.
Sherritt International Corporation
Sigma Risk Management Inc.
SNC-Lavalin Inc. (Calgary)
SNC-Lavalin Inc. (Edmonton)
Suncor Energy Inc.
Syn crude Canada Ltd.
Taisman Energy Inc.
TransCanada PipeLines Ltd.
Tri Ocean Engineering Ltd.
UMA Engineering Ltd. (Calgary)
UMA Engineering Ltd. (Edmonton)
VECO Canada Ltd.
Westcoast Energy Inc.
Weyerhaeuser Company Ltd.
Wi-LAN Inc.