



Treasury Board of Canada  
Secretariat

Secrétariat du Conseil du Trésor  
du Canada

## **CLASSIFICATION STANDARD**

### **CHEMISTRY**

#### **Scientific and Professional Category**

\*Minister of Supply and Services Canada 1989



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## INTRODUCTION

This standard describes the plan to be used to classify positions allocated to the Chemistry Group. It consists of an introduction, definitions of the Scientific and Professional Category and the occupational group, a glossary of terms, factor definitions, characteristics and degree highlights, and bench-mark position descriptions.

The ultimate objective of job evaluation is the determination of the relative values of jobs in each occupational group. A classification plan of five levels, representing significant differences in the difficulty of the work, has been established for this group. Jobs assigned to a given level are regarded as being of equal difficulty.

### Factors

The evaluation of positions and their assignment to a classification level will be determined by the application of five factors:

- Kind of Assignments
- Complexity of Work
- Professional Responsibility
- Management Responsibility
- Impact of Recommendations and Activities

Each factor is described, and the descriptions designate the features of the work assigned to positions allocated to the group.

### Factor Characteristics

The factor characteristics are shown under each factor. The characteristics indicate the features of the work that are to be considered when evaluating a position under a particular factor.

Highlights which describe and distinguish the increasing difficulty of the work from the lowest to the highest degree, are provided for the five degrees of each factor characteristics. These highlights describe the features of the work that will be found in most positions.

### Bench-mark Positions

Bench-mark positions exemplify the degrees of the characteristics, the degrees of each factor and the levels of the classification plan. Each bench-mark consists of a descriptive title, a series of statements of the principal duties, and a set of specifications describing the features of the work of the position in terms of the characteristics of each of the five factors. The specifications exemplify the application of the evaluation plan to the duties and responsibilities of the bench-mark position and substantiate the degree assigned to the position for the characteristics and the factors. A classification level is assigned to each bench-mark position.

### Use of the Standard

There are six steps in the application of this classification standard.

1. The position description is studied to ensure understanding of the position as a whole and of the nature of the duties and responsibilities as they relate to the characteristics of each factor. The relationship of the position being studied to positions above and below it in the organization is also studied.

2. Allocation of the position to the category and group is confirmed by reference to the definitions and the descriptions of inclusions and exclusions.
3. A degree under each of the factor characteristics is tentatively assigned to the position being evaluated, by considering the duties and responsibilities of the position in relation to the degrees described for the factor characteristics, and attributing to the position the degree whose definition best reflects the conditions that are typical of the work of the position and most closely corresponds to its difficulty in terms of the characteristic. The degree tentatively assigned is confirmed by comparison with the bench-mark position descriptions and rating specifications for the characteristic.
4. A degree under each factor is assigned to the position. The degree to be assigned for a factor is determined by the degree which predominates for the factor's characteristics. When one degree does not predominate, the raters are to compare the overall intensity of the requirements of the position with respect to the various characteristics of the factor with the bench-mark position, and attribute to the position the factor degree that best equates, on the whole, to the bench-mark positions.
5. The level of the position is determined by the degree that has been assigned to the position for at least three of the five factors. When one degree does not predominate, raters are to compare the total job with the bench-mark position descriptions and determine the level that best corresponds on the whole with the duties and responsibilities of the position.
6. The position is compared with bench-mark position descriptions that have been assigned to the same level, as a check on the validity of the level selected.

#### Guide

A Guide identifying a series of distinguishing features characterizing positions found typical of each level is included in the standard.

CATEGORY DEFINITION

Occupational categories were repealed by the Public Service Reform Act (PSRA), effective April 1, 1993. Therefore, the occupational category definitions have been deleted from the classification standards.

GROUP DEFINITION

For occupational group allocation, it is recommended that you use the [Occupational Group Definition](#) and [the Occupational Sub-group Definition Maps](#), which provide the 2005 sub-group definition and their corresponding inclusion and exclusion statements. The maps explicitly link the relevant parts of the overall 2005 occupational sub-group definition to each classification standard.



GLOSSARY OF TERMS

For the purpose of this standard -

Biochemistry - Refers to the science which deals with all aspects of chemistry that apply to living organisms or life processes.

Chemistry - Refers to the science which deals with or investigates the chemical composition and the properties, interactions and changes of matter. It includes analytical, physical, organic and inorganic chemistry and biochemistry. It also includes the application of the principles of chemistry to biological, physical and geological systems.

Chemistry (Analytical) - Refers to the branch of chemistry concerned with the qualitative and quantitative composition of substances and materials.

Chemistry (Inorganic) - Refers to the branch of chemistry concerned with the study of all substances other than compounds of carbon.

Chemistry (Organic) - Refers to the branch of chemistry concerned with the study of the compounds of carbon.

Chemistry (Physical) - Refers to the branch of chemistry concerned with the interpretation of chemical phenomena and properties of substances in terms of underlying physical process.

Chemical Processes - Refers to a procedure or series of steps which results in new substances or products through chemical or physico-chemical changes; extraction, separation, or purification; or the formulation of mixtures.

Chemical Products - Refers to substances obtained as a result of a chemical process or reaction.

Conflicting Interests - Refers to different opinions or points of view that lead to a confrontation between individuals or organizations in respect of the advantageous or detrimental results of a contemplated action.

Continuing Operation - Refers to tasks or investigations, usually of an ongoing nature or occurring in a pattern or in repetitive cycles.

Contracts/Agreement (Evaluating of) - Refers to the critical examination of contract/agreement proposals or work done under contract for scientific merit or quality and the provision of a recommendation of acceptance with or without modifications or rejection.

Implications of External Matters - Refers to the difficulty added to the work because of the need to recognize the interests of others, including those over whom little effective influence can be exercised.

Matter - Refers to substances in the form of solid, liquid, gas or plasma.

Matter (Behaviour of) - Refers to the ability of a substance to undergo changes in chemical structure or composition.

Matter (Composition of) - Refers to the chemical make up or structure of substances.

N.B. Some of the terms defined in this Glossary are not used in this standard. However, the definition of such terms can help ensure consistency where their use may be indicated.

Matter Properties of - Refers to those attributes of matter which are studied in chemistry.

Organizational Control - Refers to the control over a staff and its work that is exercised through an established organizational structure by means of which levels of responsibility and authority are clearly identified.

Organizational Unit - In terms of size, refers to that which makes up or is understood to be encompassed by "normal span of supervisory control of professionals". - As illustrated by bench-mark positions, the number of staff is normally a function of the nature/complexity, conditions and requirements of the work as well as of the type of organizational structure applied.

Outside Assistance - Refers to temporary assistance needed for the work and which must be obtained from sources ranging from outside the immediate organizational unit to organizations outside the Public Service.

Policy - Refers to a declaration of aims and intent established by legislation or ministerial authority to guide future courses of action.

Program - Refers to the general plan designed to achieve the objectives determined by a department or agency to meet the aims and intent of policy.

Project - Refers to a unit of work for which objectives have been defined and which is circumscribed by budgetary controls, time limits and the availability of resources.

Related Fields - Refers to general or specialized fields that are pertinent to or associated with the work of professionals in chemistry.

Significant Program Activity - Refers to that portion of a scientific based program which is visible as an entity and is comparable to work at the senior management level but with emphasis on the scientific nature of the work.

Specialized Subject Area - Refers to a "subject area" in which there is a narrowing of scope and the work to be performed necessitates an enhanced development of knowledge and experience.

Standards - Refers to:

(i) A recognized weight, measure or material of specified composition or characteristics, or experimental procedure used as a reference for uniform measurement, comparison or calibration;

(ii) A set of recognized criteria (mandatory or voluntary) specifying a minimum level of quality, purity, uniformity, performance, or safety for the manufacture, use or handling of a material, product, or device.

Studies - Refers to an in-depth examination or investigation of an area of interest.

Subject Areas - Refers to the facts, theories, ideas, techniques and related matters that are encompassed by a study, investigation, project or program, and include the application of one or more disciplines.

Supervisory Responsibility - Refers to the responsibility for scheduling and allocating work, instructing, training, controlling and assessing performance of other employees and for ensuring satisfactory completion of their work.

Survey - Refers to a general or broad examination of an area of interest.

N.B. Some of the terms defined in this Glossary are not used in this standard. However, the definition of such terms can help ensure consistency where their use may be indicated.

FACTORS AND FACTOR CHARACTERISTICS

FACTOR	CHARACTERISTICS	FACTOR	CHARACTERISTICS
9KIND OF ASSIGNMENT»	<ul style="list-style-type: none"> <li>a) Objectives establishing by others for the work;</li> <li>b) Extent of the work;</li> <li>c) Variety of activities;</li> <li>d) Scope for planning and conducting work.</li> </ul>	((MANAGEMENT Responsibility))	(Responsibility for: <ul style="list-style-type: none"> <li>a) Control of staff;</li> <li>b) Control of physical resources;</li> <li>c) Committing departmental resources;</li> <li>d) Obtaining outside assistance;</li> <li>e) Administrative control of work;</li> <li>f) Co-ordination of work performed for, or in conjunction with other organizational units;</li> <li>g) Implementing or developing administrative procedures, safety and management directives and guidelines.</li> </ul>
COMPLEXITY OF WORK»	<ul style="list-style-type: none"> <li>a) Availability and problems involved in obtaining information and data;</li> <li>b) Validity of information and data;</li> <li>c) Number and variability of the variables and ambiguity of information and data;</li> <li>d) Relationships of the variables;</li> <li>e) Effect of activities of others on the work;</li> <li>f) Nature and purpose of contacts;</li> <li>g) Development of concepts and approaches, procedures, techniques and practices, their adaptation and application;</li> <li>h) Theoretical knowledge which must be applied.</li> </ul>	((IMPACT OF RECOMMENDATIONS AND ACTIVITIES»	<ul style="list-style-type: none"> <li>a) (Impact - Governmental) On departmental work or other government program;</li> <li>b) (Impact - External)                             <ul style="list-style-type: none"> <li>(i) On an industrial or commercial process, operation or product;</li> <li>(ii) On the state of natural resources or the environment;</li> <li>(iii) On public health and safety;</li> <li>(iv) On other external areas.</li> </ul> </li> <li>c) On development and understanding of a body of knowledge.</li> </ul>
((PROFESSIONAL RESPONSIBILITY	<ul style="list-style-type: none"> <li>a) Extent work is checked by others;</li> <li>b) Professional guidance received;</li> <li>c) Initiative and judgement in defining objectives, dealing with problems and establishing scientific guidelines;</li> <li>d) Judgement in reviewing and assessing work of others;</li> <li>e) Judgement in interpreting results of work;</li> <li>f) Judgement in giving advice.</li> </ul>		

FACTOR: "KIND OF ASSIGNMENT"

This factor is used to measure the difficulty of the work in terms of its objectives and extent, the variety of activities and the scope for planning and conducting work.

Notes to Raters

- i) When evaluating a position under this factor, raters are to consider the factor characteristics and their intensity ranging from degree 1 to degree 5, and attribute to the position, for each characteristic, the degree whose definition best reflects the conditions that are typical of the work of the position and most closely corresponds to the intensity of its requirements in terms of the characteristic.
- ii) For a same degree of intensity, all of the characteristics of the factor are considered equal.
- iii) The degree to be assigned to the position for the whole factor, is determined by the degree which predominates (i.e. the degree that has been assigned for at least three of the four characteristics - "A", "B", "C" and "D"). When one degree does not predominate, raters are to compare the overall intensity of the requirements of the position under the factor with that of the bench-mark positions, and determine and attribute to the position the degree which best equates to the bench-mark positions.

	DEGREE 1	DEGREE 2	DEGREE 3	DEGREE 4	DEGREE 5
<u>Characteristic A:</u> The objectives	established by others for	the conduct of the work.			
Objectives and instructions are provided for the work.	Objectives of the work are clearly defined.	Objectives of the work are defined in terms of activity or project goals.	Objectives of the work are stated in terms of operational goals.	Objectives of the work are stated in terms of goals for a significant program activity.	
<u>Characteristic B:</u> The extent	of the work.				
Work normally consists of a part or phase of a project, study or continuing operation requiring limited investigation.	Work normally consists of a number of discrete projects, studies or investigations.	Work involves comprehensive investigations, projects or studies within a specialized subject area.	Work involves the application of a number of scientific principles and theories to complex investigations or studies, within a specialized subject area; or the direction of work in diverse subject areas.	Work is performed within a number of related specialized subject areas and comprises a significant program activity.	
<u>Characteristic C:</u> The variety	of activities.				
Activities closely resemble one another in most aspects and consist of a limited number of straight-forward tasks performed successively.	Activities differ from one another and consist of a variety of tasks such as: using a number of related scientific techniques for surveying, observing, analysing and evaluating products, phenomena or processes; investigating the composition, performance or effect of substances; allocating work to support staff; providing advice.	Activities differ from one another and include using a wide variety of scientific techniques for investigating the composition, performance or effect of substances or systems; or supervising the work of staff engaged in the conduct of analyses or investigations; and providing advice.	Activities differ from one another in many aspects and include several of the following: conducting complete investigations, providing functional direction; coordinating the work with other activities; providing advice; organizing, controlling and supervising the work of staff engaged in the conduct of analyses or investigations; controlling the use of facilities, materiel and human resources.	Activities involving a broad spectrum of scientific and administrative duties which differ from one another in most aspects and include: evaluating and authorizing projects or studies; making recommendations or providing advice on policy or legislation; assessing the implications of work progress on program objectives; providing guidance on the determination of approaches to complex problems; and managing a significant program activity, or coordinating activities at the national and international levels.	
<u>Characteristic D:</u> The scope	for planning and conducting work.				
Scheduling and performing work using standardized procedures and techniques.	Planning activities, determining approaches and selecting methods to ensure that the work meets clearly defined objectives.	Planning and performing a broad diversity of work within a subject area, or planning and assigning tasks for the ongoing work of an organizational unit, or a project or study team to ensure that the objectives are met within established guidelines.	Planning, organizing and delegating work of a number of organizational units, or planning and co-ordinating complex projects or studies to ensure that operational goals are achieved within resources limitations; or planning, organizing and conducting complex projects or studies within a specialized area with high degree of freedom and latitude.	Planning, coordinating and implementing a significant program activity or major scientific studies.	

FACTOR: "COMPLEXITY OF WORK"

This factor is used to measure the difficulty of the work in terms of the nature of the information and data used; the influences external to the work; the nature and purpose of contacts with others; the requirement for the development of concepts and approaches, procedures, techniques and practices, their adaptation and application; and, the theoretical and practical knowledge which must be applied.

Notes to Raters

- (i) When evaluating positions under this factor, raters are to consider the factor characteristics and their intensity ranging from degree 1 to degree 5, and attribute to the position, for each characteristic, the degree whose definition best reflects the conditions that are typical of the work of the position and most closely corresponds to the intensity of its requirements in terms of the characteristic.
- (ii) For a same degree of intensity, all of the characteristics of the factor are considered equal.
- (iii) The degree to be assigned to the position for the whole factor, is determined by the degree which predominates (i.e. the degree that has been assigned for at least five of the eight characteristics - "A", "B", "C", "D", "E", "F", "G" and "H"). When one degree does not predominate, raters are to compare the overall intensity of the requirements of the position under the factor, with that of the bench-mark positions, and determine and attribute to the position the degree which best equates to the bench-mark positions.

<u>DEGREE 1</u>	<u>DEGREE 2</u>	<u>DEGREE 3</u>	<u>DEGREE 4</u>	<u>DEGREE 5</u>
<u>Characteristic A:</u> The availability of, and the problems involved in obtaining information and data.	The work requires obtaining information and data by direct observation, collection or selection from established recognized sources.	The work requires obtaining, by investigation, information and data which are often difficult to obtain, interpret and select. Sources may be identified from past practices or guidelines.	The work requires obtaining, by intensive investigation, information and data which are often difficult to obtain, interpret and select. Sources are difficult to identify and to access.	The work requires coordinating the collection and selection of information and data which are usually obtained with great difficulty and require the conduct of intensive study and investigation. Sources are likely to be obscure or have to be developed.
<u>Characteristic B:</u> The validity of information and data.	Information and data can normally be validated by known procedures or literature references.	Information and data can normally be validated by a combination of experimentation and detailed literature referencing or further field investigations.	Information and data can be validated only by difficult or complex investigations.	Information and data may not be completely validatable.
<u>Characteristic C:</u> The number and variability of the variables and the ambiguity of information and data.	Information and data are characterized by several variables requiring interpretation, but of known implications and variability.	Information and data can be characterized by several variables requiring interpretation, poorly defined variability and some ambiguity.	Information and data can be characterized by variability, many variables, difficulty of interpretation, and the need for judgement to use the data.	Information and data are characterized by high variability, many variables, ambiguity, and require ingenuity and highly selective judgement to use.
<u>Characteristic D:</u> The relationships of the variables.	Relationships between the variables can be established and inconsistencies resolved by straightforward investigation.	Relationships between variables are sometime conflicting and require investigation and interpretation.	Relationships between variables are complicated and require in-depth investigation to identify and resolve conflicts and interpretation problems.	Relationships between variables are often conflicting and difficult to define and measure.
<u>Characteristic E:</u> The effect of the activities of others on the work.	Work is normally affected by the activities of others within the organizational unit and occasionally by the activities of others outside the organizational unit.	Work is frequently affected by the activities of scientists and officials outside the organizational unit.	Work is normally affected by the activities of scientists and officials outside the organizational unit, and requires consideration of the implication of their activities on a projector the ongoing activity.	The work of a significant program activity is affected by the activities of other organizations or agencies and requires consideration of the implications of the activities of their senior scientists or officials.

## FACTOR: COMPLEXITY OF WORK (CONT'D)

DEGREE 1	DEGREE 2	DEGREE 3	DEGREE 4	DEGREE 5
<u>Characteristic F:</u> The nature and purpose of contacts with others.				
Contacts are with others within own organizational unit for obtaining and discussing information.	Contacts are with others working in the same or closely related subject areas for obtaining and exchanging information and discussing problems. May provide information and facts to the public and the media.	Contacts are with scientists and officials for obtaining and exchanging information, participating in cooperative projects, resolving problems, and providing advice. May explain on-going activities and objectives of the work and exchange information with the public and the media.	Contacts are with scientists and officials outside the organizational unit for arranging cooperative projects, negotiating terms of agreements, establishing standards, implementing regulations, and for providing advice based on recognized expertise. May provide scientific and technical information to the public and the media on contentious issues.	Contacts are with senior scientists and officials at the national and international levels at meetings where conflicting interest are represented, and agreement affecting a significant program activity are negotiated. May represent the department at public forums and with the media.
<u>Characteristic G:</u> The requirement for the development of concepts and approaches, procedures, techniques and practices, their application, adaptation and				
The work involves applying conventional practices, techniques and procedures. Minor adaptations may be required.	The work requires adapting practices, techniques, and procedures.	The work requires developing new techniques and procedures using known approaches and existing precedents.	The work requires developing new procedures and techniques using novel approaches where precedents often do not exist.	The work requires approving or recommending new procedures and developing new concepts and approaches. Work is characterized by the absence of precedents.
<u>Characteristic H:</u> The theoretical and practical knowledge which must be applied.				
The work requires the application of a sound knowledge of the principles and theories of a discipline and some familiarity with its practices.	The work requires the application of a sound knowledge of the, principles, theories and practices of a discipline and some familiarity with the practices in related disciplines.	The work requires the application of a thorough knowledge of the principles, theories and practices of a subject area and its pertinent disciplines, and familiarity with the practices in related disciplines, subject areas or supervisory practices.	The work requires the application of a thorough knowledge of the principles, theories and practices of a specialized subject area, and a knowledge of related scientific disciplines, subject areas or of management practices.	The work requires the application of an advanced knowledge of the principles, theories and practices of a specialized subject area, and a good knowledge of related scientific disciplines, subject areas or of management practices.

FACTOR: "PROFESSIONAL RESPONSIBILITY"

This factor is used to measure the difficulty of the work in terms of the checks and controls over the work and the professional leadership received. It is also used to measure the requirement to exercise initiative and professional judgement in defining objectives and dealing with problems, and establishing scientific guidelines; and judgement in reviewing and assessing the work of others, interpreting results, findings and recommendations, and in providing advice.

Notes to Raters

- (i) When evaluating a position under this factor, raters are to consider the factor characteristics and their intensity ranging from degree 1 to degree 5, and attribute to the position, for each characteristic, the degree whose definition best reflects the conditions that are typical of the work of the position and most closely corresponds to the intensity of its requirements in terms of the characteristic.
- (ii) For a same degree of intensity, all of the characteristics of the factor are considered equal.
- (iii) The degree to be assigned to the position for the whole factor, is determined by the degree which predominates (i.e. the degree that has been assigned for at least four of the six characteristics - "A", "B", "C", "D", "E", "F"). When one degree does not predominate, raters are to compare the overall intensity of the requirements of the position under the factor, with that of the bench-mark positions, and determine and attribute to the position the degree which best equates to the bench-mark positions.

DEGREE 1	DEGREE 2	DEGREE 3	DEGREE 4	DEGREE 5
<u>Characteristic A:</u> The extent to which work is checked by others.				
Work is reviewed for consistency and accuracy while in progress and on completion.	Work is accepted as technically accurate. Work assignments and conclusions are reviewed for consistency and completeness.	Work approaches, recommendations and conclusions are reviewed for soundness of judgement in terms of the attainment of study or project objectives.	Key recommendations and conclusions are reviewed for effectiveness. Results are periodically reviewed in terms of the attainment of objectives.	Results are evaluated in terms of achievement of policy and program objectives.
<u>Characteristic B:</u> The professional guidance received.				
Professional guidance is received to assure correct use of methods and techniques.	Professional guidance is received on new aspects of the work.	Professional guidance is received on the resolution of difficult problems.	Professional guidance is received on the resolution of unusual and complex problems.	Guidance is received on policy intent and program implications. Professional guidance may be received from other scientific authorities.
<u>Characteristic C:</u> The requirement to exercise initiative and judgement in defining objectives and dealing with problems and establishing scientific guidelines.				
Work requires indicating problems and selecting methods, techniques according to established procedure manuals, guidelines or precedents.	Work requires identifying problems and determining approaches and suitable methods for their resolution.	Work requires defining objectives of studies, identifying problems and determining approaches for the resolution of difficult problems within own subject area.	Work requires establishing the limitations and defining the objectives of projects or studies and indicating likely approaches for the resolution of unusual and difficult problems within related subject areas.	Work requires defining objectives, developing conceptual approaches to complex problems and establishing scientific guidelines for a significant program activity.
<u>Characteristic D:</u> The requirement to exercise judgement in reviewing and assessing the work of others.				
Work of support staff is checked for correct application of procedures and consistency of results.	The work of subordinate staff is reviewed while in progress and on completion for technical accuracy. External submissions are reviewed for completeness and compliance with data requirements.	Work of subordinate staff or project team members is reviewed for completeness and compliance with standards and guidelines. Within own subject area, results and findings of other scientists are reviewed for validity or for applicability to own subject area.	Work approaches, recommendations and conclusions of subordinate staff or project team members, are reviewed for soundness of judgement. Other scientists' proposals and studies that are related to own specialized subject area, are reviewed for acceptability.	Recommendations and conclusions of staff are reviewed in term of validity and effectiveness with respect to established policy, directives, guide-lines and resource limitations. Major studies or activities of other scientists are evaluated with respect to own program's objectives.
<u>Characteristic E:</u> The requirement to exercise judgement in interpreting results of work.				
Own observations are reviewed to ensure reliability and consistency.	Scientific observations and results are interpreted to produce meaningful information, conclusions, recommendations or reports.	Complex scientific data or results, conclusions and recommendations of subordinate staff or other scientists are interpreted to determine their meaning and implications on work activities.	Results of studies or projects are interpreted to determine the implications of conclusions and recommendations on the objectives of own work and significance to related scientific and other activities.	Results of major studies, conclusions and recommendations are interpreted to determine their broad implications on scientific or other related activities affecting a significant program activity.
<u>Characteristic F:</u> The requirement to exercise judgement in giving advice.				
Instructions and guidance may be provided to support staff on matters closely related to the work performed.	Advice is provided to colleagues and support staff on matters closely related to own area of work.	Specific technical advice within own subject area is provided to other scientists and officials and immediate superior. Guidance on scientific matters is provided to subordinate staff or to other scientists contributing to the work.	Advice based on recognized expertise within a specialized subject area, is given to other scientists and officials.	Authoritative advice and recommendations in a number of related specialized subject areas affecting a significant program activity, are provided to other scientists and senior officials.

FACTOR: "MANAGEMENT RESPONSIBILITY"

This factor is used to measure the difficulty of the work in terms of the responsibility for committing, controlling and managing resources; obtaining outside assistance; controlling and co-ordinating work; and, for implementing or developing procedures, directives and guidelines.

Notes to Raters

- (i) When evaluating positions under this factor, raters are to consider the factor's characteristics and their intensity ranging from degree 1 to degree 5, and attribute to the position, for each characteristic, the degree whose definition best reflects the conditions that are typical of the work of the position and most closely corresponds to the intensity of its requirements in terms of the characteristic.
- (ii) For a same degree of intensity, all of the characteristics of the factor are considered equal.
- (iii) The degree to be assigned to the position for the whole factor, is determined by the degree which predominates (i.e. the degree that has been assigned for at least four of the seven characteristics - "A", "B", "C", "D", "E", "F", "G"). When one degree does not predominate, raters are to compare the overall intensity of the requirements of the position under the factor, with that of the bench-mark positions, and determine and attribute to the position the degree which best equates to the bench-mark positions.

<u>DEGREE 1</u>	<u>DEGREE 2</u>	<u>DEGREE 3</u>	<u>DEGREE 4</u>	<u>DEGREE 5</u>
<u>Characteristic A:</u> Responsibility for the control of staff. The work occasionally requires assigning work to non-subordinate support staff.	for the control of staff. The work normally requires supervision of support staff.	The work requires the supervision of a unit normally including professional staff.	The work requires the operational management of professional staff including specialists or subordinate supervisors.	The work requires the management and human resources planning through subordinate supervisors of a large staff of professionals.
<u>Characteristic B:</u> Responsibility for the control of physical resources. Planning day-to-day use of equipment and supplies for own work,	for the control of physical resources. Ensuring proper use of allocated equipment, supplies and facilities.	resources. Controlling the use and the maintenance of allocated equipment, supplies and facilities.	Allocating the use of equipment, supplies and facilities.	Planning, directing and controlling the physical resources allocated for a significant program activity.
<u>Characteristic C:</u> Responsibility for committing departmental resources. Limited to the spending of own time and the use of materials and equipment for own work.	for committing departmental resources. Identifying the -requirement for equipment, material and services for assigned work.	resources. Recommending the acquisition of specific equipment, material and services to meet work requirements.	Assessing requirements and developing and recommending plans for the acquisition and use of resources, and the expenditure of funds to meet work priorities and objectives.	Exercising delegated authority under the Financial Administration Act for the acquisition of resources and expenditure of funds; or, providing authoritative advice for major expenditures or commitments of departmental resources.
<u>Characteristic D:</u> Responsibility for obtaining outside assistance. Informing supervisor concerning the need for assistance.	for obtaining outside assistance. Recommending on the need for assistance.	Substantiating the need for, defining specific requirements, and identifying suitable sources of assistance; and, arranging for readily available assistance.	Selecting and negotiating for suitable sources of assistance relating the probable costs and benefits; or, providing advice based on a recognized expertise within a specialized subject area, on requirements and selection of outside assistance.	Approving or recommending the expenditure of funds for outside assistance; or, providing authoritative advice on requirements and outside assistance for major commitments.
<u>Characteristic E:</u> Responsibility for the administrative control of work. Complying with procedures, directives and guidelines established for the work.	for the administrative control of work. Ensuring that quality, quantity, safety and other standards for own responsibility are maintained.	of work. Implementing quality assurance, performance measurement and safety procedures to meet unit's objectives.	Controlling and coordinating project schedules and establishing and implementing performance and safety standards and controls to meet priorities and objectives.	Preparing budgets and work plans, planning and implementing safety, quality and cost controls, and recommending objectives and priorities for a significant program activity.
<u>Characteristic F:</u> Responsibility for the co-ordination of work of activities with those of others.	for the co-ordination of work of activities with those of others. Occasionally coordinating related activities with those of others.	performed for, or in conjunction with those of others. Coordinating related activities with those of others.	with other organizational units. Coordinating differing activities with those of one or more organizational units.	Coordinating activities with several other organizational units with differing interests or conflicting priorities.
<u>Characteristic G:</u> Responsibility for implementing or developing straightforward office or field administrative procedures.	for implementing or developing administrative procedures. Implementing office or field administrative procedures.	administrative procedures, safety and management directives and guidelines. Interpreting and implementing guidelines and directives.	safety and management directives and guidelines. Recommending and developing internal administrative, safety and management directives and guidelines.	and guidelines. Approving internal administrative, safety and management directives and guidelines, and ensuring correct and consistent application of department and central agency policy, directives and guidelines.



FACTOR: "IMPACT OF RECOMMENDATIONS AND ACTIVITIES"

This factor is used to measure the nature and the extent of the impact directly attributable to the recommendations and activities of the position, given its particular purpose or mission, on governmental work or programs; on industrial or commercial operations, natural resources or the environment, public health and safety, and other external areas directly affected by the position; and, on the development and understanding of a body of knowledge in a subject area.

Notes to Raters

- i) When evaluating a position under this factor, raters are to consider the factor characteristics and the extent of the impact ranging from degree 1 to degree 5, and attribute to the position, for each applicable characteristic, the degree whose definition best reflects or corresponds to the extent of the most likely impact of the position.
- ii) For a same degree of impact, all of the characteristics of the factor are considered equal.
- iii) The degree to be assigned to the position for the whole factor is determined by the degree which predominates (i.e. the degree that has been assigned for at least two of the three characteristics - "A"; the one "B" characteristics: i, ii, iii, or iv identified as the most pertinent to the purpose or mission of the position; and, "C"). When one degree does not predominate, raters are to compare the overall extent of the impact of the position under the factor with that of the bench-mark positions, and determine and attribute to the position the degree which best equate to the bench-mark positions.

(Impact - Governmental)

	<u>DEGREE 1</u>	<u>DEGREE 2</u>	<u>DEGREE 3</u>	<u>DEGREE 4</u>	<u>DEGREE 5</u>
<u>Characteristic A:</u>					
The impact of recommendations and activities on departmental policies.	and activities on departmental	work or other government programs		in terms of changes to on-going activities, programs or	
Information and results of the work have limited effects on a continuing operation, project or study in own area of work.	Information and results of the work affect a continuing operation, projects or studies in owner closely related areas of work.	Recommendations, advice and results of the work affect a continuing operation, the formulation of guidelines, regulations, specifications or standards, and the development or conduct of projects or studies in own and related areas of work.	Recommendations, advice or consultations contribute to the development of policies and affect the development, conduct or modification of a significant program activity; or decisions affect the implementation of projects, studies, guidelines and directives.	Authoritative recommendations, advice or consultations affect the development of departmental policies and programs; decisions and activities affect the program(s) or activities of other government organizations; or decisions and recommendations affect the development, initiation, conductor continuation of a significant program activity.	

(Impact - External)

Characteristics B:

(i) The impact of recommendations regulatory effect. Information and results of the work have limited effects on an industrial or commercial product, process or operation.	and activities on an industrial or commercial process,	operation or product in terms of the contributory or			
Information and results of the work have economic or technological effects on an industrial or commercial product, process or operation.	Information and results of the work have economic or technological effects on related industrial or commercial products, processes or operations.	Recommendations, advice and results of the work have economic or technological effects on related industrial or commercial products, processes or operations.	Recommendations, advice, consultations or decisions have economic or technological effects on an industry or a broad range of products, processes or operations.	Authoritative recommendations, advice, consultations or decisions have a substantial effect on the development, initiation, modification or continuation of industrial or commercial enterprises.	
(ii) The impact of recommendations environment.	and activities in terms	of the contribution to or control		of the state of natural resources or the	
Information and results of the work have limited effects on the state of a natural resource or the environment.	Information and results of the work contribute to improvements for developing, protecting, conserving or using natural resources or the environment.	Recommendations, advice and results of the work affect the state of natural resources and, natural resource and environmental management practices.	Recommendations, advice or consultations contribute to the development of environmental and natural resource policies; or decisions and recommendations affect the state of the environment or the conservation and use of natural resources within established policies.	Authoritative recommendations, advice or consultations have a substantial effect on the development of policies relating to natural resources or the environment; or decisions and recommendations substantially affect natural resources or the environment.	

FACTOR: IMPACT OF RECOMMENDATIONS AND ACTIVITIES (CONT'D)

	<u>DEGREE 1</u>	<u>DEGREE 2</u>	<u>DEGREE 3</u>	<u>DEGREE 4</u>	<u>DEGREE 5</u>
<u>Characteristics B: (Cont'd)</u>					
(iii) The impact of recommendations safety hazards.		and activities in terms of the contribution to public	health and the reduction or		the control of health and
Information and results of the work have limited effects on public health or safety.	Information and results of the work contribute to determining the efficacy and safety of the processing or use of foods, drugs or medical and radiation emitting devices or to the regulatory control of potentially hazardous products or substances.	Recommendations, advice and results of the work affect the approval and use of foods, drugs, or medical and radiation emitting or other devices with respect to efficacy and safety, or the regulatory control of potentially hazardous products or substances.	Recommendations, advice or consultations contribute to the development of policies; or decisions and recommendations affect the approval and use of foods, drugs or medical and radiation emitting or other devices or other potentially hazardous products or substances with respect to efficacy or safety.		Authoritative recommendations, advice or consultations have a substantial effect on the development of public health and safety policies; or decisions and recommendations substantially affect the control of potential hazards to public health or safety.
(iv) The impact of recommendations areas directly affected		and activities in terms of the contributory or regulatory position, given its particular purpose or mission.	effect on other specifically		identified external
Information and results of the work have limited effects on the specifically identified area directly affected by the position.	Information and results of the work have contributory effects on the specifically identified area directly affected by the position.	Recommendations, advice and results of the work have direct effects on the specifically identified area directly affected by the position.	Recommendations, advice or consultations contribute to the development of policies; or decisions and recommendations have wide-ranging effects on the specifically identified area directly affected by the position.		Authoritative recommendations, advice or consultations have a substantial effect on the development of policies; or decisions and recommendations have substantial effects on the specifically identified area directly affected by the position.
<u>Characteristic C:</u>					
The impact of recommendations	and activities in terms of the	contribution to the development	and understanding of a body of		knowledge.
Information and results of the work contribute to knowledge in own area of work.	Information and results of the work contribute to improvements in methods and procedures in own area of work.	Development of new methods and procedures and the investigation, analysis and interpretation of scientific information provide knowledge and improved understanding in own subject area.	Development of new concepts and approaches; or, decisions or recommendations contribute to knowledge and improved understanding in a specialized subject area.		Decisions and recommendations affect the initiation, continuation or orientation of studies or projects for the development of concepts, methods, approaches and procedures to acquire new knowledge in one or more specialized subject areas.

POSITION LEVELS: TYPICAL DISTINGUISHING FEATURES  
"A GUIDE FOR OVERALL CONSISTENCY"

- Intent: This Guide broadly aims at providing a consistent approach to a global perception or an orientation for a determination of the approximate classification level of a position, using a series of discernible main features characterizing positions identified as typical of each level.
- Proviso: i) Notwithstanding the above, the Guide is not intended nor shall be used as a substitute for the formal position classification process and the detailed analysis and rating of each position, as required in accordance with the provisions of the rating plan of the Classification Standard.
- ii) The series of distinguishing features shown for the levels, characterizes, as a whole, universes of positions considered typical of each level. - The series of features for a level shall not be construed as all inclusive nor as relevant in its entirety, to all positions at that level.
- Advantages: The use of the Guide can be of assistance in narrowing, at the outset, the range of possible levels indicated for a position and thus, contributes to a less erratic approach to the discussions for its subsequent detailed analysis and rating. Further, the distinguishing features shown for the various levels in the Guide, and which have been found typical of positions at those levels, provide a broad reference framework which can be of value and, contributes in achieving greater overall consistency in the classification of the positions at the various levels for the Group.

<u>LEVEL 1</u>	<u>LEVEL 3</u>	<u>LEVEL 4</u>
(Positions at Recruiting/Familiarizing Developing Level as well as Positions conducting Work of Relatively Low Complexity)	(Positions with Significant Specialization, Diversity/Complexity or with Significant Supervisory Responsibility)	(Positions requiring a High Level of Scientific Expertise or Position comprising the First Level of Science Based Management Responsibility)
<ul style="list-style-type: none"> <li>- Repetitive, Standardized work of relatively low Complexity</li> <li>- Work subjected to Detailed Review- Limited scope for Independent Actions</li> <li>- Carry out Scientific Procedures under supervision</li> <li>- Indicate required Support Work to non-subordinate support staff</li> </ul>	<ul style="list-style-type: none"> <li>- Expertise in a specialized Subject Area</li> <li>- First Level of Scientific Advisory Responsibility</li> <li>- Liaison Work Responsibility</li> <li>- Diversity/Complexity</li> <li>- Provide Scientific Project Leadership</li> <li>- Development of New Methods</li> <li>- Validation of: Procedures; Techniques Methods Facilities</li> <li>- First Supervisory Level:</li> <li>- Activities of a Unit- Lead a Group</li> <li>- Lead a Project Team</li> </ul>	<ul style="list-style-type: none"> <li>- High Level of Expertise in a specialized subject area</li> <li>- Second Level of Scientific Advisory Responsibility</li> <li>- - Recognized Authority in a Subject</li> <li>- - Scientific Co-ordination Responsibility</li> <li>- - First Level of Management Responsibility</li> <li>- - Project Objective Responsibility</li> <li>- - Second Level Supervision</li> </ul>
<div style="text-align: center;"><u>LEVEL 2</u></div> (Positions Conducting Basic Professional Work of Moderate Complexity/Diversity)		<div style="text-align: center;"><u>LEVEL 5</u></div> (Positions at the Highest Level of Scientific Management within the Group or Positions requiring the Highest level of Scientific Expertise within the Group)
<ul style="list-style-type: none"> <li>- Moderate Complexity/Diversity</li> <li>- Scope for Independent Actions</li> <li>- May Instruct Junior Scientists and Supervise Support Staff</li> <li>- Work Reviewed at Critical Stages/Phases</li> </ul>		<ul style="list-style-type: none"> <li>- Highest Level of Expertise in a Specialized Subject Area</li> <li>- A Senior Departmental Scientific Advisor</li> <li>- High Level Co-ordination/Liaison</li> <li>- Broad scope for Independent Actions within Policy and Resources Framework</li> <li>- Significant input in Policy Development</li> <li>- Management of a Science Based Significant Program Activity, a Significant Work Group or Large Complex Project</li> </ul>

LIST OF BENCH-MARK POSITIONS

<u>BM #</u>	<u>TITLE</u>	<u>LEVEL</u>
BM-1	Analytical Chemist, Mineral Sciences Laboratory (EMR)	1
BM-2	Chemist, Development Grade (CE)	1
BM-3	Project Chemist, Consumer Product Safety (CCAC)	2
BM-4	Chemist, Organic Residues (HWC)	2
BM-5	Chemist, Major Ions and LRTAP (EC)	2
BM-6	Biochemist, Applied Endocrinology (F&O)	2
BM-7	Quality Assurance Chemist (EC)	3
BM-8	Chemist, Drinking Water and Human Tissues Surveys(HWC)	3
BM-9	Head, Solution Chemistry Section (EMR)	3
BM-10	Chemist, Pesticide Evaluation (AGR)	3
BM-11	Drug Evaluator (HWC)	3
BM-12	Analytical Advisor, Organics Section (CE)	3
BM-13	Specialist, Trace Inorganic Analysis (HWC)	3
BM-14	Chemist, Mass Spectrometry Methodology (AGR)	3
BM-15	Specialist, Drug Analysis (HWC)	3
BM-16	Chemistry Specialist, Drug Evaluation (HWC)	4
BM-17	Environmental Chemistry Advisor (F&O)	4
BM-18	Head, Organic Residues Laboratory Unit (HWC)	4
BM-19	Senior Program Advisor	5
BM-20	Chief, Food and Drug Laboratories Division (HWC)	5

RATINGSUMMARY - BENCHMARK POSITIONS

B.M.NO.	TITLE	LVL	FACTOR: 1 KIND OF ASSIGNMENT CHARACTERISTIC/DEGREE				FACTOR: 2 COMPLEXITY OF WORK CHARACTERISTIC/DEGREE					FACTOR: 3 PROFESSIONAL RESPONSIBILITY CHARACTERISTIC/DEGREE					FACTOR: 4 MNGMNT DECREE/DEGREE					FACTOR: 5 IMPACT OF RECOIM. & ACTIVITIES CHARACTERISTIC/DEGREE																				
			A	B	C	D	FACT A	B	C	D	E	F	G	H	FACT	A	B	C	D	E	F	FACT	A	B	C	D	E	F	FACT	A	(i)	(ii)	(iii)	(iv)	= BC FACT							
1	Analytical Chemist, Mineral Sciences Laboratory (EMIR)	1	2	1	1	1	1	2	1	1	1	1	2	1	1	2	2	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-	11	1
2	Chemist, Development Grade (CE)	1	1	2	2	2	2	2	2	2	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	-	-	-	21	1
3	Project Chemist, Consumer Product Safety (CCAC)	2	3	2	2	2	2	2	2	3	2	1	3	2	2	2	2	2	1	2	3	2	1	1	1	1	1	1	1	1	2	-	2	-	22	2						
4	Chemist, Organic Residues (MNG)	2	2	2	2	2	2	3	3	3	3	2	3	1	3	2	2	2	1	2	3	2	1	1	1	1	1	1	2	2	-	2	-	22	2							
5	Chemist, Major Ions and LRTAP(EC)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	1	2	3	2	2	2	1	2	3	2	2	1	2	-	-	22	2
6	Biochemist, Applied Endocrinology(F60)	2	3	2	2	2	2	2	2	2	2	2	3	2	2	3	2	2	1	2	2	2	1	2	2	1	2	2	2	2	2	-	-	23	2							
7	Quality Assurance Chemist (EC)	3	3	3	3	3	3	2	2	3	3	3	3	3	3	3	3	3	2	3	3	3	2	2	2	3	2	3	3	3	2	3	3	3	3	-	2	-	-	23	3	
8	Chemist, Drinking Water and Human Tissues Surveys (HWC)	3	3	3	2	3	3	3	3	3	2	3	3	3	3	3	3	3	3	2	3	3	2	2	2	3	2	3	3	2	2	3	2	3	3	1	-	2	-	23	3	
9	Head, Solution Chemistry Section(EAR)	3	3	2	3	3	3	2	2	2	3	3	3	3	3	3	3	3	2	2	3	3	3	3	3	1	2	3	3	3	3	3	3	3	3	2	2	-	-	23	3	
10	Chemist, Pesticide Evaluation(ACR)	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	1	1	1	1	3	3	3	2	3	-	33	3							
11	Drug Evaluator (HWC)	3	3	3	3	3	3	4	3	4	3	3	3	4	4	3	3	3	3	3	3	3	1	1	1	1	1	3	3	3	-	3	-	33	3							
12	Analytical Advisor, Organics Section (CE)	3	3	3	3	3	3	3	4	4	3	3	3	3	3	3	4	3	3	3	4	3	1	2	3	2	2	1	3	3	-	-	-	33	3							
13	Specialist, Trace Inorganic(HMC)	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	3	1	2	3	1	3	2	3	3	-	3	-	33	3							
14	Chemist, Mass Spectrometry Methodology (AGR)	3	3	3	3	3	3	3	3	3	3	3	4	3	3	3	4	3	3	3	4	3	1	3	3	1	2	2	3	3	-	2	-	33	3							
15	Specialist, Drug Analysis (HWC)	3	3	3	4	3	3	4	3	4	4	4	3	4	4	3	3	3	3	3	4	3	1	3	3	1	3	3	3	-	-	3	3	33	3							
16	Chemistry Specialist, Drug Evaluation (HWC)	4	4	4	4	4	4	4	4	5	4	4	4	5	4	4	4	4	4	4	4	4	1	1	1	1	1	3	4	4	-	4	-	43	4							
17	Environmental Chemistry Advisor, Fish Habitat (F&O)	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	4	4	4	5	4	1	1	2	2	1	3	4	4	3	-	-	44	4							
18	Head, Organic Residues Laboratory Unit (HWC)	4	4	4	4	4	4	4	3	4	3	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	3	-	4	-	44	4							
19	Senior Program Advisor	5	5	5	5	5	5	4	4	4	5	4	4	5	4	5	5	5	5	5	5	5	1	1	4	4	4	4	5	4	5	2	-	54	5							
20	Chief, Food and Drug Laboratories Division, Atlantic Region	5	5	5	5	5	5	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	-	5	5	55	5							

Key in order of appearance of letters under the factors.

A - Objectives estb'd by others  
 B - Extent of Work  
 C - Variety of activities  
 D - Scope for plan'g & conduct'g wrk

A = Info./Data - Avilbly/Problems  
 B = Info./Data - Validity  
 C = Info./Data - N/Varibly /Ambgty of variables  
 D = Info./Data - Relnshps of variables  
 E = Effect of actvy of others on wrk  
 F = Contacts - Nature/Purpose  
 G = Regrm't for: Devlp'm'tadpt'n, appict'n, apprchs, procds andtech.  
 H = Knowledge

A - Extent wrk check'd by others  
 B - Profsn'l guidance recv'd  
 C = Init./Judg'm't in Def'ng objectives Dealing w problems Estblish'ng guidelines  
 D = Judgm't in assess'ng work of others  
 E = Judgm't of intrprt'ng results  
 F = Judgm't in providing advice

A = Resp.: Control of Staff  
 B = Resp.: Control of physical resources  
 C = Reap.: Comet'ng resources  
 D = Resp.: Obt'ng outside asstnce  
 E = Resp.: Adman, contrl of wrk  
 F = Resp.: Co-ord'n of wrk perf. for/with othr orgzn't'l units  
 G = Resp.: Implemnt'ng or Devlp'ng guidelines

IMPACT (Governmental)  
 A = on Dept'l wrk/Other Gov. programs  
 IMPACT (External)  
 B = i) on Ind'l/Commrc'l prod/open  
 ii) = on Natrl. res./Envrnmnt  
 iii) = on Public health/safety  
 iv) = on Other external areas  
 C = Impact on body of knowledge

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 1

Descriptive Title: Analytical Chemist, Mineral Sciences Laboratory

Level: 1

Reporting to the Head, Solution Chemistry Section:

Conducts chemical analyses of mineralogical, metallurgical and related materials in support of a research program directed to improving mining and related processing technology. Discusses sample requirements with the section head and selects suitable procedures from known acceptable methods. Ensures selected methods are suitable for the sample, identifies interferences, makes minor modifications, and determines accuracy and precision by preparing and analysing synthetic samples of known composition. Maintains detailed records and reports results to the section head.

Participates in the modification and adaptation of methods of analysis, suggests modifications and tests new procedures.

DegreeSpecificationsKind of Assignments

1

- A. Degree 2 - Objectives are defined by the supervisor. Samples are assigned but methods are selected from known acceptable procedures.
- B. Degree 1 - The generation of analytical data is part of a continuing operation requiring limited investigation.
- C. Degree 1 - Although a variety of materials are tested the analyses consist of limited number of straightforward procedures.
- D. Degree 1 - Daily work is planned using precedents and discussions with supervisor to select standard methods.

Complexity of Work

1

- A. Degree 2 - Information in terms of the methods and procedures is readily available, but data are generated by direct observation using standardized procedures.
- B. Degree 1 - Closely follows prescribed standard methods which produce data of known validity.
- C. Degree 1 - The samples usually result from controlled research experiments and are normally well characterized. The work involves the determination of discrete parameters.
- D. Degree 1 - The work involves the determination of discrete parameters using standardized methods in which the relationships of variables are known and controlled.
- E. Degree 1 - Activities of others within the unit may affect the availability of common facilities or shared equipment.
- F. Degree 1 - Contacts are normally with others in the unit to obtain information and as applicable with Research Scientists who submitted samples to discuss the analytical results.

Degree

- G. Degree 2 - The work requires adapting standard methods to suit the specific requirements of samples, and the testing of new procedures.
- H. Degree 1 - The work requires the application of a sound knowledge of the principles and theories of analytical inorganic chemistry and of the procedures used in the analysis of mineralogical and metallurgical materials.

Professional Responsibility

1

- A. Degree 2 - The work requires the generation of complete analytical results which are checked for precision and accuracy by the supervisor.
- B. Degree 2 - There is a requirement to use and apply standard methods correctly, but the supervisor provides guidance on new aspects of the work.
- C. Degree 1 - Problems and potential solutions are discussed with the supervisor before proceeding.
- D. Degree 1 - As applicable the work of support staff may be checked for correct application of procedures.
- E. Degree 1 - Final results are reviewed for reliability and consistency and reported to supervisor.
- F. Degree 1 - As applicable, instructions and guidance may be provided to support staff engaged in similar activities.

Management Responsibility

7

- A. Degree 1 - Occasionally, technical instructions or requests for assistance are given to support staff.
- B. Degree 1 - Plans use of equipment and supplies for assigned work.
- C. Degree 1 - Limited to the use of own time and to the use of equipment and supplies for assigned work.
- D. Degree 1 - Outside assistance, when required, is requested from the supervisor.
- E. Degree 1 - Complies with administrative procedures, directives and guidelines established for the work.
- F. Degree 1 - Limited requirement to coordinate work with individual Researchers outside the Unit.
- G. Degree 1 - Follows administrative and safety procedures established for the work.

Impact of Recommendations and Activities

7

- A. Degree 1 - Analytical results support ongoing research projects and may have limited effect on this work.
- B. Degree 1
- (i) Degree 1 - Analytical results support research projects directed towards the improvement of mining and related processing technology and may have a limited effect on these industries.
  - (ii) No significant Impact.
  - (iii) No significant Impact.
  - (iv) No other significant impacts.
- C. Degree 1 - Analytical results contribute to the development of improved methods of analysis for mineralogical and metallurgical materials.

LINEAR ORGANIZATION CHART

Assistant Manager, Operations

Head, Solutions Chemistry Section

- Chemist
- \* - Analytical Chemist CH-1
- Technicians (4)
- \* Bench-mark position



BENCH-MARK POSITION DESCRIPTION

Level: 1

Bench-mark Position Number: 2

Descriptive Title: Chemist - Development Grade Reporting to the Section Head and under the guidance of a senior chemist:

Conducts analyses, of progressively increasing diversity and complexity, of organic industrial commodities to provide information for the administration of Customs legislation, and to acquire the specific knowledge and skills necessary to function independently as a Customs chemist. Plans and organizes daily work, selects appropriate methods and conducts analyses using a variety of chemical and instrumental techniques. Identifies analytical problems and adapts methods and procedures to meet sample requirements and the progress of the investigation. Interprets results and prepares reports for review by the senior chemist or Section Head.

Carries out a continuing study of the chemistry, industrial technologies and Customs legislation relevant to the work.

SpecificationsDegreeKind of Assignments

2

- A. Degree 1 - Objectives are defined by the supervisor and the work is conducted under the close guidance of a senior chemist.
- B. Degree 2 - The work consists of a number of discrete investigations involving analysis and interpretation of data to determine the Customs classification of industrial organic commodities.
- C. Degree 2 - Diverse organic industrial commodities are analysed to determine their composition using a wide range of chemical and instrumental procedures.
- D. Degree 2 - Own work is planned and methods are selected and adapted to meet the objectives of the work.

Complexity of Work

2

- A. Degree 2 - Analytical data are generated by direct observation using recognized procedures. Information on industrial products, processes and classification precedents is available from recognized sources.
- B. Degree 2 - Information and data can be validated by repeat analysis, standard confirmation procedures or reference to previous casework.
- C. Degree 2 - Information from different sources must be interpreted and integrated to determine the composition of organic industrial products. Implications of the data are known or may be obtained from the Senior Chemist.
- D. Degree 2 - Relationships between the analytical results and the identity of organic industrial commodities can be established and inconsistencies resolved by straightforward investigation.
- E. Degree 1 - Activities of others within the laboratory may affect the availability of common facilities or shared equipment.
- F. Degree 1 - Contacts are normally with others in the laboratory to obtain information.

Degree

- G. Degree 2 - The work requires modifying and adapting methods of analyses to suit the requirements of samples and the progress of the investigation.
- H. Degree 1 - The work requires the application of a sound knowledge of the principles and theories of analytical organic chemistry and of the procedures used to identify organic industrial commodities.

Professional Responsibility

1

- A. Degree 1 - The work is reviewed in progress by a senior chemist and results are reviewed by a senior chemist or the section head.
- B. Degree 1 - Guidance on the selection and correct application of methods and procedures is received from a senior chemist.
- C. Degree 1 - Problems and potential solutions are discussed with a senior chemist before proceeding.
- D. Degree 1 - Results received from a technical services unit are checked to ensure that the correct methods were used and that the results are consistent with expectations.
- E. Degree 1 - Final results are reviewed for reliability and consistency and reported to a senior chemist or section head.
- F. Degree 1 - As applicable, instructions and guidance may be provided to support staff engaged in related activities.

Management Responsibility

1

- A. Degree 1 - As applicable, technical instructions or requests for technical assistance are given to support staff.
- B. Degree 1 - Plans use of equipment and supplies for assigned work.
- C. Degree 1 - Limited to the spending of own time and to the use of equipment and supplies for assigned work.
- D. Degree 1 - Outside assistance, when required, is requested from the section head.
- E. Degree 1 - Complies with administrative procedures, directives and guidelines established for the work.
- F. Degree 1 - Limited requirement to coordinate work with technical support services unit.
- G. Degree 1 - Follows administrative and safety procedures established for the work.

Impact of Recommendations and Activities

1

- A. Degree 1 - Analytical results are used to administer Customs Legislation, but are reviewed and checked by the Senior Chemist or Section Head prior to use.
- B. Degree 2 -
- (i) Degree 2 - The analytical results have economic effects as they are used to classify goods for the purpose of determining the applicable tariff.
  - (ii) No significant impact.
  - (iii) No significant impact.
  - (iv) No other significant impacts.
- C. Degree 1 - Analytical results contribute to the knowledge of organic industrial commodities entering the country.

LINEAR ORGANIZATION CHART

Chief, Canadian Customs Laboratory

- Head, organics Section
- Head, Polymers Section
- Head, Foodstuffs and Textiles Section
- Head, Organics Section
- Analytical Advisor, Organics
- Chemists (4)
- \* - Chemist, Development Grade CH-1
  
- \* Bench-mark Position.

BENCH-MARK POSITION DESCRIPTION

Level: 2

Bench-mark Position Number: 3

Descriptive Title: Project Chemist, Consumer Product Safety Reporting to the Project Manager, Flammability:

Conducts scientific investigations to determine the fire and flammability hazards in a variety of consumer products. Designs suitable approaches and carries out chemical, physical and instrumental tests for flammability, explosively, durability, labelled guarantees, and for the presence and production of toxic products. Interprets results and prepares reports.

Studies the application of instrumental techniques to the analysis of consumer products, and conducts assigned projects to resolve problems arising from regulatory changes. Interprets test results and recommends methods and procedures to the Project Manager.

Provides interpretation of results and technical advice to officials of the department and industry. Assists the Department of Justice in the preparation of prosecutions, conducts analyses as an Official Analyst and provides testimony as an expert witness in court.

DegreeSpecificationsKind of Assignments

2

- A. Degree 3 - Objectives are defined by the Project manager in terms of product investigations and problem solving assignments.
- B. Degree 2 - The work consists of a number of discrete product investigations and problem solving assignments.
- C. Degree 2 - The work requires investigating the chemical and flammability hazards of consumer products, adapting methods and procedures, and resolving technical problems.
- D. Degree 2 - Own work is planned and approaches are determined to ensure that objectives are met.

Complexity of Work

2

- A. Degree 2 - Information in terms of methods and procedures is readily available, but data is generated by direct observation.
- B. Degree 2 - Data can be validated by alternative procedures or literature references.
- C. Degree 3 - The identification of flammability hazards requires the measurement and interpretation of several chemical and physical parameters.
- D. Degree 2 - Relationships between the chemical and physical properties and flammability can be established and inconsistencies resolved by straightforward investigations.
- E. Degree 1 - Activities of others within the unit may affect the availability of common facilities or shared equipment.
- F. Degree 3 - Contacts are with officials of the department and industry to explain results of investigations and with crown attorneys of the Department of Justice to provide factual information for the preparation of prosecutions.

Degree

- G. Degree 2 - The work requires modifying and adapting instrumental methods of analysis.
- H. Degree 2 - The work requires the application of a sound knowledge of the principles and theories of analytical chemistry and of the procedures used to assess the hazards associated with flammable consumer products.

Professional Responsibility

2

- A. Degree 2 - The work requires the completion of assignments and the preparation of final reports which are reviewed by the Project manager.
- B. Degree 2 - There is a requirement to use and apply standard methods correctly, but the Project Manager provides guidance on problem solving assignments.
- C. Degree 2 - The work requires determining approaches and selecting methods for the identification of hazards.
- D. Degree 1 - As applicable, the work of support staff may be checked for correct application of procedures.
- E. Degree 2 - Results of the investigations are interpreted to produce an assessment of consumer hazard.
- F. Degree 3 - Technical advice and interpretation of results is provided to departmental and industry officials and to crown attorneys.

Management Responsibility

1

- A. Degree 1 - As applicable, technical instructions or requests for assistance are given to support staff.
- B. Degree 1 - Plans use of equipment and supplies for own work.
- C. Degree 1 - Limited to the spending of own time and to the use of equipment and supplies for assigned work.
- D. Degree 1 - Outside assistance, when required, is requested from the Project Manager.
- E. Degree 1 - Complies with administrative procedures, directives and guidelines established for the work.
- F. Degree 1 - Limited requirement to coordinate work with others outside the Laboratory.
- G. Degree 1 - Follows administrative and safety procedures established for the work.

Impact of Recommendations and Activities

2

- A. Degree 1 - Results of investigations are used to administer consumer product safety legislation.
- B. Degree 2
- (i) Degree 2 - Identification of a product hazard may result in the regulatory control of a commercial consumer product.
- (ii) No significant impact.
- (iii) Degree 2 - Results of the work contribute to the regulatory control of hazardous consumer products.
- (iv) No other significant impacts.
- C. Degree 2 - Results of investigations contribute to a knowledge of the properties and hazards of consumer products.

LINEAR ORGANIZATION CHART

Chief, Scientific and Laboratory Services Division - Project Manager,

Chemistry

- Project Manager, Engineering
- Project Manager, Flammability
- Senior Project Chemist
- Project Chemists (3)
- \* - Project Chemist CH-2

\* Bench-mark position.

BENCH-MARK POSITION DESCRIPTION

Level: 2

Bench-mark Position Number: 4

Descriptive Title: Chemist, Organic Residues

Reporting to the Head, Organic Residues Unit:

Conducts analyses of a wide variety of food products for trace levels of pesticides and environmental contaminants to assist in the enforcement and establishment of regulations and provisions of the Food and Drugs Act. Provides scientifically valid qualitative and quantitative information employing a variety of scientific techniques and instrumentation for the extraction, clean-up, identification, quantitation and, confirmation of organic residues.

Provides interpretation of results and technical advice to officials of the department and industry, conducts analysis as an Official Analyst, and provides testimony as an expert witness in court.

Adapts methods to suit the unique requirements of samples and assists in the development and evaluation of new methods, procedures and instrumental techniques.

Ensures the correct application of safety and quality assurance standards. Participates in the training of junior chemists and technical staff.

Degree

**Specifications**

Kind of Assignments

2

- A. Degree 2 - Objectives are defined by the Unit Head. Samples are assigned but methods are selected and adapted from available procedures.
- B. Degree 2 - The work involves the complete analysis and interpretation of results to determine organic residue levels in food products.
- C. Degree 2 - The work involves the analysis of a wide variety of foods for pesticide residues and environmental contaminants.
- D. Degree 2 - Own work is planned and methods are selected to meet the objectives of the work.

Complexity of Work

3

- A. Degree 3 - Information on the identity and trace levels of organic residues in food is obtained through extensive analyses, often involving method adaptation, and careful interpretation of the data due to the large number of possible chemicals and the presence of interferences.
- B. Degree 3 - The identity, once determined, and levels of organic contaminants in foods can be validated by a combination of alternative chemical and instrumental techniques and literature referencing.
- C. Degree 3 - The identification and quantitation of organic contaminants in foods involve many interferences, ambiguity, and require careful interpretation.
- D. Degree 3 - The relationships between instrumental responses and the identity and levels of trace organic residues in foods are sometimes conflicting and require investigation and interpretation for each residue/food commodity combination.
- E. Degree 2 - The activities of inspection staff affect the type and priority of samples to be analyzed.

Degree

- F. Degree 3 - Contacts are with inspectors and regulated industry officials to explain results and with crown attorneys of the Department of Justice to provide information for the preparation of prosecutions.
- G. Degree 2 - The work requires modifying, adapting and evaluating new methods and procedures for the analysis of organic residues in food.
- H. Degree 3 - The work requires the application of a thorough knowledge of the principles and theories of analytical organic chemistry and of the procedures and instrumental techniques used in the trace organic residue analysis of foods.

Professional Responsibility

2

- A. Degree 2 - The work requires the completion of assignments, the interpretation of results, and the preparation of final results which are reviewed by the Unit Head.
- B. Degree 2 - Professional guidance is received from the Unit Head on new analytical projects.
- C. Degree 2 - The work requires identifying analytical problems and selecting and adapting methods for their resolution.
- D. Degree 1 - As applicable, the work of technical staff is checked for correct application of methods and procedures.
- E. Degree 2 - Analytical results are interpreted and evaluated against specified tolerances to determine compliance with the Food and Drugs Act and regulations and to indicate violations of the legislation.
- F. Degree 3 - Technical advice and explanation of results is provided to inspectors, departmental officials, and to crown attorneys with respect to prosecutions.

Management Responsibility

1

- A. Degree 1 - As applicable, technical instructions or requests for assistance are given to support staff.
- B. Degree 1 - Plans the use of equipment and supplies for own work.
- C. Degree 1 - Limited to spending of own time and to the use of equipment and supplies for assigned work.
- D. Degree 1 - Outside assistance, when required, is requested from the Unit Head.
- E. Degree 1 - Complies with administrative procedures, directives, guidelines and quality assurance standards established for the work.
- F. Degree 1 - Limited requirement to coordinate work with others, except in order to best utilize shared equipment and facilities.
- G. Degree 1 - Follow administrative and safety procedures established for the work.

Impact of Recommendations and Activities

2

- A. Degree 2 - Information and results of the work affect the intensity and direction of inspection activities.
- B. Degree 2 -
- (i) Degree 2 - Identification of violations of the Food and Drugs Act and Regulations may result in the regulatory control of commercial food products.
  - (ii) No significant impact.
  - (iii) Degree 2 - Results of the work contribute to the regulatory control of foods containing violative levels of toxic organic residues.
  - (iv) No other significant impacts.
- C. Degree 2 - Information and results contribute to knowledge of the levels of organic residues in the food supply and to improvements in the methods and procedures for the analysis of trace organics in foods.



LINEAR ORGANIZATION CHART

Chief, Food Laboratory Division

- Head, Foods and Canning Microbiology Unit
- Head, Drugs, Cosmetics, and Medical Devices Microbiology Unit
- Head, Food Additives and Mycotoxins Unit
- Head, Food Chemistry Unit
- Head, Organic Residues Unit
  - Specialist, Trace Organic Analysis
  - \* - Chemist, Organic Residues (2) (CH-2)
  - Chemist, Development grade (2) CH-1
  - Technicians (4)
- \* Bench-mark position

BENCH-MARK POSITION DESCRIPTION

Level: 2

Bench-mark Position Number: 5

Descriptive Title: Chemist, Major Ions and LRTAP

Reporting to the Head, Inorganic Analysis Laboratory Unit:

Plans, organizes and conducts analyses of water, precipitates and related environmental samples for the presence of major inorganic ions for use by other scientists in the department in monitoring and evaluating the long range effects of airborne pollutants on the ecology of inland waters.

Carries out studies to evaluate, validate and improve analytical methods and identifies to the Laboratory Unit Head new analytical equipment or supplies required for the work.

Supervises the work of support staff and assigns samples for analysis. Checks results for accuracy, reliability, and consistency and prepares reports.

Ensures compliance with established quality assurance practices.

DegreeSpecificationsKind of Assignments

2

- A. Degree 2 - Objectives are clearly defined by the Laboratory Unit Head in terms of expected number and quality of analyses.
- B. Degree 2 - The work involves the complete analysis and interpretation of results to determine inorganic ions in water and related environmental samples.
- C. Degree 2 - The work involves the analysis of water and related environmental samples for inorganic ions, adapting and evaluating methods and allocating work to subordinate staff.
- D. Degree 2 - Plans and organizes work and assigns samples to subordinate staff to meet clearly defined objectives.

Complexity of Work

2

- A. Degree 2 - Information in terms of methods and procedures is readily available, but data is generated by direct observation.
- B. Degree 2 - Data can be validated by repeat analysis and confirmation procedures using alternative analytical schemes.
- C. Degree 2 - The measurement of inorganic ions in environmental samples involves many interferences which must be considered.
- D. Degree 2 - Relationships between instrumental responses and inorganic ion concentration can be established by straightforward investigations.
- E. Degree 2 - The work is affected by the activities of field monitoring staff submitting samples.
- F. Degree 2 - Contacts are with scientists for whom analyses are conducted to explain results.
- G. Degree 2 - The work requires adapting and evaluating new methods and procedures for the inorganic analysis of water and related environmental samples.
- H. Degree 2 - The work requires the application of a sound knowledge of the principles and theories of inorganic analytical chemistry and of the procedures and techniques used in the analysis of water.

## Chemistry

B. M. P. D. No. 5

5.2

Degree

### Professional Responsibility

2

- A. Degree 3 - Approaches to meeting analytical demands are reviewed by the Laboratory Unit Head.
- B. Degree 2 - Professional guidance is received from the Laboratory Head Unit on new analytical assignments.
- C. Degree 2 - The work requires identifying analytical problems and selecting and adapting methods for their resolution.
- D. Degree 2 - The work of subordinate staff is reviewed for accuracy, reliability and consistency.
- E. Degree 2 - Own and subordinates' analytical results are interpreted to produce meaningful reports.
- F. Degree 2 - Advice on the inorganic analysis of water and related environmental samples is provided to support staff.

### Management Responsibility

2

- A. Degree 2 - The work requires the supervision of a support staff consisting of one chemist and two technicians.
- B. Degree 2 - The work requires ensuring the proper use of analytical instruments assigned for the work.
- C. Degree 2 - The work requires identifying to the Laboratory Unit Head, new equipment and supplies required for the work.
- D. Degree 1 - Outside assistance, when required is requested from the Laboratory Unit Head.
- E. Degree 2 - The work requires ensuring that quality assurance and safety procedures are maintained.
- F. Degree 3 - The work requires coordinating the unit's work to meet the requirements and priorities of field staff.
- G. Degree 2 - Ensures the implementation of administrative and safety procedures in the unit.

### Impact of Recommendations and Activities

2

- A. Degree 2 - Results of the work are used by other scientists in the Department to monitor and evaluate the effects of pollutants on inland waters and can directly affect these studies.
- B. Degree 2
  - (i) Degree 1 - The results of the work may have limited economic effects on industries contributing to long range atmospheric pollution of inland waters.
  - (ii) Degree 2 - Results of the work are used to monitor and evaluate the effects of pollutants on inland waters and contribute to the protection of these resources.
  - (iii) No significant impact.
  - (iv) No other significant impacts.
- C. Degree 2 - Information and results contribute to knowledge of the levels of major inorganic ions in inland waters and to improvements in the methods and procedures for the inorganic analysis of water.

LINEAR ORGANIZATION CHART

Head, Analytical Services Section

Head, Inorganic Analysis Laboratory Unit

- Chemist, Nutrients and Physical Parameters

\* - Chemist, Major Ions and LRTAP CH-2

- Chemist, Precipitation CH-1

- Technicians (2)

\* Bench-mark position.

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 6

Level : 2

Descriptive Title: Biochemist, Applied Endocrinology

Reporting to the Head, Fish Culture Research Section:

Plans and conducts investigations to study the role of thyroid hormones during smoltification of salmon as a means of determining smolt quality and to measure corticosteroid levels in plasma as a means of conducting endocrine stress evaluations.

Collaborates with research scientists to identify parameters which influence fish physiology, and plans, coordinates and conducts sampling schemes to collect blood samples, size and weight data of smolts and related environmental data.

Analyses plasma samples by radioimmunoassay for corticosteroid and thyroid hormone levels; interprets the data, relating hormone levels to external factors, and prepares experimental results for publication.

Prepares and purifies salmon gonadotropin and conducts gonadotropin radioimmunoassays to assist in investigations into the controlled reproduction and induced ovulation of various fish species.

Adapts and develops biochemical techniques for the measurement of fish hormones, and demonstrates these techniques to other scientists in the department and industry.

DegreeSpecificationsKind of Assignments

2

- A. Degree 3 - Objectives are defined by the Section Head in terms of goals for each investigative study.
- B. Degree 2 - The work consists of a number of discrete investigations involving the analysis and interpretation of hormone levels in salmon.
- C. Degree 2 - The work requires planning and conducting surveys of fish, collecting blood samples and field data, and the analysis of plasma for hormone levels.
- D. Degree 2 - Investigations and surveys are planned, study approaches determined, and methods selected to ensure that objectives are met.

Complexity of Work

2

- A. Degree 2 - Information and data are obtained from field surveys and straightforward laboratory analyses.
- B. Degree 2 - Radioimmunoassay data can be validated by literature references or comparison with results obtained in other laboratories.
- C. Degree 2 - Hormone levels are affected by many external factors but these can be controlled for in the investigations.
- D. Degree 2 - Relationships between hormone levels and external factors can be established by straightforward investigation.
- E. Degree 2 - The work involves collaboration with, and provision of radioimmunoassay analyses to, research scientists in the section.

Degree

- F. Degree 2 - Contacts are with research scientists in the section working on collaborative projects and with other scientists to explain and demonstrate biochemical assays of fish hormones.
- G. Degree 3 - The work requires developing and adapting biochemical techniques for determining hormone levels in fish plasma.
- H. Degree 2 - The work requires the application of a sound knowledge of biochemistry and of the techniques used to measure hormone levels in plasma.

Professional Responsibility

2

- A. Degree 3 - Approaches to investigative studies and sampling schemes, and conclusions derived from interpretation of the data are reviewed by the Section Head.
- B. Degree 2 - Guidance on new investigative studies and in the resolution of unexpected problems is provided by the Section Head.
- C. Degree 2 - The work requires identifying factors influencing hormone levels and devising sampling schemes to measure and interpret them.
- D. Degree 1 - As applicable, the work of summer students is checked for correct application of procedures.
- E. Degree 2 - Analytical results and field observations are interpreted to identify the effects of external factors on fish hormone levels.
- F. Degree 2 - Advice on the biochemical analysis of fish hormones is provided to other scientists in the section and in industry.

Management Responsibility

2

- A. Degree 1 - As applicable, technical instructions are given to summer students.
- B. Degree 2 - Ensures proper use of equipment and supplies allocated to the work, including the control of radioactive materials used in the section.
- C. Degree 2 - Identifies the equipment and supplies required for the investigations.
- D. Degree 1 - Outside assistance, when required, is requested from the Section Head.
- E. Degree 2 - Ensures that the administrative and safety guidelines required for these of radioactive materials are maintained.
- F. Degree 2 - Coordinates field sampling with other researchers in the section.
- G. Degree 1 - Follows administrative and safety procedures established for the work.

Impact of Recommendations and Activities

2

- A. Degree 2 - Results of investigations contribute to ongoing programs in fish culture research.
- B. Degree 2
  - (i) Degree 2 - Results of investigations contribute to improvements in salmon production affecting the commercial and sport fisheries.
  - (ii) Degree 2 - Results of investigations contribute to conserving salmon species.
  - (iii) No significant impact.
  - (iv) No other significant impacts.
- C. Degree 3 - Biochemical methods for determining hormone levels in fish are developed, and results of investigations contribute to the understanding of the role of hormones in fish reproduction and stress survival.

LINEAR ORGANIZATION CHART

Chief, Resource Services Branch

Head, Fish Culture Research Section

- Biologist, Controlled Reproduction
- Research Scientist, Nutrition
- Research Scientist, Stress & Histophysiology
- \* - Biochemist, Applied Endocrinology CH-2

\* Bench-mark position.

BENCH-MARK POSITION DESCRIPTION

Level: 3

Bench-mark Position Number: 7

Descriptive Title: Quality Assurance Chemist

Reporting to the Head, Quality Assurance and Methods Section:

Plans, conducts and coordinates investigations to develop Certified and other Reference Materials of water and sediment for use in quality assurance programs. Sets priorities on the type of substrates and concentration levels of parameters required, and establishes sampling locations, techniques and frequency to obtain suitable naturally contaminated materials. Schedules laboratory analysis of field samples by contract laboratories or by the National Water Quality Laboratory to fully characterize each material for a wide variety of organic and trace inorganic parameters.

Organizes and conducts quality assurance studies to meet the department's commitments to joint water quality monitoring programs. Establishes work plans, objectives and resource requirements for each study and coordinates these with participating agencies. Selects and applies appropriate statistical techniques, interprets data collected from various agencies and writes scientific reports assessing laboratory performance. Prepares contracts for analyses and assesses data quality generated by contract laboratories.

Supervises one chemist conducting organic method development and validation studies to provide methods for use by the regional and National Water Quality Laboratories. Develops strategies and experimental design for method development and sample preservation techniques, reviews work in progress, provides guidance and advice, and critically reviews reports on developed methods. Provides advice to other scientists on the use of reference materials and on the conduct and interpretation of quality assurance studies.

Degree

**Specifications**

Kind of Assignments

3

- A. Degree 3 - Objectives are defined by the Section Head in terms of developing required reference materials and in conducting quality assurance studies and method development projects.
- B. Degree 3 - The work involves the identification, selection and comprehensive testing of reference materials, the conduct of extensive quality assurance studies, and the development of methods for the analysis of water and sediments.
- C. Degree 3 - The work involves the selection and chemical characterization of reference materials, the organization and conduct of quality assurance studies, method development and the supervision of one chemist.
- D. Degree 3 - Joint quality assurance studies are planned and organized, investigations to develop reference materials are planned and coordinated, and method development studies are planned and assigned to a junior chemist.

Complexity of Work

3

- A. Degree 2 - Information necessary to characterize reference materials and for use in quality assurance studies and method development projects is obtained by direct analysis.



Degree

- B. Degree 2 - Analytical data can be validated by repeat analysis using alternative procedures.
- C. Degree 3 - The complete characterization of naturally occurring reference materials requires the identification and quantitation of a wide range of organic and inorganic parameters.
- D. Degree 3 - The data and information obtained from quality assurance studies contain many variables which require interpretation and are sometimes ambiguous.
- E. Degree 3 - The collection and characterization of reference materials and the conduct of quality assurance studies are conducted jointly with, and are affected by scientists outside the section.
- F. Degree 3 - Contacts are with scientists in the National Water Quality Laboratory or scientists in contracted laboratories to obtain chemical analyses, and with scientists in various national and international agencies to organize, coordinate and conduct quality assurance studies.
- G. Degree 3 - The work requires developing strategies and experimental design and guiding one chemist in the development of methods for the analysis of water and sediment for organic parameters.
- H. Degree 3 - The work requires the application of a thorough knowledge of inorganic and organic analytical chemistry and of the procedures and techniques used in the analysis of water and sediments, as well as a knowledge of statistics as applied to quality assurance studies.

Professional Responsibility

3

- A. Degree 3 - Approaches to selecting and characterizing reference materials and conducting quality assurance studies and method development projects are reviewed by the Section Head for soundness of judgement and attainment of objectives.
- B. Degree 3 - Professional guidance is received from the Section Head on the resolution of difficult method development problems and on the interpretation of ambiguous quality assurance study results.
- C. Degree 3 - The work requires identifying the need for and likely sources of reference materials, determining approaches for the conduct of quality assurance studies and developing strategies and experimental design for method development projects.
- D. Degree 2 - The work of a junior chemist engaged in method development studies is reviewed in progress and final reports are critically reviewed prior to release.
- E. Degree 3 - The results of quality assurance studies are interpreted and analyzed to assess the performance of outside laboratories.
- F. Degree 3 - Advice on the use of reference materials and on the conduct and interpretation of quality assurance studies is provided to other scientists. Guidance on method development studies is provided to a junior chemist.

Management Responsibility

2

- A. Degree 2 - The work requires the supervision of one chemist engaged in method development studies.
- B. Degree 2 - The work requires ensuring the proper use of analytical instruments assigned to the Unit.
- C. Degree 2 - The work requires identifying to the Section Head new equipment and supplies required for the work.
- D. Degree 3 - The work requires obtaining outside assistance for the collection of samples for use as reference materials and for the analysis of samples by contract laboratories.

Degree

- E. Degree 2 - Ensures that quality and quantity standards are maintained in the laboratory.
- F. Degree 3 - Coordinates sample collection and joint quality assurance studies with other scientists.
- G. Degree 1 - Follows administrative and safety procedures established for the work.

Impact of Recommendations and Activities

3

- A. Degree 3 - Reference materials and results of quality assurance studies are used throughout the department to ensure the quality of scientific data produced.
- B. Degree 2 -
  - (i) No significant impact.
  - (ii) Degree 2 - Results of quality assurance studies contribute to the department's commitments in the area of joint environmental monitoring programs.
  - (iii) No significant impact.
  - (iv) No other significant impacts.
- C. Degree 3 - Information and results contribute to improvements in methods for the analysis of water and sediments.

LINEAR ORGANIZATION CHART

Chief, Analytical Methods Division

Head, Quality Assurance and Methods Section - Chemist, Special Analysis

- Inorganic Methods Development Chemist

- Quality Control Chemist

\* - Quality Assurance Chemist CH-3

- Organic Methods Development Chemist CH-2

\* Bench-mark position

BENCH-MARK POSITION DESCRIPTION

8.1

Chemistry  
B. M. P. D. No. 8

Bench-mark Position Number: 8

Level: 3

Descriptive Title: Chemist, Drinking Water and Human Tissue Surveys

Reporting to the Head, Organic Chemicals Section:

Plans, coordinates and implements drinking water quality surveys and pollutant surveillance programs for the purpose of providing information to Federal-Provincial Committees formulating Canadian Drinking Water Guidelines and for assessing water quality characteristics, trends and pollution conditions.

Plans, coordinates and implements surveys of organic contaminants in human tissues for the purpose of detecting new contaminants and providing data on human exposure to Federal-Provincial Committees and provincial and medical authorities involved in assessing human health risks arising from chemical pollutants.

Organizes surveys and cooperative projects with officials of federal and provincial health and water authorities, universities and medical consultants, determines the physical and chemical parameters to be measured, and determines optimum sampling frequency.

Defines the technical scope of contracted work, evaluates contract proposals for scientific merit, and acts as scientific authority to ensure integrity of contracted work.

Conducts analyses for a wide range of organic contaminants in water and human tissue samples and develops and adapts methods for the simultaneous analysis of complex mixtures of organic contaminants. Interprets and reports analytical findings.

Provides expert advice to water quality managers and Federal-Provincial committees and task forces. Supervises one technician and ensures that safety procedures are maintained.

Degree

**Specifications**

Kind of Assignments

3

- A. Degree 3 - Objectives are defined by the Section Head in terms of requirements for planning and conducting drinking water and human tissue surveys.
- B. Degree 3 - The work involves the planning, coordination and conduct of surveys and analyses to determine levels of a wide range of organic contaminants in drinking water and human tissues.
- C. Degree 2 - The work involves planning, coordinating and conducting joint surveys and laboratory analyses, providing advice and allocating work to one technician.
- D. Degree 3 - Joint drinking water and human tissue surveys are planned and conducted with a number of outside agencies.

Complexity of Work

3

- A. Degree 3 - Information on the identity and levels of a wide range of naturally occurring contaminants in drinking water and human tissues is obtained from extensive surveys and analytical investigations requiring method adaptation and development.

Degree

- B. Degree 3 - Information and data can be validated by repeating surveys and by confirming analytical results through a combination of chemical and instrumental techniques.
- C. Degree 3 - The identification and quantitation of organic contaminants in drinking water and human tissues involves many interferences, ambiguity, and requires careful interpretation.
- D. Degree 2 - Relationships between instrumental responses and organic contaminant levels can be established by straightforward investigation using reference standards.
- E. Degree 3 - The surveys are planned and conducted in cooperation with, and are affected by, officials outside the section.
- F. Degree 3 - Contacts are with scientists and officials in other federal and provincial agencies and universities to plan and participate in cooperative surveys.
- G. Degree 3 - The work requires the development of new sampling and analytical techniques for the identification and measurement of organic contaminants in drinking water and human tissues.
- H. Degree 3 - The work requires the application of a thorough knowledge of the principles and theories of organic analytical chemistry and of the procedures and instrumental techniques used in trace organic analysis of drinking water and human tissues, as well as the knowledge of statistical techniques related to sampling and survey design.

Professional Responsibility

3

- A. Degree 3 - Approaches to planning and conducting surveys and developing methods are reviewed by the Section Head.
- B. Degree 3 - Professional guidance is received from the Section Head in the resolution of difficult method development problems and in determining survey priorities.
- C. Degree 3 - The work requires defining survey requirements in terms of parameters to be measured and sampling frequency, defining the technical scope of contracted work and determining approaches for method development studies.
- D. Degree 3 - The work of contractors conducting surveys or analysis is reviewed for scientific integrity.
- E. Degree 2 - Analytical results are interpreted to produce meaningful results.
- F. Degree 3 - Advice on sampling and analysis of drinking water and human tissues for organic contaminants is provided to subordinate staff, contractors and officials of agencies participating in joint projects.

Management Responsibility

2

- A. Degree 2 - The work requires the supervision of one technician.
- B. Degree 2 - Ensures the proper use of analytical equipment and supplies allocated for the work.
- C. Degree 2 - Identifies the equipment and supplies required for survey and analytical work.
- D. Degree 3 - Arranges for survey work with outside agencies and defines the technical scope for contracted survey and analytical work.
- E. Degree 2 - Ensures that quality, quantity and safety standards are maintained in the laboratory.
- F. Degree 3 - Coordinates surveys and analyses with officials in other agencies and with contractors.
- G. Degree 2 - Implements administrative and safety guidelines in the laboratory.

DegreeImpact of Recommendations and Activities

3

- A. Degree 3 - Information and results of the work are used by federal and provincial officials to set Canada Drinking Water Guidelines, and regulations under the Hazardous Products Act.
- B. Degree 2 -
- (i) Degree 1 - The results of the work may have limited economic effects on industries contributing to the pollution of potable water supplies.
  - (ii) No significant impact.
  - (iii) Degree 2 - Information and results of the work are used to control toxic organic contaminants in drinking water and the human environment.
  - (iv) No other significant impacts.
  - (v) Degree 3 - Information and results contribute to knowledge of the levels of organic contaminants in drinking water and human tissues. New and improved methods and procedures for the analysis of trace organics in drinking water and human tissue are developed.

LINEAR ORGANIZATION CHART

Chief, Monitoring and Criteria Division

Head, Organic Chemistry Section

- Research Scientists (3)

\* - Chemist, Drinking Water and Human Tissues Surveys CH-3

- Technician

\* Bench-mark position

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 9

Level: 3

Descriptive Title: Head, Solution Chemistry Section, Mineral Sciences Laboratory

Reporting to the Assistant Manager, Operations, Chemical Laboratory:

Plans, organizes and controls the Solution Chemistry Section to provide chemical analytical services for all elements that may be present in ores, minerals, process solutions and related materials, in support of the research and development work of the Canada Centre for Mineral and Energy Technology (CANMET).

Supervises a unit of two chemists and four technicians. Plans and assigns work, monitors progress of assignments, and reviews and checks completed work before reporting and discussing results with clients. Ensures that safety and quality assurance procedures are implemented in the laboratory and recommends the purchase of, and writes specifications for, new laboratory equipment.

Conducts analytical work of a more complex or difficult nature and investigates, adapts, develops and evaluates analytical methods and techniques.

Assists outside agencies and industry by providing advice on analytical methods, evaluating and resolving analytical problems, and by conducting referee analyses to resolve differences.

Supervises and conducts chemical analysis and method development projects to provide assistance in the certification of standard reference materials for the Canadian Certified Reference Materials Project.

DegreeSpecificationsKind of Assignments

3

- A. Degree 3 - Objectives are defined by the Assistant Manager in terms of providing acceptable analytical services with respect to quality, quantity and timeliness.
- B. Degree 2 - The work involves the provision of inorganic analytical services in support of a number of research projects.
- C. Degree 3 - The work involves the conduct, and supervision of staff engaged in the conduct, of inorganic analysis of ores, minerals, process solutions and related materials.
- D. Degree 3 - The work involves planning, organizing, and assigning work to a section engaged in the provision of analytical services.

Complexity of Work

3

- A. Degree 2 - Information in terms of methods and procedures are normally available, but data is generated by direct observation.
- B. Degree 2 - Data can be validated by alternate procedures or literature references.
- C. Degree 2 - The samples submitted to the section usually result from controlled research experiments and are normally well characterized. The work involves the determination of discrete parameters. Samples of a more complex or difficult nature require interpretation and method adaptation due to interferences.

Degree

- D. Degree 2 - The work involves analysis of a more complex or difficult nature, and investigations into method development where the relationships between variables can be established by straightforward analytical investigations.
- E. Degree 3 - The organization, planning and conduct of work in the section are affected by the activities of researchers for whom analytical services are provided.
- F. Degree 3 - Contacts are with scientists, for whom analytical services are provided, to report and discuss results, and with scientists in outside agencies and industry to provide analytical advice.
- G. Degree 3 - The work requires adapting and developing methods and techniques for the analysis of ores, minerals, process solutions and related materials.
- H. Degree 3 - The work requires the application of a thorough knowledge of inorganic analytical chemistry and of the procedures and techniques used in the analysis of ores, minerals, process solutions and related materials, as well as a knowledge of supervisory practices.

Professional Responsibility

3

- A. Degree 3 - Approaches to providing an effective analytical service are reviewed by the Assistant Manager.
- B. Degree 3 - Professional guidance is received from the Assistant Manager in the resolution of difficult analytical or method development problems.
- C. Degree 3 - The work requires identifying analytical problems, determining approaches and adapting or developing methods for their resolution.
- D. Degree 2 - The work of subordinate staff is reviewed in progress and checked for technical accuracy before reporting and discussing results with clients.
- E. Degree 2 - Analytical results are interpreted to produce meaningful reports.
- F. Degree 3 - Analytical advice is provided to scientists in other agencies and industry. Guidance on the selection and application of methods and on the interpretation of results is provided to support staff.

Management Responsibility

3

- A. Degree 3 - The work requires the supervision of a unit of two chemists and four technicians.
- B. Degree 3 - The work requires the control and maintenance of equipment and supplies allocated for the work.
- C. Degree 3 - The work requires making recommendations to the Assistant Manager and writing specifications for the acquisition of equipment and supplies required for the work.
- D. Degree 1 - Outside assistance, when required is requested from the Assistant Manager.
- E. Degree 3 - Ensures that quality assurance and safety procedures are implemented in the section.
- F. Degree 3 - Coordinates the provision of analytical services for a number of scientists.
- G. Degree 3 - Interprets and implements administrative and safety guidelines in the section.

Impact of Recommendations and Activities

3

- A. Degree 3 - The provision of analytical services is essential to the ongoing research activities within CANMET.

Degree

## B. Degree 2 –

- (vi) Degree 2 - The provision of analytical services is essential to research projects directed towards the improvement of mining and related processing technologies having technological affects on these industries. The work also contributes directly to the industry through the development of methods, resolution of analytical problems and through referee analysis to resolve differences.
  - (vii) Degree 2 - The provision of analytical services is essential to ongoing research projects directed to improvements in the use of mineral resources.
  - (viii) No significant impact. (iv) No other significant impacts.
- C. Degree 3 - The work involves the development of new methods and procedures for the analysis of ores, minerals, process solutions and related materials.

LINEAR ORGANIZATION CHART Manager, Chemical Laboratory

- Assistant Manager, Operations
- Head, Metals and Alloys Section
- Head, Ores and Precious Metal Analysis Section
- Head, XRF and Radioanalysis Section
- Head Optical Emission and NAA Section
- \* - Head, Solution Chemistry Section CH-3
  - Chemist CH-2
  - Chemist CH-1
  - Technicians (4)
- \* Bench-mark Position



BENCH-MARK POSITION DESCRIPTION

Level: 3

Bench-mark Position Number: 10

Descriptive Title: Chemist, Pesticide Evaluation

Reporting to the Associate Director, Pesticide Laboratory:

Plans, organizes and conducts the scientific appraisal and review of the chemistry data contained in pre-market evaluation submissions for new products or new uses of registered products from the pesticide industry, for completeness and acceptance against standards, criteria and evaluation protocols required under the Pest Control Products Act and Regulations.

Reviews and assesses methods of pesticide manufacture, including primary materials, reaction mechanisms, principal products, impurities above the level of 0.1% and the possible presence of toxic micro contaminants in order to assess the validity, completeness and acceptability of information.

If additional data is required to complete the assessment, informs industry of the additional requirements, the rationale and the test protocols.

Plans and conducts laboratory investigations into the validity of analytical methods submitted by industry and verifies the compositional analysis of technical pesticides and formulations, in particular for the presence of toxic impurities and micro contaminants, to ensure that adequate quality control is available for marketed products. Develops new or improved methods when required for the specific analysis of products or contaminants.

Reviews and determines, from an examination of information provided with a submission, and from a theoretical review of reaction mechanisms and pathways, the possible formation of toxic micro contaminants.

Reports findings and recommends acceptance or rejection of the application for registration of the product based on the assessment results.

Participates in the planning of departmental research projects to investigate the presence of toxic micro contaminants in suspect products.

Provides advice to officers of other federal or provincial agencies as well as industry on problems related to the composition, analysis and contaminants of pesticides.

Supervises one technician engaged in analytical investigations and method development studies.

Specifications

Degree

Kind of Assignment

3

- A. Degree 3 - Objectives are defined by the Associate Director in terms of assignments involving the scientific appraisal of the chemical data of several pre-market evaluation submissions and the conduct of related laboratory investigations.
  
- B. Degree 3 - The work involves the comprehensive evaluation and assessment of the chemistry data in pesticide submissions as well as laboratory based studies and method development projects.

Degree

- C. Degree 3 - The work involves the evaluation and assessment of chemical data, the analysis of a wide variety of pesticide products and contaminants, the critical evaluation and development of methods of analysis and the provision of advice.
- D. Degree 3 - Plans and conducts the scientific appraisal and review of the chemistry data of a broad range of pesticides, laboratory investigations into the validity of analytical methods, and method development studies.

Complexity of Work

3

- A. Degree 3 - The work requires obtaining information from a critical review of submitted data, requesting the development and submission of specific additional data from industry, and from laboratory based investigations requiring method development.
- B. Degree 3 - The information and data supplied by industry can normally be validated by a critical review of the chemistry data, laboratory based investigations and literature referencing.
- C. Degree 3 - The information and chemical data in submissions include several chemical and physical parameters, reaction pathways, information on the presence of contaminants and methods of analysis, which are sometimes ambiguous or incomplete and require interpretation.
- D. Degree 3 - Relationships between chemical and physical data submitted, results of analytical investigations, and the actual composition of pesticides and presence of microcontaminants are sometimes conflicting and require investigation and interpretation.
- E. Degree 3 - The work is frequently affected by the activities of other scientists and evaluators providing or requesting additional information on the chemical aspects of the submission.
- F. Degree 3 - Contacts are with scientists and officials of industry and other agencies and departments to exchange information, resolve differences or problems and provide advice.
- G. Degree 3 - The work requires developing new or improved methods for the compositional analysis of new pesticides and for the identification and quantitation of a wide range of micro contaminants.
- H. Degree 3 - The work requires the application of a thorough knowledge of the principles and theories of organic analytical and synthetic chemistry and of the procedures and instrumental techniques used in the analysis of pesticides and related micro contaminants.

Professional Responsibility

3

- A. Degree 3 - Approaches to conducting scientific evaluations, laboratory investigations and method development projects are reviewed by the Associate Director for soundness of judgement.
- B. Degree 3 - Professional guidance is received from the Associate Director on the resolution of difficult method development problems and in the interpretation of ambiguous chemical data contained in submissions.
- C. Degree 3 - The work requires identifying problems with methods of analysis, incomplete, missing or biased data and conclusions, and determining approaches for the resolution of difficult problems.
- D. Degree 3 - The results and findings of other scientists in the area of pesticide chemistry and analysis of micro contaminants are reviewed for appropriateness in assessing pre-market submissions for the registration of pesticides.

Degree

- E. Degree 3 - Chemical data, results and conclusions of other scientists, as well as results of own laboratory investigations are interpreted to determine the validity and acceptability of data contained in the registration submission.
- F. Degree 3 - Advice on the chemistry of pesticides and associated microcontaminants and on methods for their analysis is provided to other scientists and officials in industry and in own and other agencies.

Management Responsibility

1

- A. Degree 2 - The work requires the supervision of one technician.
- B. Degree 1 - Plans the use of equipment and supplies for own work.
- C. Degree 1 - Limited to the spending of own time and to the use of equipment and supplies for own work.
- D. Degree 1 - Outside assistance, when required, is requested from the Associate Director.
- E. Degree 1 - Complies with administrative procedures, directives and guidelines established for the work.
- F. Degree 3 - Coordinates the collection of additional chemical information from industry, and investigations, scientific appraisals and method development studies with other scientists.
- G. Degree 1 - Follows administrative and safety procedures established for the work.

Impact of Recommendations and Activities

3

- A. Degree 3 - Scientific appraisals, laboratory investigations and methods and procedures developed are used in the administration of pesticide legislation in general and in the pre-market evaluation of individual submissions.
- B. Degree 3 -
- (i) Degree 3 - Recommendations, advice and results of the work affect the regulatory approval and control of pesticides and may lead to economic or technological effects on the pesticide industry.
  - (ii) Degree 2 - The confirmation of pesticide composition and the identification of microcontaminants contribute to the registration and use of environmentally acceptable pesticides.
  - (iii) Degree 3 - Recommendations, advice, and results of the work affect the approval and use of potentially hazardous pesticides and the control of toxic microcontaminants.
  - (iv) No other significant impacts.
- C. Degree 3 - The evaluation of the submitted chemical data and information, results of laboratory investigations, and new methods of analysis contribute to improved knowledge and understanding of the chemistry of pesticides and related microcontaminants.

LINEAR ORGANIZATION CHART

Director, Laboratory Services Division

Associate Director, Pesticide Laboratory

- Chief, Pesticide Residues Laboratory
- Chemist, Pesticide Formulation
- \* - Chemist, Pesticide Evaluation (3) CH-3
- Technician EG-ESS-7
- \* Bench-mark Position

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 11

Level: 3

Descriptive Title: Drug Evaluator

Reporting to the Chief, Pharmaceutical Evaluation Division:

Evaluates the chemical and pharmaceutical data contained in new drug submissions to determine the acceptability of the drug in meeting standards of safety and efficacy. Adapts the scientific approach and methodology in the evaluation process and conducts a scientific appraisal of the chemistry and pharmaceutical technology data in order to validate the claims of the manufacturer.

Reviews the chemical process and reaction pathways to identify potentially toxic reagents, synthetic intermediates, products of side reactions, and stereo-chemical isomers which may be present as impurities, ensuring that the drug manufacturer has investigated these impurities with appropriately validated methodology. Interprets spectral data to confirm the chemical structure of drug substances and impurities.

Determines whether the proposed manufacturing and quality control standards for the drug substance and dosage form are acceptable to ensure safety and efficacy of each lot produced, and that proposed analytical methods are properly validated to ensure accuracy, precision, specificity and sensitivity.

Determines degradation pathways and predicts potential degradation products and ensures that the manufacturer has fully investigated all potential degradation products and has developed appropriate methodology for their determination. Determines the acceptability and compatibility of non-medicinal ingredients and packaging materials to ensure the safety of the product.

Prepares a detailed report summarizing the findings and judgement reached, identifies problem areas and deficiencies, informs the manufacturer of requirements and areas for further product or data development, formulates a comprehensive recommendation concerning acceptance or rejection of the submission and provides a scientific rationale for the conclusions.

Performs a second review of data derived from post-market surveillance of new drugs or drug applications referred from other Bureaux, to ensure that new products marketed in Canada meet the standards for safety and efficacy prescribed in the Food and Drug Act and Regulations. Assesses reports prepared by junior evaluators to ensure that data has been properly interpreted and that recommendations are sound.

Assists in the development of research proposals in problem areas relating to analytical methodology, drug standards and other chemical problems identified during the evaluation of drug submissions to ensure that timely and relevant research is carried out within the Branch, and that Canadian standards for drugs are developed when required.

SpecificationsDegreeKind of Assignments

3

- A. Degree 3 - Objectives are defined by the Division Chief in terms of assignments involving the scientific appraisal of the chemistry and pharmaceutical technology data of several new drug evaluation submissions.

Degree

- B. Degree 3 - The work involves the comprehensive evaluation and assessment of the chemistry and pharmaceutical technology data in new drug submissions to determine the acceptability of the drug in meeting standards of safety and efficacy.
- C. Degree 3 - The work involves the evaluation and assessment of chemistry and pharmaceutical technology data, the review of manufacturing processes, drug synthesis, stability and degradation, and the potential formation of toxic impurities, a critical review of proposed standards and analytical methodology, and the provision of advice.
- D. Degree 3 - Adapts scientific approaches and methodologies, and plans, organizes and conducts a broad diversity of studies and evaluations of the chemistry and pharmaceutical technology data for a wide variety of new drug submissions.

Complexity of Work

4

- A. Degree 4 - The work requires obtaining information from a critical review of submitted data, and requesting the development and submission of specific additional data for new chemical entities for which there is often no information available in the scientific literature and no published standards. The only information available is that supplied by the drug manufacturer in the submission and requires interpretation and selection to use.
- B. Degree 3 - The information and data supplied by drug manufacturers can normally be validated by a critical review of the chemical data, laboratory based investigations and detailed literature referencing.
- C. Degree 4 - The information and data contained in submissions relating to new chemical entities and novel synthetic routes may include complicated and conflicting analytical data and ambiguous information on impurities, stereo-isomers and degradation products. Judgements as to the acceptability of the data must be made.
- D. Degree 4 - Relationships between the chemistry and pharmaceutical technology data submitted, synthetic pathways, reagents, stability and degradation products, and the possible formation of toxic impurities are complicated and require critical evaluation and review to resolve conflicts and interpretation problems.
- E. Degree 3 - The work is frequently affected by the activities of other scientists and evaluators providing or requesting additional information on the chemical or pharmaceutical technology aspects of the submissions.
- F. Degree 3 - Contacts are with scientists and officials of the pharmaceutical industry and other agencies to exchange information, resolve differences or problems and provide advice.
- G. Degree 3 - The work requires adapting the scientific approach and methodologies in the evaluation process to suit the unique requirements and each submission.
- H. Degree 4 - The work requires the application of a thorough knowledge of the principles, theories and practices of analytical and organic chemistry, as well as spectroscopy and a good knowledge of medicinal chemistry, physical chemistry and pharmaceutical technology.

Professional Responsibility

3

- A. Degree 3 - Approaches to conducting scientific evaluations and final recommendations and conclusions are reviewed for soundness of judgement.
- B. Degree 3 - Professional guidance is received from the Division Chief or from an appropriate specialist on the interpretation of ambiguous chemical data or on the resolution of difficult problems.

Degree

C. Degree 3 - The work requires identifying problems with methods of analysis, incomplete, missing or biased data, and conclusions, and adapting scientific approaches and methodologies for the evaluation of drug submissions and the resolution of difficult problems.

D. Degree 3 - The results and findings of other scientists in the area of pharmaceutical chemistry as well as those of junior evaluators are reviewed for appropriateness in assessing new drug submissions.

E. Degree 3 - Chemical and pharmaceutical technology data, results and conclusions are interpreted to determine the validity and acceptability of data contained in new drug submissions.

F. Degree 3 - Advice is given to junior evaluators on the interpretation of analytical results and to officials in the pharmaceutical industry on the acceptability of proposed drug standards.

Management Responsibility

7

A. Degree 1 - As applicable, work is assigned to non-subordinate support staff.

B. Degree 1 - Plans the use of equipment and supplies for own work.

C. Degree 1 - Limited to the spending of own time and to the use of equipment and supplies for own work.

D. Degree 1 - Outside assistance, when required, is requested from the Division Chief.

E. Degree 1 - Complies with administrative procedures, directives and guidelines established for the work.

F. Degree 3 - Coordinates the collection of additional chemistry and pharmaceutical technology information from drug manufacturers, and investigations and scientific appraisals with other scientists.

Impact of Recommendations and Activities

3

A. Degree 3 - Results and decisions of scientific appraisals are used in the administration of the Food and Drugs Act and Regulations in general, and in the clearance of individual new drug submissions, as well as in the development of Canadian standards for drugs.

B. Degree 3 -

(i) Degree 3 - Recommendations, advice and results of the work affect the regulatory approval and control of drugs and may lead to economic or technological effects on the pharmaceutical industry.

(ii) No significant impact.

(iii) Degree 3 - Recommendations, advice, and results of the work affect the approval of new drugs in Canada and contribute to the establishment of standards which ensure the continued safety and efficacy of each lot of new drug sold in Canada.

(iv) No other significant impacts.

C. Degree 3 - The evaluation of the submitted chemistry and pharmaceutical technology data and the development of research proposals provide knowledge and improved understanding of the chemistry of pharmaceuticals.



LINEAR ORGANIZATION CHART

Director, Bureau of Human Prescription Drugs Chief, Pharmaceutical Evaluation Division - Manufacturing

Specialist

- Pharmaceutics Specialist
- Chemistry Specialist
- \*           -       Drug Evaluators (4) CH-3
- Junior Drug Evaluators (2)

\*           Bench-mark position

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 12

Descriptive Title: Analytical Advisor, Organics Section

Level: 3

Reporting to the Head, Organics Section:

Conducts varied scientific investigations of on analytically complex nature covering a broad range of organic chemical commodities, primarily relating to Customs classification appeals. Evaluates relevant technical information from sample documentation or from the scientific literature. Identifies analytical problems and selects, adapts or develops analytical techniques according to the requirements of each case to determine the chemical identify of the sample. Interprets and evaluates the data from a variety of chemical and instrumental methods. Prepares reports, explains analytical findings and provides technical advice on the application of Customs Legislation.

Maintains expertise specifically in the application and interpretation of Nuclear Magnetic Resonance analysis, provides advice and trains chemists in instrument use and interpretation of data, and ensures the proper use and maintenance of equipment.

Reviews and evaluates scientific submissions presented in support of contentious issues or cases under appeal, drafts briefs for use by Department of Justice attorneys with respect to appeals and provides testimony as an expert witness.

Leads the section's chemists in the application and development of analytical procedures and instrumental methods, provides guidance to and trains junior chemists, and assists them in the selection of methods, the interpretation of analytical and scientific information, and in the drafting of reports.

Identifies equipment requirements for the section and prepares justification and specifications for purchase, lease, or contracting out for services.

Degree**Specifications**Kind of Assignments

3

- A. Degree 3 - Objectives are defined by the Section Head in terms of goals and requirements for investigations or method development projects.
- B. Degree 3 - The work involves the conduct of comprehensive chemical investigations of a broad range of organic chemical commodities to determine the application of Customs Legislation.
- C. Degree 3 - The work involves the analysis of a wide diversity of organic commodities, the development of analytical methods, the training and guidance of junior chemists and the provision of advice relating analytical results to Customs Legislation.
- D. Degree 3 - Plans and conducts a broad diversity of analytical, method development and scientific investigational work in the area of organic commodity identification for the purpose of Customs classification.

Complexity of Work

3

- A. Degree 3 - The work requires obtaining information and data for the identification of a broad range of organic chemical commodities for which background information is limited and requires investigation and method adaptation.

Degree

- B. Degree 4 - The determination of the composition of diverse mixtures of unknown organic compounds requires difficult and complex investigations.
- E. Degree 4 - The analysis of new products and unknown materials produces chemical and physical data with many poorly defined variables. Judgement is required in interpreting the broadly based and often conflicting analytical data.
- F. Degree 4 - Relationships between manufacturing processes, intended or potential uses, claims and opinions of importers and customs administrators and the chemical and physical parameters from several analytical techniques are conflicting and require investigations to resolve conflicts and interpretation problems.
- G. Degree 3 - The activities of Tariff Administrators submitting problem cases, changes in the legislation, and the importation of new products affect the direction of method development and priority of investigational work.
- H. Degree 3 - Contacts are with officials in the department to explain results and provide advice concerning the customs classification of organic chemical commodities, and with crown attorneys to provide specific technical information for the defense of appeals.
- I. Degree 3 - The work requires modifying existing and developing new methods for the identification of a broad range of organic chemical commodities.
- J. Degree 3 - The work requires the application of a thorough knowledge of the principles and theories of organic analytical chemistry, and of the procedures and instrumental techniques used to identify organic products, a thorough knowledge of Nuclear Magnetic Resonance analysis, and a sound knowledge of the Customs Legislation relating to classification of organic chemical commodities.

Professional Responsibility

3

- A. Degree 3 - Approaches to conducting investigations and adapting and developing methods are reviewed by the Section Head.
- B. Degree 4 - Professional guidance is received from the Section Head on the resolution of unusual or complex issues of a contentious nature involving the customs classification of organic chemical commodities.
- C. Degree 3 - The work requires identifying analytical and customs classification problems and determining approaches for the resolution of difficult problems.
- D. Degree 3 - Results of other scientists working in the area of Nuclear Magnetic Resonance Spectroscopy and analytical chemistry related to custom classification are reviewed to determine their application to own work.
- E. Degree 3 - Other Scientists' results, conclusions and recommendations related to cases under appeal are interpreted to determine their validity and implications.
- F. Degree 4 - Advice based on a recognized expertise in Nuclear Magnetic Resonance Spectroscopy and other techniques for analysis of organic commodities is provided to other scientists.

Management Responsibility

2

- A. Degree 1 - As applicable, technical instructions or requests for assistance are given to staff of the technical services unit.
- B. Degree 2 - Ensures the proper use and maintenance of the Nuclear Magnetic Resonance Spectrometer.
- C. Degree 3 - Recommends the acquisition of and writes specifications for the purchase of analytical equipment.
- D. Degree 2 - Recommends on the need for contracted scientific services.

Degree

- E. Degree 2 - Ensures the safe and proper use and maintenance of the Nuclear Magnetic Resonance Spectrometer.
- F. Degree 2 - Occasionally, must coordinate work with Tariff Advisors submitting problem cases and with other scientists working on investigational projects.
- G. Degree 1 - Follows administrative and safety procedures established for the work.

Impact of Recommendations and Activities

3

- A. Degree 3 - Analytical reports and technical advice with respect to new or unusual organic chemical commodities or customs classification appeals are used in the administration of Customs legislation and can set departmental precedents. Methods and procedures developed are used by other scientists in the section.
- B. Degree 3 -
  - (i) Degree 3 - Analytical reports and technical advice are used to determine the customs classification of organic chemical commodities often under appeal and have direct economic effects on related products and industries through the establishment of precedents.
  - (ii) No significant impact.
  - (iii) No significant impact.
  - (iv) No other significant impacts.
- C. Degree 3 - Information and results of investigations contribute to the knowledge of organic chemical commodities entering Canada. New and improved methods and procedures for the identification of organic commodities are developed.

Linear Organization Chart

Chief, Canadian Customs Laboratory

- Head, Inorganic Section
- Head, Polymers Section
- Head, Foodstuffs and Textiles Section
- Head, Organics Section
- \* - Analytical Advisor, Organics CH-3
- Chemists (4) CH-2
- Chemist, Development Grade (1) CH-1

\*Bench-mark position

BENCH-MARK POSITION DESCRIPTION

Level : 3

Bench-mark Position Number: 13

Descriptive Title: Specialist, Trace Inorganic Analysis

Reporting to the Head, Food Chemistry Unit:

Conducts studies and leads project teams to develop, validate and apply new or improved methods for the analysis and evaluation of trace inorganic constituents, in a wide range of food products, to ensure the availability of reliable methods for laboratory operations and for inclusion in the Branch analytical Procedures Manual for use by all Branch Laboratories, the regulated industry in their quality control and product monitoring programs and as international reference documents. Investigates the application of automated analysis and information handling techniques and the applicability of new scientific processes and techniques.

Provides specialized knowledge and advice, as a member of the Directorate National Science Committee, in the development of options for the National Compliance Program in the Food Chemistry Project area of trace inorganic analysis. Identifies new areas of concern based on a specialist knowledge of field conditions, current science and technology and practices in the food industry. Evaluates and recommends whether existing projects should be cancelled or revised or new projects developed to resolve newly identified problems. Defines objectives of new or revised projects and recommends ways to achieve them.

Provides authoritative advice to officials of the department and industry in the area of inorganic composition analysis. Participates as a member of joint inspection teams to investigate food industry problems. Trains departmental and industry scientists in the application of methods. Provides expert testimony in court concerning the reliability and significance of analytical methods and provides advice to crown attorneys on the interpretation of analytical data. Develops and implements procedures and schedules for method and instrument quality assurance for trace inorganic analysis and develops and recommends safety guidelines and procedures for trace inorganic laboratory operations. Evaluates analytical equipment, makes recommendations for purchase and prepares detailed specifications and evaluation criteria.

Analyses unusual or difficult samples as an Official Analyst for the purpose of the enforcement of the regulations and provisions of the Food and Drugs Act and conducts, and leads project teams in, special investigations to resolve problems associated with trace inorganics in foods.

DegreeKind of Assignments

3

- A. Degree 3 - Objectives are defined by the Unit Head in terms of method development project goals and National Science Committee assignments.
- B. Degree 3 - The work involves comprehensive studies and investigations into the trace inorganic analysis of foods for the purpose of method development and national project planning.
- C. Degree 3 - The work involves the development and validation of analytical methods for the inorganic analysis of foods, participation in national program planning, the provision of expert advice, and the conduct of analysis.
- D. Degree 3 - Plans and conducts a broad diversity of analytical, method development, investigational and problem solving work in the area of trace inorganics in foods.

DegreeComplexity of Work

3

- A. Degree 3 - Information in terms of new methods is developed and information for use in program planning is obtained through investigation, selection and interpretation.
- B. Degree 3 - Information, data and new methods can be validated by repeating experiments, using alternative procedures or through literature referencing.
- C. Degree 3 - Information on food industry practices and the estimated levels of inorganic constituents in food products and analytical data on actual levels contain several variables requiring interpretation and are sometimes ambiguous.
- D. Degree 3 - Relationships among variables, and interferences in trace element analysis and method development are sometimes conflicting and require investigation and interpretation to ensure valid results. Relationships between industry practices and levels of inorganic constituents in foods require analysis and interpretation for project planning.
- E. Degree 3 - The activities of inspection staff and compliance officers affect the direction of method development and priority of investigational work.
- F. Degree 3 - Contacts are with scientists and officials to participate in cooperative method development and project planning activities, with industry to resolve problems and provide advice and training, and with Crown Attorneys to provide advice on the interpretation of analytical findings.
- G. Degree 3 - The work requires developing new methods and procedures for the trace inorganic analysis of foods.
- H. Degree 3 - The work requires the application of a thorough knowledge of the principles and theories of inorganic analytical chemistry and of the procedures and instrumental techniques used for the trace inorganic analysis of foods, as well as a good knowledge of the technologies and practices used in the food manufacturing industry.

Professional Responsibility

3

- A. Degree 3 - Approaches to conducting method development studies and recommendations concerning National Science Committee project planning are reviewed by the Unit Head for soundness of judgement in terms of meeting objectives.
- B. Degree 3 - Professional guidance is received from the Unit Head on the resolution of difficult analytical or method development problems.
- C. Degree 3 - The work requires identifying analytical problems and determining approaches for the resolution of difficult problems, and identifying compliance problems and recommending options for their resolution in the Food Chemistry Project area of trace inorganic analysis.
- D. Degree 3 - The work of project team members involved in method development studies or special investigations is reviewed for completeness and compliance with project guidelines and quality assurance objectives.
- E. Degree 3 - Work on the National Science Committee requires the interpretation and evaluation of scientific data on the levels of trace inorganics in foods as well as methods of analysis and food industry practices.
- F. Degree 4 - Advice based on a recognized expertise in trace inorganic analysis and related food industry practices is provided to departmental officials and food industry representatives.

DegreeManagement Responsibility

2

- A. Degree 1 - As applicable, assigns work to project staff.
- B. Degree 2 - Ensures proper use of instruments, supplies and facilities for trace inorganic analysis.
- C. Degree 3 - Evaluates requirements, prepares detailed specifications and evaluation criteria for, and recommends the purchase of, laboratory equipment.
- D. Degree 1 - Outside assistance, when required, is requested from the Unit Head.
- E. Degree 3 - Implements quality assurance procedures for trace inorganic analysis.
- F. Degree 3 - Coordinates work with National Science Committee members and regional inspection and laboratory staff.
- G. Degree 2 - Develops and recommends safety guidelines and procedures for trace inorganic work in the laboratory.

Impact of Recommendations and Activities

3

- A. Degree 3 - Recommendations and advice contribute to the development of national compliance projects, and results of the work contribute to the availability of reliable methods for use in on-going laboratory operations.
- B. Degree 3 -
  - (i) Degree 3 - The identification of violations of the Food and Drugs Act and Regulations may result in the regulatory control of commercial food products, and recommendations and advice on the design and implementation of national compliance projects may lead to economic or technological effects on the food industry.
  - (ii) No significant impact.
  - (iii) Degree 3 - Recommendations, advice and results of the work affect the regulatory control of foods containing violative levels of inorganic constituents. (iv) No other significant impacts. Degree 3 - The evaluation of information and results of the work provide information on the levels of inorganic constituents in the food supply. New methods and procedures for the analysis of trace inorganics in food are developed.

LINEAR ORGANIZATION CHART

Chief, Food and Drug Laboratory Division

- Head, Food Chemistry Unit

- Specialist, Trace Organic Analysis

\*- Specialist, Trace Inorganic Analysis (CH-3)

- Chemists (3)

- Chemists, Development Grade (3)

- Technicians (3)

\* Bench-mark position.

BENCH-MARK POSITION DESCRIPTION

Level : 3

Bench-mark Position Number: 14

Descriptive Title: Chemist, Mass Spectrometry Methodology

Reporting to the Head, Micro contaminants Section:

Conducts studies to develop, validate and apply new or improved mass-spectral procedures to confirm the identity and amount of toxic micro contaminants in agricultural products. Investigates new or modified techniques for the ionization and fragmentation of molecules, and for their structural elucidation. Investigates the application of new column technology for the separation of complex mixtures using various gas and liquid chromatographic interfaces with mass spectrometry. Writes methods and procedures and recommends their adoption for ongoing laboratory operations.

Analyses unusual or difficult samples submitted by the inspection staff, to assist in the enforcement of the acts and regulations administered by the Department of Agriculture. Plans and designs the analytical approach and modifies and adapts methods. Interprets the significance of analytical

findings, including detailed mass-spectral interpretations of complex or unusual fragmentation patterns. Prepares detailed written reports providing and explaining results and conclusions.

Provides authoritative advice based on expertise in mass-spectral analyses to colleagues and officials in the department, other government agencies and the agricultural industry. Advises program officers on the feasibility of new initiatives and sampling requirements for toxic micro contaminants. Recommends and prepares detailed specifications for the purchase of complete mass spectrometer systems, components and accessories. Establishes computer libraries and improves search procedures for compounds of interest. Develops and implements performance tests and guidelines for the operation of combined gas chromatograph - mass spectrometers. Diagnoses equipment malfunction and arranges for repairs. Provides training to colleagues in the use of mass spectrometers.

DegreeSpecificationsKind of Assignments

3

- A. Degree 3 - Objectives are defined by the supervisor in terms of requirements for methodology studies or investigative project goals.
- B. Degree 3 - The work involves comprehensive studies and investigations within the specialized subject area of mass-spectral analysis.
- C. Degree 3 - The work requires investigations into the mass-spectral analysis of a wide range of agricultural products, fully using all the capabilities of both high and low resolution mass spectrometry, investigating new technological applications, solving difficult problems, and providing advice.
- D. Degree 3 - Plans and conducts a broad diversity of analytical, method development and investigational problems solving work in the area of mass spectrometry.

Complexity of Work

3

- A. Degree 3 - Information in terms of new methods is developed and mass-spectral data are obtained through investigation, selection and interpretation.



Degree

- B. Degree 3 - Mass-spectral data and information can be validated by repeating experiments, using alternative procedures, or through literature referencing.
- C. Degree 3 - Mass-spectral data including fragmentation patterns obtained through experiment and investigation contain several variables requiring interpretation and are sometimes ambiguous.
- D. Degree 3 - Experimental data derived from changes to mass spectrometer systems and operating conditions involve variables and relationships which are sometimes conflicting and require investigation and interpretation.
- E. Degree 3 - The activities of inspection staff and program officers affect the direction of method development and problem solving work.
- F. Degree 3 - Contacts are with inspectors and program officers, and other scientists to exchange information, solve problems, plan joint projects and provide advice.
- G. Degree 4 - The work requires investigating new technological developments for applicability and modifying existing and developing new methods and techniques using novel instrumental approaches, for the mass-spectral analysis of micro contaminants.
- H. Degree 3 - The work requires the application of a thorough knowledge of the principles, theories and practices of mass spectrometry to the analysis of microcontaminants.

Professional Responsibility

3

- A. Degree 3 - Approaches to method development studies and problem solving investigations, and results in terms of final methods and conclusions are reviewed by the Section Head.
- B. Degree 4 - Scientific guidance of a general nature is available from the Section Head. The work requires the resolution of difficult problems within the area of mass-spectral analysis but guidance is received from other specialists in the resolution of unusual or complex problems.
- C. Degree 3 - The work requires defining objectives of method development studies, identifying problems in the analysis of difficult samples and determining approaches for the resolution of difficult problems in the area of mass-spectral analysis.
- D. Degree 3 - Results of other scientists working in the area of mass spectrometry are reviewed to determine their application to own work.
- E. Degree 3 - Complex scientific data and results of own work are interpreted to produce meaningful conclusions, and the scientific literature and results of other scientists in the area of mass spectrometry are reviewed and interpreted to determine implications on method development studies.
- F. Degree 4 - Advice based on a recognized expertise in the mass-spectral analysis of agricultural products is provided to departmental officials and other scientists.

Management Responsibility

2

- A. Degree 1 - As applicable, work is assigned to non subordinate support staff.
- B. Degree 3 - Controls the maintenance of the mass spectrometers and sets operational guidelines for their use.
- C. Degree 3 - Recommends the acquisition of and writes specifications for complete mass spectrometer systems, components and accessories.
- D. Degree 1 - Assistance, when required, is requested from the Section Head.
- E. Degree 2 - Ensures the safe and proper use and maintenance of the mass spectrometers.
- F. Degree 2 - Occasionally must coordinate own work with the activities of inspectors and other laboratory staff when providing mass spectrometry services.

Degree

G. Degree 1 - Follows administrative and safety procedures established for the work.

Impact of Recommendations and Activities

3

- A. Degree 3 - Results of the work contribute methods used in ongoing laboratory activities and to the development of regulations and standards for microcontaminants in agricultural products.
- B. Degree 3 -
- (i) Degree 3 - Analytical results are used as a basis for regulatory control of commercial agricultural products.
  - (ii) No significant impact.
  - (iii) Degree 2 - Results of the work contribute to the regulatory control of toxic microcontaminants in agricultural products, pesticides, and meat products.
  - (iv) No other significant impact.
- C. Degree 3 - New methods and techniques for the mass-spectral analysis of agricultural products are developed, and results of the work contribute knowledge and improved understanding on the occurrence of microcontaminants in agricultural products.

LINEAR ORGANIZATION CHART

Associate Director, Pesticide Division

- Head, Microcontaminants Section
  - Research Scientist, Method Development
  - \*- Chemist, Mass Spectrometry Methodology CH-3
  - Chemist, Mass Spectral Analysis (2)

**\*Bench-mark position.**

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 15

Level: 3

Descriptive Title: Specialist, Drug Analysis

Reporting to the Head, Drug Analysis Unit:

Conducts studies and leads project teams to develop, validate and apply new or improved methods for the chemical analysis of a wide variety of abused drugs and associated chemicals to ensure the availability of reliable methods for laboratory operations. Investigates the application of automated analysis and information handling techniques and the applicability of new scientific procedures and techniques.

Provides authoritative advice and assistance to police agencies, crown prosecutors, defence counsel and departmental officials in the investigation of clandestine laboratories engaged in the synthesis of drugs of abuse. Participates in on-site police investigations to identify materials, equipment, literature, notes and residues which might be pertinent to confirming illicit drug manufacture or trafficking and which should be seized, and to identify potential hazards of materials and chemical reactions in progress and ensure the safe shut-down of reactions in progress. Evaluates seized scientific literature, notes and taped telephone conversations, and analyses and assesses chemical intermediates and products to postulate methods, synthetic pathways and final products. Advises police and crown attorneys and testifies in court as an expert witness to explain the principles of analysis, reliability of analytical methods, significance of results, and results of clandestine laboratory investigations.

Provides specialized knowledge and advice as a member of the Directorate National Science Committee in the development of the National Drug Analysis Service Program. Identifies new areas of concern based on a specialist knowledge of field conditions, current science and technology, and practices and trends in the illegal drug trade. Evaluates and recommends whether existing projects in the Drug Analysis Service Project area should be cancelled or revised or new projects developed to resolve newly identified problems. Defines objectives of new or revised projects and recommends ways to achieve them.

Produces scientifically valid qualitative and quantitative analyses of unusual or difficult unknown illicit drug exhibits for use in court to aid in the enforcement of the Narcotic Control Act and the Food and Drugs Act. Interprets results and issues certificates of analysis for use as prima facie evidence in court. Provides expert testimony in court.

Develops and implements procedures and schedules for method and instrument quality assurance and develops and recommends safety guidelines and procedures for the laboratory. Acts as custodian for narcotic, controlled and restricted drugs used as reference standards. Evaluates analytical equipment, makes recommendations for purchase and prepares detailed specifications and evaluations criteria.

DegreeSpecificationsKind of Assignments

3

- A. Degree 3 - Objectives are defined by the Unit Head in terms of method development project goals, National Science Committee assignments and clandestine laboratory investigations.
- B. Degree 3 - The work involves comprehensive studies and investigations into illicit drug analysis for the purpose of method development and national program planning as well as comprehensive investigations into clandestine laboratory operations.

## Degree

- C. Degree 4 - The work involves the development and validation of analytical methods for illicit drug analysis, participation in national program planning, the provision of expert advice and the conduct of analyses and comprehensive clandestine laboratory investigations.
- D. Degree 3 - Plans and conducts a broad diversity of analytical, method development, clandestine laboratory investigational and problem solving work in the area of illicit drugs.

Complexity of Work

4

- A. Degree 4 - Information on the identity of illicit drugs and products of clandestine laboratories is difficult to obtain and requires intensive investigation. Methods and reference standards are often not available.
- B. Degree 3 - Information, data and new methods can be validated by repeating experiments, using alternative procedures or through literature referencing.
- C. Degree 4 - Information and data on the operations of clandestine laboratories and the identity of materials and products, as well as the identity of illicit drugs, related chemicals, impurities and cutting agents involve many variables with high variability, are difficult to interpret, and require judgement to use.
- D. Degree 4 - The relationships between the evidence obtained in clandestine laboratory operations and the synthetic pathway and probable products requires in-depth investigations to understand and interpret.
- E. Degree 4 - The activities of police agencies, crown attorneys and courts affect the priority and conduct of the work and the direction of method development studies.
- F. Degree 4 - Contacts are with police agencies to provide expert advice and training and to participate in clandestine laboratory investigations, with crown attorneys, defence counsel and the courts to provide testimony as an expert witness and to explain and defend, often under critical cross-examination, results and interpretation of findings, and with officials of the department to participate in program planning and provide advice based on a recognized expertise in clandestine laboratory investigations and illicit drug analysis.
- G. Degree 3 - The work requires developing new methods and procedures for illicit drug analysis.
- H. Degree 4 - The work requires the application of a thorough knowledge of the principles, theories and practices of forensic drug analysis as well as a thorough knowledge of synthetic chemistry as applied to clandestine drug manufacture; and a good knowledge of the trends in illicit drug production, distribution and use.

Professional Responsibility

3

- A. Degree 3 - Approaches to conducting method development studies, clandestine laboratory investigations and recommendations concerning National Science Committee project planning, are reviewed by the Unit Head for soundness of judgement in terms of meeting objectives.
- B. Degree 3 - Professional guidance is received from the Unit Head on the resolution of difficult analytical or method development projects.
- C. Degree 3 - The work requires identifying analytical problems and determining approaches for the resolution of difficult problems, and identifying new areas of concern in the illicit drug analysis area and recommending options for their resolution.

Degree

- D. Degree 3 - The work of project team members involved in method development studies is reviewed for completeness and compliance with project guidelines and quality assurance objectives.
- E. Degree 3 - Documents, notes and other evidence seized in clandestine laboratory investigations are interpreted and evaluated to postulate synthetic pathways and final drug products. Work on the National Science Committee requires the interpretation and evaluation of scientific data on trends in illicit drug manufacture, distribution and use.
- F. Degree 4 - Advice based on a recognized expertise in clandestine laboratory investigation and illicit drug analysis is provided to department officials and to crown attorneys, defence counsel, police agencies and the courts.

Management Responsibility

3

- A. Degree 1 - As applicable, assigns work to project staff.
- B. Degree 3 - Ensures proper use of instruments, and supplies for illicit drug analysis and controls access to narcotic, controlled and restricted drugs used as reference standards.
- C. Degree 3 - Evaluates requirements, and prepares detailed specifications and evaluation criteria for, and recommends the purchase of laboratory equipment.
- D. Degree 1 - Outside assistance, when required, is requested from the Unit Head.
- E. Degree 3 - Implements quality assurance procedures for illicit drug analysis.
- F. Degree 3 - Coordinates work with National Science Committee members, police forces, crown attorneys and the courts.
- G. Degree 2 - Develops and recommends safety guidelines and procedures for illicit drug analysis work in the laboratory.

Impact of Recommendations and Activities

3

- A. Degree 3 - Recommendations and advice contribute to the development of the National Drug Analysis Service Program and results of the work contribute to the availability of reliable methods for use in on-going laboratory operations.
- B. Degree 3 -
  - (i) No significant impact.
  - (ii) No significant impact.
  - (iii) Degree 3 - Recommendations, advice and results of the work affect the regulatory control of illicit drugs harmful to human health.
  - (iv) Degree 3 - Recommendations, advice and results of the work contribute to the administration of criminal law respecting illicit drugs and can lead to the incarceration, or the imposition of fines to individuals.
- C. Degree 3 - The evaluation of information and results of the work provide knowledge and improved understanding of the clandestine manufacture, occurrence and purity of illicit drugs in Canada. New methods and procedures for the analysis of illicit drugs are developed.

LINEAR ORGANIZATION CHART

Chief, Drug Laboratories Division

- Head, Pharmaceutical Analysis Unit (3)
- Head, Drug Analysis Service Unit (2)
- Head, Drug Analysis Services Unit
- \* - Specialist, Drug Analysis (CH-3)
  - Chemists (2)
  - Chemist, Development Grade (1)
  - Technicians (4)
  - Clerk

\* Bench-mark position.

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 16

Level: 4

Descriptive Title: Chemistry Specialist, Drug Evaluation

Reporting to the Chief, Pharmaceutical Evaluation Division:

Acts as a consulting specialist on all complex chemical matters relating to the scientific evaluation of new drugs arising in, or referred to the Division, to ensure that policies, advice and decisions are based on the most up-to-date and authoritative information and knowledge available.

Conducts detailed scientific evaluations to interpret spectral and other chemical data to solve problems relating to the stereochemistry of structurally complex new drug entities, resolve questions of reaction mechanisms, elucidate the mechanism of chemical degradation of drugs and predict possible impurities from the synthetic process.

Studies the chemical and physical structure of new drug entities, using the techniques of Quantitative Structure Analysis Relationships to predict pharmacological action and toxicity and alerts biologists and medical officers of potential toxicity problems with new drugs, metabolites and degradation products.

Plans and conducts scientific evaluations of the chemical and pharmaceutical data contained in new drug submissions for structurally complex drugs to determine acceptability of the drug in meeting standards of safety and efficacy. Reviews all aspects of the synthesis, manufacturing process, stability and degradation products, analytical methods and standards proposed by the drug manufacturers to ensure that safety and efficacy issues are identified and addressed. Requests additional information or studies from industry to meet deficiencies or resolve problems with the submissions.

Meets with scientists and officials of the Pharmaceutical industry to defend questions raised and scientific positions taken on contentious issues and to influence changes in industry policy which are in conflict with Branch policy.

Prepares a detailed report summarizing the findings and judgments reached, identifies problem areas and deficiencies, makes a final recommendation to the Division Chief on the disposition of the submission and provides a scientific rationale for the conclusions.

Develops specific research proposals for implementation in the Branch to resolve identified problems in methodology and chemistry and leading to the development of new Canadian standards for drugs and coordinates the progress of these projects.

Conducts a continual review of new and revised international standards for drug substances and dosage forms, identifies and documents discrepancies and deficiencies, and recommends changes for improving these international standards. Compares these standards with those approved in new drug submissions, and when significant differences are identified, notifies manufacturers of cleared new drugs, requesting changes or updating.

Recommends changes in drug evaluation policies as new information and technology becomes available, and contributes to the development of industry guidelines and standards relating to the chemistry requirements of the Food and Drugs Act Regulations.

Trains professional staff in drug evaluation, assigns submissions for review, provides guidance on the approach and methodologies to be used, and reviews and evaluates the final report and recommendations.

Provides advice based on a recognized expertise in the chemical and pharmaceutical evaluation of drugs to other evaluators and scientists and officials in the pharmaceutical industry on the interpretation of scientific data.

Specifications

Degree

Kind of Assignments

4

- A. Degree 4 - Objectives are stated as requiring the ongoing provision of scientific advice and consultation relating to the scientific evaluation of new drugs, the conduct of studies into the chemistry of structurally complex new drug entities and the scientific appraisal of complex new drug submissions.
- B. Degree 4 - The work involves studies, investigations and the provision of advice in the area of new drug evaluation, and includes work in organic, physical, analytical and medicinal chemistry, spectroscopy, pharmaceutical technology and drug structure activity relationships.
- C. Degree 4 - Activities include the provision of specialist advice, the conduct of detailed studies into the chemistry of new drug entities, the scientific appraisal of complex new drug submissions, the development and coordination of research proposals, the provision of guidance and functional direction to drug evaluators and the development of standards and industry guidelines.
- D. Degree 4 - Plans and conducts complex studies into the chemistry of new drug entities and the scientific evaluation of complex new drug submissions, exercising high degree of freedom and latitude in selecting approaches and methodologies.

Complexity of Work

4

- A. Degree 4 - The work requires obtaining information from a critical review of submitted data, and requesting the development and submission of specific additional data for new chemical entities for which there is often no information available in the scientific literature and no published standards. The only information available is that supplied by the drug manufacturer in the submission and requires interpretation and selection to use.
- B. Degree 4 - The information and data relating to complex chemical problems and structurally complex new drug entities can be validated only by a detailed critical evaluation or through the initiation of research projects.
- C. Degree 5 - The information and data relating to structurally complex new drug entities, novel and complicated synthetic pathways and the structure activity relationships involve many variables with high variability, ambiguity and require ingenuity and highly selective judgement to use.
- D. Degree 5 - The relationships between the chemical and physical data, synthetic routes, impurities, degradation products, structure, functional groups and stereochemistry, and the biological activity of complex new drug entities are often conflicting and difficult to define and measure.
- E. Degree 4 - The work is normally affected by the activities of scientists and officials in the pharmaceutical industry or in international standards organizations and require consideration of their impact on drug evaluation decisions and current drug standards.
- F. Degree 4 - Contacts are with scientists and officials of the pharmaceutical industry to explain and defend scientific positions on contentious issues and provide advice based on a recognized expertise in the chemical evaluation of drugs. Contact is also with international standards organizations and other agencies to review and establish standards.



Degree

- G. Degree 4 - The work requires the development of approaches for the resolution of unique problems in drug evaluations where generally there is a lack of precedents, and the initiation, conduct and coordination of research into drug chemistry problems and leading to the development of new drug standards.
- H. Degree 5 - The work requires the application of an advanced knowledge of the principles, theories and practices of analytical and organic chemistry, as well as spectroscopy, and a good knowledge of medicinal chemistry, physical chemistry, pharmaceutical technology and drug structure activity relationships.

Professional Responsibility

4

- A. Degree 4 - The work requires the ongoing provision of specialist advice, consultations and recommendations, which are reviewed for effectiveness in supporting drug evaluation activities. Final recommendations and conclusions on complex new drug submissions are reviewed by the Division Chief.
- B. Degree 4 - Professional guidance is received from the Division Chief on the resolution of contentious issues or unusual and precedent setting new drug evaluations.
- C. Degree 4 - The work requires developing specific research proposals to resolve problems in drug evaluation, identifying problems with the interpretation and assessment of complex chemical data and determining approaches and methodologies for their resolution.
- D. Degree 4 - Reviews and evaluates the final reports and recommendations of drug evaluators and reviews studies and proposals from other scientists working in the area of pharmaceutical chemistry and international drug standards.
- E. Degree 4 - Results of studies and investigations into the chemistry of structurally complex new drugs, the results of research projects, and reports from international drug standards organizations are interpreted to determine the implications on Canadian drug standards and drug evaluation decisions.
- F. Degree 4 - Advice based on a recognized expertise in the chemical evaluation of drugs is provided to scientists and officials in the department, industry, international standards organizations and other agencies.

Management Responsibility

1

- A. Degree 1 - As applicable, work is assigned to non-subordinate support staff.
- B. Degree 1 - Plans the use of equipment and supplies for own work.
- C. Degree 1 - Limited to spending of own time and to the use of equipment and supplies for own work.
- D. Degree 1 - Outside assistance, when required, is requested from the Division Chief.
- E. Degree 1 - Complies with administrative procedures, directives and guidelines established for the work.
- F. Degree 3 - Coordinates the collection of additional chemical and pharmaceutical technology information from drug manufacturers, investigations and scientific appraisals with other scientists and research projects conducted in the Branch.
- G. Degree 1 - Follows administrative and safety procedures established for the work.

Impact of Recommendations and Activities

4

- A. Degree 4 - Recommendations, advice and consultations contribute to the development of drug evaluation policies and to the development of industry guidelines, Canadian drug standards and chemistry requirements of the Food and Drugs Act and Regulations.

Degree

## C. Degree 4 -

- (i) Degree 4 - Recommendations, advice and consultations result in the establishment of standards for the pharmaceutical industry, drug evaluation policies, and revisions to industry guidelines which have economic and technological effects on the pharmaceutical industry.
- (ii) No significant impact.
- (iii) Degree 4 - Recommendations, advice and consultations contribute to the development of standards and regulations for drugs, and decisions and recommendations affect the regulatory approval and use of drugs in Canada. (iv) No other significant impacts.

- C. Degree 3 - The evaluation of submitted chemistry and pharmaceutical technology data and the development of research proposals provide knowledge and improved understanding of the chemistry of pharmaceuticals.

LINEAR ORGANIZATION CHART

Director, Bureau of Human Prescription Drugs

-Chief, Pharmaceutical Evaluation Division

- Manufacturing Specialist, Drug Evaluation

- Pharmaceutics Specialist, Drug Evaluation

\*- Chemistry Specialist, Drug Evaluation CH-4

- Drug Evaluators (4)

- Junior Drug Evaluators (2)

\* Bench-mark position

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 17 Descriptive Title: Environmental Chemistry Advisor Fish Habitat

Level: 4

Reporting to the Chief, Fish Habitat Division, Gulf Region:

Serves as the senior regional specialist and advisor in the area of environmental chemistry of fish habitats. Provides advice and authoritative recommendations on the chemistry aspects of fisheries programs in the region.

Plans, organizes and coordinates a variety of chemical studies and projects to investigate and resolve environmental and marine and freshwater fish habitat problems. Analyses problems, selects critical factors for investigation, and devises experiments to provide information and data used to identify trends, implications and cumulative impacts. Coordinates the development of detailed investigative study proposals and submissions for consideration by senior management. Develops project objectives, resource requirements and strategies and serves as project leader for cooperative study teams.

Provides guidance to, and coordinates the work of, consultants and contractors engaged in investigative projects and studies.

Degree

SpecificationsKind of Assignments

4

- A. Degree 4 - Objectives are stated as requiring the ongoing provision of professional advice, and the conduct of investigations, in the broad area of environmental chemistry relating to fish habitats.
- B. Degree 4 - The work involves studies and investigations and the provision of advice in the environmental chemistry of fish habitats, and includes work in chemical oceanography and limnology, biochemistry, inorganic and organic chemistry.
- C. Degree 4 - Activities include the conduct, coordination and interpretation of complete investigations in environmental chemistry of fish habitats, providing functional direction to investigative teams, and providing specialist advice.
- D. Degree 4 - Investigative studies and projects are planned, and experiments are devised to ensure that the information necessary to solve problems and to provide advice is obtained.

Complexity of Work

4

- A. Degree 4 - Environmental chemical information and data relating to fish habitats are obtained by detailed investigative studies. Experiments and tests are devised and surveys are planned and coordinated to obtain information from obscure sources.
- B. Degree 4 - Information and data are of a non-recurring field nature and can be validated only through significant repeat investigations.
- C. Degree 4 - Environmental chemistry data and information is highly variable and require careful interpretation and judgement in its use.

Degree

- D. Degree 4 - The many chemical parameters and fish habitat effects have complicated relationships and require intensive investigation to understand.
- E. Degree 4 - The work is conducted within a matrix type organization with many joint investigative projects.
- F. Degree 4 - Contacts are with scientists and officials of the department, provincial departments, industry and contractors and consultants to plan and coordinate joint investigations and for providing specialist advice.
- G. Degree 4 - The work requires the development of approaches for the resolution of unique fish habitat problems where in many cases there is a lack of precedents.
- H. Degree 4 - The work requires the application of a thorough knowledge of the principles, theories and practices of environmental chemistry, particularly as applied to marine and freshwater fish habitats, as well as knowledge of chemical oceanography, chemical limnology and biochemistry.

Professional Responsibility

4

- A. Degree 4 - The work requires the ongoing provision of specialist advice and recommendations which are periodically reviewed for their effectiveness in supporting Fish Habitat management objectives.
- B. Degree 5 - The work involves the provision of senior specialist advice in Environmental Chemistry to non-chemistry scientists. Program and policy guidance is received from the Chief, but professional guidance in the field of environmental chemistry must be obtained elsewhere.
- C. Degree 4 - The work requires planning and organizing investigations and devising experiments to produce information and resolve problems in environmental chemistry.
- D. Degree 4 - The work requires the review of recommendations and conclusions of scientists and consultants to determine their applicability to the study of the environmental chemistry of fish habitats.
- E. Degree 4 - Results of the work of other scientists, consultants and investigation teams are interpreted to develop solutions to environmental chemistry problems of fish habitats.
- F. Degree 5 - Authoritative advice on all aspects of the environmental chemistry of fish habitats is provided to scientists and senior managers of the department and affects the region's long term fisheries plans and programs.

Management Responsibility

1

- A. Degree 1 - As applicable, provides advice and instructions to investigative project teams.
- B. Degree 1 - Plans the use of equipment and supplies for own work.
- C. Degree 2 - Identifies the materials, equipment and outside services required for investigative studies.
- D. Degree 2 - Identifies and recommends suitable sources of outside assistance for cooperative investigations.
- E. Degree 1 - Complies with administrative procedures, directives and guidelines established for the work.
- F. Degree 3 - Coordinates investigative studies in environmental chemistry with other federal and provincial scientists.
- G. Degree 1 - Follows straightforward office and field administrative procedures.

DegreeImpact of Recommendations and Activities

4

- A. Degree 4 - Recommendations and advice affect the overall fisheries management and habitat plans and programs of the region.
- B. Degree 4
- (i) Degree 4 - Recommendations and advice affect the long-term fisheries management plans of the region and have direct economic effects on the commercial fishery.
- (ii) Degree 3 - Recommendations and advice contribute to maintaining an environmentally acceptable fish habitat.
- (iii) No significant impact.
- (iv) No other significant impacts.
- C. Degree 4 - The development of approaches to solve problems and the initiation and coordination of investigations contributes to the knowledge and improved understanding of the environmental chemistry of fish habitats.

LINEAR ORGANIZATION CHART

Director, Research Branch

- Chief, Fish Habitat Division, Gulf Region

\*-Environmental Chemistry Advisor CH-4

-Ecological Advisor

-Environmental Engineering Advisor

-Head, Habitat Investigations Section

\*Bench-mark position.

Level: 4

Bench-mark Position Number: 18

Descriptive Title: Head, Organic Residues Laboratory Unit

Reporting to the Chief, Food Laboratory Division:

Plans the activities of the Organic Residues Laboratory Unit, specializing in the trace analysis of organic residues in food, to ensure the achievement of program commitments and objectives. Coordinates the implementation of a number of analytical projects including continuing projects to monitor product quality and safety and to provide analytical data on which to base standards and regulations; investigational projects to provide data and scientific evaluations which form the basis for regulatory action; and development projects to provide new and improved methods and procedures. Negotiates analytical commitments with national project officers and with regional inspection staff. Assesses resource and equipment requirements and develops and recommends to the Chief, a detailed operational plan for the laboratory unit.

Organizes, directs, controls and evaluates the work of the laboratory unit staffed with one analytical specialist, three chemists and four technicians, to ensure effective use of resources, achievement of the operational plan, the development and maintenance of quality assurance standards, and the rapid response to health hazard crisis situations. Defines objectives for the laboratory unit and allocates work, equipment and facilities. Monitors and evaluates program achievement in relation to time commitments and quality and quantity standards and makes required adjustments to the operational plan or resource allocations.

Directs the development and implementation of a laboratory equipment maintenance plan. Assesses analytical data, reconciles discrepancies and resolves abnormal difficulties by proposing alternative approaches to resolve problems encountered by the staff.

Directs method development projects in the organic residues project areas to ensure the availability of reliable methods for laboratory operations and for inclusion in the Branch analytical Procedures Manual for use by all Branch Laboratories, the regulated industry in their quality control and product monitoring programs, and as international reference documents. Develops proposals for complete investigations, detailing the purpose, approach and required resources, and participates in national committee meetings to review and prioritize project proposals. Assigns method development projects to the analytical specialist or other staff, defines objectives of the study and provides guidance on experimental design and the resolution of unusual or difficult problems.

Provides advice on analytical methods, statistical sampling plans and the provisions and regulations of the Food and Drugs Act to departmental and provincial officials, food manufacturers and importers, private laboratories and to the Department of Justice representing the Branch in court prosecutions under the Food and Drugs Act. Participates in joint inspections and investigations of food manufacturing plants and acts as a scientific advisor to the Food Inspection Division in formal hearings with industry representatives and their legal counsel.

Provides recommendations and advice on the development of new compliance or data gathering projects. Identifies deficiencies in operational and administrative procedures, recommends changes and ensures their implementation. Directs the preparation of detailed specifications, the evaluation of equipment and suppliers' proposals and makes recommendations on the purchase of major equipment.

Develops and implements an Occupational Health and Safety program for the laboratory unit.

SpecificationsKind of Assignments

4

- A. Degree 4 - Objectives of the work are stated by the Division Chief in terms of developing and implementing an operational plan for the provision of analytical services, professional advice and method development in the area of organic residues in foods.
- B. Degree 4 - The work involves the planning and direction of an operational unit involved in the trace organic analysis of foods for a wide variety of industrial environmental and agricultural chemicals, method development and national project planning.
- C. Degree 4 - Activities include planning, organizing, controlling and supervising the work of staff engaged in trace organic analysis, investigations and method development; planning and controlling the use of facilities, equipment and resources; providing advice; and coordinating the work with inspection staff in own and other regions.
- D. Degree 4 - The work requires planning, organizing and assigning work for analysis, investigations and studies to ensure that operational goals are achieved within resource limitations.

Complexity of Work

4

- A. Degree 4 - The work requires obtaining information on the identity and trace levels of a wide variety of organic residues in a broad range of domestic and imported foods for which prior chemical exposure is unknown. The presence of interferences necessitates careful interpretation of the data.
- B. Degree 3 - The identity, once determined, and levels of organic contaminants in foods can be validated by a combination of alternative chemical and instrumental techniques, and literature referencing.
- C. Degree 4 - The wide variety of trace organic contaminants and food product combinations for which chemical exposure is unknown, results in many variables with high variability, are difficult to interpret and require judgement to use.
- D. Degree 3 - The relationships between instrumental responses and the identity and levels of trace organic residues in foods are sometimes conflicting and require investigation and interpretation for each residue/food commodity combination.
- E. Degree 4 - The work is normally affected by the activities of inspection staff and requires adjustment to the laboratory unit's priorities to meet changing requirements and to respond to health hazard crisis situations.
- F. Degree 4 - Contacts are with departmental officials to negotiate and plan the analytical program, with scientists to plan and conduct joint investigations and method development projects, and with scientists and officials of industry, other federal and provincial agencies and the Department of Justice to provide advice based on a recognized expertise in organic residue analysis.
- G. Degree 4 - The work involves managing and directing method development studies for the trace organic analysis of foods, developing detailed proposals, defining objectives and providing guidance on experimental design; and on the resolution of unusual or difficult problems.
- H. Degree 4 - The work requires the application of a thorough knowledge of the principles and theories of organic and analytical chemistry, and of the procedures and instrumental techniques used for trace organic analysis of foods, as well as a good knowledge of related food industry practices, statistical sampling procedures, relevant legislation, and management practices.

DegreeProfessional Responsibility

4

- A. Degree 4 - The work requires the management of an organic residue laboratory unit which is periodically reviewed for attainment of overall objectives and achievement of the operational plan.
- B. Degree 4 - Scientific guidance of a general nature is available from the Division Chief. The work requires the resolution of difficult or unusual problems in the area of organic residue analysis of foods, and specific guidance may be obtained from other specialists in the Branch.
- C. Degree 4 - The work requires defining the objectives of analytical investigations and method development studies, and proposing alternative approaches to resolve unusual or difficult problems in the trace organic analysis of foods.
- D. Degree 4 - The approaches to conducting method development studies, and recommendations concerning Science Committee project planning of the analytical specialist are reviewed for soundness of judgement. Method development proposals and recommendations of the Science Committee in the area of organic residue analysis are reviewed for acceptability.
- E. Degree 3 - Organic residue data and results, conclusion and recommendations of own staff are interpreted to determine compliance of food samples with the provisions and regulations of the Food and Drugs Act and to provide meaningful information for use in developing standards and regulations.
- F. Degree 4 - Advice based on a recognized expertise in trace organic residue sampling and analysis of foods and of relevant legislation is provided to scientists and officials of the department, other federal and provincial agencies and to the food industry.

Management Responsibility

4

- A. Degree 4 - The work requires the operational management of professional staff including one analytical specialist, and three chemists as well as four technicians.
- B. Degree 4 - Allocates the use of equipment supplies and facilities for the trace organic residue laboratory unit.
- C. Degree 4 - Assesses the resource and equipment requirements for the work and develops and recommends a detailed operational plan.
- D. Degree 4 - Selects and negotiates for outside analytical services relating costs to benefits and makes recommendations to the Division Chief.
- E. Degree 4 - Controls and coordinates project schedules, establishes quality assurance, quantity, timeliness and safety standards and directs assignments to meet priorities and objectives.
- F. Degree 4 - Coordinates the provision of analytical services, special investigations, Science Committee work and the provision of advice with the work of national compliance officers and inspection and laboratory staff in own and other regions.
- G. Degree 4 - Develops and implements Occupational Health and Safety directives and guidelines for the laboratory unit. Identifies deficiencies in operational and administrative procedures, recommends changes, and ensures their implementation.



DegreeImpact of Recommendations and Activities

4

- A. Degree 4 - Recommendations, advice and decisions have a direct impact on the quality of organic residue analysis, methods development and the outcome of investigations as well as on the development of standards and regulations and the effectiveness of regulatory programs.
- B. Degree 4
- (i) Degree 3 - The identification of violations of the Food and Drugs Act may result in the regulatory control of commercial food products, and recommendations and advice on the design and implementation of national compliance projects may lead to economic or technological effects on the food industry.
  - (ii) No significant impact.
  - (iii) Degree 4 - Recommendations, advice or consultations contribute to the development of standards and regulations for organic residues in food, and decisions and recommendations affect the regulatory control of foods containing violative levels of organic contaminants.
  - (iv) No other significant impact.
- C. Degree 4 - Development of approaches and the management and direction of method development projects, as well as the interpretation and evaluation of analytical data contribute knowledge and improved understanding of the levels of organic contaminants in the Canadian food supply and of the methods for their analyses.

LINEAR ORGANIZATION CHART

Regional Director, Ontario Region

- Educational Services Consultant
- Chief, Finance and Administration Division
- Chief, Food Inspection Division
- Chief, Drugs and Environmental Health Inspection Division
- Chief, Drug Laboratory Division
- Chief, Food Laboratory Division
- Head, Food and Canning Microbiology Laboratory Unit
- Head, Drugs, Cosmetics and Medical Devices Microbiology Laboratory Unit
- Head, Food Chemistry Laboratory Unit
- \* - Head, Organic Residues Laboratory Unit CH-4
  - Analytical Specialist CH-3
  - Chemists (2) CH-2
  - Chemist, Development Grade CH-1
  - Technicians (4)
- \* Bench-mark Position.

BENCH-MARK POSITION DESCRIPTION

Level : 5

Bench-mark Position Number: 19

Descriptive Title: Senior Program Advisor

Reporting to the Branch Director:

Acts as the Branch senior chemical authority and advisor on the impact of chemical pollutants on the environment and on related matters relating to the enforcement of regulations.

Advises the Branch Director and Director General on program strategies and options, on the environmental impact of chemical pollutants, on methods of chemical pollution abatement, decontamination and control of chemical spills, and on the effectiveness of existing and proposed policy, regulatory changes and monitoring measures originating in the department or other federal, provincial or international agencies; and, ensures required liaison.

Plans, organizes and coordinates the laboratory component function within a national environmental pollution control program and involving six regional laboratories. Develops projects, objectives and control measures; determines priorities; assigns projects; and, evaluates the effectiveness of the program. Directs the implementation of a training plan to ensure the required scientific and technical capability of the Branch's resources.

Forecasts requirements and recommends plans for the Branch laboratory component operations and for the use of resources to ensure that the laboratory activities and projects are carried out in an efficient and effective manner and meets priorities and objectives.

Co-ordinates the collection of information and data, and reviews and studies the scientific information obtained from the regional laboratories, or investigation study results, conclusions and recommendations from other sources on contaminants entering the environment, to identify trends and potential problems and determine the impact of the activities and findings on the Branch's pollution control programs and objectives.

Recommends new or improvements to policies and regulations; defines objectives; establishes scientific guidelines and develops procedures for use by the regional laboratories and field staff; to ensure consistency in the implementation of environmental pollution control programs and achievement of the objectives of the laboratory component.

DegreeSpecificationsKind of Assignments

5

- A. Degree 5 - Objectives are stated in terms of providing authoritative advice on the enforcement of environmental pollution regulations and planning and coordinating the laboratory component of a national environmental pollution control program.
- B. Degree 5 - The work involves the provision of authoritative advice on all aspects of the enforcement of regulations to protect the environment dependant on the identification, analysis and assessment of the impact of chemical pollutants.

Degree

- C. Degree 5 - Activities involve providing authoritative advice on the enforcement of regulations to protect the environment, on program strategies and options, on the effectiveness of proposed policy and regulatory changes and on the impact of chemicals on the environment; planning, coordinating and guiding the laboratory component of a national environmental pollution control program, and planning the use of laboratory resources.
- D. Degree 5 - The work requires planning, organizing, advising and coordinating the laboratory component of a national environmental pollution control program, contributing to the formulation of policies, and recommending and advising on the impact of policy and regulatory changes, in the area of environmental protection.

Complexity of Work

4

- A. Degree 4 - Information and data on the identification and analysis of chemical pollutants in the environment and determination of their impacts are obtained by detailed investigative studies. Data concerning new chemicals are often difficult to obtain, interpret and select.
- B. Degree 4 - Information and data are of a non-recurring field nature and can be validated only through complex or significant repeat investigations.
- C. Degree 4 - Environmental chemistry data or information is highly variable and requires careful interpretation of the many variables, and judgement in its use.
- D. Degree 4 - The many chemical parameters and environmental effects have complicated relationships and require intensive investigation to harmonize, understand and interpret.
- E. Degree 5 - The work is affected by the activities and findings of other scientists and officials involved in environmental monitoring, and requires consideration of their impact on the Branch's pollution control programs and on the laboratory component work.
- F. Degree 4 - Contacts are with scientists and officials of the department to plan and coordinate investigations and studies and for providing authoritative advice, and with scientists and officials of other federal, provincial and international agencies for arranging co-operative projects, establishing standards, implementing regulations and for providing advice on environmental chemical pollutants.
- G. Degree 4 - The work requires developing and implementing improved approaches and procedures for the identification and analysis of environmental chemical pollutants and for assessing and dealing with their impact.
- H. Degree 5 - The work requires the application of an advanced knowledge of the principles, theories and practices of Environmental Chemistry as applied to the identification and analysis of environmental pollutants and the determination of their impacts on the environment.

Professional Responsibility

5

- A. Degree 5 - Results are evaluated in terms of the effectiveness of the advice provided in supporting enforcement of regulations to protect the environment and achievement of the laboratory component of the national environmental pollution control program.
- B. Degree 5 - Program and policy guidance is received from the Director, but professional guidance in the field of Environmental Chemistry must be obtained from other scientific authorities in other organizations.

Degree

- C. Degree 5 - The work requires defining objectives, developing conceptual approaches to resolve problems and establishing scientific guidelines for the laboratory component of a national environmental pollution control program.
- D. Degree 5 - The work of the six regional laboratories is evaluated in terms of effectiveness in meeting program policy, directives and objectives within resource limitations.
- E. Degree 5 - Scientific information obtained from the regional laboratories and from other sources is analyzed and evaluated to identify environmental pollution trends and problems and to determine the impact on the Branch's environmental pollution control programs.
- F. Degree 5 - Authoritative advice and recommendations are provided to senior managers of the department on all aspects relating to the enforcement of regulations to protect the environment dependant on the identification and analysis of chemical pollutants, the assessment of their impact and on the decontamination and control of chemical spills.

Management Responsibility

4

- A. Degree 1 - As applicable, provides assignment related instructions to non-subordinate staff of regional laboratories.
- B. Degree 1 - Plans the use of equipment and supplies for own work.
- C. Degree 4 - Forecasts and assesses requirements and develops and recommends plans for the acquisition and the use of Branch resources for the laboratory component operations to ensure that projects are carried out in an efficient and effective manner and meets priorities and objectives.
- D. Degree 4 - When required, selects and negotiates for outside analytical and monitoring services.
- E. Degree 4 - Determines priorities and assigns projects for ongoing laboratory work, and develops procedures and technical guidelines to ensure consistent approaches and conduct of environmental pollution control projects or investigative studies.
- F. Degree 4 - Coordinates the laboratory component functions within a national environmental pollution control program and involving six regional laboratories.
- G. Degree 4 - Develops and recommends safety and administrative procedures and management guidelines for the six regional laboratories.

Impact of Recommendations and Activities

5

- A. Degree 5 - Authoritative recommendations and advice affect the development and application of departmental policies and regulations to protect the environment, and decisions affect the conduct of the laboratory component of a national environmental pollution control program.
- B. Degree 5
  - (i) Degree 4 - Recommendations, advice and decisions on the enforcement of regulations to protect the environment have economic or technological effects on polluting industries.
  - (ii) Degree 5 - Authoritative recommendations and advice on the development of policies and regulations to protect the environment substantially affect the state of the environment.
  - (iii) Degree 2 - Information and results of the work may be used by health officials to identify and control potentially hazardous chemicals.
  - (iv) No other significant impacts.

Degree

- C. Degree 4 - The development of objectives and approaches for the identification and analysis of environmental pollutants and the analysis of the information and data contribute knowledge and improved understanding of the effects of chemicals on the environment.

LINEAR ORGANIZATION CHART

Director General

- Branch Director

\*- Senior Program Advisor CH-5

- Regional Laboratory Directors (6)

\* Bench-mark position.

BENCH-MARK POSITION DESCRIPTION

Bench-mark Position Number: 20

Level : 5

Descriptive Title: Chief, Food and Drug Laboratories Division, Atlantic Region

Reporting to the Regional Director, Atlantic Region:

Negotiates with other Regional and Headquarter Chiefs, on behalf of the Regional Director the Laboratory Division commitments and defines objectives, reviews requirements and priorities, and prepares and recommends for approval an operational plan and budget to achieve the goals established by the Regional Director for the Laboratory Division for the provision of scientific advice and science based analytical

services and evaluation of marketed domestic and imported foods, drugs, cosmetics and medical devices for chemical and microbiological hazards and chemical composition to ensure that these products are safe and effective and the public is protected from injury to health and fraud.

Coordinates the activities of the three Units of the Laboratory and directs and controls through the Unit Heads, the activities and the utilization of the resources assigned to provide analytical services and scientific evaluation and advice to the Inspection Division and for providing negotiated analytical services to other program directorates of the Branch for use in the development of standards and regulations to address new and emerging health issues, to other departments and agencies in the region including Consumer and Corporate Affairs in support of their programs directed toward the control of economic fraud associated with food and other regulated products, and to law enforcement agencies in the Atlantic Provinces requiring analytical service of drugs subject to abuse, expert testimony and scientific data evaluation and advice for intelligence and evidence for prosecution.

As a member of the Directorate Planning Board, comprised of all Regional Chiefs and two Headquarter Directors, reviews and assesses Science Committee reports, program evaluation results, Branch and Departmental strategic documents and other relevant data and information as well as available resources to develop, on behalf of the Directorate a program plan detailed for the upcoming year, and including a 3-5 year projection, and to identify for consideration by the Executive Committee, comprised of the Director General and Headquarter and Regional Directors, long-term strategic issues, new initiatives, resource shifts, and needs for policy development or legislative changes to ensure that new areas of health hazard concern are addressed in national and regional strategic and operational planning.

Provides authoritative advice on the various aspects of the Laboratory divisions programs to senior officials of the department, other federal and provincial agencies and the regulated industry. Provides assistance to the Inspection Division and the industry in evaluating unusual scientific problems relating to manufacturing practices and product quality control and to resolve disputes or differences in the interpretation of analytical data.

Maintains an effective laboratory scientific support capability to deal with emerging problems, new needs and ensures the provision of the scientific based support services. Assesses trends, new developments and resource development needs and ensure organizational flexibility to provide required support for the management of crisis situations.

Approves acquisition of resources and expenditure of funds allocated to the Laboratory by the Regional Director, and authorizes payment for goods and services within limits of signing authority delegated to the position under the Financial Administration Act. Develops and recommends capital acquisition plans for the Laboratory and participates with other Regional Laboratory Chiefs in developing the Directorate capital acquisition plan for scientific equipment to meet both short- and long-term program objectives.

Participates as a member of the Regional Management Committee providing advice on significant program, operational and technological matters and assisting in the development of regional policies, directives and guidelines.

Plans in collaboration with other Laboratory Division Chiefs, the implementation and evaluation of analytical methods and procedures for inclusion in the Branch Analytical Methods Manual for use by the Branch laboratories, the regulated industries, and as international reference documents.

Ensures that Occupational Health and Safety policies and other departmental and central agency policies, directives and guidelines are applied in the Laboratory Division, and approves and implements Divisional administrative, management and quality assurance procedures, directives and guidelines.

Degree

### Specifications

#### Kind of Assignments

5

- A. Degree 5 - Objectives of the work are stated by the Regional Director in terms of goals for the Regional Laboratory component of a National Food, Drug, Cosmetic and Medical Device Safety Program.
- B. Degree 5 - The work is performed within the several specialized areas comprising the total regional laboratory program involving a large number of projects in the chemistry, microbiology and forensic drug analysis subject areas.
- C. Degree 5 - Activities involve a wide range of scientific, administrative and managerial duties including managing a regional food and drug laboratory program, participating in national strategic and operational planning, providing authoritative advice and guidance, and evaluating studies and recommending changes to policies, legislation and regulations.
- D. Degree 5 - The work requires the overall planning, coordination, and implementation of a regional food and drug laboratory program, and contributing to the formulation of policies and regulations.

#### Complexity of Work

5

- A. Degree 4 - The work requires obtaining through subordinate staff, information and data on a wide range of chemical and microbiological contaminants in foods, illicit drug identity, and information required for program planning which may require intensive investigations, and which are often difficult to obtain, interpret and select.
- B. Degree 4 - Information and data required for compliance action, particularly relating to trace chemical contaminants in foods, new or unusual microbiological entities, or the identity of illicit drugs can normally be validated only by difficult or complex investigations.
- C. Degree 5 - Information and data on the wide variety of chemical and microbiological constituents of food and the identity of illicit drugs involve many variables with high variability, ambiguity and require ingenuity and highly selective judgement to use.
- D. Degree 5 - The many chemical and microbiological parameters measured in the Laboratory Division, their relationships with industry practices, and overall effect on the direction and priorities of the laboratory program are often conflicting and difficult to define and measure.

Degree

- E. Degree 5 - The work of the Regional Laboratory Division is directly affected by the activities of senior officials in responding to national health hazards and by the activities of inspection staff and the regulated industries, and requires consideration of the findings and conclusion of scientists and officials in provincial and other federal agencies.
- F. Degree 5 - Contacts are with senior officials and scientists in the department to negotiate and plan the Regional Laboratory Program, and with scientists and senior officials of other federal and provincial agencies, and senior officials and scientists of the regulated industries to resolve disputes or differences in the interpretation of analytical data and to evaluate manufacturing and product quality problems.
- G. Degree 5 - The work requires planning operational method development, directing the implementation and evaluation of method development projects assigned to the Division; and evaluating, developing and recommending strategies, approaches and procedures to ensure that new areas of health hazard concern are addressed.
- H. Degree 5 - The work requires the application of an advanced knowledge of illicit drug identification, of the chemical and microbiological analysis and evaluation of foods for health hazard concerns, and of the existing and new instrumental techniques used, as well as a thorough knowledge of the scientific and technical aspects of the relevant legislation and a good knowledge of management practices.

Professional Responsibility

5

- A. Degree 5 - Results are evaluated by the Regional Director in terms of achievement of Regional Laboratory Division objectives and operational plans within policy and resource limitations.
- B. Degree 5 - As this is the senior laboratory position in the region, guidance is received from the Regional Director on policy intent and program implications and professional guidance may be received from other scientific authorities in the Department.
- C. Degree 5 - The work requires developing objectives for each laboratory unit; defining conceptual approaches to solve complex analytical, investigational, or method development problems; and establishing scientific guidelines for the Regional Food and Drug Laboratory program.
- D. Degree 5 - Recommendations and conclusions of subordinate unit heads are reviewed in terms of effectiveness in meeting objectives within policy and resource limitations.
- E. Degree 5 - As a member of the Directorate Program Planning Board, reviews, evaluates and interprets studies, conclusions and recommendations of Science Committees another reports to determine implications on national and regional laboratory programs.
- F. Degree 5 - Authoritative advice and recommendations on the various aspects of the regional laboratory operations and affecting regional and national programs, as well as the development of standards and regulations are provided to scientists and senior officials of the department. Scientific and technical advice is provided to officials of industry and other federal and provincial departments and agencies.

Management Responsibility

5

- A. Degree 5 - The work requires the management and human resources planning through subordinate supervisors of a Regional Laboratory Division consisting of a staff of twelve professionals including specialists, and five technicians.





Degree

- B. Degree 5 - The work requires planning, directing and controlling a multi-disciplinary regional laboratory facility including laboratories, scientific equipment and supplies.
- C. Degree 5 - The work requires exercising delegated authority under the Financial Administration Act for the acquisition of resources and the expenditure of funds.
- E. Degree 5 - The work requires approving the expenditure of funds for outside laboratory services.
- F. Degree 5 - Prepares budgets and operational plans for the regional laboratory division. Plans and implements the Laboratory Division's Occupational Health and Safety and quality assurance programs. Recommends objectives and priorities for the Regional Laboratory component of the National Food, Drug, Cosmetic and Medical Device Safety Program.
- G. Degree 5 - Coordinates the overall regional laboratory program with inspection staffing own and other regions, involving differing interests and conflicting priorities.
- H. Degree 5 - Approves the Laboratory Division's administrative, safety and management directives and guidelines and ensures the correct and consistent application of departmental and central agency policy, directives and guidelines, including Canada Labour Code Part IV requirements, in the Laboratory Division.

Impact of Recommendations and Activities

5

- A. Degree 5 - Authoritative recommendations and advice affect the development of departmental compliance policies, and national and regional data gathering and compliance programs.
- B. Degree 5
  - (i) Degree 4 - Recommendations on compliance programs and advice to industry concerning the resolution of manufacturing problems or product quality control programs have economic and technological effects on the food manufacturing industry.
  - (ii) No significant impact.
  - (iii) Degree 5 - Authoritative recommendations and advice have a substantial effect on food and drug safety compliance policies and decisions and recommendations substantially affect the control of potentially harmful food and drugs in the four Atlantic provinces.
  - (iv) Degree 5 - Authoritative recommendations and advice have a substantial effect on national policies related to the provision of analytical services for drugs subject to abuse and the provision of expert testimony and advice to law enforcement agencies. The management of the provision of the services in the Atlantic Region contributes to the administration of criminal law in the four Atlantic provinces.
- C. Degree 5 - Decisions and recommendations affect the development of strategies and approaches to ensure the regulatory compliance of foods, drugs, cosmetics and medical devices, the development of methods and scientific procedures, and to improved knowledge of the chemical and microbiological hazards in food and drugs.

LINEAR ORGANIZATION CHART

Director General, Field Operations Directorate

Regional Director, Atlantic Region

- Chief, Finance and Administration Division
- Chief, Food and Drug Inspection Division
- \* - Chief, Food and Drug Laboratory Division CH-5
- Head, Food Chemistry Laboratory Unit CH-4 (9 PY's)
- Head, Microbiology Laboratory Unit BI-3 (4 PY's)
- Head, Drug Analysis Laboratory Unit CH-3 (4 PY's)
- \* Bench-mark position.

