

QUALITY POLICY MANUAL
ISO 9001: 2000

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Department of Natural Resources

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3.0 INTRODUCTION

3.1 SCOPE OF QUALITY MANAGEMENT SYSTEM

- 3.1.1 ESS Info Publishing Services has established a Quality Management System, as defined by this Quality Policy Manual, supporting Quality Assurance Instructions and the development of Quality Assurance Records.
- 3.1.2 The Quality Management System is designed to ensure that products and services conform to client/stakeholder requirements and that the system is subject to continual performance improvement.
- 3.1.3 The Quality Management System has no reduction in scope and meets all of the requirements of ISO 9001: 2000.

3.2 MISSION STATEMENT

ESS Info Publishing Services strives to satisfy its client/stakeholder needs with timely delivery of the highest quality products and services.

3.2.1 OBJECTIVES

- Constantly monitor and actively seek ways to improve the quality management system.
- Satisfy client/stakeholder requirements by monitoring and measuring both timeliness and quality of products and services.
- Design and implement high-quality standards and specifications for products and services.
- Ensure that every employee knows and understands the objectives and is committed to complete client/stakeholder satisfaction.

ANDREW MOORE
Head, ESS Info Publishing Services

April 01, 2004
Date

3.3 QUALITY POLICY

TOP MANAGEMENT OF ESS INFO PUBLISHING SERVICES:

- fully supports the quality management system;
- participates in quality management activities;
- provides the necessary resources for continual implementation, improvement, and assessment of the quality management system;
- is committed to the quality management system outlined in this manual and supporting documents; and
- Shall ensure this policy is communicated, understood, implemented and maintained at all levels in the organization.

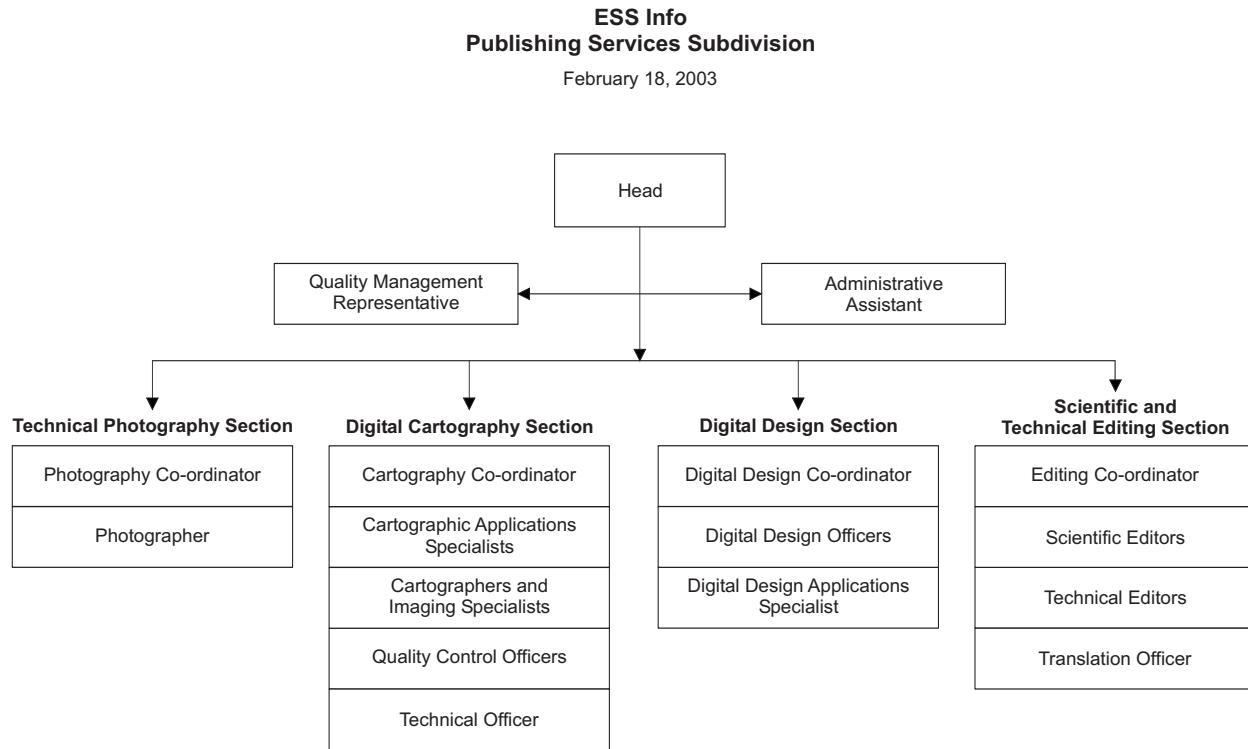
ESS INFO PUBLISHING SERVICES EMPLOYEES:

- are responsible for ensuring that client/stakeholder requirements and expectations are met; and
- implement, review, and modify the Quality Management System in a continuous improvement effort.

3.4 ORGANIZATION CHART FOR ESS INFO PUBLISHING SERVICES

ANDREW MOORE
Head, ESS Info Publishing Services

April 01, 2004
Date



3.5 APPOINTMENT OF THE QUALITY MANAGEMENT REPRESENTATIVE

- 3.5.1 To ensure implementation and full compliance with the Quality Management System, ESS Info Publishing Services has appointed a Quality Management Representative.
- 3.5.2 The Quality Management Representative reports to the Head of ESS Info Publishing Services and is the focal point for quality management activities.
- 3.5.3 ESS Info Publishing Services has appointed Mario Hudon as the Quality Management Representative.

ANDREW MOORE
Head, ESS Info Publishing Services

April 01, 2004
Date

3.6 MANAGEMENT CERTIFICATION

3.6.1 We hereby certify that this Quality Policy Manual accurately and adequately describes the Quality Management System implemented at ESS Info Publishing Services in compliance with the ISO 9001: 2000 International Quality Standard.

ANDREW MOORE
Head, ESS Info Publishing Services

April 01, 2004
Date

MARIO HUDON
Quality Management Representative

April 01, 2004
Date

3.7 AMENDMENT PROCEDURE

3.7.1 This Quality Policy Manual (QPM) shall be amended to reflect any changes to the capability, location or Quality Management System of ESS Info Publishing Services.

3.7.2 The Quality Management Representative (QMR) is responsible for revising the QPM and for obtaining approval from the Quality Council and/or the Head of ESS Info Publishing Services.

3.7.3 This QPM shall be re-issued when a single QPM revision affects 50% or more of the manual content or when more than 10 separate revisions have been made.

3.7.4 The QMR is responsible for the maintenance of this QPM, as described in this section, and for reviewing this QPM annually.

3.7.5 Accepted revisions to this QPM are documented on the QPM Revision Log.

4.0 QUALITY MANAGEMENT SYSTEM

4.1 GENERAL

- ESS Info Publishing Services has established, documented, implemented, maintained, and continually improved a Quality Management System (QMS) in accordance with the requirements of ISO 9001:2000.
- ESS Info Publishing Services has:
 - identified the processes needed for the QMS;
 - determined the sequence and interaction of these processes;
 - determined the criteria and methods required to ensure the effective operation and control of these processes;
 - ensured the availability of information necessary to support the operation and for monitoring these processes;
 - measured, monitored, and analyzed these processes, and continually implements the actions necessary to achieve planned results and constant improvement.
- Internal activities that affect product and service quality are controlled and documented.
- In support of the Quality System, as described in this QPM, procedures are developed for controlling the operating elements of the QMS.
- Quality Assurance Instructions are developed (or modified) for individual products and services as required.

4.2 DOCUMENTATION

4.2.1 GENERAL

- The Quality Management System (QMS) documentation includes:
 - Quality Policy Manual (QPM; this document);
 - Quality Assurance Instructions (QAI);
 - Quality Assurance Evidence (QAE) files;
 - Quality Assurance forms;
 - Quality records (evidence of conformance and improvement).
- The extent of QMS documentation fits the size of the organization, the complexity of processes and the competence of personnel

4.2.2 QUALITY POLICY MANUAL (QPM) AND DOCUMENTATION DESCRIPTION

Quality Policy Manual (QPM)

- This QPM is a controlled document that provides:
 - scope, mission statement and objectives;
 - quality policy statement;
 - organizational chart and responsibilities;
 - quality system procedures; and
 - listing and reference to Quality Assurance Instructions (Appendix A).
- The Quality Management Representative (QMR) maintains this QPM.
- The QPM describes Publishing's Services QMS processes sequence and interaction.

Quality Assurance Instructions (QAI)

- QAIs are controlled documents that provide:
 - procedures for implementing each element, as detailed in the ISO 9001:2000 Quality Standard;
 - reference to forms for documenting objective evidence of implementation of the Quality Management System; and
 - reference to other relevant documentation in ESS Info Publishing Services.
- The QMR maintains each QAI.
- QAIs include, but need not be limited to:
 - GSC *Cartographic Design Specifications*;
 - GSC *Cartographic Digital Standards*;
 - GSC *Guide to Authors*;
 - Quality Assurance Evidence (QAE) files;
 - reports; and
 - reference documents.
- The Quality Council is responsible for generating procedures that provide methods of performing functions that affect quality, and for keeping those procedures current.
- QAIs may refer to other production procedure manuals, reports, etc., and may also be incorporated into a Quality Plan.
- QAIs are controlled documents monitored by the QMR and are subject to regular audits.
- All ESS Info Publishing Services manuals, including but not limited to *GSC Cartographic Design Specifications*, *GSC Cartographic Digital Standards*, *GSC Guide to Authors*, are reviewed at least once a year during internal quality audits.

Quality Assurance Forms with QAE Files

- All production-related records are controlled and stored in QAE Files, Digital Cartography Production Forms, and Publication Production Control Forms, which provide effective evidence of the operation of the quality system.
- QAE Files are labelled and the location is controlled.

Quality Assurance Forms without QAE Files

- Digital Imaging Production Control Forms, Symbol Creation Forms, and Technical Photography Production Control Forms are placed in their respective labeled binders at controlled locations.
- These control forms are controlled documents monitored by the QMR and are subject to regular audits.

4.2.3 CONTROL OF DOCUMENTATION

- All procedures and documentation are made available at the applicable production and processing areas at the time of work.
- QAIs are established to control and maintain documentation required for the QMS.
- Publishing Services ensures that:
 - documents are approved for adequacy prior to release;
 - documents are reviewed, updated as necessary, and re-approved;
 - the current revision status is clearly identified on each document;
 - the latest versions of documents are available at points of use;
 - documents remain legible, readily identifiable, and accessible;
 - documents of external origin are identified and their distribution controlled; and
 - obsolete documents are identified and controlled to prevent unintended use.
- A master list identifies the most recent version of the documents.
- Control of documentation is facilitated by the QMR and the QMS personnel, and is subject to review.

4.2.4 CONTROL OF QUALITY RECORDS

- Quality records and electronic data are generated and maintained to demonstrate compliance and the effective operation of the QMS.
- Quality records shall be analyzed and used in the managing an operation of the QMS and for investigating improvements to be made to the QMS.
- The systems specify storage, retrieval, protection, retention times, and disposition for all quality records.
- Records are generated throughout contract reviews, design, and processing of products and services, providing evidence of compliance to the ESS Info Publishing Services QMS.
- 'Quality records' refer to:
 - production databases,
 - Digital Cartography Production Control form,
 - Publication Production Control form,
 - Digital Imaging Production Control form,
 - Technical Photography Production Control form,
 - Permission to Publish form,
 - Critical Reviewer's Appraisal form,
 - Quality Assurance Evidence (QAE) files, and
 - QMS databases (Document Change Request (DCR) and Nonconformity Report(NCR))

QAE Files:Digital Cartography

- Responsibility for maintaining current QAE files is assigned to the Cartographic Co-ordinator, Quality Control Officer and all Cartographic Technologists.

Digital Design

- Responsibility for maintaining current QAE files is assigned to the Digital Design Co-ordinator, Officers and Applications Specialist.

Scientific and Technical Editing

- Responsibility for maintaining current QAE files is assigned to the Editing Co-ordinator, Scientific Editors and Technical Editors.
- Records are subject to review by the Co-ordinators, QMR, Quality Control Officer, and Quality Council to ensure they are complete, accurate, and current.
- Amendments to forms are managed and controlled by the owner of the form, Applications Specialists and QMR. All amendments are documented on the Document Change Request (DCR) form.
- The QMR keeps all DCRs, Non-Conformance Reports (NCR), and Observations in their respective binders.
- Quality Control Forms used in ESS Info Publishing Services have a unique identification name and version number and/or date.
- Control forms are archived in labeled QAE file folders. These are stored in labeled cabinets and/or bookcase in a suitable environment.
- Quality records are retained up to a period of five years in ESS Info Publishing Services, after which time disposal follows departmental guidelines.

5.0 MANAGEMENT RESPONSIBILITY

5.1 MANAGEMENT COMMITMENT

- The continual improvement of ESS Info Publishing Services business performance is the responsibility of top management.
- The Head of ESS Info Publishing Services has stated and documented their commitment to quality and support of the Quality Management System (QMS).
- Top management has established consistency within the organization and an environment in which staff are involved in achieving ESS Info Publishing Services' quality and organizational objectives.
- The Head of ESS Info Publishing Services reviews the effectiveness of the QMS on an annual basis, and ensures that records are maintained appropriately.
- Top management has and will continue to review in-house auditing requirements, thereby, ensuring that the necessary resources, including the training and qualification of personnel assigned for auditing activities, are available at all times.
- Top management is responsible for providing evidence of their commitment to:
 - creating awareness and communicating the importance of meeting client/stakeholder requirements;
 - establishing and maintaining the quality policy, mission statement, and quality/organizational objectives and planning;
 - conducting management and performance reviews; and
 - ensuring the availability of necessary resources.

5.2 CLIENT/STAKEHOLDER FOCUS

- To achieve client/stakeholder satisfaction, client/stakeholder requirements are mutually determined and agreed upon, during contract review, with the help and understanding of the designated co-ordinator.
- Contract review ensures that client/stakeholder requirements, including obligations related to product, service, cost (where applicable), and standards requirements, are fully understood and met.

5.3 QUALITY POLICY

- Top management has established and documented the Quality Policy for ESS Info Publishing Services (Section 3.3).
- The Quality Policy is appropriate for the needs of ESS Info Publishing Services and its clients/stakeholders.
- The Quality Policy includes commitments to meeting client/stakeholder requirements and making continual improvements, and provides a framework for establishing and reviewing quality/organizational objectives.
- Top management is responsible for communicating the Quality Policy, so it is understood and implemented at all levels of the organization.
- Top management reviews the Quality Policy for continuing suitability, on a semi-annual basis, during management reviews.

5.4 PLANNING

5.4.1 QUALITY OBJECTIVES

- All procedures and documentation are made available at the applicable production and processing areas at the time of work.
- Objectives are measurable and consistent with our Quality Policy and Mission Statement, with an overall commitment to continuous improvement.

5.4.2 QMS PLANNING

- ESS Info Publishing Services has identified and planned the activities and resources needed to achieve quality and organizational objectives.
- Planning activities cover:
 - the processes of the QMS;
 - the resources required; and
 - continuous improvement of the QMS.
- ESS Info Publishing Services has a mechanism in place to help maintain the integrity of the QMS when changes are planned and implemented.

5.5 RESPONSIBILITY, AUTHORITY AND COMMUNICATION

5.5.1 RESPONSIBILITY AND AUTHORITY

- All ESS Info Publishing Services personnel shall be accountable for the quality of their individual assignments and functional responsibilities.
- Personnel roles, interrelations, responsibilities and authorities are defined and have been communicated to all relevant levels within the organization.
- The organizational freedom necessary to perform activities that affect quality for specific personnel has been defined and communicated.

Head

- The Head is responsible for the operation of ESS Info Publishing Services.
- The Head is responsible for providing support (policy), requesting the necessary resources, and managing within the budgets allocated by Natural Resources Canada (NRCan), to effectively operate ESS Info Publishing Services.
- The Head will verify that ESS Info Publishing Services has the necessary resources in place, including trained personnel for auditing activities on an annual basis, to coincide with the annual management review.
- The Head is also responsible for:
 - review of quality-related information and for initiating or approving improvement programs;
 - ensuring that all systems are in place (including the QMS);
 - initiating a Learning Plan for ESS Info Publishing Services personnel; and
 - reviewing, controlling and maintaining Quality Records and personnel Learning Plans.

Cartographic, Digital Design, Editing and Photographic Co-ordinators

- The Cartographic, Digital Design, Editing and Photographic Co-ordinators report to the Head of ESS Info Publishing Services.
- The Cartographic, Digital Design, Editing and Photographic Co-ordinators manage and direct the daily production activities within their respective areas.
- The Cartographic, Digital Design, Editing and Photographic Co-ordinators:
 - review Quality Records, and assist in corrective action and the decision-making process;
 - ensure that all systems (including the QMS) are fully implemented and effective, including all necessary Quality Assurance Instructions being available and current; and
 - communicate quality standards to personnel and ensure that personnel are qualified to meet the standards.

Cartographic Applications Specialists

- The Cartographic Applications Specialists report to the Head of ESS Info Publishing Services.
- Responsibilities of the Cartographic Applications Specialists include research and development; hardware/software support; planning, designing, implementing, and supporting cartographic production; and web administration.

Administrative Assistant

- The Administrative Assistant reports to the Head of ESS Info Publishing Services.
- Responsibilities of the Administrative Assistant include procurement, financial tracking, and administration of the personnel Learning Plans.

Personnel

- The Cartographic Technologists, Digital Design Applications Specialist, Digital Design Officers, Photographer, Quality Control Officer, Scientific Editors, Technical Editors, Translation Officer and Technical Officer report to their respective Co-ordinator (see organization chart, Section 3.4).
- The Administrative Assistant and the Quality Management Representative report to the Head of ESS Info Publishing Services.
- ESS Info Publishing Services personnel responsibilities are to:
 - implement work and checking instructions, as supplied in relation to their functional activities;
 - report any nonconformances or nonconformance traits to the Head and/or Co-ordinators;
 - ensure that the QMS is implemented within their section; and
 - participate, when needed, on project teams and carry out various activities associated with the QMS.

Quality Council

- The Quality Council will comprise the following positions:
 - Head, ESS Info Publishing Services
 - Cartographic, Digital Design, Editing and Photographic Co-ordinators
 - Quality Management Representative
 - Cartographic Applications Specialists
 - Division Quality Advisor (as required)
 - Client/stakeholder representative (as required)
 - Employee representative (as required)
- The semiannual Quality Plan reports are reviewed by the Quality Council and, based on this review, the Head will document observations and any necessary recommendations and/or action items in the Management Review Report.
- The Head revises the QMS for effectiveness. Any action items will be forwarded to the Quality Council to be resolved.
- The minutes of the Quality Council meetings, signed off by the Head, will reflect the Quality Objectives of ESS Info Publishing Services.

5.5.2 QUALITY MANAGEMENT REPRESENTATIVE

- The Quality Management Representative (QMR) is appointed by, and reports to, the Head of ESS Info Publishing Services.
- The QMR is responsible for ensuring conformance to all quality requirements established by the QMS.
- The QMR is responsible for communicating and implementing aspects of the QMS where it affects the activities of ESS Info Publishing Services personnel.
- The QMR prepares a semiannual Quality Plan report detailing and summarizing value-added activities, personnel training and suggested recommendations for improvement in ESS Info Publishing Services.
- The QMR, with the assistance of any member of the Quality Council, prepares a semiannual Quality Management Review report summarizing nonconformances, corrective actions, review observations, and suggested recommendations for improvement.
- The QMR responsibilities also include:
 - reviewing content and recommending approval of quality-related documents;
 - controlling, maintaining, amending and ensuring availability of the Quality Policy Manual;
 - reviewing nonconformances and ensure their resolution and corrective action;
 - organizing and co-ordinating Internal Quality Audits and Corrective Actions required as a result of audit observations; and
 - co-ordinate activities of the Quality Council.

5.5.3 INTERNAL COMMUNICATIONS

- ESS Info Publishing Services holds a minimum of three employee meetings per year to provide updates on:
 - quality initiatives within the organization,
 - pertinent technical processes,
 - QMS, and
 - upcoming training.
- Correspondence by e-mail, posters, and mail service is used to ensure internal communication with clients, stakeholders, management, and employees of ESS Info Publishing Services.

5.6 MANAGEMENT REVIEW

5.6.1 GENERAL

- Top management reviews the QMS semiannually to ensure continuing suitability, adequacy, and effectiveness.
- Top management evaluates the need for changes and/or improvements to the QMS, including quality policy, mission statement, and quality objectives.
- The Quality Council meets every two months, or more frequently if required, and carries out various activities related to the QMS to resolve corrective and preventive, questions/difficulties, when standard nonconformance procedures are unable to resolve the situation.
- The Quality Council analyses and verifies the effectiveness of the QMS, various quality documents and records such as Quality Plan, Management Review Report, internal audit reports, non-conformance, DCR and observation updates.
- The Quality Council is a resource to provide quality improvement solutions.

5.6.2 REVIEW INPUT

- Documents reviewed by the Quality Council can include QMS Reports, NCRs, Observations, DCRs, Statistical Data, Client Satisfaction Report, and project and QAE files.
- Top management reviews are documented during Quality Council meetings.

5.6.3 REVIEW OUTPUT

- The Quality Council will document necessary recommendations and/or action items to the Management Review Report and recommend improvement in accordance with Audit Summary Reports.
- The QMR, with the assistance of any member of the Quality Council, prepares a semiannual Quality Plan and Management Review Report summarizing value-added activities, training needs, nonconformance updates, corrective actions, and audit observations; this document sets priorities, reviews objectives, and suggests recommendations for improvement to the QMS
- The Quality Council initiates projects resulting from review meetings for areas of the operation that require improvement.
- Corrective and preventive action decisions are determined, as required.
- The Head assesses the QMS for effectiveness. Any recommendations resulting from this assessment will be forwarded to the Quality Council for resolution.
- The minutes of the Quality Council meetings shall reflect the quality objectives of ESS Info Publishing Services.

6.0 RESOURCE MANAGEMENT

6.1 PROVISION OF RESOURCES

- ESS Info Publishing Services determines and continually reviews the resource requirements needed to implement, improve, and maintain the processes of the Quality Management System (QMS), and to address client/stakeholder requirements and satisfaction.

6.2 HUMAN RESOURCES

6.2.1 GENERAL

- Employees of ESS Info Publishing Services must have the required competence, based on appropriate education, training, experience and skills, to ensure that expertise is maintained at a level of quality consistent with the technical and functional requirements of the product specifications.

6.2.2 WORK DESCRIPTIONS, WORK OBJECTIVES, ANNUAL AND EMPLOYEE LEARNING PLAN

Work Descriptions and Work Objectives

- The Head is responsible for reviewing work objectives, which are linked to the appropriate Work Descriptions.
- The Work Description describes (in general terms) the essential elements of the required work and the required skills and abilities. The Work Objectives describe (in greater detail) the expected accomplishments of employees.
- Work Descriptions and Work Objectives are available for all employees.

Employee Learning Plan

- The Head is responsible for the implementation of each Employee Learning Plan.
- Employee Learning Plans are reviewed annually during employee performance reviews, allowing employees to keep abreast of new and changing procedures, technologies, and techniques.
- The Employee Learning Plan includes:
 - time period for the plan;
 - learning goals, strategy, evidence of success, target date, and employer and employee investment; and
 - employee's and manager's signatures.
- Employees are trained with respect to the requirements of their position, including familiarization with the QMS.
- The Quality Management Representative (QMR) or designated authority is responsible for co-ordinating and implementing in-house training courses related to the QMS and internal audit activities.
- In accordance with departmental policies, the Head is responsible for the preparation, authorization and implementation of the Annual Learning Plan, which is a summary of all Employee Learning Plans.

6.3 FACILITIES

- Work area and proper facilities are allocated to all employees in order to achieve conformity of product and service requirements.
- Suitable equipment, hardware and software, is provided and maintained to supplement expertise and to ensure that standard requirements are met during the production process.

6.4 WORK ENVIRONMENT

- ESS Info Publishing Services has implemented appropriate human and physical factors of the work environment, based on existing governmental guidelines, such as:
 - awards and recognition program;
 - health, safety and environment;
 - ergonomic assessment;
 - accident/hazardous occurrence;
 - health evaluations;
 - harassment awareness; and
 - employment equity and diversity.
- Opportunities for employee input are encouraged and welcomed by management.
- Practices such as general staff meetings, committee meetings, feedback process, and the open-door policy of the Head of ESS Info Publishing Services provide the means for employees to voice their concerns, seek opportunities for greater involvement, and meet and satisfy their initiatives.
- Social activities are organized throughout the year to increase morale and improve communication.

7.0 PRODUCT REALIZATION

7.1 PLANNING OF PRODUCT REALIZATION

- ESS Info Publishing Services determines, plans, documents, and implements, in the correct sequence and interaction, the Quality Assurance Instructions (QAI) necessary for the realization of product.
- Internal activities that affect product and service quality are controlled and documented.
- In support of the Quality Management System (QMS), as described in the Quality Policy Manual (QPM), instructions are developed for controlling the operating elements of the QMS. The instructions applying to the QMS are: control of documents, control of records, internal audit, control of NCRs, and corrective and preventive action.
- Production and quality-control instructions are developed and/or modified as required for individual products and services.
- All controlled documents are subject to the controls described in Control of Documentation (4.2.3).
- Quality records and electronic data are generated and maintained to demonstrate compliance with, and the effective operation of, the QMS.
- The QAIs are implemented to ensure products meet client/stakeholder requirements.
- The following is determined, as appropriate, in planning the QAI for product realization:
 - The QAI for each product has a clear scope and purpose.
 - The QAIs are available online for reference.
 - The owner of a QAI, with the help of a committee of knowledgeable employees if needed, reviews and validates activities and recommend changes.
 - Production control forms, QAE files, and resulting products provide evidence of conformity of processes described in all QAIs.

7.2 CLIENT/STAKEHOLDER RELATED PROCESSES

7.2.1 IDENTIFICATION OF CLIENT/STAKEHOLDER REQUIREMENTS

- ESS Info Publishing Services has established, with each Production Control Form, a contract review process for identifying client/csakeholder requirements, which determines:
 - mutual agreement of needs and expectations;
 - special instructions;
 - completeness of the product requirements;
 - contact name and/or address, e-mail, phone and fax number;
 - supplied information;
 - product requirements for availability, delivery date and support;
 - requirements not specified but necessary for the intended use, where known;
 - obligations related to product; and
 - digital files and/or hard copies of all material, as required.

7.2.2 REVIEW OF PRODUCT REQUIREMENTS

- ESS Info Publishing Services has established, with each Production Control Form, a contract review process for identifying Client/Stakeholder requirements, which determines:
 - that client/stakeholder requirements are clearly defined for products;
 - where the client/stakeholder provides no written statement of requirement, that the client/stakeholder requirements are confirmed, before acceptance, on a Production Control Form that is completed by the designated authority;
 - that client/stakeholder requirements differing from those previously expressed are resolved; and
 - that ESS Info Publishing Services has the ability to meet the client/stakeholder requirements.
- Changes of client/stakeholder requirements and subsequent follow-up actions are identified and documented.
- Where product and/or contractual requirements are changed, the designated coordinator will amend the Production Control Form and notify the applicable personnel of the changes.

7.2.3 CLIENT/STAKEHOLDER COMMUNICATION

- Telephone, mail (fax or e-mail), and walk-in client/stakeholder complaint resolution and product standards are in place within ESS Info Publishing Services.
- Service/product Standards:
 - describe the services and products provided;
 - determine who our internal and external client/stakeholders are;
 - outline the existing standards for these services/products; and
 - addresses the complaint/feedback mechanisms.
- The designated authority handles enquiries and client/stakeholder requirements or feedback, including amendments.

7.3 DESIGN AND/OR DEVELOPMENT

7.3.1 PLANNING

- ESS Info Publishing Services has developed and maintains Quality Assurance Instructions (QAIs) for the planning and control of product design and/or development activities.
- ESS Info Publishing Services manages the design and production of geological maps, publication products, illustrations, figures, and photographs, using digital cartographic, digital imaging and photographic technologies, for our clients/stakeholders.
- ESS Info Publishing Services ensures the continuous development and improvement of standards and techniques used in publishing. Support is provided to clients/stakeholders to ensure consistency in publication production, database management and archival procedures.
- Design and/or development plans include:
 - stages of the design and/or development process;
 - required review, verification, and validation activities appropriate to each stage;
 - responsibilities and authorities for design and/or development activities.

- Interfaces between different groups involved in the design and/or development activities are documented and managed to ensure effective and timely communication and clarity of responsibilities.
- QAIs for the planning and control of product design and/or development activities are updated as they progress.

7.3.2 INPUTS

- Design and/or development requirements to be met are defined and documented in the design plan (QAI, QM-5 Design); these include:
 - functional and performance requirements;
 - applicable information derived from previous similar designs; and
 - any other requirements essential for design and/or development.
- These inputs are reviewed for adequacy, and incomplete, ambiguous, or conflicting requirements are resolved at this phase of the process.

7.3.3 OUTPUTS

- The outputs from the design and/or development process are documented in a format, that allows for verification of the design and development input requirements.
- The design and/or development output will:
 - meet the design and/or development input requirements;
 - provide appropriate information for production and service operations;
 - contain or make reference to product-acceptance criteria;
- Design and/or development output documents are approved prior to release.

7.3.4 REVIEW

- At suitable stages, as defined in the design plan, systematic reviews of the design and/or development activity are conducted to evaluate the capability to fulfil all input requirements, including quality, and to identify problems, if any, and develop solutions to correct the problems and/or potential problems.
- Design and/or development reviews will include representatives of functions concerned with the design stage being reviewed.
- Design and/or development reviews and subsequent follow-up actions are documented.

7.3.5 VERIFICATION

- Design and/or development verifications are planned and conducted to ensure that the output meets the input requirements, as defined in the design plan.
- The design and/or development verifications and subsequent follow-up actions are documented.

7.3.6 VALIDATION

- In accordance with the design plan, a design and/or development validation is performed to confirm that the designed product meets all requirements.
- Whenever feasible, the validation is conducted prior to delivery or implementation of the product.
- When it is not feasible to conduct a full validation prior to delivery, a partial validation will be conducted to the maximum extent practical.
- Design and/or development validation activities and subsequent follow-up actions are documented.

7.3.7 CONTROL OF CHANGES

- Design and/or development changes or modifications are approved by authorized personnel and are documented prior to implementation.
- ESS Info Publishing Services analyzes the effect of the changes on the interaction between the component parts of the resulting product, existing products, and delivered products, and the need for carrying out reverification or revalidation for all or part of the design and/or development outputs.
- The results of the review of changes and subsequent follow-up actions are documented.

7.4 PURCHASING

7.4.1 PURCHASING CONTROL

- ESS Info Publishing Services has developed and maintains a QAI for controlling the purchasing process, to ensure that purchased products and services conform to specified requirements.
- The type and extent of control will be dependent on the effect on subsequent realization processes and their output.
- The QAI provide for the evaluation and selection of suppliers based on their ability to meet ESS Info Publishing Services requirements. Evaluation, re-evaluation and selection criteria for suppliers are documented.
- The results of evaluations and subsequent follow-up actions are documented.

7.4.2 PURCHASING INFORMATION

- The QAI ensures that purchasing documents contain the necessary information to clearly describe the items being ordered.
- Purchasing documents are reviewed for the adequacy of their specifications and requirements prior to release.

7.4.3 VERIFICATION OF PURCHASED PRODUCT

- The client and/or stakeholder shall reserve the right to verify, at source or after receipt, that the controls exercised and that the products/services provided conform to the specified requirements.
- Client/stakeholder verification shall not relieve ESS Info Publishing Services of the responsibility to provide conforming products/services, nor shall it preclude subsequent rejection.

- Client/stakeholder verification performed at the supplier's facilities shall not relieve ESS Info Publishing Services from exercising specified controls.
- When verification activities are to take place at the supplier's facilities, the requirement and method of product/service release will be specified in the purchasing document.

7.5 PRODUCTION AND SERVICE OPERATIONS

7.5.1 CONTROL OF PRODUCTION AND SERVICE PROVISION

- ESS Info Publishing Services has developed and maintains QAIs for planning and controlling production and service operations.

7.5.2 VALIDATION OF PROCESSES FOR PRODUCTION AND SERVICE PROVISION

- Production and service functions are implemented in accordance with documented QAIs. The QAI provides step-by-step instructions for personnel, which include production processes, checking activities, and workflow chart.
- Production activities are reviewed at various stages and signed off as being complete on designated Production Control Forms.

7.5.3 TRACEABILITY

- ESS Info Publishing Services has established and maintains a numbering system for identifying products/services throughout all applicable operations.

7.5.4 CLIENT/STAKEHOLDER PROPERTY

- ESS Info Publishing Services has established and maintains procedures for the care and control of client/stakeholder-supplied property, which may include intellectual property.
- The client/stakeholder-supplied property is identified, verified, stored, and maintained for use or incorporation. Lost, damaged, or otherwise unsuitable client/stakeholder-supplied property is documented and reported to the client/stakeholder for disposition.

7.5.5 PRESERVATION OF PRODUCT

- Packages containing final negatives, printed copy, proof, manuscripts, and any other related materials are identified by one or more of job number, map number, content, map name, client name, date stored, shelf number, and location, and placed into storage inventory.
- Products are archived on CD-ROM and identified and placed into storage inventory by their respective co-ordinators.
- Suitable containers are used to prevent damage/deterioration and to protect the products.
- Finished products that are formally released for delivery are packaged and delivered to the client, as required, and authorization documentation is available.
- Co-ordinators and/or all employees are responsible for arranging delivery of the products as required.
- Packaged products are held by the originator, pending shipment, to prevent damage/deterioration.

7.6 CONTROL OF MEASURING AND MONITORING DEVICES

- ESS Info Publishing Services has established and maintains systems for the control, calibration and maintenance of measuring and monitoring devices used to demonstrate conformance of product and/or service to specified requirements.
- Measuring equipment used to ensure uniformity, consistency between dot screen/tones, density, and product quality will have the necessary accuracy, stability, and range required for the intended use.
- Environmental measuring equipment is not used at ESS Info Publishing Services.
- The systems:
 - calibrate and adjust measuring and monitoring devices, at specified intervals and prior to use, relative to international or national standards; where no such standards exist, the basis used for calibration is documented;
 - identify measuring and monitoring devices with a suitable indicator or approved identification record to show calibration status;
 - determine the method for calibration of measuring and monitoring devices;
 - document the results of calibration;
 - ensure that environmental conditions are suitable for calibrations, measurements, inspections and tests;
 - safeguard measuring and monitoring devices from adjustments that would invalidate the calibration;
 - protect the devices from damage or deterioration during handling, maintenance, and storage; and
 - assess the validity of previous inspection and test results when a device is found to be out of calibration, and take appropriate actions.

Digital Cartography

- The densitometer is used for quality control of film.

Technical Photography

- Measuring equipment has been preselected to ensure that it has the necessary accuracy, stability, and range for its intended use.
- The Technical Photography Co-ordinator and the Photographer involved in production are responsible for checking density readings of transparency and positive control strips, and correcting as deemed necessary.
- Measurement instructions may be a combination of published standard practices and manufacturer's instructions, or applicable portions thereof.
- A record of reflected and transmission reading is maintained on the Reflected and Transmission Reading Form on a monthly basis. This form records date, reflected reading, transmission reading, and who did the reading.

General

- A qualified subcontractor whose calibration is certified as traceable to the national standards or the equivalent will perform external calibration, when applicable.
- When measuring equipment is suspected to be out of calibration, a Non-Conformance Report (NCR) will be initiated and documented.
- A verification of previous products will be conducted to assess measuring equipment calibration.
- Based upon the verification, the product will be reinspected (in-house) with calibrated equipment from the supplier.
- Measuring equipment determined to be out of calibration will be quarantined and either repaired/adjusted, recalibrated or replaced.

8.0 MEASUREMENT, ANALYSIS AND IMPROVEMENT

8.1 PLANNING

- ESS Info Publishing Services has established and maintains a Quality Management System (QMS) for planning and implementing measurement and monitoring activities needed to assure conformity and achieve improvement.
- The type, location, timing, and frequency of measurements and the generation of records are defined within the QMS, along with the use of appropriate statistical techniques.
- The effectiveness of measures implemented is evaluated at regular intervals.

8.2 MEASUREMENT AND MONITORING

8.2.1 CLIENT/STAKEHOLDER SATISFACTION

- ESS Info Publishing Services has established procedures for monitoring information on client/stakeholder satisfaction and/or dissatisfaction.
- The procedures define the methods for obtaining and utilizing the information.

8.2.2 INTERNAL AUDIT

- ESS Info Publishing Services has established and maintains procedures for conducting internal audits of the QMS. These audits are designed to assess the effectiveness of the QMS, ensure its proper implementation and compliance to the international standard, and identify potential opportunities for improvement.
- The procedures cover the auditing schedule, scope, frequencies, and methodologies, along with the responsibilities and requirements for conducting audits and documenting and reporting the results to management.
- The audit procedures, including scheduling, are based on the status of importance of the activities/areas to be audited and the results of previous audits.
- Trained personnel other than those who performed the work being audited conduct internal audits.
- The procedures ensure that management takes timely corrective action on deficiencies found during the audit, and that follow-up actions include the verification of the implementation of corrective action and the reporting of audit results.

8.2.3 MEASURING AND MONITORING OF PROCESSES

- ESS Info Publishing Services has established and maintained procedures for measuring and monitoring processes necessary to meet Client/Stakeholder requirements and to demonstrate continuing ability to satisfy its intended purpose.
- The measurement results are used to maintain and/or improve processes.

8.2.4 MEASURING AND MONITORING OF PRODUCTS

- ESS Info Publishing Services has established and maintains procedures for measuring and monitoring the characteristics of products to verify that the requirements for products and/or services are met at appropriate stages of the product realization process.
- The procedures provide for the documenting of evidence of implementation of the required measurement and monitoring, and conformance with the specified acceptance criteria. Records indicate the authority responsible for the release of products and/or implementation of services.
- Products and services are not released or delivered until all specified activities have been completed, unless authorized by the client/stakeholder.

8.3 CONTROL OF NONCONFORMITY

- ESS Info Publishing Services has established and maintains procedures for control of nonconforming products and/or services to prevent unintended use or delivery.
- The procedure provides for the identification, documentation, and review of the nature and extent of the nonconformity encountered. When a nonconforming product is detected after delivery, ESS Info Publishing Services will take appropriate action regarding the consequences of the nonconformity.
- The nonconformance procedures also include supplier, work environment and system nonconformances, and client/stakeholder complaints.
- The nonconformance procedures provide for the review (investigation where required) and disposition of nonconforming products.
- Responsibility and authority for the review and resolving of nonconformities is defined in the procedures.
- When it becomes necessary to repair or rework product, verification requirements are determined and implemented.

8.4 ANALYSIS OF DATA

- ESS Info Publishing Services collects and analyzes data to determine the effectiveness of the QMS and identify opportunities for improvement.
- Data collected from measurement and monitoring activities, and from other relevant sources, are analyzed to provide information on:
 - client/stakeholder satisfaction and/or dissatisfaction;
 - conformance to client/stakeholder requirements;
 - characteristics of processes, products, services, and their trends; and
 - supplier performance, where required.

8.5 IMPROVEMENT

8.5.1 PLANNING FOR CONTINUAL IMPROVEMENT

- ESS Info Publishing Services reviews the quality policy, objectives, audit results, analysis of data, corrective and preventive action, and management reviews to facilitate continual improvement.

8.5.2 CORRECTIVE ACTION

- ESS Info Publishing Services has established and maintains a procedure for corrective action and a process for reducing or eliminating the causes of nonconformity, in order to prevent recurrence.
- Corrective action will be appropriate to the impact of the problems encountered.

8.5.3 PREVENTIVE ACTION

- ESS Info Publishing Services has established and maintains a procedure for eliminating the causes of potential nonconformances, in order to prevent recurrence. QMS documents and results from the analysis of data will be used as inputs for preventive action.
- Preventive actions taken will be appropriate to the impact of the potential problems.

Appendix A

Quality Assurance Instructions (QAI)

Quality Management (PSS)

PSS 01 Document Changes
PSS 02 Non-Conformance
PSS 03 Internal Quality Reviews
PSS 04 Hold Tags
PSS 05 Client Feedback and Complaint
PSS 06 Client Satisfaction

Technical Support (PSS)

PSS 07 Backup
PSS-08 Learning
PSS 09 Travel Request
PSS 10 Purchasing
PSS 11 Chemical Waste Disposal

Technical Photography (TPS)

TPS 01 Photo

Digital Cartography (CSS)

CSS 01 Contract Review
CSS 02 Geological map/Poster production
CSS 03 Graphic Production
CSS 04 Quality Control
CSS 05 Offset Press
CSS 06 Densitometer
CSS 07 Symbol Creation
CSS 08 Laminating
CSS 09 On-Demand Plotting

Digital Design & Scientific and Technical Editing (PUB)

Pub 01 On-Demand Publication
Pub 02 Offset Publications
Pub 03 On-Demand Current Research
Pub 04 On-Demand Compendium
Pub 06 Information Circular
Pub 07 Scientific Editing
Pub 08 Translation Editing
Pub 09 Translation Coordination
Pub 10 Digital Design Triage
Pub 11 Editorial Triage
Pub 12 Digital Preparation
Pub 13 Map Editing
Pub 14 Information Circular Editing
Pub 15 Manuscript Analysis