# SECTION 1 – INTRODUCTION

## A. Purpose

This document is DENR's departmental System Development Methodology. It is to be used by all programs and divisions within the department in developing software applications. The document contains the following software life cycle models: small project method, RAD method, and a full-scale methodology that is intended for large-sized projects.

## B. Scope

This document provides guidance in establishing a project-specific development life cycle, prescribes the activities and tasks required for each phase or segment of the life cycle, defines documentation requirements, and provides tips, techniques, resources and references that assist in carrying out the development activities.

## C. Intended Audience

This document is intended for project managers or process architects who are responsible for establishing a project-specific software life cycle process, and training the project team on the process itself. Project team members will also use this document to understand activity requirements and determine deliverable content.

## D. Document Organization

The document is organized into 8 sections including this Introduction Section:

Section 1 – Introduction
>	Describes the document purpose, scope, audience and organization.

Section 2 – Threshold Criteria
>	Describes the criteria for selecting the appropriate software life cycle model based on cost, size and risks involved.

Section 3 – Guide to Developing a Software Life Cycle Process
>	Compliance with IEEE Standards for Developing Life Cycle Processes is an IRMC requirement. This section guides project managers or process architects in establishing a project-specific software life cycle process that includes the minimum requirements stated in IEEE Standard 1074-1997.

Section 4 – Full-scale Life Cycle Methodology
>	Contains all the phases and segments in a full-scale system development effort.

Section 5 – Small Projects Method
>	Describes a condensed (5 stages) version of the full-scale development methodology.

Section 6 – RAD Method
>	Describes a rapid application development technique with 3 stages.

Section 7 – Documentation Guide
>	Contains specifications for documents to be produced during the development life cycle.

Section 8 – Glossary

An Appendix at the end of the document lists sources, useful resources and websites which may be referenced for further information.

## E. Evolution of the SDLC

The first version of the DENR SDLC was published in October 1997. This is the first revision of that document. Continuous improvement of the methodology is a built-in process as projects are required to complete the Process Assessment segment of the SDLC. The first DENR projects that utilized the SDLC provided a list of improvement opportunities and lessons learned – some of these are the focus of the current revisions.

This August 1999 version of the SDLC includes the following:

- Support for object-oriented development.

  Activities and deliverables that are geared towards object-oriented application development are described in appropriate segments of the software life cycle.

- A method directed at component reuse – both consumption of and generation of Shared Services.

  The recent establishment of the statewide N.C. Service Broker – which is an enabling infrastructure for application communication – makes it possible for agencies to share application logic and data across disparate platforms. Shared Services are an essential part of adaptive architectures because:

  ➢ They provide pre-built and pre-tested programs that need not be reinvented, thereby promoting increased productivity, reduced development cost and time to market.

  ➢ They eliminate duplication of code thereby providing consistency of processing, better maintainability and accuracy.

- Activities to ensure compliance with IRMC requirements.

  The Information Resource Management Commission (IRMC) was created by the NC General Assembly to provide emphasis on strategic IT planning and policy development. Executive Agency projects that meet IRMC project criteria are required to comply with policies and standards defined by the IRMC. This includes adhering to the principles and standards in the Statewide Technical Architecture as well as meeting the requirements for IRMC project approval, QA review and status reporting. Complete and up to date information about the IRMC and its requirements is available at their website. See Appendix section for the website addresses.

- A method to ensure compliance with IEEE Standard 1074-1997.

  One of the IRMC policies requires projects to use a software development methodology that is equal to or better than the IEEE standard. Section 3 of this document provides guidance for establishing a software life cycle process for DENR projects. Project managers will either map IEEE activities into a DENR SDLC or use the generic DENR SLC, include project as well as external requirements, and develop a project-specific software life cycle process (SLCP).

<u>End of Section 1</u>