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DEVELOPMENT OF AN INTEGRATED BASIN OPERATING STRATEGY TO COMPLEMENT RIVER RESTORATION HYDROLOGIC REQUIREMENTS

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The Kissimmee Chain of Lakes is located in Central Florida and provides approximately 70% of the discharges required to meet Kissimmee River Restoration hydrologic requirements (AECOM 2008). Flows are regulated throughout the Kissimmee Chain of Lakes and River by the Central and Southern Florida (C&SF) Project (USACE 1994). Initial operational planning for the restoration project focused on the S65 structure at the headwater of the Kissimmee River (USACE 1996). The need for an integrated water management strategy for the entire Basin came to light once interim operating criteria were put in place at the S65 structure and conflicts emerged between upstream and downstream stakeholders with differing water management objectives and priorities. The Kissimmee Basin Modeling and Operations Study is an operations planning effort initiated to develop an integrated water management operating strategy for the Basin that incorporates lake stage and flow management with river restoration discharge requirements and C&SF Project constraints. It is a South Florida Water Management District (SFWMD) initiative and is the first comprehensive review of water management operations in the Basin in more than thirty years.

The Study was initiated in late 2004 and is divided into two phases. Phase I, completed in June 2005, performed a comprehensive assessment of basin conditions (Earth Tech 2005a) and identified the Study operating objectives, planning approach and modeling tools (Earth Tech 2005b). Phase II was initiated in July 2005. This phase of the Study has involved development of Study tools (models, performance metrics, alternative evaluation system, and evaluation tools); public outreach; and formulation and evaluation of alternative plans (AECOM 2012a).

Study tools were developed to systematically evaluate alternative plan performance at three increasing levels of detail and sophistication. Public outreach was incorporated from the Study's inception and utilized a variety of methods and forums to engage stakeholders; increase stakeholder knowledge and understanding of the issues and complexities of water management; and define alternative plans for modification of structure operating criteria. Alternative Plan formulation and evaluation was divided into three evaluation phases: Screening, Formulation, and Evaluation. Alternative plan screening utilized computer-aided participation workshops to formulate alternative plans (AECOM 2009). Alternative plan formulation refined alternative performing better than the base condition into top performing plans (AECOM 2012b). These top performing plans, that evolved from stakeholder proposals introduced in computer-aided participation workshops, exceed the performance of the original Kissimmee River restoration project operating criteria and significantly improve seasonal low lake level management. These

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plans are currently being evaluated by the U.S. Army Corps of Engineers to ensure they meet C&SF Project constraints. The final evaluation and selection of a preferred alternative plan will commence after the conclusion of the USACE analyses. The anticipated outcome from the Study are Kissimmee Basin operating criteria that balance the ecosystem needs of the lakes and river with the water management operating objectives and constraints of the C&SF Project.

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