Florida Keys Reasonable Assurance Documentation

Technical Working Group Meeting 7

November 2, 2007

Meeting Minutes

This is a summary of the seventh Technical Working Group (TWG) Meeting held November 2, 2007 at the Marathon Government Center between the Florida Department of Environmental Protection (FDEP) and representatives of stakeholders that comprise the TWG. The purpose of the meeting was to discuss the water quality targets and modeling results, canal models, draft documents, identified management activities, and critical stakeholder decisions. The meeting was attended by representatives of City of Layton, Florida Department of Transportation, U.S. EPA, Department of Community Affairs, Key Large Wastewater Treatment District, Village of Islamorada, Monroe County, and FDEP. A copy of the meeting agenda and sign-in sheet are appended to this memo.

DISCUSSION

Water Quality Targets and Modeling Results

- CDM/URS developed 20 individual spreadsheet models with variables that depend on several factors, such as water depth. These models were based on the work done during the development of the Florida Keys Carrying Capacity Study (FKCCS).

- The model sets up 12 rings around the shoreline of each island that range from 100 to 12,100 meters away from the shoreline. The Zone of Interests for modeling results will be 500 meters away from the shoreline. The distance of the Zone of Interest from the shoreline, relative to the overall range of the models, is small. The analysis method for assessing water quality impacts, based on stakeholder input, indicates that stakeholders are implementing the necessary activities to control and improve nearshore water quality.

- Model results were presented for Total Nitrogen (TN) and Total Phosphorus (TP). The model results included TN and TP loads from natural conditions, baseline condition (Year 1999), and 2015 projected conditions at 100 and 500 meters away from the shoreline. In some cases there is a significant increase from natural conditions to baseline (baseline condition is considered to be the worst case scenario). Some areas meet the TN and TP target conditions at 100 meters from the shoreline, but all meet the target conditions at 500 meters from the shoreline.

- The TN target was set at 10µg/L above the natural condition and the TP target was set at 2µg/L above the natural condition. The TP results are small and in most cases are below the TP detection limits.

- Variability of TN and TP under natural conditions among the various models is due to the variability of the land mass, bathymetry of the nearshore water bodies, and variability in geography. The northern Keys have water bodies that are entrapped by the Florida peninsula, while the southern Keys have open water bodies. The entrapped water bodies in the northern Keys are not flushed like the water bodies in the southern Keys are. The variability in TN and TP is also evident from the boundary condition (measured values), where TN and TP values are higher in the northern Keys and lower in the southern Keys.

- Baseline condition contains the Keys' addition to the natural conditions. FDEP is still working on the modeling results for a few areas, such as Boca Chica, Saddlebunch, and Big Pine. So far there are three reasonable assurance documents (RADs). Southern Keys RAD (Key West and Stock Island area), Central RAD (Marathon, Key Colony Beach and Layton), and Northern (Islamorada and Key Largo – Monroe County). There is still work with the Navy on Boca Chica and with Monroe County on Saddlebunch and Big Pine.

- Results indicate that by implementing management conditions, the Keys is moving in the right direction to provide reasonable assurance.

- Management summaries for each stakeholder will include a table with loading reductions associated with management activities that each stakeholder has committed to.

Canal Modeling

- Monroe County identified all canals in the Florida Keys, from Card Sound Road to Key West, and numbered the canals from north to south.

- Part of the FKCCS was to find out what happens to the canals. FDEP worked with Monroe County to identify 10 representative canals from one end of the keys to the other. The northern RAD contains 5 canals, the central RAD contains 5 canals, and there were none chosen in the southern RAD.

- There are three main canal configurations: (1) simple configuration is characterized by a linear channel, (2) moderately complex configuration characterized by a trifurcated channel, and (3) complex configuration characterized by multiple branched channel.

- Canal model results for TN and TP were presented and indicate substantial reductions in nutrient concentrations. The reductions can be attributed to

improved canal flushing methods and implementation of central sewer system. Canal model results, therefore, complement the nearshore water quality modeling results and provide a stronger argument for reasonable assurance.

- What about coliform bacteria? Do canal modeling results address coliform bacteria? Removal of other pollutants, such as coliforms bacteria, would be an ancillary benefits to removal of nutrient loads by wastewater treatment and elimination of septic tanks. There are other potential pollutants that could be removed from the nearshore waters and canals through the implementation of management activities. Water quality and canal modeling focused on nutrients (TN and TP) and did not quantify baseline and reduction of other pollutants. Therefore, modeling results do not provide definitive statements about other nutrients. The RAD is parameter (nutrient) specific and provides reasonable assurance for nutrients only.

- There are other inherent problems with canals that prevent the RAD committee from presenting definitive statements about reductions in pollutants other than nutrients. Canals have poor circulation and flushing, so that water quality in canals varies from one day to another. In addition, pathogens and bacteria associated with human activities can be introduced into the canals by the natural environment (birds) whose activity is hard to control.

- From a nutrients standpoint, water quality modeling has made a positive demonstration that nutrients loads are significantly improved. No such statements are made about other pollutants, such as coliforms since they were not modeled. The RAD includes statements indicating that there are ancillary benefits that have not been quantified, but that indicate that the management activities will reduce loadings of other pollutants.

- Mr. Richard Harvey strongly recommended going over results with EPA water quality control group before presenting results to stakeholders.

- The 1998 impaired water list included the Florida Keys as impaired for nutrients and this is the reason why RAD is nutrient specific. In the event that the RAD is approved, the RAD does not relieve FDEP from implementing a TMDL for other parameters.

- EPA and FDEP have separate sets of guidelines for establishing reasonable assurance. However, once the RAD is submitted to EPA Region IV, it will be distributed to all other EPA regions that will then have a chance to challenge the RAD and jeopardize the success of the RAD. The RAD committee established early on that the Keys are different from any other state, except maybe Hawaii. There are no other areas in the contiguous United States that have similar conditions to

the Keys (small watershed and large receiving water). Therefore, approval of the RAD does not set precedence in any other state, except maybe Hawaii.

Overview of FKRAD

- There are expected to be three documents:
  - Southern Keys RAD – will provide reasonable assurance for Key West, Stock Island, and possibly Boca Chica
  - Central Keys RAD – will provide reasonable assurance for Marathon, Key Colony Beach, and Layton
  - Northern Keys RAD – will provide reasonable assurance for Islamorada and Monroe County (Key Largo Wastewater Treatment District)
  - All other areas in the Keys will be included under the Technical Reference Document
- The three RADs will contain the following sections: Executive Summary, Background, Description of Impaired Waters, Description of Water Quality Targets, Description of Proposed Management Activities, Schedule to Achieve Water Quality Targets, Procedures for Monitoring and Reporting Results, Proposed Corrective Actions, and Exhibits.
- The Background will include a statement indicating that the Keys are different from any other area in the contiguous U.S.
- A Technical Reference Document will also be made part of the RAD by reference and will include Governing Regulations, Water Quality, Living Resources, Stakeholder Summaries, Management Practices, Models and Simulations, Public Involvement Program, and Bibliography.

Identified Management Activities and Estimated Nutrient Reductions

- The model underestimates load reductions from management activities and assumes maximum pollutant discharge into the nearshore waters in an effort to provide a stronger reasonable assurance. Despite the conservative assumptions, the results indicate that activities will significantly reduce nutrient loading. For example, the model considers shallow well injection and irrigation as direct discharge.
- Nutrient model inputs from wastewater, stormwater, base loads, and management actions represent natural and anthropogenic loads. Current wastewater practices in the Florida Keys contribute most of the nutrient loads introduced into the near shore waters.

- How confident should the Technical Working Group feel over the results obtained from a spreadsheet model? Is the model resolution adequate to for it to yield conclusive results? Despite the spreadsheet model appearing too simplistic and not well calibrated, the model is well documented. Furthermore, management decisions by stakeholders will be the same regardless of the complexity of the model.

Critical Stakeholder Decisions

- Management action summaries will likely be submitted to the respective stakeholders during the week of November 5, 2007.

- The next Monroe County Board of County Commission meeting is scheduled for November 14, 2007. The Technical Working Group encourages the RAD committee to attend the meeting since not all commissioners have been involved in the development of the RAD.

- RAD committee will likely submit the three RADs to FDEP by the end of 2007.

- Even if FDEP and EPA approve the RAD, there are other agencies that can protest the approval of the RAD. It behooves the RAD committee to present the RAD to Richard J. Grosso to get a legal opinion on the content of the RAD and the possibility for administrative or legal challenge.

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