


United States Nuclear Regulatory Commission Official Hearing Exhibit	
In the Matter of: Progress Energy Florida, Inc. (Levy County Nuclear Power Plant, Units 1 and 2)	
	ASLBP #: 09-879-04-COL-BD01
	Docket #: 05200029 05200030
	Exhibit #: PEF018-00-BD01
	Admitted: 10/31/2012
	Rejected:
Other:	Identified: 10/31/2012
	Withdrawn:
	Stricken:

List of Evaporation Data for Florida

Prepared by Mitchell L. Griffin for Pre-filed Rebuttal Testimony Addressing Intervenor’s Direct Testimony Regarding Passive Dewatering, Active Dewatering during Construction, and Saltwater Intrusion

Potential Evapotranspiration (ET) is a computed value of water loss from the landscape and is normally related to a reference crop like grass. Pan Evaporation is a common measurement method using a standard metal pan with water (a type of actual measurement that tends to be high). Lake evaporation is normally an estimated value based on water balance computations and is expected to be closer to the long-term average evaporation from a natural waterbody (and varies by location). The list of references for these data is included immediately below the table.

Author	Potential ET (in/yr)	Pan Evaporation (in/yr)	Lake Evaporation (in/yr)	Comments
NOAA NWS33 (1982)	NA	63	48	1956-1970 data, Pan Evap. Based on coefficient 0.76.
Visher and Hughes (1969)	NA	NA	48	As quoted by Abtew (2003)
Abtew (2004)	48	NA	See comment	Orlando area. Noted that PET and wetland ET are about the same in the Everglades region.
Knowles (1996) (PEF011)	53.2	62.6	53.2	1965-1994 data, Noted PET and lake evaporation about same; Rainbow Springs watershed in Levy County
Waylen and Zorn (1998)	NA	NA	47.2	No reference provided for data.

Author	Potential ET (in/yr)	Pan Evaporation (in/yr)	Lake Evaporation (in/yr)	Comments
IFAS Bulletin 205 (1984) (PEF024)	50 in Jacksonville, 54 in Tampa	NA	NA	Based on Penman Equation, for short well watered grass
Fernald and Purdum (1998)	41 Gainesville, 45 Tampa	62 Gainesville 65 Tampa	NA	Generalized maps provided in Atlas.
Sacks et al. (1994)	NA	67.6	59.4	1990 only, Authors reported high values due to drought. Site is east of Gainesville.
Swannear et al. (2000) (INT433)	NA	Incomplete data not totaled	57 and 56 for the two years studied	Polk County, 2 year study 8/96 through 8/98
Bacchus (2006) (INT363)	44 to 51	NA	63	This report was from mining pits near Miami (Figure 2, INT363, p. 8). Although other areas of FL are discussed, ET values are not provided for these other regions.

- Abtew, W. 2003. Evapotranspiration Estimation for South Florida. P. Bizier and P.A. DeBarry (eds.). Proceedings of the World Water and Environmental Resources Congress 2003 and Related Symposia. ASCE.
- Abtew, W. 2004. Evapotranspiration in the Everglades; Comparison of the Bowen Ratio Measurements and Model Estimations. Technical Paper EMA # 417. South Florida Water Management District, West Palm Beach, Florida. July 2004.
- Bacchus, S. 2006. Nonmechanical Dewatering of the Regional Florida Aquifer System. Geological Society of America Special Paper 404, pp. 219-234. (INT363)
- Fernald, E. and E. Purdum, Eds. 1998. Water Resources Atlas of Florida. Institute of Science and Public Affairs, Florida State University. Tallahassee, FL, pg. 33.

- Knowles, Jr., L. 1996. Estimation of Evapotranspiration in the Rainbow Springs and Silver Springs Basins in North-Central Florida. U.S. Geological Survey Water-Resources Investigations Report 96-4024, 37 p. (PEF011)
- National Oceanic and Atmospheric Administration [NOAA]. 1982. Evaporation Atlas for the Contiguous 48 States. NOAA Technical Report NWS 33. Washington D.C. June, 1982.
- Sacks, L.A., T.M. Lee, and M.J. Radell. 1994. Comparison of Energy-Budget Evaporation Losses From Two Morphometrically Different Florida Seepage Lakes: *Journal of Hydrology*, Vol. 156, p. 311-334.
- Smajstria, A.G., G. Clark, S.F. Shih, F. Zazueta, and D. Harrison. [IFAS 1984]. Potential Evapotranspiration Probabilities and Distributions in Florida, Bulletin 205. Institute of Food and Agricultural Sciences (IFAS), University of Florida. Gainesville, FL. (PEF024)
- Swancar, A., T.M. Lee, and T.M. O'Hare. 2000. Hydrogeologic setting, water budget, and preliminary analysis of ground-water exchange at Lake Starr, a seepage lake in Polk County, Florida. U.S. Geological Survey Water-Resources Investigations Report 00-4030, 65 p. (INT433)
- Visher, F.N. and G.H. Hughes. 1969. The Difference between Rainfall and Potential Evaporation in Florida. 2nd Edition. Florida Bureau of Geology Map Series 32. Tallahassee, Florida. Obtained chart presented in Abtew (2004).
- Waylen, P.R. and R. Zorn. 1998. Prediction of Mean Annual Flows in North and Central Florida. *Journal of American Water Resources Association*, 34(1), pp. 149-157.