

## Appendix G

### Risk Register

**Risk associated with decision to approve a AFB draft DPR for public and agency review and comment**

		<i>What is the problem or issue?</i>	<i>Description of consequence. What could go wrong and how could it happen?</i>	<i>Unmitigated ratings and associated data and facts effecting the assigned ratings for likelihood and consequences and the respective certainty ratings associated with each</i>								<i>Mitigation Technique and associated data and facts effecting the assigned ratings for likelihood and consequences and the respective certainty ratings associated with each</i>						<i>Mitigation Measure Ratings</i>						<i>Risk Rating Buy down Delta</i>
#	Risk Category	Risk Description	Consequences Description - Undesirable Results	Consequence	Certainty	Likelihood	Certainty	Risk Rating (consequences x probability)	Risk Rating	Certainty	Recommendation for reducing or "buy down" the risk	Consequence	Certainty	Likelihood	Certainty	Risk Rating	Certainty	Level of rating buy down from mitigation recommendation						
AFB 1	Technical Complexity	List key technical areas of uncertainty in the estimated costs and benefits of the TSP	State potential undesirable result and list key factors effecting assigned consequence and certainty ratings.			List key factors effecting the assigned likelihood and certainty ratings that the undesirable result will occur.		Summarize key factors effecting assigned risk and certainty ratings.			List key measures that may be taken to adequately fill key data gaps and/or improve the veracity of the analysis results. List key factors effecting the qualitative ratings upon which each measure listed will assure technical sufficiency of the study.							Summarize key factors effecting the assigned Consequence, Likelihood and Uncertainty Ratings for each risk reduction measure						
		Sediment load in the river	Sediment could build up behind spillway rendering less effective	L	M	While sediment is expected to build up behind the spillway it is not expected to affect the spillway performance	L	MDNR and FWS personnel are aware the the river carries a high sediment load and have plans in place to mitigate the impact	L	L	Mitigation Measure #1													
		Lamprey escapement occurs	Lamprey escape to upstream spawning habitat resulting the need to treat the River with costly chemical.	H	L	The consequence for animal escapement is high, but the likelihood is low because the design elevations are determined by detailed hydraulic modeling	L	The hydraulic modeling plus the historical flow data provide certainty in the barriers operational condition	L	H	Mitigation Measure #2													
		Technical Area #3									Mitigation Measure #3 (add others as appropriate)													
AFB 2	Scope Growth	List key areas of potential growth in the scope of the project, (ie. LERRDs, Eng & Design, Foundations, Environmental mitigation requirements, HTRW, etc).	State potential undesirable result and list the key factors effecting the assigned consequences and certainty Ratings.			List the key factors effecting the assigned Likelihood and certainty Ratings.		Summarize key factors effecting assigned risk and certainty ratings.			List key measures that may be taken to improve the accuracy of the estimated costs to adequately assure the estimated costs are within the appropriate federal limits and the sponsor's ability to share in the design and construction costs and pay for 100% of the O&M necessary to sustain the estimated benefits.													
		The barrier walkway	The walkway design could be complicated with multiple lift mechanisms	L	H	The non-Federal stated that blocking lamprey migration is the primary purpose at the Little Manistee location. There is not a large trapping operation at this location	L	Clear communication with NFS	H	H	Mitigation Measure #1													
		HTRW	HTRW found on site would complicate construction and would likely increase costs	L	H	The landuse in the project is park land and is characterized with large forest and sandy soils. There are no large industrial operations in the basin that would contribute HTRW to the site	L		L	H	Mitigation Measure #2													
		Growth Area #3									Mitigation Measure #3 (add others as appropriate)													
AFB 3	LERRDs	List key areas affecting the non-federal sponsor's ability to acquire the requisite LERRDs to build the TSP in a timely manner, (i.e. Technical resources, Legal authority, Willingness to provide disposal and borrow areas, etc.).	State potential undesirable result and list the key factors effecting the assigned consequences and certainty Ratings.			List the key factors effecting the assigned Likelihood and certainty Ratings.		Summarize key factors effecting assigned risk and certainty ratings.			List measures that may be taken to assure the sponsor has the capability to acquire the requisite LERRDs to build, operate and maintain the TSP.													
		The MDNR would be unable to provide a placement site for spillway material	Material removed for spillway construction would be subject to increase trucking distance and tipping fees at a disposal facility resulting in increased project costs	L	H	The material is suitable for unrestricted placement. The MDNR has sufficient space at the weir site to accommodate the material	L	The type of soil in question and communication with the non-Federal sponsor	L	H	Mitigation Measure #1													

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#	Risk Category	Risk Description	Consequences Description - Undesirable Results	Consequence	Certainty	Likelihood	Likelihood	Certainty	Risk Rating (consequences x probability)	Risk Rating	Certainty	Recommendation for reducing or "buy down" the risk	Consequence	Certainty	Likelihood	Certainty	Risk Rating	Certainty	Level of rating buy down from mitigation recommendation
		LERRDs Issue #2										Mitigation Measure #2							
AFB 4	Environmental Compliance	List key areas of uncertainty in the estimated impacts of TSP implementation	State the corresponding undesirable result and list key factors effecting the assigned Consequences and certainty Ratings.			List the key factors effecting the assigned Likelihood and certainty Ratings.			Summarize key factors effecting assigned risk and certainty ratings.			List key measures that may be taken to assure regulator acceptance of the measures incorporated in the TSP to avoid or mitigate impacts to natural and human resources.							
		Endangered species	The presence of an endanger ot treatend speices or near the project site could adversely effect	M	H	The Little Manatee National Forest is home to the East Missuaga Snake and have been seen	M	H	Field observations and coordination with FWS and MDNR personnel	M	H	Silk fencing will be installed to keep the snake out of the projec site; the site will be inpsected daily for	M	H	H	H	M	H	Field observations of the snake;
		Environmental Area #2										Mitigation Measure #2							
		Environmental Area #3										Mitigation Measure #3 (add others as appropriate)							
AFB 5	Compliance with Law & USACE Policy	Identify areas in policy or law that could impact implementation of the TSP, (i.e. TSP=LPP, Sponsor unwilling or unable to provide soil disposal and borrow areas, HTRW, etc.)	State the corresponding undesirable result and list key factors effecting the assigned Consequences and certainty Ratings.			List the key factors effecting the assigned Likelihood and certainty Ratings.			Summarize key factors effecting assigned risk and certainty ratings.			List key measures that may be taken to assure compliance with USACE policy							
		The TSP might be use to fulfill MDNR capital investment goals	Federal dollars would be use to complete improvments to the State run facility	L	H	Commication with the MDNR and FWS personel decreases the likelihood that Federal funds would be used improperly during projec implementation	L	H	The project scope is finite and its components clearly defined	L	H	If necessary implementation of the Federal project would be put on hold until the State completed it capital improvements	M	M	L	H	L	H	
		Policy Issue #2.										List measures to resolve Policy Issue #2.							
		Policy Issue #3.										List measures to resolve Policy Issue #3.							
AFB 6	Viable non-federal sponsor to cost share project implementation.	Identify key areas of uncertainty in sponsor's capabilities to enter and fulfill requirements of a PPA, (i.e. Eligibility, Provide clean LERRDs, Meet cost share, Perform O&M, etc .	State the corresponding undesirable result and list key factors effecting the assigned Consequences and certainty Ratings.			Summarize factors effecting likelihood prospective sponsor will decide to enter a PPA with USACE.			Summarize key factors effecting assigned risk and certainty ratings.			List key measures that may be taken to assure viability of non-federal sponsor							
		The non-Federal inability to meet its cost share for implementation	The project would be shevled until the NFS could afford it. FWS would likely be required to treat the river upstream of the project site	L	H	The GLFC has placed a high priory on lamprey control in the Little Manistee River. It is one of the rivers of concern in the overall lamprey control program	H	H	The GLFC history for cooperating with USACE on lamprey control projects	H	H	Constant and opend communication with the NFS.							
		Sponsor Uncertainty Area #2										Mitigation Measure #2							
		Sponsor Uncertainty Area #3										Mitigation Measure #3 (add others as appropriate)							