

International Boundary and Water Commission

United States and Mexico

United States Section

4191 N. Mesa, El Paso, TX 79902



Minimum Levee Testing Requirements

USIBWC Directive SD.II.01031-M-1 Appendix D

Established by Design Engineer	USIBWC Minimum	ASTM	Test Name	REQUIREMENT	Minimum Frequency	IBWC Required Forms
X	X	D698 D1557	Proctor	Required for quality control of construction	2,000 cy	
	X	D6913	Grain Size Analysis	$\geq 60\%$ passing 200, $100\% < 1''$	1,000 cy	
	X	D6572	Crumb	Grade 1	1,000 cy	
	X	D4647	Pinhole	ND1 or ND2	1,000 cy	
	X	D4221	Double Hydrometer	Less than 30	1,000 cy	
	X	D2487	USCS	CL or CH only (<i>CL-ML or any soils other than clay not allowed</i>)	1,000 cy	
	X	D4318	Atterberg Limits	$PI \geq 15$ (<i>PI and LL range set by Design Engineer</i>)	1,000 cy	
	X	D6938	Field Density Measurement	Minimum of 95% of max dry density for D698. Minimum of 92% of max dry density for D1557.	2 per day or 1 per every 250 cy placed, whichever greater	
	X	D6938	Field Moisture Content	Minimum at optimum. Usually moisture content between optimum and +2 of optimum.	Whenever field density is taken	
	X	D6938	Nuclear Gauge Standard Count	Verify nuclear gauge readings/stability.	Prior to use of each gauge, each day onsite	Form 241
	X	D2216	Lab Moisture Content	Verify nuclear gauge readings	Every 20 ASTM D6938 tests	Form 240

- Design Engineer shall increase USIBWC minimum requirements and frequency as required for their project. Requirements can not be reduced.
- Method B shall be used on all Proctors (D698 and D1557). Use of ASTM D698 or ASTM D1557 shall be determined by Design Engineer. USIBWC prefers ASTM D698.
- Grain Size Analysis shall use sieves sized 2 inch, 1 inch, 3/8 inch, 4, 10, 20, 40, 60, 140 and 200 at a minimum. **Includes hydrometer testing of material below 200 sieve.**
- Clay used shall not be blended with any other material if it meets these requirements.
- Minimum frequency assumes a large project. Small projects shall increase frequency appropriately.
- The most recent version of ASTM standards shall be used.
- Forms are available at www.ibwc.gov/resources-info/.

APPROVED: **RAMON MACIAS**

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for Dr. Maria-Elena Giner, P.E., Commissioner