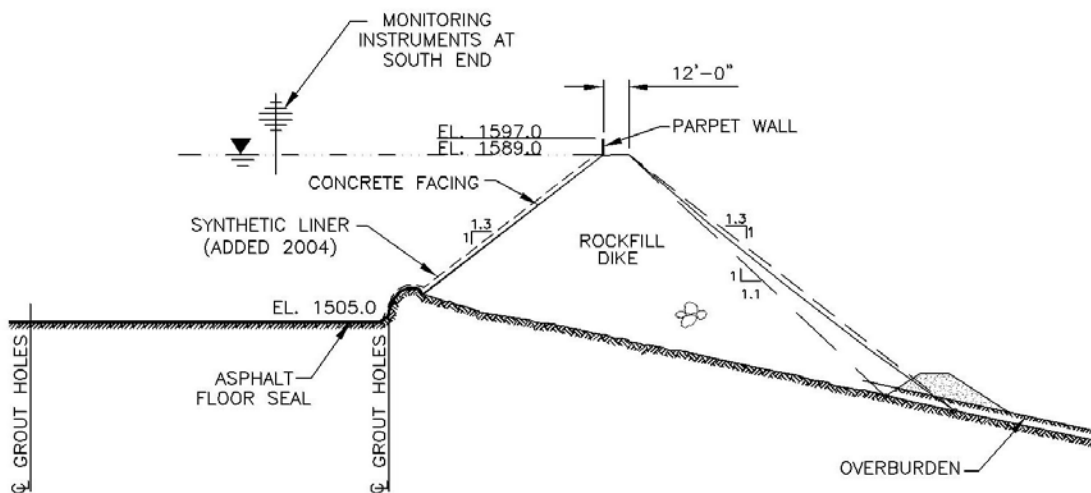


## 6.0 DEFINITION OF THE UPPER RESERVOIR BARRIERS

In this Section we define the barriers available at the Taum Sauk Plant to prevent “*the uncontrolled, rapid release of water from the Upper Reservoir.*” Reference is made to *Figure 6-1* and *Table 6-1* prepared for this purpose. It is noted that *Table 6-1* also includes postulated failure modes of each of the barriers, which, in turn, form the basis of the data assessment and investigations addressed in *Section 7.0*.



**FIGURE 6-1**  
**BARRIERS TO RAPID RELEASE**

**TABLE 6-1****UPPER RESERVOIR BARRIERS AND POTENTIAL FAILURE MODES**

BARRIER NO.	DESCRIPTION	POTENTIAL FAILURE MODE	INVESTIGATION METHODOLOGY
1	Rockfill Dike	Wedge or Sliding Failure	Test Borings, Test Pits, Laboratory Tests, Design Review, Field Inspection and Analysis
		Circular Stability Failure	
		Piping Failure	
2	Concrete Face	Undermining of the Concrete with Consequential Structural Failure of the Concrete	Design Review, Field Inspection and Analysis
		Structural Failure of the Concrete with no undermining	
		Failure of the Waterstops	
3	Synthetic Liner	Loss of Support and Consequential Puncture or Tear Failure of the geosynthetic material	Design Review, Field Inspection and Analysis
4	Parapet Wall	Undermining of Foundation	Design Review, Field Inspection and Analysis
		Structural Failure of Concrete	
		Sliding Failure	
		Overturning Failure	
		Failure of the Joint Material between Wall Segments	
5	Asphalt Pavement of Reservoir Bottom	Excessive Leakage	Design Review and Field Inspection
6	Grout Curtain	Excessive Leakage	Design Review and Analysis
7	Foundation Filters	Clogging	Design Review and Analysis

**TABLE 6-1  
(CONTINUED)**

<b>BARRIER No.</b>	<b>DESCRIPTION</b>	<b>POSTULATED FAILURE MODE</b>	<b>INVESTIGATION METHODOLOGY</b>
8	Instrumentation	Support Failure	Design Review, Records Review and Interviews
		Power Failure	
		Loss of Redundant Devices	
		Failure of Measurement Device	
		Failure of Transmission System	
		Failure of Readout Device	
9	Operator Action	Failure to Read Instruments	Records Review and Interviews
		Failure to Take Action after Reading Instrument	
		Failure to Take Adequate Training	
		Failure to Follow Operational Procedures	
		Failure to Follow Inspection Procedures	
10	Management Oversight	Failure to Provide Adequate Training	Records Review and Interviews
		Failure to Provide Adequate Maintenance Procedures	
		Failure to Provide Adequate Redundant Systems	
		Failure to Provide Adequate Inspection Procedures	
		Failure to Respond to Project Inadequacies Found during Inspection Procedures	