

## 10.0 SUMMARY RESULTS OF BARRIER ANALYSIS

The Barrier Analysis described in *Section 5.0* developed eight (8) questions to be addressed to the ten (10) Barriers described on *Table 6-1* and investigated and analyzed in *Sections 7.0 through 9.0*. This Section summarizes the results in the formalized DOE Barrier Methodology as adopted for this forensic investigation.

The eight (8) questions developed in *Section 5.0* are repeated as follows for the convenience of the reader.

1. Did the Barrier perform its intended function under normal operating conditions?
2. Did the Barrier perform its intended function under the upset or faulted condition?
3. Did the Barrier mitigate the event severity?
4. Was the Barrier design adequate?
5. Did the Barrier design contemplate the occurrence of the Event?
6. Was the Barrier construction adequate?
7. Was the Barrier adequately maintained?
8. Was the Barrier inspected prior to Event?

These questions are addressed and answered in *Table 10-1*. Those marked in “red” are direct, root causal in nature or are primary contributing causes, those marked in “yellow” are contributing secondary or tertiary causes and those “uncolored” are considered non-contributing causes to the Event. A “Y” is a yes or affirmative answer, an “N” is a no or negative answer and an NA implies that the question is Not Applicable to the Barrier.

**TABLE 10-1**

**BARRIER ANALYSIS SUMMARY**

	DIKE	FACE	LINER	PARAPET	ASPHALT	GROUT	FILTERS	INST.	OPERATOR	MGMT
Perform under normal operating conditions?	Y	Y <sup>(1)</sup>	Y	Y <sup>(1)</sup>	Y <sup>(1)</sup>	Y <sup>(2)</sup>	Y <sup>(2)</sup>	N	Y	Y
Perform under the upset or faulted condition?	N	NA	Y	N	Y <sup>(1)</sup>	Y <sup>(2)</sup>	Y <sup>(2)</sup>	N	Y <sup>(1)</sup>	Y <sup>(1)</sup>
Mitigate the event severity?	Y	Y	Y	Not Clear	Y	Y	Y	Y	N	N
Barrier design adequate? (3)	N	Y	Y	N	Y	N	N	N	NA	N
Design contemplate the Event?	N	N	N	N	N	N	N	Y	Y	Y
Barrier construction adequate? (4)	N	Y	Y	Y <sup>(1)</sup>	Y	N	N	N	NA	Y
Barrier adequately maintained?	Y	Y	Y	Y <sup>(1)</sup>	Y	NA	NA	N	Y <sup>(1)</sup>	Y <sup>(1)</sup>
Barrier inspected prior to Event?	Y	Y	Y	Y	Y <sup>(5)</sup>	Y <sup>(5)</sup>	Y <sup>(5)</sup>	Y	Y	Y

NOTES:

1. Yes, but possibly not as fully as the designer intended.
2. Yes, but possibly not as fully as intended by the designer, but there is no strong evidence in the affirmative or negative.
3. Compared against standards and practice in 2006 as opposed to the practice in the late 1950s and early 1960s.
4. Compared against the designer's original intent and construction specifications.
5. Yes, to the extent practical or with indirect measurements or observations. FERC mandated inspections conducted as required.