

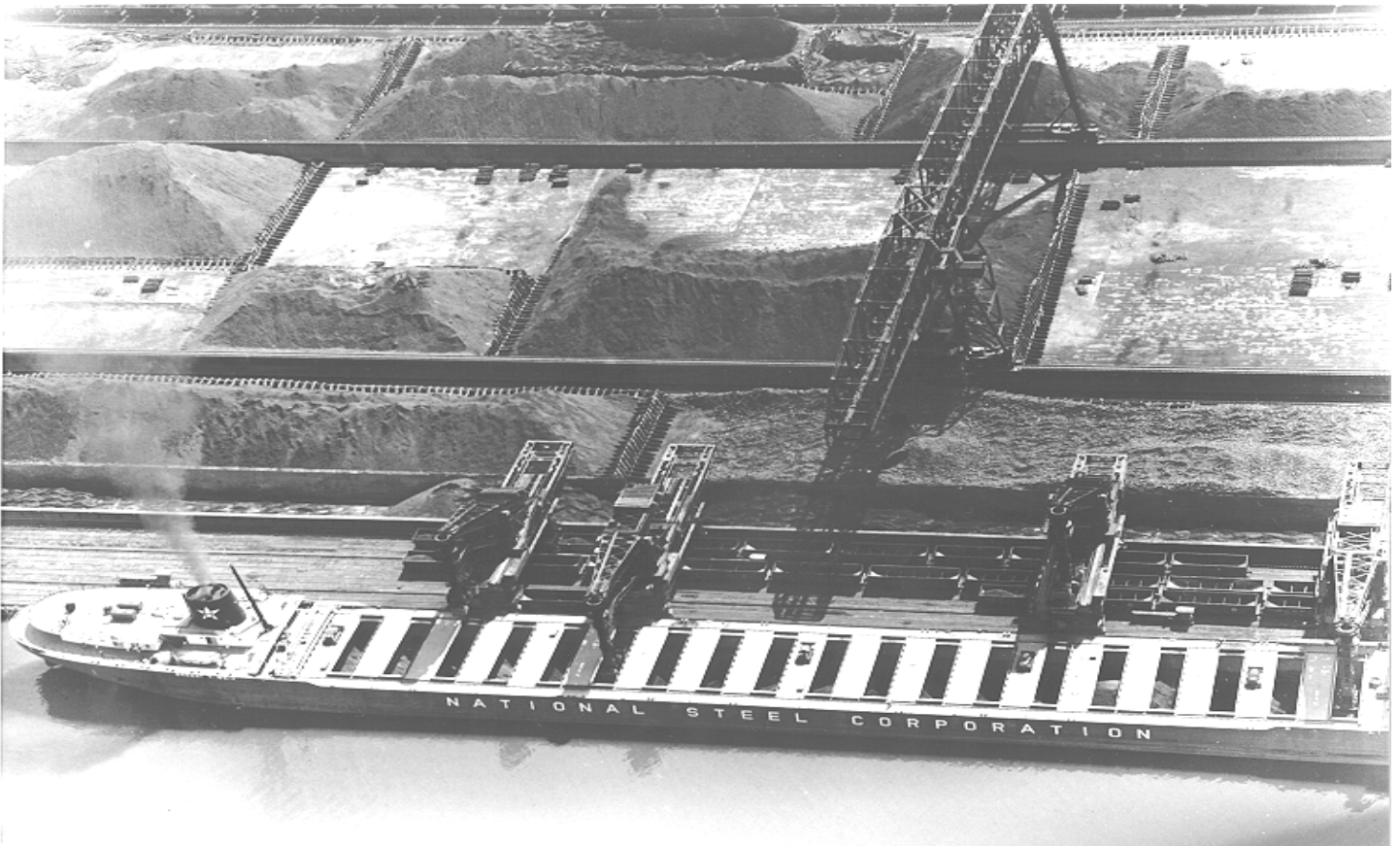
**Homework Assignment**  
**Forensic Engineering Class**  
**University of Texas at Austin**

Student preparation for presentation by David H. Nicastro, P.E. of Engineering Diagnostics, Inc.

**Due Date:** Bring completed homework assignment to class on October 28, 2002.

**Assignment:**

1. Read *Failure Mechanisms in Building Construction*, pages 2-6 and pages 76-103.
2. How many failure mechanisms require water to operate? (e.g., require water as a catalyst or a solvent, or require an aqueous solution, or require water molecules to be available).
3. Below is an aerial photograph of an ore bridge, to give you an idea of what one looks like when it is in service. The following page has 2 photos of another ore bridge taken by a night watchman immediately after it collapsed. The bridge had been closed for repairs, and the construction began the day of the collapse. All workers left the site at 5:00 p.m., and the bridge collapsed about 30 minutes later. Because the bridge fell on railroad tracks that needed to be cleared immediately, the bridge was demolished with explosives. These 2 photos are the only evidence available. List the possible causes of failure that should be investigated, including specific failure mechanisms. (Hint: Engineering Diagnostics' list was 2 pages long, single-spaced.)



**Photo 1**



**Photo 2**



**Photo 3**