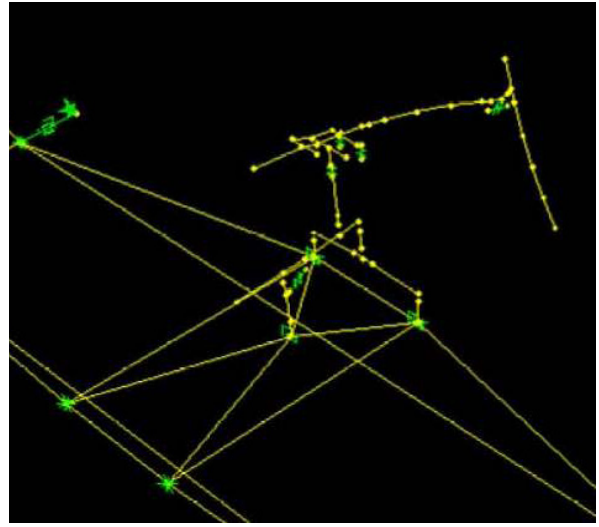


Calculated Unloader Deformations



Unloader Seismic Study Sacramento, California

Liftech performed a seismic response study of a ship unloader on a stiff wharf structure and a flexible wharf structure.

The study included a finite element time history analysis and a pushover analysis for three design Operating Level Earthquakes and three Contingency Level Earthquakes used for design by a port on the West Coast of the United States.

The study provided an understanding of the seismic response of the structure including displacements, dynamic characteristics, stability, and forces and moments within the structure. Time history results included maximum forces and moments and their concurrent forces and moments at key locations on the structure.

Liftech also provided recommendations to improve the structure's seismic performance.