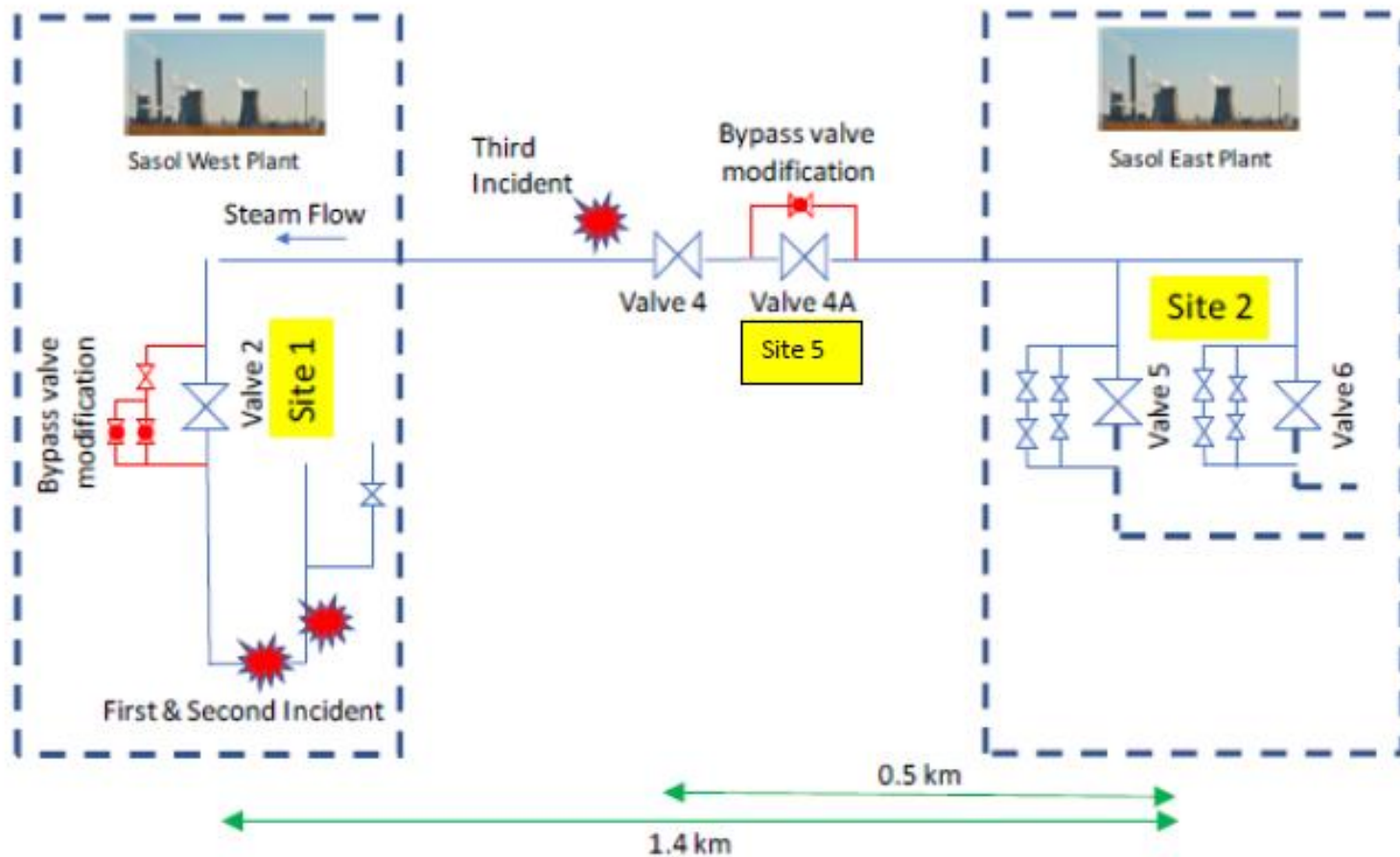


Incident Learning: What happened?

- After installing the new inter-transfer isolation valves on the 40 Bar steam transfer header, the system was started up by using the new warm-up bypasses.
- During this time a number of small bore items broke off resulting in the shutdown of the system.
- After two unsuccessful attempts, it was then decided to warm-up using the existing system at Site 2.
- No vibrations were noted. Even though the header was finally warmed-up and started, these new isolation valves need to be used in future (to allow for isolation of the header for inspection or future tie-ins), therefore it is imperative that a permanent solution is established.

What happened?



What are the learnings for implementation?

- A lack of experience and awareness of the Acoustic Induced Vibration phenomenon in steam system.
- A lack of experience and awareness on large and complex steam system start-up.
- Gaps in specification it did not specifically identify AIV phenomena, it only talks about vibration in the context of steam collapsing/water hammer.
- The specification only noted a single bypass which is not consistent with existing bypass arrangements.
- The specification only indicated a size but it did not explain if this is a maximum size.
- Some existing warm up bypasses are greater than the size indicated in the specification.
- The requirement for a specific globe valve type was also not dictated in the specification.
- The design basis was contradictory to the specification. The misalignment was never challenged.
- The design basis and final design deviated from the specification yet there was no concession requested.

