

SEPA incident report 0154 – Investigative report.

Incident Description: On the 6th August 2012 at approximately 13-40hrs a pipe burst occurred on Stream 1. The pipe burst occurred on the outlet pipe from the first evaporative section of the boiler. A decision was made to quench Stream 1 and as a precaution Stream 2 was brought off line whilst the circumstances of the pipe burst could be fully understood. A full investigation was initiated in conjunction with the boiler manufacturers GPL. The by-pass stack was activated at the time of the incident and remained open, the last PGC was brought offline sometime after the start of the incident, 3hrs 11 minutes approx. The by-pass stack remained open until the system was cooled and internal access for inspection was complete. Emissions from the by-pass were minimised through maximum turndown of the PGC's in operation (3 out of 4, 1 offline). Quenching of the select PGC's took place whilst on turndown. The SCC was operated normally throughout the incident. Stream was processing wholly non-haz wastes at the time of the incident.

The incident was reported to the HSE on-line (Report Number: 74ABE75EB5) on the 7th August 2012 and to SEPA by telephone and e-mail on the 6th August 2012 (Report Number: 0154)

Initial Findings: investigations point to the following conclusions-

- Steaming in the first evaporative section and header of Stream 1 which produced steam at a temperature greater than the design temperature of the pipe work.
- The temperature trip switch TS 3377/1 did not operate on the system. On independent laboratory testing following the incident the switch failed to initiate within its design criteria.
- Initial visual investigations show no erosion or corrosion within the damaged pipe work.
- A sample of the damaged pipe work will be tested in a metallurgical laboratory to confirm GPL's initial investigation.

Property damage: Pipe work in the vicinity of the outlet pipe was damaged with some damage to the roof section close to the pipe.

Planned works: The temperature trip switch is being replaced with a thermocouple type instrument that will allow a warning and alarm to be activated before any activation of the trip. Scotgen are replacing the 'latching type temperature switch' with a 'temperature sensor and controller'. The new installation has the advantage of being able to measure continuous temperature which will allow monitoring of normal running temperatures. The new set up will be installed on both streams.

Further investigation works will be undertaken prior to any repair works being undertaken on boiler 1. This will include metallurgical testing to confirm initial conclusions and ensure the efficacy of the boiler to be repaired. The completed works will include the testing and recertification of the boiler by a competent pressure vessel company and Scotgen's appointed competent person 'Allianz Engineering' under the written Scheme of Examination. The following works will be undertaken prior to works recommencing:

Stream 1

- Undertake metallurgical laboratory analysis of damaged pipework.
- Competent contractor to undertake pipework repair

Stream 2

- Test temperature safety trip switch system and risk assess its suitability.
- Amend/ review operating manual.
- Revisit operator training and revise documentation.
- Review boiler venting procedure.

Stream 1

- Undertake metallurgical laboratory analysis of damaged pipework.
- Competent contractor to undertake pipework repair
- Replace the temperature switch in line with recommendations from findings on Stream 1
- Hydro-test boiler to allow recertification of the boiler with the relevant Insurer's / Scotgen's competent person 'Allianz Engineering'.

End

- Replace the temperature switch in line with recommendations from findings
- Hydro-test boiler to allow recertification of the boiler with the relevant Insurer's / Scotgen's competent person 'Allianz Engineering'.

The time table for these works to be carried out by the competent pressure vessel company is awaited and SEPA will be updated accordingly

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