Aliso Canyon SS25 Well Leak Investigation Overview

October 2016
Two State Investigations and Independent Root Cause Analysis

CPUC = California Public Utilities Commission
DOGGR = Division of Oil, Gas and Geothermal Resources
Blade Energy Partners = Independent 3rd party
Phases of Root Cause Analysis

Phase 0: Data Collection, Collation & Analyses
Start Time Period: January 29th 2016

Phase 1: Aliso Canyon SS25 Site Evidence Collection & Documentation
Start Time Period: Post Cement & Well Kill Certification

Phase 2: Aliso Canyon SS25 Site Restoration to Rig Readiness
Start Time Period: Post Site Documentation

Phase 3: Aliso Canyon SS25 Tubing/Casing/Wellhead Extraction
Start Time Period: Post Rig Readiness

Phase 4: Aliso Canyon SS25 Non-Destructive & Laboratory Metallurgical Examination
Start Time Period: Post Extraction

Phase 5: Aliso Canyon SS25: Integration & Interpretation; Final Report
Start Time Period: Post Laboratory Examination
Root Cause Analysis: Current Activities

Phase 2: SS25 Site Restoration to Rig Readiness (Active)
- Finalize Phase 3 Protocol
- SoCal Gas to file an NOI with DOGGR for Phase 3
- Rig Construction at SS 25

Phase 3: Tubing/Casing Extraction (Preparing)
- Phase 3-A 2-7/8” Tubing Recovery and 7” Logging
- Phase 3-B Upper 7” Casing Recovery and 11-3/4” Logging
- Phase 3-C 11-3/4” Casing Recovery and Tieback 11-3/4”
- Phase 3-D Lower 7” Casing Recovery and Tieback
Looking Ahead to Phase 3: Tubing & Casing Extraction

**Step 1:** Cut and recover the 2-7/8" tubing, all the way down to the cement plug at ~7,000 feet

*Perform Diagnostic Testing*

**Step 2:** Recover the 7" casing. Will try to get down to 895 feet, then re-evaluate safety. If feasible, will attempt to extract casing down to ~4,500 feet.

*Perform Diagnostic Testing*

**Step 3:** Recover the wellhead and tree

*Prepare site for Plug and Abandon*
Looking Ahead to Phase 4: Non-Destructive & Metallurgical Examination

Phase 4: Aliso Canyon SS25 Non-Destructive & Laboratory Metallurgical Examination

Blade Energy Partners selected two labs to perform evidence examination and testing:

- Failure Analysis Laboratory (https://www.element.com/locations/usa/houston)
- Inspection Services Company (http://www.pattersontubular.com/)

There are several types of examination and testing that will be performed:

- Visual examination and dimensional analysis
- Surface preparation
- Non-destructive examination
- Corrosion examination
- Fractographic examination
- Mechanical testing and compositional analysis
Investigation Transparency

- SS 25 site has video cameras around the perimeter, covering the area from different angles and providing for variety of points of view
- A viewing facility has been set-up for interested parties (e.g. plaintiff attorneys and their experts) to observe activities at SS25 during evidence extraction
- Protocols for evidence extraction have been shared with the interested parties for comments, questions and feedback
- Investigation related data that’s being shared with SoCal Gas for operational reasons (e.g. data from diagnostic runs) is also being shared with interested parties
- Laboratory testing will allow for observation by interested parties
- Public information is being posted on the website at http://www.cpuc.ca.gov/aliso/
- For access to view viewing, copies of protocols and other investigation related questions, please contact Safety and Enforcement Division attorney Nicholas Sher nicholas.sher@cpuc.ca.gov or 415-703-4232
Thank you!