# Work Plan

## Aliso Canyon RCA: SS-25 Tubing and Wellhead Logistics

### Purpose:
Define the Work Plan for moving the 2-7/8” tubing and wellhead equipment from Aliso Canyon to Houston, Texas.

### Prepared For:
**SS-25 RCA CPUC, DOGGR**

<table>
<thead>
<tr>
<th>Version:</th>
<th>Date:</th>
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<tr>
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<td>18th October 2017</td>
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### Project Number:
**SCG-16-001**

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## Version Record

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<th>Version No.</th>
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## Revision History

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<td>2</td>
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<td>Item 1 in Section 2</td>
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<td>3</td>
<td>July 31st, 2017</td>
<td>Introductory statements in Section 1</td>
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<tr>
<td>4</td>
<td>October 15th, 2017</td>
<td>Put specific references to the trucking and the security company</td>
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<td>5</td>
<td>October 18th, 2017</td>
<td>Minor edits</td>
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1 Background

Blade is in the process of conducting a Root Cause Analysis (RCA) of the October 2015 gas leak in the Southern California Gas Co. Aliso Canyon gas storage field located near Porter Ranch, California. Blade has provisional authority as granted by the CPUC to conduct a Root Cause Analysis (RCA) on well SS-25. The Blade Team and the parties under Blade’s direction are responsible for transporting the tubing and wellhead to Houston. The person in charge (PIC) of the RCA is the Blade Team Lead, Ravi Krishnamurthy. Should clarification be required or disagreements arise CPUC, DOGGR and Blade shall meet and attempt to agree on steps going forward. If the entities are unable to agree on any activities described for tubulars handling for SS-25, Blade will document such differences and the designated regulatory agency will act as the arbiter, and make the final decision.

Blade reserves the right to deviate from these procedures as unique situations arise. Furthermore, the Blade team shall document any significant deviation from these procedures that may affect the ability to collect data and evidence for RCA purposes, and will notify the CPUC and DOGGR. Blade shall obtain appropriate approvals from CPUC and DOGGR in advance of subsequent activity, however, should agreement not be reached, Blade will document such differences and the designated regulatory agency will act as the arbiter, and make the final decision.

244 joints of 2-7/8” tubing were extracted from Well SS-25. After extraction, the tubing was cleaned, inspected and prepared for transport and loaded in bolsters for shipping to Houston, Texas.

All steps for extraction through preparation for shipping are covered by the following protocol documents that have been previously issued.

SS-25 Phase 3 Tubing, Casing, Wellhead Extraction Protocol, Version 6 (or latest version)

Phase 3 – Wellsite Tubulars Handling Protocol, Version 4 (or latest version)

The following are details for the shipment of 2-7/8” tubing bolsters.

1. Average joint length of 31’ based on actual measurements taken during the extraction process.
2. Bolster weight maximum of 8,000 lbs based on crane limitations in the Houston warehouse
3. 244 joints of tubing from SS25 will be shipped.
4. In addition to the 244 joints from Well SS-25; an additional 4 joints of non-SS-25 tubing will be shipped to be used as test joints in the inspection process
5. Total of 7 bolsters will be shipped. Bolster details in Appendix A.
6. Each bolster is 31.5” wide x 29.0” high and approximately 32’ length (2.63’ wide x 2.41’ high x 32’ length)
7. Two trucks will haul the 7 bolsters.
8. 3 tubing joints required special handling, and were packaged separately in a crate.
9. Wellhead components will be transported in 12 crates.
10. In total, there are two wooden enclosures that will encompass 244 bolstered joints. In addition there will be 12 crates containing wellhead sections and one crate containing three tubing joints. All wood enclosures and crates will have tamper-evident tape.
2 Logistics Details

The following steps define the logistics process for tubing transportation from Aliso Canyon to the Aliso Canyon SS-25 Root Cause Analyses Storage facility in Houston Texas. Should any accident or anomaly occur during transport, the CPUC should be notified immediately by calling Kenneth Bruno (415) 852-2936 or Elizaveta Malashenko at (415) 792-3263

1. Doby Hagar Trucking Inc., will transport the tubing and wellhead equipment to Houston. There will be two trucks.

2. Pinkerton will be the third party security escort. The purpose of the security escort is to observe / witness and ensure secure tubing transportation to Houston. The security escort will include two teams of two armed guards that will travel with the trucks.

3. All 7 bolsters will be loaded at Aliso Canyon and all 7 bolsters will travel together in a convoy to Houston. The bolster details are summarized in Appendix A. All wellhead equipment will be transported together with the tubing. The wellhead and three tubing joints are being transported in crates. The details on the wellhead crates are provided in Appendix B. Two trucks will be necessary to transport the tubing and wellhead.

4. The tubing bolsters are within protective wooden enclosures. Wellhead components are contained in wooden crates. Three tubing joints are also contained in a wooden crate. There are tie-down straps holding the wooden enclosures in place. The locking mechanism for these straps will be sealed with numbered Blade zip ties, which will be used to identify tampering during transportation. Additionally, all wood enclosures and crates have tamper-evident tape.

5. A Chain of Custody (COC) document that was prepared per “AC-RCA Phase 3 Tubulars Handling Protocol Rev 004, 31-July-2017” will be used to track the tubulars during transportation. There is a COC form for every tubing joint and wellhead component. COC will be signed by Blade personnel at Aliso Canyon PS20, and custody will be transferred to Doby Hagar Trucking. The COC documents will travel in the truck with the tubing. A copy of the driver’s license for all the truck drivers will be retained by Blade.

6. There will be a video recording of the crated load on the truck through the entire transportation process. The security escort will also have a camera that is recording the entire transportation process. The security escort will log all events throughout the trip and will provide it to Blade in Houston.

7. The convoy will travel straight through, stopping only for fuel and meals with 2 drivers per vehicle. At every stop, the loads, Blade zip ties and tamper-evident tape will be visually assessed by Pinkerton security and ensure no tampering. All these stops, inspections and any other events along the drive to Houston will be part of the Pinkerton Security report. Doby Hagar Trucking may require removal of the Blade zip ties to further tighten the wooden enclosure tie-down straps. The security escort will retain and preserve the removed Blade zip ties then install replacement Blade zip ties; such events will be logged by Pinkerton. Any removal of tamper-evident tape due to wind loads will be documented by Pinkerton.

8. When the convoy nears the Houston area, contact will be made with Blade Energy Partners to arrange for Blade to receive the tubing and wellhead equipment.
9. Doby Hagar Trucking will relinquish the tubing and wellhead over to Blade per the COC process. The trucks will back into the storage facility. The Blade zip ties and tamper-evident tape will be inspected for breach of seal. The wood enclosures will be dismantled and a crane will offload the bolsters. Crane operators and slings for offloading will be provided by Blade. On receipt of the tubing crates in Houston, a visual inspection of the bolstered tubing will be conducted to confirm lack of damage and tampering. The Pinkerton report will be reviewed to verify their visual inspection during transportation. Finally, the video recording of the tubing transportation from Doby and Pinkerton will be obtained by Blade. Copies of this recording and all the reports by Doby and Pinkerton will be sent to CPUC and DOGGR investigative teams.

10. Once the trucks are offloaded and the paperwork is completed the Doby Hagar trucks and Pinkerton will be released.
2.1  Aliso Canyon SS-25 Root Cause Analyses Storage Facility

5504 Clara Road; Houston, Texas 77041
2.2 **Blade Contacts in Houston for Receiving and Offloading**

Prior to arriving in Houston, contact Blade and make arrangements to meet at the warehouse for Blade to receive the tubing and offload the trucks.

Ravi Krishnamurthy  Mobile Tel 832.309.6087
3 Appendix A: Tubing Bolster Maps

![Bolster Maps](image-url)
All joints are bolstered aside from 3 joints, namely T028, T029, and T116 and are crated per pictures above.
## 4 APPENDIX B WELLHEAD CRATE DETAILS

### 4.1 Wellhead Crating Inventory

The inventory of the individual wellhead crates are shown below.

<table>
<thead>
<tr>
<th>Number</th>
<th>Crate Label</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>W001A</td>
<td>W001A – Actuated Valve</td>
</tr>
<tr>
<td>2</td>
<td>W001B</td>
<td>W001B – Manual Valve</td>
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<tr>
<td>3</td>
<td>W001C</td>
<td>W001C – Manual Valve</td>
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<td>W001D</td>
<td>W001D – 1502 Adapter</td>
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<td>W001E</td>
<td>W001E – Flow Cross</td>
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<td>6</td>
<td>W001F</td>
<td>W001F – Master Valve</td>
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<tr>
<td>7</td>
<td>W001G, W002</td>
<td>W001G - Tubing Head Adapter, W002 – Studs and Nuts</td>
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<tr>
<td>8</td>
<td>W003</td>
<td>W003 – Tubing Hanger</td>
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<tr>
<td>9</td>
<td>W004A</td>
<td>W004A – Tubing Head Wing Valve</td>
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<tr>
<td>10</td>
<td>W004B</td>
<td>W004B Tubing Head and Double Studded Adapter</td>
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<tr>
<td>11</td>
<td>W004C</td>
<td>W004C – Tubing Head Wing Valve</td>
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<tr>
<td>12</td>
<td>W005</td>
<td>W005 – Casing Slips and Seal Assembly</td>
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Along with the details of the wellhead components, the process of crating is shown below.
Tree and Wellhead Labelling
Crating Process

1. Disassembled
2. Cleaned
3. Inspected
4. Coated Internally
5. Placed on mylar bag
6. VCI pad enclosed
7. Vacuum packed
8. Heat sealed
9. Crate assembled, secured and logged into evidence trailer