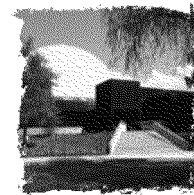




APPLIED TECHNOLOGY SERVICES

Non Destructive Examination

3400 Crow Canyon Road, San Ramon, CA 94583



Data Sheet for RT Characterization of DSAW vs. SSAW Pipeline long seam welds

Examiner/Level (Print): _____

(Sign) _____

Company: PGE / ATS

Interpreter/Level (Print) _____

(Sign) _____

Company: PGE / ATS

Reviewer/Level (Print) _____

(Sign) _____

Company: PGE / ATS

Date: _____

Line No.: _____

Location: _____

GPS data: _____

Pipe Size: _____

Documented pipe thickness: _____

Minimum thickness found: _____

OD Corrosion: Yes* No*

NDT Equipment, Procedures and Results

RT Procedure #: _____

Length of weld examined: _____

RT method: X Ray* Gamma* Se⁷⁵
Ir¹⁹²

Acceptable to API 5L: Yes* No*

UT Procedure #: _____

UT Equip. Serial numbers: _____

Surface NDT Procedure #: _____

Surface NDT method: _____

Surface NDT results: _____

Acceptable or Rejectable: Accept* Reject*

Note * delete or line through where applicable

Weld Characterization

DSAW

SSAW

OTHER

Similar width OD & ID crowns.

OD crown but no uniform ID crown.

Only OD crown, with possible ID repairs.

Light density at weld center across superimposed crowns.

Evidence of possible use of temporary chill ring.

Evidence of repairs.

Visible edges of OD & ID weld crowns.

More uniform density across weld crown indicating less reinforcement on ID.

Grinding marks.

In the "Flat Topped" area, the ID weld crown will have a uniform density across the 4-inch area and a weld bead characteristic of a machine submerged arc weld (uniform with bead width similar to OD crown).

Root geometry.

Moderate weld indications observed.

DSAW vs. SSAW Characterization Radiography Guidelines:

- A) Take initial RT exposure of the area to be characterized to evaluate weld and base metal condition.
- B) Take UT thickness measurements of adjacent base metal. This will be used as information during "flat topping".
- C) Mark 4-inch long section and carefully grind off the OD weld crown. Avoid grinding into the base metal and ensure a 1:3 taper on the ends of the ground region. The UT data above is information only for grinding purposes.
- D) After grinding flush the 4-inch long section, take a second RT exposure using the guidelines described in steps E through I below. After completing the second RT exposure, continue with steps J through M.
- E) Place lead "V" markers along the two edges of the OD weld crown in two areas (the "V" markers are used to identify the OD crown edges).
- E) Use a 1-inch increment number belt to clearly define area of interest (position belt ~ ¼" from edge of seam weld).
- F) Place the source exactly 180° from the center of the weld seam (shoot thru the OD cap)
- G) Use D5 and D4 film or equivalent for conventional radiography. Density should be between 2.5 and 3.5.
- H) Use appropriate penetrometer for weld pipe thickness
- I) Take photographs of the final set-up showing the "flat top" area, "V" markers, penetrameters and source position.
- J) As an option, the width of the ID weld crown can be verified using a Ultrasonic "A" scan (noting the transition from the base metal to the ID weld toes and measuring the distance between the weld toes). This method is only use for information only to help validate the RT data.
- K) Make final evaluation of film/images based on the criteria listed above for DSAW and SSAW welds.
- L) After RT shot, complete film report, this data sheet and submit to PG&E customer along with the film/images.
- M) After the RT activities are completed, perform an MT inspection of the 4-inch section that was ground flush in step C above. Either the MT dry power or wet fluorescent techniques are acceptable. Document the results in a separate MT inspection report.

FINAL CONCLUSION (circle or underline):

DSAW

SSAW

OTHER

GENERAL COMMENTS:

- 1) Add additional comments regarding characterization if applicable:
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Disclaimers:

- 1) Best effort.
 - 2) Based on most typical conditions.
 - 3) Abnormal conditions could affect interpretation reliability, such as:
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