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Via Email and Overnight Delivery

April 2, 2018

Ms. Mary McDaniel, P.E.
Director, Southwest Region, OPS
Pipeline and Hazardous Materials Safety Administration
8701 S. Gessner, Suite 900
Houston, TX 77074

Re: Request for Hearing, Renewed Request for Documents, and Preliminary Statement of Issues, Cheniere Corpus Christi Pipeline, CPF No. 4-2018-1002

Dear Ms. McDaniel:

As provided under 49 C.F.R. §§ 190.208(a)(4) and 190.211, Cheniere Corpus Christi Pipeline (CCP) respectfully submits the attached Request for Hearing, Renewed Request for Documents, and Preliminary Statement of Issues in response to the Notice of Probable Violation (NOPV), Proposed Civil Penalty and Proposed Compliance Order issued by the Office of Pipeline Safety (OPS) on February 5, 2018, in the above-referenced case. The NOPV alleges violations of certain Part 192 regulations related to welding procedures, and proposed to assess a civil penalty of $207,800 and to require that CCP implement several proposed compliance measures.

CCP seeks a hearing regarding the NOPV and Proposed Civil Penalty. CCP is not seeking a hearing regarding the Proposed Compliance Order, and has begun implementing all of the proposed compliance measures.

On February 26, 2018, CCP submitted a request for an extension of time to file a response to the NOPV. By letter dated February 28, 2018 and received by CCP on March 2, OPS granted an extension until April 2 to submit a response. This request for a hearing, therefore, is timely filed.

On February 26, 2018, CCP also requested a copy of the case file, including the violation report and any evidence or correspondence relating to the alleged violations and proposed civil penalty. CCP received a copy of the violation report, but not the more detailed civil penalty calculation worksheet or other materials explaining the basis for the proposed civil penalty. In addition, the case file appears incomplete, as it omits information that CCP provided to OPS during the course of the pipeline inspections that is directly relevant to the chief allegation in the

NOPV: whether CCP had properly qualified its welding procedures. CCP renews its request for documents.

CCP takes pipeline safety and any alleged violation of PHMSA's regulations seriously. However, CCP believes that the allegations in the Notice in this case are not supported by the facts or the regulations. CCP respectfully contests the NOPV and the Proposed Civil Penalty.

CCP looks forward to discussing and resolving OPS's concerns at or before the hearing. Please do not hesitate to contact me if you have any questions.

Respectfully submitted,

/s/ Susan A. Olenchuk

Susan A. Olenchuk
Van Ness Feldman LLP
Counsel for Cheniere Corpus Christi Pipeline

CC: Mr. Benjamin Fred, Esq., Deputy Asst Chief Counsel, Pipeline Safety Law Division
Mr. Adam Phillips, Esq., Senior Attorney, Counsel for the Southwest Region, OPS
Mr. Douglas D. Shanda, President, Cheniere Energy, Inc.
Mr. Michael Weller, Esq., Senior Counsel, Cheniere Energy, Inc.

Attachment: Request for Hearing, Renewed Request for Documents, and Preliminary Statement of Issues

PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION
WASHINGTON, DC 20590

In the matter of	§	
Cheniere Corpus Christi Pipeline,	§	**CPF 4-2018-1002**
Respondent.	§	

Request for Hearing, Renewed Request for Documents, and Preliminary Statement of Issues of Cheniere Corpus Christi Pipeline

A. Request for Hearing

As provided under 49 C.F.R. §§ 190.208(a)(4) and 190.211, Cheniere Corpus Christi Pipeline (CCP) respectfully requests an in-person hearing regarding the alleged violations contained in the Notice of Probable Violation (NOPV), Proposed Civil Penalty, and Proposed Compliance Order issued by the Office of Pipeline Safety (OPS) on February 5, 2018 in this proceeding.[1] CCP will be represented by counsel at the hearing.

CCP seeks a hearing only of the NOPV and the Proposed Civil Penalty. CCP is not seeking a hearing of the Proposed Compliance Order. CCP has implemented the provisions of the Proposed Compliance Order by submitting requalified welding procedures, welder qualification information and a plan for destructively testing a statistically significant number of welds at the Sinton Compressor Station. On March 16, 2018, the Southwest Region Director gave verbal approval of these submissions and indicated that written approval of them would be provided. CCP has completed the destructive testing of the welds.

B. Renewed Request for Documents

On February 26, 2018, pursuant to 49 C.F.R. § 190.209, CCP requested a copy of the case file, including the violation report and any evidence or correspondence relating to the facts giving rise to the alleged violations in the NOPV. Pursuant to PHMSA's Policy Statement on Civil Penalties,[2] CCP also requested a copy of the more detailed proposed civil penalty calculation and any other materials (including guidance or policy documents or manuals) that describe how OPS applied the civil penalty assessment factors set forth in 49 U.S.C. § 60122(b) and 49 C.F.R. § 190.225 when determining the amount of the proposed civil penalty of

[1] OPS initially issued an NOPV, Proposed Civil Penalty and Proposed Compliance Order on February 1, 2018 in CPF No. 4-2017-1009. OPS withdrew that document and reissued it on February 5, 2018 in CPF No. 4-2018-1002.
[2] Pipeline Safety: General Policy Statement; Civil Penalties, 81 Fed. Reg. 71,566 (Oct. 17, 2016).

$207,800. On March 7, 2018, the case file was transmitted to CCP's counsel via email.[3] The material included the violation report, but did not include the detailed civil penalty calculation and other requested materials relating to the calculation of the proposed civil penalty. In addition, the case file was missing correspondence and information that CCP provided to OPS during the inspection. This information is directly relevant to the central issue raised in this NOPV, *i.e.*, whether CCP properly qualified its welding procedures. Moreover, the sequence of events leading to the issuance of the NOPV and Proposed Civil Penalty suggests that they were issued without proper internal review.

1. OPS Has Not Provided the Detailed Civil Penalty Calculation and Related Staff Manuals and Guidance Documents.

PHMSA's Policy Statement on Civil Penalties provides that, in addition to the violation report, PHMSA will provide a respondent in an enforcement proceeding a copy of the "more detailed proposed civil penalty calculation," and "any other items in the case file."[4] The Policy Statement also sets forth a "Civil Penalty Framework" that lists the civil penalty assessment categories, describes types of conduct that may be observed by PHMSA, and provides ranges of potential civil penalties that could be assessed for each criteria.[5]

To date, CCP has not been provided a copy of the more detailed proposed civil penalty calculation that explains how the proposed civil penalty of $207,800 was calculated or describes which facts were relevant in applying the statutory civil penalty assessment factors. The only information provided to CCP that addresses the proposed civil penalty is a one-page document entitled "Cheniere Corpus Christi Pipeline Construction Inspection, NOPV/PCP/PCO: PCP $185,000, CPF: 4-2018-1002." This document was sent by Chad T. Hall, Transportation Specialist (Inspector) of PHMSA's Southwest Region, to Ms. Sheila White of "CTR" on February 5, 2018.[6] Mr. Hall's transmittal email to Ms. White states "Sheila, Attached is the update [*sic*] One Pager for the case file."[7] Ms. White, in turn, forwarded this email to CCP's counsel on March 7, 2018.[8]

The "One Pager" contains one brief paragraph generally describing the Corpus Christi Pipeline and another brief paragraph stating that OPS performed an inspection on February 9 and 10, 2017. The document then states that "[a]s a result of the inspection the PHMSA Southwest Region request to issue a Notice of Probable Violation with Proposed Compliance Order and a Proposed Civil Penalty of $185,000." The document then states the civil penalty recommended for each alleged violation.

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[3] The violation report was transmitted by Ms. Sheila White to Mr. Michael Weller of CCP and to Ms. Susan Olenchuk and Ms. Bryn Karaus of Van Ness Feldman whose email addresses were not typed correctly. Ms. Olenchuk has provided Ms. White the correct email addresses.

[4] Civil Penalty Policy Statement, 81 Fed. Reg. at 71,566.

[5] Civil Penalty Policy Statement, 81 Fed. Reg. at 71,567-68.

[6] Email from Chad T. Hall, Transportation Specialist (Inspector), PHMSA Southwest Region, to Ms. Sheila White CTR (PHMSA) (Feb. 5, 2018). (See Attachment A hereto).

[7] *See* Attachment A.

[8] As noted above, *supra* note 3, the email addresses for two of CCP's counsel were incorrect.

The One Pager contains no detailed calculation of the proposed civil penalty. In fact, the document contains no calculation at all. Moreover, the document recommends a proposed total civil penalty of $185,000 which is $22,800 less than the $207,800 civil penalty proposed in the NOPV. The document contains no explanation of the factors considered in deriving either the $185,000 civil penalty proposed in the One Pager or the higher civil penalty proposed in the NOPV. The document contains no reference to any of the statutory civil penalty assessment criteria,[9] or a discussion of the facts that were considered in calculating the penalty or how those facts informed the application of the statutory penalty factors.

To ensure a full and fair hearing, CCP renews its request for the more detailed proposed civil penalty calculation and any internal policy documents or manuals that provide guidance on how the statutory penalty assessment criteria were applied to determine the proposed civil penalty in this proceeding. CCP's request is consistent with PHMSA's Policy Statement on Civil Penalties stating that, in addition to the violation report and more detailed proposed civil penalty calculation, PHMSA will provide a respondent in an enforcement proceeding a copy of "any other items in the case file."[10]

CCP's request of the detailed proposed civil penalty calculation is supported by longstanding Supreme Court precedent entitling a party to an agency proceeding to the facts on which an agency relies to render a decision.[11] OPS's penalty calculations and any workpapers constitute evidence that OPS is using against CCP in this case. CCP is entitled to the facts relied on by OPS and to the opportunity to review how the agency weighed those facts in applying the statutory assessment criteria when calculating the proposed civil penalty. Without this information, CCP is at a distinct disadvantage in responding to OPS's proposed civil penalty because CCP will not know what facts OPS believes are relevant to the penalty calculation, or how the statutory penalty factors were applied.

The Presiding Official in this proceeding will be at a similar disadvantage in this proceeding because the prohibition on *ex parte* communications prevents the trier of fact from viewing how the proposed civil penalty was calculated if the same information is not also provided to the Respondent. The Presiding Official will not be able to determine the bases for the proposed penalty, whether errors must be corrected, and the weight that OPS gave to each penalty factor. It is unclear how the Presiding Official can arrive at a rational penalty if not provided the basis for the proposed penalty that serves as the starting point for the final penalty determination.

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[9] 49 U.S.C. § 60122 (2016); 49 C.F.R. § 190.225 (2017).

[10] Civil Penalty Policy Statement, 81 Fed. Reg. at 71,566.

[11] *See Bowman Transp., Inc. v. Arkansas-Best Freight System, Inc.*, 419 U.S. 281, 288 n.4 (1974) ("A party is entitled, of course, to know the issues on which decision will turn and to be apprised of the factual material on which the agency relies for decision so that he may rebut it. Indeed, the Due Process Clause forbids an agency to use evidence in a way that forecloses an opportunity to offer a contrary presentation."); *People's Mojahedin Org. of Iran v. Dep't of State*, 613 F.3d 220, 227-29 (D.C. Cir. 2010) (holding that agency's failure to provide party with material that was relied on to make decision and allow party the opportunity to respond violated the party's due process rights); *Williston Basin Interstate Pipeline Co. v. FERC*, 165 F.3d 54, 63 (D.C. Cir. 1999) (stating that "the Due Process Clause forbids an agency to use evidence in a way that forecloses an opportunity to offer a contrary presentation.").

CCP also is entitled to administrative staff manuals, instructions, guidance, directions, procedures or any other documents that informed how OPS staff applied the civil penalty framework when developing the proposed penalty in this case. The Freedom of Information Act ("FOIA") requires that PHMSA make publically available those "administrative staff manuals and instructions to staff that affect a member of the public."[12] PHMSA's obligation to provide these materials is affirmative and the courts have made clear that a FOIA request is not required to obtain them.[13] To the extent that OPS staff rely on administrative staff manuals, instructions, or other internal guidance in determining the amount of a proposed civil penalty; OPS must disclose such materials to the public. Any such materials would clearly affect the public because they are used to determine the amount of the penalties that members of the public must pay.

2. The Case File Appears Incomplete and Suggests Inadequate Internal Review.

The central issue in this case is whether CCP properly qualified the welding procedures used to construct the Sinton Compressor Station. Concerns about whether the welding procedures were qualified were first raised during OPS's inspection in February 2017. Following that inspection, CCP provided the OPS inspectors a letter dated February 14, 2017,[14] prepared by a welding expert explaining that the welding procedures were properly qualified. After a follow-up inspection in April 2017, CCP on May 15, 2017 resubmitted this letter to OPS along with a second letter dated April 25, 2017 responding to concerns raised during OPS's inspections and providing additional support that the welds were suitable.[15]

The case file provided by OPS does not include these materials even though they are directly relevant to the issue in this case, *i.e.*, whether the welding procedures used by CCP were properly qualified. These materials also are not mentioned in the violation report. These omissions suggest that key information was not considered in determining whether a violation occurred in this case and whether any basis exists for the proposed civil penalty.

In addition, the violation report and One Pager recommending a proposed civil penalty raise questions about the process followed in this proceeding when the NOPV and proposed civil penalty were issued. First, the violation report was signed by the inspectors on February 5, 2018, the same day OPS issued the NOPV and 4 days *after* the initial, and subsequently withdrawn, NOPV was issued.[16] The Southwest Region Director, Mr. Frank Causey, did not sign the violation report until February 6, the day *after* the issuance of the replacement NOPV. The

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[12] 5 U.S.C. § 552(a)(2)(C) (2016).

[13] *See, e.g., Food Chem. News v. Dep't of Health & Human Servs.*, 980 F.2d 1468, 1472 (D.C. Cir. 1992). The court found that an agency's obligation to disclose staff manuals and instructions under 5 U.S.C. 552(a)(2) is affirmative and "clearly does not require a FOIA request."

[14] Letter of William A. Bruce, P.E., IWE, CWEng, Sr. Principal Engineer & Group Leader, Welding Technology, DNV GL, to Mr. Brian Hlavinka, Cheniere Corpus Christi Pipeline, LLC. (Feb. 14, 2017) (Attached hereto as Attachment B).

[15] Letter of William A. Bruce, P.E., IWE, CWEng, Sr. Principal Engineer & Group Leader, Welding Technology, DNV GL, to Mr. Brian Hlavinka, Cheniere Corpus Christi Pipeline, LLC. (Apr. 25, 2017), attached to Letter of Chad Zamarin, President, Corpus Christi Pipeline to Ms. Terri Binns, Acting Director, Southwest Region, PHMSA (May 15, 2017). These letters also were sent to PHMSA via email. Email of Dan Hamburger, Manager Technical Services Compliance, Cheniere Pipeline Department to Chad Hall, PHMSA (May 15, 2017). *See* Attachment B.

[16] *Supra* note 1.

sequence of these events raises questions about whether the NOPV received appropriate internal review before it was issued.

Similarly, the One Pager transmitted to Ms. Sheila White by the OPS inspector raises questions about the process for reviewing and approving the proposed civil penalty. First, the One Pager, which was not transmitted to Ms. Sheila White until February 1, "requests" to assess a civil penalty of $185,000." The information provided to CCP by OPS does not explain why the civil penalty proposed in the NOPV issued on February 5, 2018 was increased by $22,800 to $207,800. This correspondence raises questions about whether the proposed civil penalty received appropriate internal review and approval.

C. Preliminary Statement of Issues

Set forth below is the preliminary statement of issues that CCP intends to raise at a hearing in this case. CCP reserves the right to revise and supplement this Preliminary Statement of Issues at or before the hearing based on a review of the detailed civil penalty calculation and other information requested by CCP in this proceeding.

Item 1. § 192.225 Welding Procedures

Whether CCP violated § 192.225 by failing to qualify welding procedures in accordance with Section 5 of API Std 1104, 20th edition, incorporated by reference in § 192.7.

1. Whether OPS has satisfied its burden of proving that CCP failed to qualify welding procedures SMAW-A18A-FLT, SMAW-A28A-FLT, SMAW-A38A-FLT, and SMAW-A48A-FLT based on the record in this case, the text and history of the regulations, PHMSA guidance materials, prior enforcement orders, API Std. 1104 and Section IX of the ASME Boiler and Pressure Vessel Code. In particular, whether the record supports the allegation that CCP failed to qualify procedures for pipe with wall thicknesses of .188 - .750 when the Violation Report contains test coupon records showing that tests were performed on pipe with these wall thicknesses.

2. Whether the case file in this proceeding is complete in that it omits information relevant to the central issue in this proceeding.

Item 2. § 192.227 Qualification of welders and welding operators.

Whether CCP violated § 192.227 by failing to qualify welders to a previously qualified welding procedure in accordance with Section 6 of API Std 1104, 20th edition, incorporated by reference § 192.7.

1. Whether OPS has satisfied its burden of proving that CCP failed to qualify welders based on the record in this case, the text and history of the regulations, PHMSA guidance materials, prior enforcement orders, and API Std. 1104 and the ASME Boiler and Pressure Vessel Code.

2. Whether the allegation inappropriately relies on the same facts asserted to support Item 1.

Item 3. § 192.303 Compliance with specifications or standards.

Whether CCP violated § 192.303 by failing to construct a pipeline facility in accordance with written specifications by using unqualified welding procedures and unqualified welders.

1. Whether OPS has satisfied its burden of proving that CCP failed to construct a pipeline facility in accordance with written specifications based on the record in this case, the text and history of the regulations, PHMSA guidance materials, prior enforcement orders, and API Std. 1104 and ASME Boiler and Pressure Vessel Code.

2. Whether the allegation inappropriately relies on the same facts asserted to support Items 1 and 2.

Proposed Civil Penalty

Whether the proposed civil penalty of $207,800 must be withdrawn or reduced.

1. Whether failure to provide more detailed proposed civil penalty calculation and related materials describing how OPS determined the proposed civil penalty based on the statutory criteria violates due process.

2. Whether the proposed civil penalty is justified given the record of evidence in this case.

3. Whether the proposed civil penalty was determined consistent with applicable laws and regulations.

At the hearing in this case, CCP intends to present evidence and engage with OPS in discussion on these issues. CCP reserves the right to respond to any assertions and arguments introduced by OPS during the proceedings in this case, and to supplement the record accordingly.

Respectfully submitted,

/s/ Susan A. Olenchuk

Susan A. Olenchuk
Van Ness Feldman LLP
Counsel for Cheniere Corpus Christi Pipeline

April 2, 2018

Attachment A

Susan Olenchuk

To: Michael Weller
Subject: RE: [FS#560593] RE: Draft Civil Penalty Worksheet

From: Michael Weller [mailto:Michael.Weller@cheniere.com]
Sent: Thursday, March 08, 2018 12:14 PM
To: Bryn Karaus; Susan Olenchuk
Subject: [FS#560593] RE: Draft Civil Penalty Worksheet

Forwarded from Sheila in the attached email.

Michael Weller
Senior Counsel
Cheniere Energy, Inc.
Direct: 713-375-5498
Cell: 713-962-7013

Susan Olenchuk

From: White, Sheila CTR (PHMSA) <sheila.white.ctr@dot.gov>
Sent: Wednesday, March 07, 2018 8:51 AM
To: sam@ynf.com; Michael Weller; bsk@ynf.com
Cc: McDaniel, Mary; White, Sheila CTR (PHMSA)
Subject: [EXTERNAL] FW: One Pager w/CPF:4-2018-1002
Attachments: Cheniere Corpus Christi One Pagerv2.docx

Ms. Olenchuk:

Also this is the One pager we received.

Shelia

From: Hall, Chad (PHMSA)
Sent: Monday, February 05, 2018 10:20 AM
To: White, Sheila CTR (PHMSA) <sheila.white.ctr@dot.gov>
Subject: One Pager w/CPF:4-2018-1002

Shelia,
Attached is the update One Pager for the case file.

Thank you,

Chad T. Hall
Transportation Specialist (Inspector)
US Department of Transportation
PHMSA, Southwest Region
8701 S. Gessner, Suite 630
Houston, Texas 77074
Phone: (713) 773-7212
Cell: (713) 855-5040

Cheniere Corpus Christi Pipeline
Construction Inspection
NOPV/PCP/PCO: PCP $185,600
CPF:4-2018-1002

Cheniere Corpus Christi Pipeline (CCCP) constructed a 23-mile long, 48-inch diameter natural gas pipeline in San Patricio County, TX. The pipeline begins near Sinton, TX and runs southeasterly along a corridor that will allow for the interconnection points with interstate and intrastate natural gas transmission pipelines. The line terminates at the proposed Corpus Christi Liquefaction, LLC plant near Corpus Christi, TX.

On February 9 and 10, 2017, representatives of the Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Pipeline Safety (OPS), pursuant to Chapter 601 of 49 United States Code inspected the construction of the Corpus Christi Pipeline Project in Corpus Christi, TX. As a result of the inspection the PHMSA Southwest Region request to issue a Notice of Probable Violation with Proposed Compliance Order and a Proposed Civil Penalty of $185,600.

The following items have been identified as probable violations of the Pipeline Safety Regulations. The probable violations are:

Item 1: §192.225 Welding procedures. CCCP failed to qualify welding procedures in accordance with Section 5 of API Std 1104, 20th edition incorporated by reference in §192.7. The proposed civil penalty for this item is $24,100.

Item 2: §192.227 Qualification of welders and welding operators. CCCP failed to adequately qualify welders in accordance with Section 6 of API Std 1104, 20th edition incorporated by reference in §192.7. The proposed civil penalty for this item is $53,500.

Item 3: §192.303 Compliance with specifications or standards. (§192.225 Welding procedures). CCCP failed to construct a pipeline facility in accordance with written specifications by using an unqualified welding procedure and unqualified welders per the Cheniere Welding Manual. The proposed civil penalty for this item is $108,000.

Attachment B

Daniel Hamburger

From: Daniel Hamburger
Sent: Monday, May 15, 2017 4:56 PM
To: Chad Hall (PHMSA)
Cc: Chris Williams (Cheniere)
Subject: Letter from Cheniere Pipelines to PHMSA SW Region Addressing Findings of CC Project

Chad,

Attached is a letter addressing the findings you delivered regarding fillet welding and also the findings from our meetings last month.

It is signed by our Senior Vice President, Chad Hall. I will send an original to Terri Binns through the mail.

We are requesting to meet with the management team of your office to discuss these items. Let me know if there is a formal process, and what dates the individuals from your office are available.

Thank you for your help with this,

Dan Hamburger
Manager Technical Services and Compliance
Cheniere Pipeline Department
713 375 5688 o
205 948 7249 m

CHENIERE

May 15, 2017

Terri Binns
Acting Director, Southwest Region
U.S. Department of Transportation, PHMSA
8701 South Gessner, Suite 1110
Houston, Texas 77074

Dear Ms. Binns:

As part of the Corpus Christi Pipeline Project, Cheniere is constructing a 48" diameter pipeline, the Sinton Compressor Station, and three meter stations to deliver gas to Cheniere's Corpus Christi Liquefaction Terminal. The pipeline and associated facilities have been inspected by PHMSA monthly since January of this year. This letter is written in response to potential issues raised by PHMSA inspectors at the conclusion of inspections on February 10 and April 21, 2017.

Potential issues raised on February 10, 2017:

1. *Does process require welding to be performed by qualified welders using qualified welding procedures and are welding procedures and qualifying tests required to be recorded in detail?*

   Welding procedures SMAW-A18A-FLT, SMAW-A28A-FLT, SMAW-A38A-FLT, and SMAW-A48A-FLT are not qualified according to API-1104. The current procedures have groupings that cover under .188 wall thickness, .188 to .750, and over .750. These wall thicknesses are essential variables and must have a corresponding weld qualification report for each thickness.

2. *Do records indicate weld procedures are being qualified in accordance with 192.225?*

   Welding records show that FLT production welds were made without a qualified procedure according to Cheniere's grouping in accordance with API 1104 requirements with essential variables. As of 2/10/2017 Cheniere's welding records have production welds made on the Corpus Christi Pipeline project without having a qualified welding procedure with in the essential variable groupings. SMAW-A18A-FLT, SMAW-A28A-FLT, SMAW-A38A-FLT, SMAW-A48A-FLT

3. *Are weld procedures being qualified in accordance with 192.225?*

   Welding procedures were not qualified in accordance with Sec. 5 of API 1104. The essential variables for wall thickness were grouped together during procedure qualification.

Response to potential issues raised on February 10th:

Cheniere responded with a letter dated February 14, 2017, written by Bill Bruce, a welding consultant with DNV GL, attached as **Attachment A**. Mr. Bruce is a widely-recognized expert in pipeline welding technology and codes and compliance, with over 35 years of experience. He has been active on the API 1104 committee since 1996 and is currently the committee Secretary. He is the primary author of the Pipeline Research Committee International (PRCI) guidance document for interpretation and application of API 1104. In

the letter, Mr. Bruce explained in detail how the four welding procedures are compliant with API 1104. This supporting documentation was dismissed by the PHMSA inspector during subsequent inspections in Corpus Christi.

Cheniere is steadfast in its position that the four welding procedures are in full compliance with API 1104. However, in response to the PHMSA inspector dismissing the documentation demonstrating compliance, Cheniere made additional qualification welds to further demonstrate the welds were compliant and of sound design. Four supplemental qualification welds were made and tested in accordance with API 1104, and each of these welds passed all mechanical and non-destructive testing. A summary of these supplemental qualification welds is provided in a letter from Mr. Bruce dated April 25, 2017, attached as **Attachment B. C**opies of the supplemental Procedure Qualification Records are provided in **Attachment C**. The letters from Mr. Bruce and the supplemental qualification welds go well beyond demonstrating compliance with API 1104, and further confirm that all production welds were made in accordance with compliant procedures that assure quality and integrity of the welds.

Potential issues identified on April 21, 2017:

1. *The TGP and NGPL Metering Stations are not inspected to ensure that the stations are constructed in accordance with Part 192, the Cheniere's construction standards, and operations and maintenance manuals.*

   Response:

   The TGP and NGPL Metering Stations have been and continue to be inspected in every phase of the project – during procurement, shop fabrication, and construction. Cheniere has a Construction Manager, three Chief Inspectors, twenty-nine Inspectors (thirteen welding, five coating, two E&I, two civil, seven utility), and three engineers on site full time, including dedicated inspection staff focused solely on the meter stations. The PHMSA inspector observed potential issues at the meter station sites that were in the process of being resolved by the construction contractor, with support and oversight of Cheniere inspectors and engineers. A fully compliant project that results in safe operations is everyone's mission at Cheniere, and the issue raised is an incredibly inaccurate representation of the situation on the TGP and NGPL Meter Stations.

2. *Pipe was found in ditch around MP 4.5 resting in water. Even though the end cap was on, caps are not water tight and will allow water to sit in pipe for extended period of time. Possible internal corrosion at weld seams or at any holidays in internal lining of the pipe.*

Response:

Cheniere inspectors and construction contractors work to prevent water from entering the pipe when it is in the ditch. Methods employed include placing end caps on open ends of the pipe, sealing the end caps with tape, and pumping ditches to remove rainwater which has accumulated. Even with these methods employed, water may inadvertently enter the pipe; however, this does not pose an integrity threat to the pipe due to the short duration of exposure, nor is it a violation of any regulation or industry standard. All work is being conducted in accordance with DOT regulations and Cheniere construction specifications. Prior to commissioning, the entire pipeline will be filled with water and hydrostatically pressure tested, which will demonstrate the integrity of the line before placing into service. Following pressure testing, the entire pipeline will then be internally cleaned and dried to a dew point of minus 38 degrees, ensuring that no water remains in the pipeline.

3. *The NGPL and TGP metering stations liquid removal systems (filter separators) were installed wrong. The concrete supports are not aligned with the required pipe placement. Cheniere will have to take measures to ensure that when filter systems are connected there is little to no stress on connected pipes.*

Response:

- The misalignment of the filter separators was identified by Cheniere and shown to the PHMSA inspector. Cheniere representatives explained that plans had been developed to remove the filter separators and re-install them after replacing and re-aligning the piers upon which the filter separators are placed. When the filter separators are connected to meter station piping, there will be no deleterious stresses on connected pipes.

4. *Field applied coatings and repairs are not adequately applied to Cheniere's construction standards or coating application at the specified thickness, and has sufficient adhesion, moisture resistance, and resistance to stress or handling.*

Response:

The PHMSA inspector noted several areas of coating on fabricated pipe at meter stations which had been identified by Cheniere prior to the audit. Cheniere presented the PHMSA inspector with the process for identifying and documenting pipe to be recoated and inspected. The project team continues to inspect and address all coating applications that fall outside of construction specifications to ensure the project is compliant and well protected prior to going in service.

5. *PHMSA inspector could not verify that the Turner Fab shop checked heat input during the welder qualifications for the ASME Section IX ASME Boiler and Pressure Vessel Code welder qualifications. In order to confirm the welds had the correct heat input per the welding procedures, voltage and travel speed must be taken during the welder testing process. The Welder Test Report only shows pass/fail and nothing to verify that the welder followed the welding procedure.*

   Response:

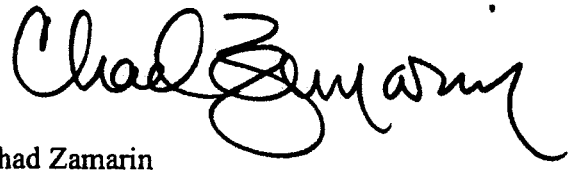
   Shop fabrication welders were qualified in accordance with the requirements of ASME Section IX Boiler and Pressure Vessel Code and the welding procedure applicable to the work being performed. The 2007 Edition of ASME Section IX Paragraph QW-350 specifies the essential variables for welder qualification, and does not specify heat input as an essential variable. Additionally, ASME Form QW-484A, provided as **Attachment D,** is a suggested format for welder qualification records, and does not include a place to document amperage, voltage, travel speed, or heat input, indicating it is not necessary to record those parameters.

   Documentation for each welder that passed an ASME welder test includes certification from Maverick Testing Laboratories and a second document signed by two Certified Welding Inspectors (CWI by the American Welding Society). These documents confirm that test welds were completed per the welding procedure, and that the appropriate pipe, consumables, process variables, examinations and tests of the weld, and acceptance criteria were used.

Cheniere greatly appreciates the time and efforts of the PHMSA inspectors that have visited the Corpus Christi Pipeline Project. The PHMSA inspections provide valuable input and perspective, and Cheniere is committed to ensuring that potential issues identified by PHMSA inspectors are addressed and/or clarified in a complete and proactive manner. However, we strongly believe that the potential issues identified during the inspection and referenced in this correspondence do not constitute regulatory compliance issues. We trust that compliance has been demonstrated through this correspondence and our ongoing efforts to ensure a project constructed to the very highest standards. If more information is required or additional clarifications are needed, please let us know.

I sincerely appreciate your attention to this response. If you have any additional comments or questions, please feel free to contact me at (713) 375-5640.

Sincerely,



Chad Zamarin
President, Corpus Christi Pipeline

cc: Jim Privett
Chris Williams
File

Attachment A

Letter from Bill Bruce, DNV GL, dated February 14, 2017

DNV·GL

Mr. Brian Hlavinka
Cheniere Corpus Christi Pipeline, LLC

Det Norske Veritas (U.S.A.), Inc.
DNV GL North America Oil & Gas
Materials Advisory Services
Welding Technology
5777 Frantz Road
Dublin OH 43017-1886
USA

Tel: (614) 761-1214
Fax: (614) 761-1633

Date: 2017-02-14

Our reference: PP162301

Welding Consultancy for Construction of Cheniere Corpus Christi Pipeline – Wall Thickness Range for Fillet Weld Procedures

Brian,

Regarding your request, Det Norske Veritas (U.S.A.), Inc. (DNV GL) has evaluated the wall thickness range specified in Cheniere's welding procedures for fillet welds. The welding procedures were qualified to API Standard 1104 and the welding procedure specification (WPS) numbers are SMAW-A18A-FLT, SMAW-A28A-FLT, SMAW-A38A-FLT, and SMAW-A48A-FLT. These procedures are nominally identical except for the material grade for which they were qualified.

5.3.2.3 of API 1104 requires that the wall thickness range to which a procedure is applicable be specified in a WPS and provides suggested ranges by referencing 6.2.2 as follows:

> **5.3 PROCEDURE SPECIFICATION**
> **5.3.2 Specification Information**
> **5.3.2.3 Diameters and Wall Thicknesses**
> The ranges of outside diameters and wall thicknesses over which the procedure is applicable shall be identified. Examples of suggested groupings are shown in 6.2.2, items d and e.

5.4.2.5 of API 1104 considers a change in wall thickness group to be an essential variable, as follows:

> **5.4 ESSENTIAL VARIABLES**
> **5.4.2 Changes Requiring Requalification**
> **5.4.2.5 Wall Thickness**
> A change from one wall thickness group to another constitutes an essential variable.

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The wall thickness ranges specified in 6.2.2 are as follows:

1. Nominal pipe wall thickness less than 0.188 in. (4.8 mm).
2. Nominal pipe wall thickness from 0.188 in. (4.8 mm) through 0.750 in. (19.1 mm).
3. Nominal pipe wall thickness greater than 0.750 in. (19.1 mm).

The use of the word "suggested" in 5.3.2.3 is intended to provide flexibility depending on the application. Groupings other than those suggested in 6.2.2 can be used provided that there is technical justification for doing so based on sound engineering judgment. To establish what constitutes sound engineering judgment, API 1104 refers to "...other industry standards, reliable engineering tests and analyses, or established industry practices...".[1]

The wall thickness range specified in Cheniere's four WPSs for fillet welding includes all three of the groups suggested in 6.2.2 of API 1104, indicating that the wall thickness range for which the procedures are applicable is unlimited. Each of the four procedures was qualified on material that was 0.375 in. thick.

CFR Part 192 allows welding procedures to be qualified to API 1104 or to ASME Section IX. ASME Section IX allows procedures for butt welding to be used for fillet welds and the wall thickness range for fillet welding is unlimited regardless of the wall thickness used for qualification, as follows:

> **QW-202.2 (c) Qualification *for Fillet Welds.*** WPS qualification for fillet welds may be made on groove-weld test coupons using test specimens specified in QW-202.2(a) or (b). Fillet-weld procedures so qualified may be used for welding all thicknesses of base metal for all sizes of fillet welds, and all diameters of pipe or tube in accordance with Table QW-451.4.

QW-451.4
FILLET WELDS QUALIFIED BY GROOVE-WELD TESTS

Thickness *T* of Test Coupon (Plate or Pipe) as Welded	Range Qualified	Type and Number of Tests Required
All groove tests	All fillet sizes on all base metal thicknesses and all diameters	Fillet welds are qualified when the groove weld is qualified in accordance with either QW-451.1 or QW-451.2 (see QW-202.2)

Therefore, the wall thickness range specified in Cheniere's welding procedures for fillet welding is consistent with what is allowed by ASME Section IX. In addition, from a technical perspective, the material thickness used to qualify each of the four procedures (0.375 in.) is not inordinately thick or thin with respect to the thickness range over which it will be used for construction of the Cheniere Corpus Christi Pipeline, which is anticipated to be 0.147 to 1.000 in.

[1] See Section 1 Scope in Twenty-first Edition of API 1104.

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In summary, the wall thickness range specified in Cheniere's API 1104 welding procedures for fillet welds is justified based on the sound engineering judgment provisions in API 1104. The sound engineering judgment in this case is established in "...other industry standards..." - ASME Section IX in this case, to which it is permissible to qualify welding procedures according to CFR Part 192. In addition, the material thickness used to qualify each of the four procedures is not inordinately thick or thin with respect to the thickness range over which it will be used by Cheniere.

Please let us know if you have questions or require additional information.

Sincerely
for Det Norske Veritas (U.S.A.), Inc.

William A. Bruce, P.E., IWE, CWEng
Senior Principal Engineer & Group Leader
Welding Technology

Mobile: 614.257.7393
Direct: 614.761.1214
Bill.Bruce@dnvgl.com

Attachment B

Letter from Bill Bruce, DNV GL dated April 25, 2017

DNV·GL

Mr. Brian Hlavinka
Cheniere Corpus Christi Pipeline, LLC

Det Norske Veritas (U.S.A.), Inc.
DNV GL North America Oil & Gas
Materials Advisory Services
Welding Technology
5777 Frantz Road
Dublin OH 43017-1886
USA

Tel: (614) 761-1214
Fax: (614) 761-1633

Date: 2017-04-25

Our reference: PP162301

Welding Consultancy for Construction of Cheniere Corpus Christi Pipeline – Wall Thickness Range for Fillet Weld Procedures – Updated

Brian,

Previously, Det Norske Veritas (U.S.A.), Inc. (DNV GL) was asked to evaluate the wall thickness range specified in Cheniere's welding procedures for fillet welds. The welding procedures were qualified to API Standard 1104 and the welding procedure specification (WPS) numbers are SMAW-A18A-FLT, SMAW-A28A-FLT, SMAW-A38A-FLT, and SMAW-A48A-FLT. These procedures are nominally identical except for the material grade for which they were qualified.

DNV GL previously concluded that the wall thickness range specified in Cheniere's API 1104 welding procedures for fillet welds is justified based on the sound engineering judgment provisions in API 1104. The sound engineering judgment in this case is established in "...other industry standards..." – ASME Section IX in this case, to which it is permissible to qualify welding procedures according to CFR Part 192. In addition, the material thickness used to qualify each of the four procedures is not inordinately thick or thin with respect to the thickness range over which it will be used by Cheniere.

Following this evaluation, Cheniere decided to pursue an alternate route involving four (4) additional procedure qualifications and the generation of corresponding procedure qualification records (PQRs) to supplement WPS numbers SMAW-A18A-FLT, SMAW-A28A-FLT, SMAW-A38A-FLT, and SMAW-A48A-FLT. The supplemental PQRs prove the suitability of the original Cheniere WPS to weld small-diameter integrally-reinforced fittings (o-lets) on the Cheniere Corpus Christi pipeline, compressor station, and meter stations.

The four (4) supplemental PQRs were branch welds made in accordance with the parameters of the original Cheniere WPS and tested per API 1104 Section 5.8. The branch and carrier pipe material was API 5L Grade X42, Grade X60, Grade X65, and Grade X70, to align with the original Cheniere WPSs and the base metal groupings in API 1104 Section 5.4.2.2. The branch wall thicknesses were counterbored to a wall thickness less than 0.188-inch to fall within the thinnest suggested wall thickness grouping of API 1104 Section 6.2.2.

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To date, all four supplemental PQRs have been completed and the results of all the procedure qualification testing were successful. The four WPSs have since been revised to incorporate the supplemental PQRs.

With the successful qualification of the four (4) supplemental PQRs in accordance with the original Cheniere WPSs, DNV GL believes that the small-diameter o-lets welded to date should be considered to be acceptable. These affected welds are tabulated in the attachment to this letter. The supplemental PQRs provide assurance to Cheniere and the Department of Transportation (DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA) that the original WPSs were suitable for the wall-thickness groupings specified, including the grouping less than 0.188-inch in thickness. Removal and replacement of the o-lets would introduce additional heat cycles in the pipe which may lead to heat affected zone softening, which has become a concern in the pipeline industry for low carbon, low-alloy line pipe. Additionally, re-welding always includes the risk of replacing an acceptable weld that has passed non-destructive evaluation (NDE) with a rejectable weld requiring additional rework.

Please let us know if you have questions or require additional information.

Sincerely
for Det Norske Veritas (U.S.A.), Inc.

William A. Bruce, P.E., IWE, CWEng
Senior Principal Engineer & Group Leader
Welding Technology

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Direct: 614.761.1214
Bill.Bruce@dnvgl.com

Attachment: Affected small-diameter branch welds, to date

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PIPELINE CHENIERE

Project Name: Cheniere Sinton Compressor Station
General Contractor: Sunland
NDE Company: Intertek Asset Integrity
P.O.: 105243
NDE Inspector: Coy Pooay

Total MT/PT	225
Total RT	1694
Total AUT	0
Total Welds Accepted	1890
Total Welds Rejected	29
Total Welds Repaired	29
Total Welds Cut-out	7
Outstanding Reshots	0
Total Welds Deleted	0
Outstanding Repairs	[illegible]
Rejection Rate	[illegible]

IPD/IP	
PCR/HB	
ES/ISI	
ICP/IT	
FCC/IUC	
IF	
CRACKS	
Fab Error	

12-3 O'Clock	
3-6 O'Clock	
6-9 O'Clock	
9-12 O'Clock	

Date:	4/13/2017
Total Welds To Date	1919
Total Welds Today	23
Welds Rejected Today	0
Welds Repaired Today	0

Date	Drawing#	Welder	Rig#	Type Weld	Weld #	X-Ray Report#	Size	Wall	AUT	MT/PT	RT	Acc	Repaired	Deleted	Reshot	CO	Repair / Cut-Out Weld #	Repair Report #	Date Repair Accepted
02/22/17	7402-PG-C 2".02	G	A	PT	0109	PTA0016	1"	WOL		X		X							
02/22/17	7402-PG-C 2".02	G	A	PT	0110	PTA0016	1"	WOL		X		X							
02/22/17	7402-PG-C 2".02	F	A	PT	0111	PTA0016	1"	WOL		X		X							
02/22/17	7225-IA-A 2".01	G	A	PT	0112	PTA0016	1"	WOL		X		X							
02/22/17	7225-IA-A 2".01	G	A	PT	0113	PTA0016	1"	WOL		X		X							
02/22/17	7225-IA-A 2".01	G	A	PT	0114	PTA0016	1"	WOL		X		X							
03/16/17	2041-G-C 2".01	B	A	PT	0138	PTA0019	1"	WOL		X		X							
03/17/17	7243-IA-A 2".01	F	A	PT	0142	PTA0020	1"	WOL		X		X							
03/17/17	7243-IA-A 2".01	F	A	PT	0143	PTA0020	1"	WOL		X		X							
03/17/17	7404-PG-C 2".04	M	A	PT	0144	PTA0020	1"	WOL		X		X							
03/17/17	7101-FG-C 4".02	E	A	PT	0145	PTA0020	1"	WOL		X		X							
03/17/17	7203-IA-A 4".03	H	A	PT	0146	PTA0020	1"	WOL		X		X							
03/17/17	7204-IA-A 4".01	M	A	PT	0147	PTA0020	1"	WOL		X		X							
03/19/17	2046-G-C 4".01	K	A	PT	0154	PTA0021	1"	WOL		X		X							
03/19/17	2046-G-C 4".01	K	A	PT	0155	PTA0021	1"	WOL		X		X							
03/19/17	2046-G-C 4".01	K	A	PT	0156	PTA0021	1"	WOL		X		X							
03/19/17	2045-G-C 4".03	J	A	PT	0157	PTA0021	1"	WOL		X		X							
03/19/17	2045-G-C 4".03	J	A	PT	0158	PTA0021	1"	WOL		X		X							
03/22/17	7405-PG-C 2".01	F	A	PT	0162	PTA0022	1"	WOL		X		X							
03/22/17	7405-PG-C 2".01	F	A	PT	0163	PTA0022	1"	WOL		X		X							
03/22/17	7403-PG-C 2".01	F	A	PT	0164	PTA0022	1"	WOL		X		X							
03/26/17	7408-PG-C 2".01	F	A	PT	0165	PTA0023	1"	WOL		X		X							
03/26/17	7408-PG-C 2".01	F	A	PT	0166	PTA0023	1"	WOL		X		X							
03/28/17	2001-G-C 42".01	J/L	A	PT	0167	PTA0023	1"	WOL		X		X							
03/28/17	2002-G-C 42".01	J/L	A	PT	0168	PTA0023	1"	WOL		X		X							
03/28/17	7406-PG-C 2".01	F	A	PT	0169	PTA0023	1"	WOL		X		X							
03/28/17	2042-G-C 2".01	K	A	PT	0170	PTA0023	1"	WOL		X		X							
03/28/17	2020-G-C 30".01	K/I	A	PT	0171	PTA0023	1"	WOL		X		X							
03/30/17	7203-IA-A 4".03	L	A	PT	0175	PTA0024	1"	WOL		X		X							
03/30/17	7404-PG-C 2".04	J	A	PT	0176	PTA0024	1"	WOL		X		X							
03/30/17	7404-PG-C 2".02	J	A	PT	0177	PTA0024	1"	WOL		X		X							
03/30/17	7204-IA-A 4".01	J	A	PT	0178	PTA0024	1"	WOL		X		X							
04/10/17	2030-G-D 36".03	D/E	A	PT	0194	PTA0028	1"	WOL		X		X							
04/11/17	7451-PG-C 1".01	M	A	PT	0200	PTA0029	1"	SOL		X		X							
04/11/17	7451-PG-C 1".01	H	A	PT	0201	PTA0029	1"	SOL		X		X							
04/11/17	7451-PG-C 1".01	H	A	PT	0202	PTA0029	1"	SOL		X		X							
04/11/17	7451-PG-C 1".01	H	A	PT	0203	PTA0029	1"	SOL		X		X							
04/11/17	7451-PG-C 1".01	H	A	PT	0204	PTA0029	1"	SOL		X		X							
04/11/17	7451-PG-C 1".01	H	A	PT	0205	PTA0029	1"	SOL		X		X							
04/11/17	7451-PG-C 1".01	H	A	PT	0206	PTA0029	1"	SOL		X		X							
04/11/17	7451-PG-C 1".01	H	A	PT	0207	PTA0029	1"	SOL		X		X							
04/11/17	7451-PG-C 1".01	H	A	PT	0208	PTA0029	1"	SOL		X		X							
04/13/17	7452-PG-C 1".01	M	A	PT	0209	PTA0030	1"	SOL		X		X							
04/13/17	7452-PG-C 1".01	M	A	PT	0210	PTA0030	1"	SOL		X		X							
04/13/17	7452-PG-C 1".01	M	A	PT	0211	PTA0030	1"	SOL		X		X							
04/13/17	7452-PG-C 1".01	M	A	PT	0212	PTA0030	1"	SOL		X		X							
04/13/17	7452-PG-C 1".01	M	A	PT	0213	PTA0030	1"	SOL		X		X							
04/13/17	8226-LO-A 2".01	E	A	PT	0214	PTA0030	1"	swedge		X		X							
04/13/17	8227-LO-A 2".01	D	A	PT	0215	PTA0030	1"	swedge		X		X							
04/13/17	8223-LO-A 2".01	D	A	PT	0216	PTA0030	1"	swedge		X		X							
04/13/17	2030-G-D 36".04	J/L	A	PT	0217	PTA0030	1"	WOL		X		X							
04/13/17	2030-G-D 36".04	L	A	PT	0218	PTA0030	1"	WOL		X		X							
04/13/17	2030-G-D 36".04	J	A	PT	0221	PTA0030-2	1"	WOL		X		X							
04/13/17	2030-G-D 36".04	J	A	PT	0223	PTA0030-2	1"	WOL		X		X							
04/13/17	2030-G-D 36".04	J	A	PT	0225	PTA0030-2	1"	WOL		X		X							

Letter from Bill Bruce, DNV GL, dated April 25, 2017: **Page 3 of 4**

PIPELINE CHENIERE

Project Name:	Cheniere Sinton Compressor Station
General Contractor:	Sunland
NDE Company:	Intertek Asset Integrity
P.O.:	106243
NDE Inspector:	Coy Pozay

Total MT/PT	225
Total RT	1694
Total AUT	0
Total Welds Accepted	1890
Total Welds Rejected	23
Total Welds Repaired	23
Total Welds Cut-out	7
Outstanding Reshots	0
Total Welds Deleted	0
Outstanding Repairs	
Rejection Rate	

IFD/IP	
POR/HB	
ESI/ISI	
IC/BT	
EU/CU/UC	
IF	
CRACKS	
Fab Error	

12-3 O'Clock	
3-6 O'Clock	
6-9 O'Clock	
9-12 O'Clock	

Date:	4/13/2017
Total Welds To Date	1919
Total Welds Today	23
Welds Rejected Today	0
Welds Repaired Today	0

Welding and NDE Data									Mark with an X Only				Repair Information		
Date	Drawings	Welder	Rig#	Type Weld	Weld #	X-Ray Report#	Size	Wall	AUT	MT/PT	RT	Acc	Repair / Cut-Out Weld #	Repair Report #	Date Repair Accepted
02/03/17	7221-IA-A 2".02	E	A	PT	0015	PTA0007	1"	socket valve		X		X			
02/03/17	7221-IA-A 2".02	E	A	PT	0016	PTA0007	1"	WOL		X		X			
02/03/17	7214-IA-A 2".01	C	A	PT	0017	PTA0007	1"	WOL		X		X			
02/03/17	7117-FG-C 2".04	H	A	PT	0018	PTA0007	1"	WOL		X		X			
02/03/17	8512-WD-A 2".01	H	A	PT	0019	PTA0007	1"	WOL socket		X		X			
02/03/17	8512-WD-A 2".01	H	A	PT	0020	PTA0007	1"	WOL		X		X			
02/03/17	8514-WD-A 2".01	J	A	PT	0021	PTA0007	1"	socket		X		X			
02/03/17	8514-WD-A 2".01	J	A	PT	0022	PTA0007	1"	socket		X		X			
02/03/17	8514-WD-A 2".01	J	A	PT	0023	PTA0007	1"	WOL		X		X			
02/03/17	8512-WD-A 2".01	H	A	PT	0024	PTA0007	1"	socket valve		X		X			
02/03/17	8512-WD-A 2".01	H	A	PT	0025	PTA0007	1"	socket		X		X			
02/03/17	9512-WD-A 2".01	H	A	PT	0026	PTA0007-2	1"	WOL		X		X			
02/03/17	7404-PG-C 2".02	H	A	PT	0027	PTA0007-2	1"	socket		X		X			
02/03/17	7121-FG-A 2".01	E	A	PT	0028	PTA0007-2	1"	socket valve		X		X			
02/03/17	7121-FG-A 2".01	E	A	PT	0029	PTA0007-2	1"	socket		X		X			
02/03/17	7121-FG-A 2".01	E	A	PT	0030	PTA0007-2	1"	WOL		X		X			
02/03/17	7121-FG-A 2".01	E	A	PT	0031	PTA0007-2	1"	socket valve		X		X			
02/03/17	7121-FG-A 2".01	E	A	PT	0032	PTA0007-2	1"	socket		X		X			
02/03/17	7121-FG-A 2".01	E	A	PT	0033	PTA0007-2	1"	WOL		X		X			
02/03/17	7121-FG-A 2".01	E	A	PT	0034	PTA0007-2	1"	socket valve		X		X			
02/03/17	7121-FG-A 2".01	E	A	PT	0035	PTA0007-2	1"	socket		X		X			
02/03/17	7121-FG-A 2".01	E	A	PT	0036	PTA0007-2	1"	WOL		X		X			
02/03/17	8514-WD-A 2".01	J	A	PT	0037	PTA0007-2	1"	socket valve		X		X			
02/03/17	8514-WD-A 2".01	J	A	PT	0038	PTA0007-2	1"	socket		X		X			
02/03/17	8514-WD-A 2".01	J	A	PT	0039	PTA0007-2	1"	WOL		X		X			
02/03/17	7117-FG-C 2".01	G	A	PT	0040	PTA0007-2	1"	socket valve		X		X			
02/03/17	7117-FG-C 2".01	G	A	PT	0041	PTA0007-2	1"	socket		X		X			
02/03/17	7117-FG-C 2".01	G	A	PT	0042	PTA0007-2	1"	WOL		X		X			
02/03/17	7117-FG-C 2".01	G	A	PT	0043	PTA0007-2	1"	flange		X		X			
02/03/17	7117-FG-C 2".01	G	A	PT	0044	PTA0007-2	1"	flange		X		X			
02/03/17	7120-FG-C 1".01	H	A	PT	0047	PTA0008	1"	WOL		X		X			
02/03/17	7120-FG-C 1".01	H	A	PT	0048	PTA0008	1"	socket		X		X			
02/03/17	7120-FG-C 1".01	H	A	PT	0049	PTA0008	1"	socket valve		X		X			
02/03/17	7120-FG-C 1".01	H	A	PT	0050	PTA0008	1"	socket valve		X		X			
02/03/17	7120-FG-C 1".01	H	A	PT	0051	PTA0008	1"	socket		X		X			
02/03/17	7120-FG-C 1".01	H	A	PT	0052	PTA0008	1"	WOL		X		X			
02/03/17	7120-FG-C 1".01	H	A	PT	0053	PTA0008	1"	TOL		X		X			
02/03/17	7120-FG-C 1".01	H	A	PT	0054	PTA0008	1"	TOL		X		X			
02/03/17	7222-IA-A 2".03	H	A	PT	0055	PTA0008	1"	socket valve		X		X			
02/04/17	7221-IA-A 2".01	F	A	PT	0056	PTA0009	1"	WOL socket		X		X			
02/04/17	7221-IA-A 2".01	F	A	PT	0057	PTA0009	1"	socket WOL		X		X			
02/04/17	8504-WD-A 2".01	H	A	PT	0058	PTA0009	1"	WOL		X		X			
02/04/17	8501-WD-A 2".01	H	A	PT	0059	PTA0009	1"	WOL		X		X			
02/04/17	7117-FG-C 2".02	J	A	PT	0060	PTA0009	1"	socket valve		X		X			
02/04/17	7117-FG-C 2".02	J	A	PT	0061	PTA0009	1"	socket		X		X			
02/04/17	7117-FG-C 2".02	J	A	PT	0062	PTA0009	1"	WOL		X		X			
02/07/17	7219-IA-A 2".02	G	A	PT	0072	PTA0011	1"	WOL		X		X			
02/07/17	7219-IA-A 2".02	G	A	PT	0073	PTA0011	1"	WOL		X		X			
02/07/17	7225-IA-A 3".03	F	A	PT	0074	PTA0011	1"	socket		X		X			
02/07/17	7225-IA-A 3".03	F	A	PT	0075	PTA0011	1"	WOL		X		X			
02/07/17	7225-IA-A 3".03	F	A	PT	0076	PTA0011	1"	socket		X		X			
02/07/17	7225-IA-A 3".03	F	A	PT	0077	PTA0011	1"	WOL		X		X			
02/07/17	7222-IA-A 2".01	G	A	PT	0078	PTA0011	1"	socket		X		X			
02/07/17	7222-IA-A 2".01	G	A	PT	0079	PTA0011	1"	WOL		X		X			
02/17/17	7233-IA-A 3".01	K	A	PT	0098	PTA0015	1"	socket to valve		X		X			

Attachment C

Procedure Qualification Records (Supplemental) for Cheniere SMAW Fillet Welds

CHENIERE

Coupon Test Report

Welding of Pipelines and Related Facilities Per API 1104

Test PQR No.: CCPQ17-002 Date: 3/22/2017

Test WPS No.: SMAW-A18A-FLT Location: Corpus Christi State: Texas Temperature° F: 78

Weather Conditions: Cloudy Welding Time: 4Hrs Welding Machine Type and Size: Lincoln 3000

Contractor: Cheniere/Sunland Welders Name: Troy L. Doucet Social: xxx-xx-5042

Wind Break Used: Yes Welders Name: n/a Social: n/a

Water Flow Rate: n/a

Pipe Type and Grade:	API 5L X-42	Welding Process / Type:	SMAW / Manual
Wall Thickness:	(4.5"OD)0.175"/(12"OD)0.375"	Filler Metal:	E6010-5P+/ E8010-G-70+
Outside Diameter:	4.5"/12.750"	Electrical:	DCEP / Reverse
Sleeve Material:	n/a	Welding Position:	Overhead Fixed
Sleeve Thickness:	n/a	Amperage:	See Table
Preheat Maint.:	None	Voltage:	See Table
Time Between Passes:	15 Minutes	Travel Speed:	See Table
Carbon Equivalency Pipe = :	n/a	Carbon Equivalency Sleeve = :	n/a

Branch	Electrode	Size	Amperage	Voltage	Travel Speed IPM	Direction	kJ/in. Min. / Max.
Root	E6010-5P+	1/8"	74 - 94	20 - 26.3	Average 5.6	Downhill	15.85 - 26.48
Hot	E8010-G 70+	1/8"	85 - 102	25.2 - 30.1	Average 7.5	Downhill	17.13 - 24.56
Fill	E8010-G 70+	1/8"	101 - 110	24.8 - 27.7	Average 6.7	Downhill	22.43 - 27.28
Cap	E8010-G 70+	1/8"	93 - 98	25.4 - 26.9	Average 7.3	Downhill	19.41 - 21.66
Cap	E8010-G 70+	1/8"	98 - 105	25 - 25.8	Average 5.8	Downhill	25.34 - 28.02

Notes: 15 minutes between Bead and Hot Pass, 30 minute hold between Hot Pass, and Fill.

Tensile Tests

Specimen	Width"	Thickness"	Area"	UTL, lbs.	UTS,psi.	Fracture Location / Type
T-1	n/a					
T-2	n/a					
T-3	n/a					
T-4	n/a					

Bend Tests				Nick Break Tests		Nick Break Tests / Branch	
Root-1	n/a	Face-1	n/a	Nick-1	n/a	Nick-1	Acceptable
Root-2	n/a	Face-2	n/a	Nick-2	n/a	Nick-2	Acceptable
Root-3	n/a	Face-3	n/a	Nick-3	n/a	Nick-3	Acceptable
Root-4	n/a	Face-4	n/a	Nick-4	n/a	Nick-4	Acceptable

Additional Testing: n/a

Visual examination results: SATISFACTORY

Welding test conducted by: ALS Maverick Testing Laboratories, Inc. / Cheniere Pipeline

Mechanical/Radiographic tests conducted by: Ryan McCarthy Lab test no.: PQ17-002

We certify that the statements in this record are correct and that the test coupons were prepared, welded and tested in accordance with the requirements of API 1104 20th Edition, 2010 Errata

Organization: ALS Maverick Testing Laboratories, Inc.

Tested By: Thomas Chalkley Date: 3/22/2017

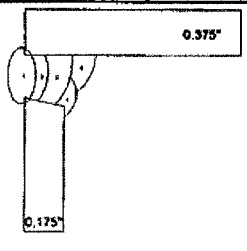
Witnessed by: Melissa Gould Melissa Gould Date: 4/20/17

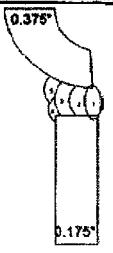
Certified by: Thomas Chalkley Thomas Chalkley Date: 4-20-17

Joint Description and Weld Bead Profile

4.5" Hit# 12-104647

12" Hit# MA6827





4.5" x 0.175" on 12" x 0.375" Branch Fillet

Thomas E Chalkley
CWI 09122021
QC1 EXP. 12/1/2018

Melissa Gould
CWI 13011011
QC1 EXP. 1/1/2019

CHENIERE

Coupon Test Report

Welding of Pipelines and Related Facilities Per API 1104

Test PQR No.: CCPQ17-003 Date: 4/20/2017

Test WPS No.: SMAW-A28A-FLT Location: Corpus Christi State: Texas Temperature° F: 84

Weather Conditions: Cloudy Welding Time: 4Hrs Welding Machine Type and Size: Lincoln SAE-300D

Contractor: Cheniere/Sunland Welders Name: Mickey W. Holder Social: xxx - xx - 6117

Wind Break Used: Yes Welders Name: n/a Social: n/a

Water Flow Rate: n/a

Pipe Type and Grade:	API 5L X-60	Welding Process / Type:	SMAW / Manual
Wall Thickness:	(12"OD)0.170"/(12"OD)0.375"	Filler Metal:	E8010-5P+/ E8010-G-70+
Outside Diameter:	12.750"	Electrical:	DCEP / Reverse
Sleeve Material:	n/a	Welding Position:	Overhead Fixed
Sleeve Thickness:	n/a	Amperage:	See Table
Preheat Maint.:	None	Voltage:	See Table
Time Between Passes:	15 Minutes (see notes)	Travel Speed:	See Table
Carbon Equivalency Pipe = :	n/a	Carbon Equivalency Sleeve = :	n/a

Branch	Electrode	Size	Amperage	Voltage	Travel Speed IPM	Direction	kJ/in. Min. / Max.
Root	E6010-5P+	1/8"	78 - 107	24.8 - 31.6	4 - 5.5	Downhill	20.6 - 50.7
Hot	E8010-G 70+	1/8"	85 - 113	20.1 - 28.4	4.6 - 5.7	Downhill	18 - 41.9
Cap	E8010-G 70+	1/8"	93 - 108	21.5 - 25.8	5.7 - 9.3	Downhill	12.9 - 29.3
Cap	E8010-G 70+	1/8"	93 - 110	21.1 - 24.6	5.1 - 5.2	Downhill	26.8 - 31.8

Notes: 15 minutes between Bead and Hot Pass, 30 minute hold between Hot Pass, and Fill.

Tensile Tests

Specimen	Width"	Thickness"	Area"	UTL, lbs.	UTS,psi.	Fracture Location / Type
T-1	n/a					
T-2	n/a					
T-3	n/a					
T-4	n/a					

Bend Tests				Nick Break Tests		Nick Break Tests / Branch	
Root-1	n/a	Face-1	n/a	Nick-1	n/a	Nick-1	Acceptable
Root-2	n/a	Face-2	n/a	Nick-2	n/a	Nick-2	Acceptable
Root-3	n/a	Face-3	n/a	Nick-3	n/a	Nick-3	Acceptable
Root-4	n/a	Face-4	n/a	Nick-4	n/a	Nick-4	Acceptable

Additional Testing: n/a

Visual examination results: SATISFACTORY

Welding test conducted by: ALS Maverick Testing Laboratories, Inc. / Cheniere Pipeline

Mechanical/Radiographic tests conducted by: Thomas Chalkley Lab test no.: CCPQ17-003

We certify that the statements in this record are correct and that the test coupons were prepared, welded and tested in accordance with the requirements of API 1104 20th Edition, 2010 Errata

Organization: ALS Maverick Testing Laboratories, Inc.

Tested By: Thomas Chalkley Date: 4/20/2017

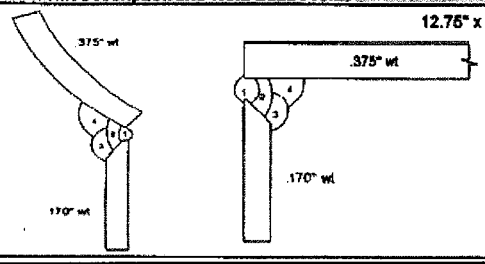
Witnessed by: Melissa Gould Date: 5/1/17

Certified by: Thomas Chalkley Date: 5-1-17

Joint Description and Weld Bead Profile

12.75" x 0.170" on 12" x 0.375" Branch Fillet

Material Ht. # : LA1776



Thomas E Chalkley
CWI 09122021
QC1 EXP. 12/1/2018

Melissa Gould
CWI 13011011
QC1 EXP. 1/1/2019

PQR for Cheniere WPS **SMAW-A28A-FLT <0.188", X52** through **X60** Pipe

CHENIERE

Coupon Test Report

Welding of Pipelines and Related Facilities Per API 1104

Test PQR No.: CCPQ17-004 Date: 4/21/2017

Test WPS No.: SMAW-A38A-FLT Location: Corpus Christi State: Texas Temperature° F: 78

Weather Conditions: Cloudy Welding Time: 4Hrs Welding Machine Type and Size: Lincoln SAE-300D

Contractor: Cheniere/Sunland Welders Name: Mickey W. Holder Social: xxx - xx - 6117

Wind Break Used: Yes Welders Name: n/a Social: n/a

Water Flow Rate: n/a

Pipe Type and Grade:	API 5L X-65	Welding Process / Type:	SMAW / Manual
Wall Thickness:	(12"OD)0.175"/(12"OD)0.250"	Filler Metal:	E6010-5P+/ E8010-G-70+
Outside Diameter:	12.750"	Electrical:	DCEP / Reverse
Sleeve Material:	n/a	Welding Position:	Overhead Fixed
Sleeve Thickness:	n/a	Amperage:	See Table
Preheat Maint.:	None	Voltage:	See Table
Time Between Passes:	15 Minutes (see notes)	Travel Speed:	See Table
Carbon Equivalency Pipe = :	n/a	Carbon Equivalency Sleeve = :	n/a

Branch	Electrode	Size	Amperage	Voltage	Travel Speed IPM	Direction	kJ/in. Min. / Max.
Root	E6010-5P+	1/8"	69 - 108	23.3 - 29.5	5.2 - 9.2	Downhill	10.4 - 36.7
Hot	E8010-G 70+	1/8"	84 - 98	21.5 - 29.2	4.9 - 6.9	Downhill	15.7 - 35
Cap	E8010-G 70+	1/8"	89 - 99	22 - 25.7	4.0 - 5.5	Downhill	21.4 - 38.2
Cap	E8010-G 70+	1/8"	82 - 102	21.6 - 24.1	4.3 - 5.5	Downhill	19.3 - 34

Notes: 15 minutes between Bead and Hot Pass, 30 minute hold between Hot Pass, and Fill.

Tensile Tests

Specimen	Width"	Thickness "	Area"	UTL, lbs.	UTS,psi.	Fracture Location /Type
T-1	n/a					
T-2	n/a					
T-3	n/a					
T-4	n/a					

Bend Tests				Nick Break Tests		Nick Break Tests / Branch	
Root-1	n/a	Face-1	n/a	Nick-1	n/a	Nick-1	Acceptable
Root-2	n/a	Face-2	n/a	Nick-2	n/a	Nick-2	Acceptable
Root-3	n/a	Face-3	n/a	Nick-3	n/a	Nick-3	Acceptable
Root-4	n/a	Face-4	n/a	Nick-4	n/a	Nick-4	Acceptable

Additional Testing: n/a

Visual examination results: SATISFACTORY

Welding test conducted by: ALS Maverick Testing Laboratories, Inc. / Cheniere Pipeline

Mechanical/Radiographic tests conducted by: Thomas Chalkley Lab test no.: CCPQ17-004

We certify that the statements in this record are correct and that the test coupons were prepared, welded and tested in accordance with the requirements of API 1104 20th Edition, 2010 Errata

Organization: ALS Maverick Testing Laboratories, Inc.

Tested By: Thomas Chalkley Date: 4/21/2017

Witnessed by: Melissa Gould Date: 5/1/17

Certified by: Thomas Chalkley Date: 5-1-17

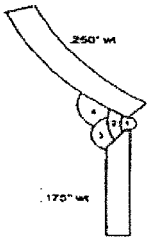
Joint Description and Weld Bead Profile

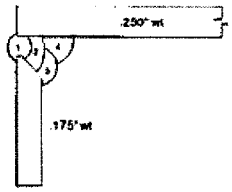
12.75" x 0.175" on 12" x 0.250" Branch Fillet

Material Ht.#: 570770

Thomas E Chalkley
CWI 09122021
QC1 EXP. 12/1/2018

Melissa Gould
CWI 13011011
QC1 EXP. 1/1/2019





PQR for Cheniere WPS **SMAW-A38A-FLT <0.188", X65** Pipe

CHENIERE

Coupon Test Report

Welding of Pipelines and Related Facilities Per API 1104

Test PQR No.: CCPQ17-005 Date: 4/21/2017

Test WPS No.: SMAW-A48A-FLT Location: Corpus Christi State: Texas Temperature° F: 80

Weather Conditions: Cloudy Welding Time: 4Hrs Welding Machine Type and Size: Lincoln SA-200

Contractor: Cheniere/Sunland Welders Name: Tommy Winfrey Social: xxx - xx - 8907

Wind Break Used: Yes Welders Name: n/a Social: n/a

Water Flow Rate: n/a

Pipe Type and Grade:	API 5L X-70	Welding Process / Type:	SMAW / Manual
Wall Thickness:	(12"OD)0.170"/(12"OD)0.375"	Filler Metal:	E6010-5P+/ E8010-G-70+
Outside Diameter:	12.750"	Electrical:	DCEP / Reverse
Sleeve Material:	n/a	Welding Position:	Overhead Fixed
Sleeve Thickness:	n/a	Amperage:	See Table
Preheat Maint.:	None	Voltage:	See Table
Time Between Passes:	15 Minutes (see notes)	Travel Speed:	See Table
Carbon Equivalency Pipe = :	n/a	Carbon Equivalency Sleeve = :	n/a

Branch	Electrode	Size	Amperage	Voltage	Travel Speed IPM	Direction	kJ/in. Min. / Max.
Root	E6010-5P+	1/8"	74 - 93	26.9 - 30.7	5 - 8.1	Downhill	14.7 - 34.3
Hot	E8010-G 70+	1/8"	84 - 109	25.1 - 30.4	6.3 - 8.4	Downhill	15.1 - 31.6
Fill/Strip Pass	E8010-G 70+	1/8"	91	26.9	6.6	Downhill	22.3
Cap	E8010-G 70+	1/8"	79 - 116	25.2 - 31.0	5.6 - 6.1	Downhill	16.6 - 38.5
Cap	E8010-G 70+	1/8"	81 - 109	26.4 - 29.4	5.1 - 6.7	Downhill	19.1 - 37.7

Notes: 15 minutes between Bead and Hot Pass, 30 minute hold between Hot Pass, and Fill.

Tensile Tests

Specimen	Width"	Thickness "	Area"	UTL, lbs.	UTS,psi.	Fracture Location / Type
T-1	n/a					
T-2	n/a					
T-3	n/a					
T-4	n/a					

Bend Tests				Nick Break Tests		Nick Break Tests / Branch	
Root-1	n/a	Face-1	n/a	Nick-1	n/a	Nick-1	Acceptable
Root-2	n/a	Face-2	n/a	Nick-2	n/a	Nick-2	Acceptable
Root-3	n/a	Face-3	n/a	Nick-3	n/a	Nick-3	Acceptable
Root-4	n/a	Face-4	n/a	Nick-4	n/a	Nick-4	Acceptable

Additional Testing: n/a

Visual examination results: SATISFACTORY

Welding test conducted by: ALS Maverick Testing Laboratories, Inc. / Cheniere Pipeline

Mechanical/Radiographic tests conducted by: Thomas Chalkley Lab test no.: CCPQ17-005

We certify that the statements in this record are correct and that the test coupons were prepared, welded and tested in accordance with the requirements of API 1104 20th Edition, 2010 Errata

Organization: ALS Maverick Testing Laboratories, Inc.

Tested By: Thomas Chalkley Date: 4/21/2017

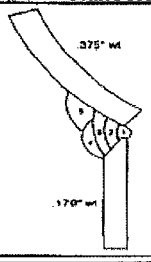
Witnessed by: Melissa Gould Date: 5/1/17

Certified by: Thomas Chalkley Date: 5-1-17

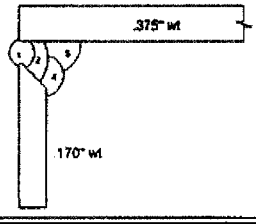
Joint Description and Weld Bead Profile

Thomas E Chalkley
CWI 09122021
QC1 EXP. 12/1/2018

Melissa Gould
CWI 13011011
QC1 EXP. 1/1/2019



12.75" x 0.170" on 12" x 0.375" Branch Fillet
Material Ht. : AC8137A



PQR for Cheniere WPS **SMAW-A48A-FLT <0.188", X70** Pipe

Attachment D

ASME Form QW-484A

FORM QW-484A SUGGESTED FORMAT A FOR WELDER PERFORMANCE QUALIFICATIONS (WPQ)
(See QW-301, Section IX, ASME Boiler and Pressure Vessel Code)

Welder's name _____ Identification no. _____

Test Description

Identification of WPS followed _____ ☐ Test coupon ☐ Production weld

Specification and type/grade or UNS Number of base metal(s) _____ Thickness _____

Testing Variables and Qualification Limits

Welding Variables (QW-350)	Actual Values	Range Qualified
Welding process(es)		
Type (i.e.: manual, semi-automatic) used		
Backing (with/without)		
☐ Plate ☐ Pipe (enter diameter if pipe or tube)		
Base metal P-Number to P-Number		
Filler metal or electrode specification(s) (SFA) (info. only)		
Filler metal or electrode classification(s) (info. only)		
Filler metal F-Number(s)		
Consumable insert (GTAW or PAW)		
Filler Metal Product Form (solid/metal or flux cored/powder) (GTAW or PAW)		
Deposit thickness for each process		
Process 1 _____ 3 layers minimum ☐ Yes ☐ No		
Process 2 _____ 3 layers minimum ☐ Yes ☐ No		
Position qualified (2G, 6G, 3F, etc.)		
Vertical progression (uphill or downhill)		
Type of fuel gas (OFW)		
Inert gas backing (GTAW, PAW, GMAW)		
Transfer mode (spray/globular or pulse to short circuit-GMAW)		
GTAW current type/polarity (AC, DCEP, DCEN)		

RESULTS

Visual examination of completed weld (QW-302.4) _____

☐ Transverse face and root bends [QW-462.3(a)] ☐ Longitudinal bends [QW-462.3(b)] ☐ Side bends (QW-462.2)

☐ Pipe bend specimen, corrosion-resistant weld metal overlay [QW-462.5(c)]

☐ Plate bend specimen, corrosion-resistant weld metal overlay [QW-462.5(d)]

☐ Pipe specimen, macro test for fusion [QW-462.5(b)] ☐ Plate specimen, macro test for fusion [QW-462.5(e)]

Type	Result	Type	Result	Type	Result

Alternative Volumetric Examination Results (QW-191): _____ RT ☐ or UT ☐ (check one)

Fillet weld — fracture test (QW-181.2) _____ Length and percent of defects _____

☐ Fillet welds in plate [QW-462.4(b)] ☐ Fillet welds in pipe [QW-462.4(c)]

Macro examination (QW-184) _____ Fillet size (in.) _____ × _____ Concavity/convexity (in.) _____

Other tests _____

Film or specimens evaluated by _____ Company _____

Mechanical tests conducted by _____ Laboratory test no. _____

Welding supervised by _____

We certify that the statements in this record are correct and that the test coupons were prepared, welded, and tested in accordance with the requirements of Section IX of the ASME BOILER AND PRESSURE VESSEL CODE.

Organization _____

Date _____ Certified by _____

(07/13)