

Internal Use Only	
APP ID: APCD	-APP/CER-
SITE ID: APCD	-SITE-

122 MAY 20 PM 12:10 APCD

GENERAL PERMIT OR REGISTRATION APPLICATION FORM



San Diego County
Air Pollution
Control District

Submittal of this application does not grant permission to construct or to operate equipment except as specified in Rule 24(c).

REASON FOR SUBMITTAL OF APPLICATION:

- | | | |
|--|---|---|
| <input type="checkbox"/> New Installation | <input type="checkbox"/> Existing Unpermitted Equipment or Rule 11 Change | <input type="checkbox"/> Modification of Existing Permitted Equipment |
| <input type="checkbox"/> Amendment to Existing Authority to Construct or Application | <input type="checkbox"/> Change of Equipment Location | <input type="checkbox"/> Change of Equipment Ownership <i>(please provide proof of ownership)</i> |
| <input type="checkbox"/> Change of Permit Conditions | <input type="checkbox"/> Change Permit to Operate Status to Inactive | <input type="checkbox"/> Banking Emissions |
| <input type="checkbox"/> Registration of Portable Equipment | <input checked="" type="checkbox"/> Other (Specify) <u>Risk Reduction Plan from HRA2017</u> | |

List affected APP/PTO Record ID(s): _____

APPLICANT INFORMATION

Name of Business (DBA) BAE Systems San Diego Ship Repair Inc.

Does this organization own or operate any other APCD permitted equipment at this or any other adjacent locations? Yes No

If yes, list assigned Site Record IDs listed on your Permits _____

Name of Legal Owner (if different from DBA) _____

Equipment Owner	Authority to Construct Mailing Address
Name: _____	Name: Attn: Environmental Manager - Dept 210
Mailing Address: _____	Mailing Address: 2205 E. Belt Street
City: _____ State: _____ Zip: _____	City: San Diego State: CA Zip: 92113
Phone: () _____	Phone: () 619-359-5991
E-Mail Address: _____	E-Mail Address: lydia.pellecer@baesystems.com; heather.hodlin@baesystems.com

Permit To Operate Mailing Address	Invoice Mailing Address
Name: Attn: Environmental Manager - Dept 210	Name: Attn: Environmental Manager - Dept 210
Mailing Address: 2205 E. Belt Street	Mailing Address: 2205 E. Belt Street
City: San Diego State: CA Zip: 92113	City: San Diego State: CA Zip: 92113
Phone: () 619-359-5991	Phone: () 619-359-5991
E-Mail Address: lydia.pellecer@baesystems.com; heather.hodlin@baesystems.com	E-Mail Address: lydia.pellecer@baesystems.com; heather.hodlin@baesystems.com

EQUIPMENT/PROCESS INFORMATION: Type of Equipment: Stationary Portable, *if portable please enter below the equipment storage address.* If portable, will operation exceed 12 consecutive months at the same location Yes No

Equipment Location Address _____ City _____ State: _____

Parcel No. _____ Zip _____ Phone () _____ E-mail: _____

Site Contact _____ Phone () _____

General Description of Equipment/Process _____

Application Submitted by Owner Operator Contractor Consultant Affiliation _____

EXPEDITED APPLICATION PROCESSING: I hereby request Expedited Application Processing and understand that:

- a) Expedited processing will incur additional fees and permits will not be issued until the additional fees are paid in full (see Rule 40(d)(8)(iv) for details) b) Expedited processing is contingent on the availability of qualified staff c) Once engineering review has begun this request cannot be cancelled d) Expedited processing does not guarantee action by any specific date nor does it guarantee permit approval.

This application contains trade secret or confidential information (see reverse for instructions)

I hereby certify that all information provided on this application is true and correct.

Date 5/20/2022

Print Name Lydia Pellecer

Company BAE Systems San Diego Ship Repair

Phone () 619-359-5591

E-mail Address lydia.pellecer@baesystems.com

Internal Use Only

Date _____	Staff Initials: _____	Amt Rec'd \$ _____	Fee Schedule _____
RNP: _____	EMF: _____	NBF: _____	TA: _____

GEN_APP_Form_Rev Date: Aug. 2017

Date:	12 May 2022
To:	Stephen Amberg, Air Quality Specialist AB2588 Hot Spots Program and Health Risk Assessments San Diego Air Pollution Control District
From:	Lydia Pellecer and Heather Hodlin, BAE Systems San Diego Ship Repair
Subject:	BAE Systems San Diego Ship Repair Risk Reduction Plan based on the 2017 Health Risk Assessment

1.0 INTRODUCTION

BAE Systems San Diego Ship Repair (BAE Systems SDSR) received a letter from the San Diego Air Pollution Control District (SDAPCD or District) on November 16, 2021, indicating that the District-approved Health Risk Assessment (HRA) for the 2017 emissions inventory showed that both the Maximum Residential Acute Non-Cancer Health Hazard Index and Maximum Worker Acute Health Hazard Index exceeded the public notification and risk reduction levels specified in District Rule 1210, sections (d)(1) and (e)(1), respectively. The results were based on a revised HRA performed by the SDAPCD and approved on November 16, 2021. Previously, BAE Systems SDSR had submitted an HRA on June 12, 2019, and a revised HRA on May 20, 2021, based on the 2017 emissions inventory. On December 9 and December 17, 2021, BAE Systems SDSR provided a refined acute analysis to the District. These submittals resulted in Amended District Modified HRA, dated December 23, 2021, which superseded the results approved on November 16, 2021. Based on the Amended District Modified HRA, the Worker Cancer Risk and the Worker Acute Health Hazard Index exceeded the public notification levels specified in District Rule 1210, but only the Maximum Worker Acute Health Hazard Index exceeded the risk reduction level for emission inventories prior to 2018. BAE Systems SDSR has fulfilled the public notification requirements. This document presents the Risk Reduction Plan (RRP) for the acute noncancer health risk. The RRP is due to the District on May 16, 2022.

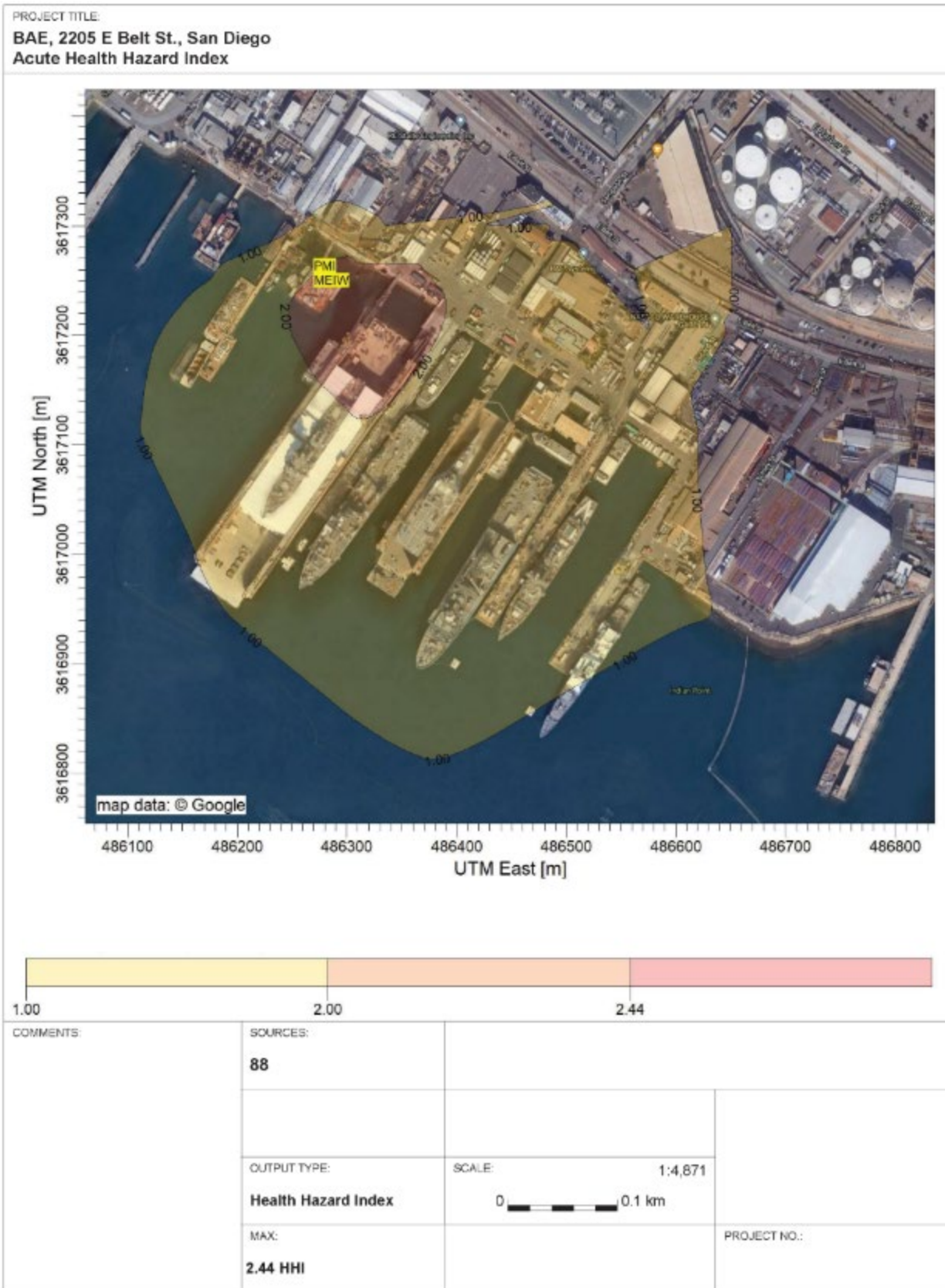
2.0 ESTIMATED NONCANCER ACUTE RISK

Rule 1210 requires that a stationary source submit a risk reduction audit and plan if their most recent approved public health risk assessment indicates potential public health risks equal to or greater than one or more of the following significant risk mitigation levels:

- Maximum incremental cancer risks equal to or greater than 100 in one million for emissions inventory years prior to 2018, or
- Cancer burden equal to or greater than 1.0, or
- Total acute noncancer health hazard index equal to or greater than 1.0, or
- Total chronic noncancer health hazard index equal to or greater than 1.0.

The 2017 Amended District Modified HRA, dated December 23, 2021, identified acute noncancer health hazard index (HHI) of 2.44, impacting R.E. Staite Engineering Inc. (RE Staite), NASSCO, and Chevron. As shown in Figure 1, the location of the RE Staite maximum receptor point is near their pier. The NASSCO receptor point is within the property fence line in the southwest corner of the facility. The isopleth slightly extends into the Chevron facility.

Figure 1. Acute Hazard Index



3.0 RISK REDUCTION PLAN ELEMENTS

The following sections present the required elements of the RRP, as prescribed in the SDAPCD Rule 1210. Responses are provided in blue font.

Rule 1210 (e)(2) states: “The risk reduction audit and plan shall comply with the requirements of Subsection (e)(2). Such risk reductions shall be accomplished within five years of the date the plan is approved by the Air Pollution Control Officer, unless an extension has been granted pursuant to Subsections (e)(4) or (e)(5).”

- i. The name and location of the stationary source.

BAE Systems San Diego Ship Repair, 2205 E Belt Street, San Diego, CA 92113

- ii. A facility risk characterization which includes an updated emissions inventory report and health risk assessment, if the risk due to total facility emissions has increased to above or decreased to below the levels indicated in the previously approved health risk assessment.

The focus of this RRP is on the welding that occurred onboard ships during the maximum day of June 13, 2017, identified in the refined acute analysis. During the preparation of this RRP, three corrections to the acute analysis were identified that directly impact the modeling and results. The first item was the location of volume sources identified for the Pride of California (POCA) dry dock, those on Pier 1 South where the USS Zumwalt was located, Pride of San Diego (POSD) dry dock, and Pier 3 North where the USS Decatur was located. Figures 2 and 3 highlight the volume source locations in reference to the actual location of ships and dry docks, based on Google Earth imagery from August 2017 and December 2017. Figures 4 and 5 represent the revised volume source locations which align accurately with the actual ships and dry docks' locations.

The second incorrect item identified in the 2017 HRA was the use of a meteorological station height (MSL) of the Perkins Elementary School (PES) station of 3 meters in AERMOD. The correct value for PES is 8 meters. This was confirmed with Mr. Bill Reeves of the SDAPCD.

The third item was the recent clarification on historical records for 0.045” diameter 309 and 316 welding spools, which were previously reported to weigh 15 pounds. The actual weight of these spools is 11 pounds. The usage amounts were divided by two (2) days and then by four (4) hours to estimate an hourly usage of 1.875 pounds per hour. Using the corrected weight, the hourly usage rate decreased to 1.375 pounds per hour. Attachment 1 includes a copy of the certificate of analysis for the 0.045” diameter 309 and 316 spools used by BAE Systems SDSR.

The three identified corrections were made to the refined acute analysis and AERMOD was rerun for nickel to identify the maximum hourly concentration. The revised values were added to the benzene values identified in the approved refined acute analysis. The revised evaluation resulted in a revised HQ for nickel and benzene at the point of maximum impact and MEIW of approximately 1.05.

Figure 2. 2017 HRA Modeled Volume Source Locations with August 2017 Imagery



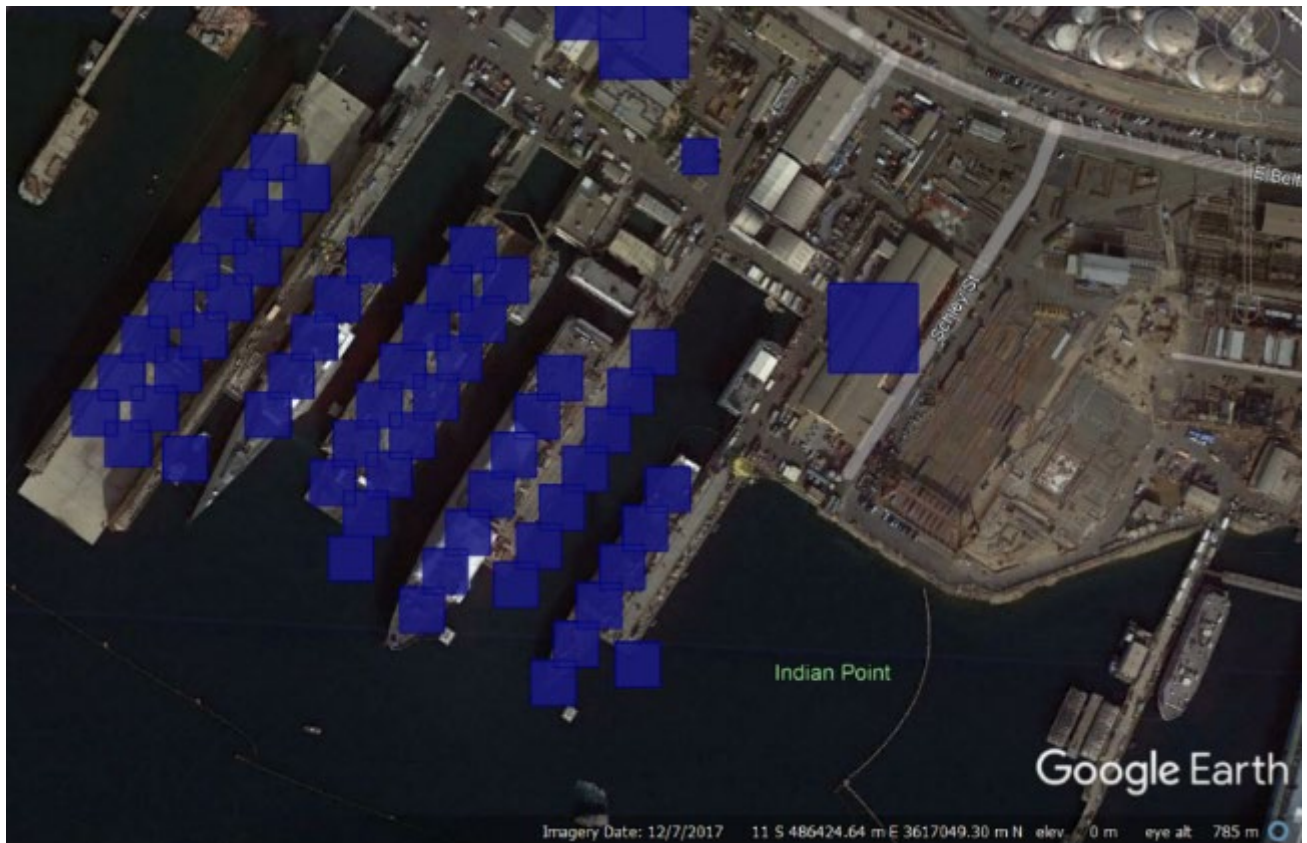
Figure 3. 2017 HRA Modeled Volume Source Locations with December 2017 Imagery



Figure 4. Revised 2017 HRA Modeled Volume Source Locations with August 2017 Imagery



Figure 5. Revised 2017 HRA Modeled Volume Source Locations with December 2017 Imagery



- iii. The identification of all the emission unit(s) for which the owner or operator proposes to reduce toxic air contaminant emissions and the identification of the airborne toxic risk reduction measures proposed for implementation to reduce such emissions, and the anticipated emission and health risk reductions.

One of the highest concentrations of nickel emissions is from pipe repair welding using RN series and 300 series welding rod/wire in ships. To reduce pipe welding repair, BAE Systems SDSR has instituted a Mechanically Attached Fitting (MAF) process for pipe connections. MAF fittings are designed to mechanically connect pipes to avoid welding and all associated hot work permit processes. Limitations do exist based on pipe sizes and pressure requirements, but Navy Standard Items currently allow for this technology to be used on multiple systems on Navy Ships. Efforts are currently underway to obtain certification for broad use throughout other ship systems. The BAE pipe shop has conducted training and certification for over 50 of BAE pipe-fitters and invested in the required installation tools for each ship in the yard. It is estimated that 20-30% of the shipboard work planned for the USS Mustin and USS Essex (awarded for the 2022-2023 year) can be accomplished with the MAF technique, which would drastically reduce the need for welding. This [LOKRING® video](#) demonstrates the use of the MAF process. Additional information on the MAF process can be provided upon request. Figure 6 shows an example of an MAF process. Figures 7 and 8 show tools used in the MAF process.

Figure 6. Example of MAF



Figure 7 Lokring Tool with Fitting



Figure 8 Lokring driver device



BAE Systems SDSR is in the process of implementing a daily check out and turn in process for welding spools, and specifically 300 series stainless steel and EN (i.e., RN) spools with high nickel content. Historical records were based on a single check out of a welding spool, with no ability to track the number of days or hours over which the welding wire was used. Hourly usage tracking is not feasible; however, by gathering daily usage of these two categories of welding wire, BAE Systems SDSR will provide a more accurate account of daily usage and therefore hourly estimates.

- iv. A schedule for implementing the proposed airborne toxic risk reduction measures within five years. The schedule shall include specific increments of progress towards implementing the airborne toxic risk reduction measures.

BAE Systems SDSR anticipates that after tracking data using the check out and turn in process for one year following the approval of the RRP, a revised health risk assessment can be completed, which will more accurately estimate noncancer acute impact from nickel emissions. In addition, the reductions made using MAF, where feasible, will be reflected in the 12 months of usage data. The following is a proposed schedule for the RRP, based on the approval date of the RRP.

RRP Task	Schedule
Begin data collection for check out and turn in procedures for 12 calendar months	To begin the calendar month following the approval of the RRP.
Complete analysis of welding data for the first 12-month cycle, quantify emissions, and submit to SDAPCD for review	60 days after the end of the data collection period.
Submit a proposed air dispersion modeling plan at the end of the initial 12-month cycle to SDAPCD for review	90 days after the end of the data collection period.
Complete a refined noncancer acute analysis of welding operations based on the first year cycle from BAE Systems SDSR and submit to SDAPCD	60 days after the emissions data and air dispersion modeling plan are approved.
If the results of the refined noncancer acute analysis show reduction in risk below 1.0, BAE Systems SDSR will continue to track 309, 316, and EN spools with the check in and turn in process. Usage data will quantitatively be compared to the analysis in the previous step to show continued operation below 1.0.	Annually, for three consecutive years, following the approval of the refined noncancer acute analysis.
If results of the refined noncancer acute analysis continue to result in an MEIW greater than 1.0, BAE Systems SDSR will meet with SDAPCD to discuss proposed actions to implement feasible reductions.	Meeting to be scheduled within 14 days of the results submitted to SDAPCD.

- v. A demonstration, including supporting documentation such as emission calculations, that the proposed airborne toxic risk reduction measures will reduce or eliminate toxic air contaminant emissions from the stationary source. The demonstration shall be made through analogy with the approved health risk assessment for the stationary source or by submission of a revised forecast risk assessment. The demonstration also shall include any foreseeable new or increased emissions of toxic air contaminants from the stationary source and the estimated health risks resulting from such new or increased emissions during the period approved for implementation of the risk reduction audit and plan.

Ship pipe repair welding while ships are dry docked on the POCA was the primary source driver of the nickel emissions near the RE Staite Engineering Inc. piers, which drove the point of maximum impact

(PMI). In the 2017 HRA, nickel emissions from welding were primarily from RN67 TIG, 309 GMAW, and 316 GMAW. The emissions totaled 3.46E-03 pounds per hour. Based on the 309 and 316 corrected spool weights the estimated hourly usage was reduced to 2.99E-03 pounds per hour.

Similar adjustments were made to the 309 and 316 spools used on the USS Decatur (Pier 3). The 2017 HRA emissions were 1.30E-02 pounds per hour. The spool revisions reduced the emission to 1.05E-02 pounds per hour.

The adjusted emissions, along with the relocated volume sources, and using the correct setting for the PES height were updated in AERMOD and rerun. The results were added to the original benzene hazard quotients (HQ) as a conservative comparison. Since nickel was well over 90% of the contribution, the focus was on reductions to welding. The revised PMI shifted to the waters off Pier 3, which correlates to the higher nickel emissions from work on the USS Decatur in 2017. The maximum noncancer acute HQ for nickel and benzene near the piers at RE Staite Engineering Inc. are now at or near 1.0. The noncancer acute isopleth of 1.0 no longer impacts NASSCO and Chevron.

Figures 9 and 10 show the updated contour, laid out over the two available 2017 images. The revised emissions and modeling files are provided electronically.

Figure 9. Revised 2017 Refined Nickel Noncancer Acute HI with August 2017 Imagery



Figure 10. Revised 2017 Refined Nickel Noncancer Acute HI with December 2017 Imagery



- vi. A schedule for providing progress reports on reductions in emissions of toxic air contaminants and estimated health risks achieved under the implemented plan. Progress reports shall include a technology review, as applicable, that provides an update on new emissions reducing technologies, and shall be provided not less frequently than within 12 months from when the plan is approved, and annually thereafter, and may be incorporated into emission inventory report updates required pursuant to Section 44344 of the California Health and Safety Code.

Progress reports will be provided as part of each of deliverables identified in item (iv).

Attachment 1. 0.045" 309 and 316 Certificate of Analysis



NSY35CA12560V

CERTIFICATE OF ANALYSIS

MAT# 56-3492

DATE : 07/23/2021

PAGE : 1

2-62595-00-0-A

CERTIFIED MATERIALS TEST REPORT

CUSTOMER NAME: AIRGAS USA LLC - W105 (WES-W)
9010 CLAIREMONT MESA BLVD
SAN DIEGO
CA 92123
USA

ORDER # : 1127648

CUSTOMERS ORDER NO: 4519654597

END USER LINE #:

TEST NO : 2-62595-00-0-A

CLASSIFICATION: E309LT1-1

DIAMETER & LENGTH: .045" X 11# SPL

INSPECTION LEVEL:

LOT NO: B812A1C425

TRADENAME: SHIELD BRIGHT 309L

CLASS:

AWS A5.22:2010,ASME SFA 5.22,SEC.II,
PART C,2013 EDITION.SFA 5.01 SCHEDULE J.

CHEMICAL ANALYSIS :

Carbon .03
Manganese 1.44
Silicon .87
Phosphorus .015
Sulphur .006
Chromium 22.99
Nickel 12.17
Molybdenum .02
Titanium
Vanadium
Copper .01
Columbium
Tantalum .02
Nitrogen

FERRITE: 16.2 (1992 WRC)

RADIOGRAPHY :

AS WELDED : Satisfactory

FLAT: Satisfactory

FERRITE :

TENSILE :

AS-WELDED

YIELD STRENGTH (Psi) : 58920
TENSILE STRENGTH (Psi) : 77481
% ELONGATION : 42
% REDUCTION OF AREA : 66

WELDING PARAMETERS :

FULL : 1
SPLIT : 6
TRIPLE : 1
SHIELDING GAS USED : 100% CO2
AMPS : 200
VOLTS : 27
WELD POSITION : 1G
HEAT INPUT ACTUAL : 30.33 KJ/in

END USER :

END USER P.O # :

END USER ITEM #:

HEAT/PKG :

WEIGHT: 2,464 Lb

GROSS WEIGHT:

WET MIX NO:

NUCLEAR NO:

The ESAB Group, Inc.
1500 Karen Lane
Hanover, PA 17331

www.esabna.com
Fax: 1-800-444-8911
Phone: 1-800-ESAB-123

By: Justine Smith
Quality Specialist

Justine Smith



DATE : 07/23/2021
PAGE : 2
2-62595-00-0-A

CERTIFICATE OF ANALYSIS

WFS : 430
TRAVEL SPEED : 10.68 IPM
POLARITY : DC+
PREHEAT : 70 F
INTERPASS : 300 F
ROOT OPENING : 3/8"
YIELD STRENGTH (0.2% OFFSET METHOD)
TENSILE SPECIMEN: .505"
ELONGATION: (2"), %
BEND :
LONGITUDINAL : Satisfactory
FILLET :
VERTICAL-UP : Satisfactory
OVERHEAD : Satisfactory

Quality Systems Manual Issue No. 13 Rev. 0 dated 11/05/2020

Quality Systems Certificate No. QSC-221 Expiration Date : September 8, 2023
Location & Orientation of Charpy-V-Notch/Tensile Specimens is I/A/W ASME NX-2322 and/or AWS/SFA
specification as applicable.

This material is certified to be asbestos free.

This material is certified to be free of any mercury.

Knowingly and willfully falsifying or concealing a material fact on this form or making false or fictitious
or fraudulent entries on this form could constitute a felony punishable under federal statutes.

The ESAB Group, Inc.
1500 Karen Lane
Hanover, PA 17331

www.esabna.com
Fax: 1-800-444-8911
Phone: 1-800-ESAB-123

By: Justine Smith
Quality Specialist

Justine Smith



CERTIFICATE OF ANALYSIS

CERTIFIED MATERIALS TEST REPORT

CUSTOMER NAME: AIRGAS USA LLC - W105 (WES-W)
 9010 CLAIREMONT MESA BLVD
 SAN DIEGO
 CA 92123-1208
 US

ORDER # : 1164945

CUSTOMERS ORDER NO: 4520027637

END USER :

END USER LINE #:

END USER P.O # :

TEST NO : 2-62724-00-0-A

END USER ITEM #:

CLASSIFICATION: E316L1-1/T1-4

HEAT/PKG :

DIAMETER & LENGTH: .045" X 11# SPL

WEIGHT: 2,431 Lb

INSPECTION LEVEL:

GROSS WEIGHT:

LOT NO: B832A1D317

WET MIX NO:

TRADENAME: SHIELD BRIGHT 316L

NUCLEAR NO:

CLASS:

AWS A5.22:2012,ASME SFA 5.22,SEC.II
 PART C 2019 EDITION,SFA 5.01 SCHEDULE J

CHEMICAL ANALYSIS :

Carbon	.03
Manganese	1.35
Silicon	.89
Phosphorus	.016
Sulphur	.006
Chromium	18.69
Nickel	11.70
Molybdenum	2.59
Titanium	.04
Vanadium	.07
Copper	.04
Columbium	.017
Nitrogen	.0146

*(Wet)

RADIOGRAPHY :

AS WELDED : Satisfactory

FLAT: Satisfactory

FERRITE :

WRC : 13.3

TENSILE :

AS-WELDED

YIELD STRENGTH (Psi) :	67405
TENSILE STRENGTH (Psi) :	91786
% ELONGATION :	37
% REDUCTION OF AREA :	50

WELDING PARAMETERS :

FULL :	1
SPLIT :	6
TRIPLE :	1
SHIELDING GAS USED :	100% CO2
AMPS :	190
VOLTS :	26
WELD POSITION :	1G
HEAT INPUT ACTUAL :	26.60 KJ/in

The ESAB Group, Inc. www.esabna.com
 1500 Karen Lane Fax: 1-800-444-8911
 Hanover, PA 17331 Phone: 1-800-ESAB-123

By: 
 Quality Specialist

Justine Smith

CERTIFICATE OF ANALYSIS

WFS : 430
TRAVEL SPEED : 11.14 IPM
POLARITY : DC+
PREHEAT : 70 F
INTERPASS : 300 F
ROOT OPENING : 3/8"
YIELD STRENGTH (0.2% OFFSET METHOD)
TENSILE SPECIMEN: .505"
ELONGATION: (2"),%

BEND :
LONGITUDINAL : Satisfactory
FILLET :
VERTICAL-UP : Satisfactory
OVERHEAD : Satisfactory

Quality Systems Manual Issue No. 13 Rev. 0 dated 11/05/2020

Quality Systems Certificate No. Qsc-221 Expiration Date : September 8, 2023

Location & Orientation of Charpy-V-Notch/Tensile Specimens is I/A/W ASME NX-2322 and/or AWS/SFA specification as applicable.

The undersigned certifies and affirms that the contents of this report are correct and accurate and that all test results and operations performed by ESAB or its sub contractors are in compliance with the requirements of the material specification and the specific applicable material requirements of ASME Boiler and Pressure Vessel Code, Section III, including Division I, Subsection NCA-3800.

This material is certified to be free of any mercury.

The ESAB Group, Inc.
1500 Karen Lane
Hanover, PA 17331

www.esabna.com
Fax: 1-800-444-8911
Phone: 1-800-ESAB-123

By: 
Quality Specialist

Justine Smith



CERTIFICATE OF ANALYSIS

Certificate Of Compliance
10/20/21

We certify that the materials listed below furnished to AIRGAS USA LLC - W105 (WES-W) on their purchase order Number 4520027637
Conforms to the stated purchase order requirements and AWS A5.22 specifications.

We certify that the materials provided on purchase order 4520027637 were manufactured and/or supplied in accordance with our ASME Approved Quality program, Quality Systems Certificate Number QSC-221, Expiration Date 09/08/2023


The certification affirms that contents of the report are correct and accurate and that all test results and operations performed by the Material Organization or its subcontractors are in compliance with the material specifications and the specific applicable material requirements of Section III.

Material Description :

<u>Type</u>	<u>Size</u>	<u>Heat</u>	<u>Lot</u>	<u>Mix</u>
E316LT1-1/T1-4	.045" X 11# SPL		B832A1D317	

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1500 Karen Lane
Hanover, PA 17331

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Fax: 1-800-444-8911
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Quality Specialist

Justine Smith