Joint Task Force-Red Hill

Bi-Monthly Quality Validation Working Group Meeting

27 July 2023

As of 06 1155W JUL 23

BACKGROUND/DESCRIPTION

ENSURING A FREE AND OPEN INDO-PACIFIC

- On January 27, 2023, the Hawai‘i Department of Health (DOH) conditionally approves the Independent Third-Party Quality Validation Plan, with the following conditions:
  - ~~Para #1, Provide resumes of those working QV (31 Jan) OUTSTANDING~~
  - ~~Para #2, Provide QV Plan Addendum detailing testing requirements that will follow repairs (28 Feb)~~
  - ~~Para #3a, Provide DoH/EPA our first monthly QV report (23 Feb)~~
  - ~~Para #3b, Provide list of dates of major repair/inspection events that DoH/EPA can attend (23 Feb)~~
  - Para #4, Provide final report (last repair + 30 days)

RFI from DOH

ENSURING A FREE AND OPEN INDO-PACIFIC

- QV Accounting – see next slide

QV Accounting

ENSURING A FREE AND OPEN INDO-PACIFIC

- QV Complete = Sent to DOH/EPA.
  - "253" = 246/253 repairs; 7 remain.
    - Sending 2 on 27 Jul 23.
    - Expect sending remaining 5 next week.
  - "INC" = 23/44; 21 remain.
    - Sending 14 on 27 Jul 23.
    - Expect sending 2 next week
    - Expect sending 6 early/mid Aug
- QV Conditionally Approved
  - DOH = 180
  - EPA = 171

Quality Validation Report

ENSURING A FREE AND OPEN INDO-PACIFIC

NO.	Validation Complete	Date	Location
238	Contractor removed threaded high point vent assembly. Replaced pipe connection with socket weld o-let small bore piping connections socket welded to and through flanges for new ball valve. Threaded end cap installed. Contractor pre-fabricated socket-welded high point vent assemblies for bolted installation in the tunnel. Socket welds were 100% inspected via visual testing and dye penetrant testing. Additionally, assembly was included in Phase 2 hydrostatic/leak testing performed by (b) (4) 14 Mar 2023. NDE result table, NDE inspection report, weld map/design detail included for reference.	27 JUL 23	(b) (3) (A)
239	Contractor removed threaded piping and existing gate valve on high point vent assembly. New cross-tunnel piping was fabricated using a (b) (3) (A) reducer to mate to the new ball valve on the high point. Butt welded (b) (3) (A) piping and forged elbow fittings route the piping to operator height, with a new flanged valve installed at the termination. A threaded end cap was installed. NDE result table, NDE inspection report, weld map/design detail included for reference.	27 JUL 23	Tank 8

Quality Validation Report

ENSURING A FREE AND OPEN INDO-PACIFIC

NO.	Validation Complete	Date	Location
INC -001	Contractor assessed conditions below the pier and identified four locations where the PVC line was broken and in need of repair. The pier-mounted hangers (b) (3) (A) [redacted] required repaired in [redacted] locations. After repairs, Contractor performed a head test by filling the trench drain (b) (3) (A) [redacted] to test the deck drains and trench drains. During the head test of the repaired piping, three transition seals were found to be faulty and were repaired for a successful test. The head test was completed 14 JUN 2023.	27 JUL 23	Hotel Pier
INC -023	Contractor broke out damaged grout. Poured new grout baseplate supports with chamfered edges. (b) (3) (A) [redacted]	27 JUL 23	Multiple
INC -026	Contractor removed existing pipe spools at Tank 3, 7, 9, and 11. Contractor welded insert type vessolet fittings at the pipe penetration. Butt welds were 100% inspected via Radiographic Testing. Contractor pre-fabricated socket-welded high point vent assemblies for bolted installation in the tunnel. Socket welds were 100% inspected via visual testing and dye penetrant testing. NOE result table, NOE inspection report, weld map/design detail included for reference	27 JUL 23	Tank 3, 7, 9, 11

Quality Validation Report

ENSURING A FREE AND OPEN INDO-PACIFIC

NO.	Validation Complete	Date	Location
INC -033	Contractor carefully removed (b) (3) (A) of residual fuel from the line via high point vents prior to removing spool. Full containment measures were deployed to prevent any accidental spillage of residual fuel when spool removed from Pipe Support (b) (3) (A) The spool was transported out of the tunnel for the installation of the high point vent and low point drain assemblies. Socket welds were inspected via dye penetrant testing (PT). Spool was hydrostatically tested prior to reinstallation. Recovered fuel received by the Facility.	27 JUL 23	(b) (3) (A)
INC -034	As set forth in (b) (4) memo dated 11 July 2023, "anchor bolts at the base will not be subjected to tension under operating loads and that the compression capacity of the pipe supports will not be significantly impacted even if the anchor bolt nuts are loose (such as at (b) (3) (A) ." "To demonstrate that repairs are not required, (b) (4) re-evaluated the JP-5 and F-24 pipelines (b) (3) (A) , assuming (very conservatively) that all the damaged pipe supports (b) (3) (A) had completely lost their load-carrying capacity." The modeling results "demonstrate that repairs for these pipe supports are not required prior to the defueling process, and there is enough redundancy in the system to accommodate the extra loads due to the postulated loss of pipe support." No repair was completed.	27 JUL 23	(b) (3) (A)

Quality Validation Report

ENSURING A FREE AND OPEN INDO-PACIFIC

NO.	Validation Complete	Date	Location
INC -035	As set forth in (b) (4) memo dated 11 July 2023, "anchor bolts at the base will not be subjected to tension under operating loads and that the compression capacity of the pipe supports will not be significantly impacted even if the anchor bolt nuts are loose (such as at (b) (3) (A))." "To demonstrate that repairs are not required, (b) (4) re-evaluated the JP-5 and F-24 pipelines (b) (3) (A) , assuming (very conservatively) that all the damaged pipe supports (b) (3) (A)) had completely lost their load-carrying capacity." The modeling results "demonstrate that repairs for these pipe supports are not required prior to the defueling process, and there is enough redundancy in the system to accommodate the extra loads due to the postulated loss of pipe support." No repair was completed.	27 JUL 23	(b) (3) (A)
INC -036	As set forth in (b) (4) memo dated 11 July 2023, "The damaged pipe support angle column (cut flange) at (b) (3) (A) will affect the compression capacity of this specific pipe support." "To demonstrate that repairs are not required, (b) (4) re-evaluated the JP-5 and F-24 pipelines (b) (3) (A) , assuming (very conservatively) that all the damaged pipe supports (b) (3) (A) had completely lost their load-carrying capacity." The modeling results "demonstrate that repairs for these pipe supports are not required prior to the defueling process, and there is enough redundancy in the system to accommodate the extra loads due to the postulated loss of pipe support." No repair was completed.	27 JUL 23	

Quality Validation Report

ENSURING A FREE AND OPEN INDO-PACIFIC

NO.	Validation Complete	Date	Location
INC -037	As set forth in (b) (4) memo dated 11 July 2023, "Grout damage and partial base plate contact with the grout resulting in limited vertical support capability (b) (3) (A))." "To demonstrate that repairs are not required, (b) (4) re-evaluated the JP-5 and F-24 pipelines (b) (3) (A) , assuming (very conservatively) that all the damaged pipe supports ((b) (3) (A)) had completely lost their load-carrying capacity." The modeling results "demonstrate that repairs for these pipe supports are not required prior to the defueling process, and there is enough redundancy in the system to accommodate the extra loads due to the postulated loss of pipe support." No repair was completed.	27 JUL 23	(b) (3) (A)
INC -038	As set forth in (b) (4) memo dated 11 July 2023, "As previously discussed, the grout damage under the base plates, as shown, may affect the compression capacity of the steel pipe supports." In-house labor mobilized tools and non-shrink grout. Cleaned loose/damaged baseplate grout to sound material. Hand mixed and packed below the baseplate. Chamfered edge applied.	27 JUL 23	
INC -039	As set forth in (b) (4) memo dated 11 July 2023, "As previously discussed, the grout damage under the base plates, as shown, may affect the compression capacity of the steel pipe supports." In-house labor mobilized tools and non-shrink grout. Cleaned loose/damaged baseplate grout to sound material. Hand mixed and packed below the baseplate. Chamfered edge applied.	27 JUL 23	

Quality Validation Report

ENSURING A FREE AND OPEN INDO-PACIFIC

NO.	Validation Complete	Date	Location
INC -040	As set forth in (b) (4) memo dated 11 July 2023, "anchor bolts at the base will not be subjected to tension under operating loads and that the compression capacity of the pipe supports will not be significantly impacted even if the anchor bolt nuts are loose (such as at (b) (3) (A))." "To demonstrate that repairs are not required, (b) (4) re-evaluated the JP-5 and F-24 pipelines (b) (3) (A) assuming (very conservatively) that all the damaged pipe supports ((b) (3) (A) had completely lost their load-carrying capacity." The modeling results "demonstrate that repairs for these pipe supports are not required prior to the defueling process, and there is enough redundancy in the system to accommodate the extra loads due to the postulated loss of pipe support." No repair was completed.	27 JUL 23	(b) (3) (A)
INC -041	As set forth in (b) (4) memo dated 11 July 2023, "anchor bolts at the base will not be subjected to tension under operating loads and that the compression capacity of the pipe supports will not be significantly impacted even if the anchor bolt nuts are loose (such as at (b) (3) (A))." "To demonstrate that repairs are not required, (b) (4) re-evaluated the JP-5 and F-24 pipelines (b) (3) assuming (very conservatively) that all the damaged pipe supports (b) (3) (A) had completely lost their load-carrying capacity." The modeling results "demonstrate that repairs for these pipe supports are not required prior to the defueling process, and there is enough	27 JUL 23	

Quality Validation Report

ENSURING A FREE AND OPEN INDO-PACIFIC

NO.	Validation Complete	Date	Location
INC -042	Repair Description Cont.: "Minor to moderate corrosion on the base plate due to standing water. (NOAA Observation)". As set forth in (b) (4) memo dated 11 July 2023, "To demonstrate that repairs are not required, (b) (4) re-evaluated the JP-5 and F-24 pipelines (b) (3) (A) assuming (very conservatively) that all the damaged pipe supports (b) (3) (A) had completely lost their load-carrying capacity." The modeling results "demonstrate that repairs for these pipe supports are not required prior to the defueling process, and there is enough redundancy in the system to accommodate the extra loads due to the postulated loss of pipe support." No repair was completed.	27 JUL 23	(b) (3) (A)
INC -043	As set forth in (b) (4) memo dated 11 July 2023, for F-24 piping "The minimum wall thickness for these girth welds is at (b) (3) (A) ., with a nominal wall thickness of (b) (3) (A) .. Therefore, at this weld, the pipeline has 88% of its nominal wall thickness. The ILi evaluation determined a maximum allowable operating pressure of (b) (3) (A) at this location." For the JP-5 piping, "The minimum wall thickness for these girth welds is at (b) (3) (A) ., with a nominal wall thickness of (b) (3) (A) in .. Therefore, at this weld, the pipeline has 74% of its nominal wall thickness. The ILi evaluation determined a maximum allowable operating pressure of (b) (3) (A) psi at this location." "This allowable operating pressure is still significantly above that which will be used during defueling." No repair was completed.	27 JUL 23	

Rework - Quality Validation Report

ENSURING A FREE AND OPEN INDO-PACIFIC

NO.	Validation Complete	Date	Location

Relief - Quality Validation Report

ENSURING A FREE AND OPEN INDO-PACIFIC

NO.	Validation Complete	Date	Location

Seeking Repair Relief: #006, UGPH

Testing & Inspection Dates

ENSURING A FREE AND OPEN INDO-PACIFIC

NO.	Testing & Inspection Dates	Date	Location
1			
2			
3			
4			

QUALITY VALIDATION (QV) REPORT

Red Hill Bulk Fuel Storage Facility Defuel

Validation Firm	HDR Environmental, Operations and Construction, Inc.	Repair No.	238
Address	9781 S. Meridian Blvd., Suite 400, Englewood, CO 80112	Repair ID	EPRC.K.o
Contract No.	FA890315D0007, D.O. FA8903-19-F-0027	Report Date	24 JUL 2023
QV Engineer	(b) (6)		

VALIDATION

Source	PDF Page No.	Facility Geographic Area	Location Reference
EXWC	NDAA Page 75	Tank Gallery	(b) (3) (A)

Repair Description	Between (b) (3) (A) remove the 12 o'clock (b) (3) (A) threaded pipe and valve. Replace with welded (b) (3) (A) flange, and (b) (3) (A) ball valve with threaded cap. (b) (3) (A)	Source Contract Reference	N3943020D2225 N3943021F4207
Description of Contractor QC Method(s) Used	Methods outlined in detail in CQCP. Socket welds inspected by VT/PT.	Contractor QC Records Reviewed	CQCP and Daily Reports
Description of QA Validation and Observations	Government Quality Assurance is documented by the QSR's in the daily CQC reports using NAVFAC Form 4296/2. Visually inspected completed installation; matched completed construction against design and material submittals. Reviewed NDE reports. JTF-RH secondary QA and 3rd Party QV completed. JTF-RH QV visually inspected repairs and reviewed contractor QC documentation (Work Plan, submittals, daily Final acceptance by government. Date: 30 JUN 2023		

Rework Needed				Photo Record Attached	Repair Work Validated as Complete			
○	Yes	◉	No	See Page 2.	◉	Yes	○	No

Comments

Contractor removed threaded high point vent assembly. Replaced pipe connection with socket weld o-let small bore piping connections socket welded to and through flanges for new ball valve. Threaded end cap installed.
Contractor pre-fabricated socket-welded high point vent assemblies for bolted installation in the tunnel. Socket welds were 100% inspected via visual testing and dye penetrant testing. Additionally, assembly was included in Phase 2 hydrostatic/leak testing performed by (b) (4) 14 Mar 2023.
NDE result table, NDE inspection report, weld map/design detail included for reference.

CERTIFICATION

I hereby certify that repair work validated in this report was personally substantiated and this report is true.	QV ENGINEER SIGNATURE	(b) (6)
	DATE	24 JUL 2023

(b) (3) (A)

EMERGENT PIPELINE REPAIRS

REPAIR ID	ROOT PASS							COVER PASS									
S2	FITUP P/F	DATE	WELDER	DATE	VT P/F	INSPECTOR	DATE	WELDER	DATE	VT P/F	DATE	INSPECTOR	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	INSPECTOR
INITIAL	P	01 / 25 / 2023	(b) (6)	01 / 25 / 2023	P	(b) (6)	01 / 25 / 2023	(b) (6)	01 / 26 / 2023	p	01 / 27 / 2023	(b) (6)				P	02 / 07 / 2023	(b) (6)
REWORK 1																		
REWORK 2																		

REPAIR ID	ROOT PASS							COVER PASS									
S3	FITUP P/F	DATE		DATE	VT P/F		DATE		DATE	VT P/F	DATE	IN	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
INITIAL	P	01 / 26 / 2023		01 / 26 / 2023	P		01 / 26 / 2023		01 / 26 / 2023	P	01 / 26 / 2023					P	02 / 07 / 2023	
REWORK 1																		
REWORK 2																		

REPAIR ID	ROOT PASS							COVER PASS									
T-1	FITUP P/F	DATE		DATE	VT P/F		DATE		DATE	VT P/F	DATE	IN	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
INITIAL	P	01 / 31 / 2023		01 / 31 / 2023	P		01 / 31 / 2023		02 / 01 / 2023	P	02 / 01 / 2023					P	02 / 07 / 2023	
REWORK 1																		
REWORK 2																		

REPAIR ID	ROOT PASS							COVER PASS									
T-2	FITUP P/F	DATE		DATE	VT P/F		DATE		DATE	VT P/F	DATE	IN	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
INITIAL	P	01 / 31 / 2023		01 / 31 / 2023	P		01 / 31 / 2023		02 / 01 / 2023	P	02 / 01 / 2023					P	02 / 07 / 2023	
REWORK 1																		
REWORK 2																		

REPAIR ID	ROOT PASS							COVER PASS									
O-1 thru O-8	FITUP P/F	DATE		DATE	VT P/F		DATE		DATE	VT P/F	DATE	IN	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
INITIAL	P	02 / 02 / 2023		02 / 02 / 2023	P		02 / 02 / 2023		02 / 02 / 2023	P	02 / 02 / 2023		P	02 / 24 / 2023	GS			
REWORK 1													P	03 / 24 / 2023	ACCEPTED VIA PHA	E 2 HYDROTEST BY HCNA		
REWORK 2																		

REPAIR ID	ROOT PASS							COVER PASS									
P-1	FITUP P/F	DATE		DATE	VT P/F		DATE		DATE	VT P/F	DATE	IN	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
INITIAL	P	02 / 02 / 2023		02 / 02 / 2023	P		02 / 02 / 2023		02 / 02 / 2023	P	02 / 02 / 2023					P	02 / 16 / 2023	
REWORK 1																		
REWORK 2																		

REPAIR ID	ROOT PASS							COVER PASS									
P-2	FITUP P/F	DATE		DATE	VT P/F		DATE		DATE	VT P/F	DATE	IN	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
INITIAL	P	02 / 02 / 2023		02 / 02 / 2023	P		02 / 02 / 2023		02 / 02 / 2023	P	02 / 02 / 2023					P	02 / 16 / 2023	
REWORK 1																		
REWORK 2																		

(b) (3) (A), (b) (4)

(b) (3) (A), (b) (4)

(b) (4)

LIQUID PENETRANT EXAMINATION RECORD

Client: (b) (4)	Location: Red Hill	Page 1 of 1
P.O. No.:	Job No.: 23-034	
(b) (4) Procedure: NDT002.2 Rev C	Code: ASME B31.3	
Report No. GS022423		

ITEM: ITEM O Socket welds

MATERIAL		PENETRANT MATERIAL				TECHNIQUE
TYPE: CS SW		BRAND	DESIGNATION	PO#	BATCH #	Preclean Drying Time: 5 MIN
Surface Condition: ☐ As Welded ☐ Ground ☐ Other Weld Prep ☒ New weld	Cleaner	Magnaflux	SKC-S	N/A	1A01K 030929	Method of Application: Brush
	Penetrant	Magnaflux	SKL-SP1	N/A	06010K 04394	Dwell Time: 10 Min
	Emulsifier	N/A	N/A	N/A	N/A	Emulsification Time: N/A
	Developer	Magnaflux	SKD-S2	N/A	07K15K 08738	Developing Time: 15 Min
Temperature: X 60° F – 125° F Other ____		Illumination: ☒ White		FC 150		(b) (4) Control # UV Meter ☐ N/A ☐

Item(s)	Accept	Reject	Sketch/Notes
(b) (3) (A) Socket weld	☒	☐	No indications noted at time of inspection.
Socket weld	☒	☐	
Socket weld	☒	☐	
Socket weld	☒	☐	
Socket weld	☒	☐	
Socket weld	☒	☐	
Socket weld	☒	☐	
Socket weld	☒	☐	
	☐	☐	
	☐	☐	

Performed By: (b) (6) Level II Date: 2/24/2023

Reviewed By: Date:

(b) (4)

REQUEST FOR INFORMATION / CLARIFICATION

CONTRACT NO. *N39430-20-D-2225, TO:N3943021F4207*

PROJECT TITLE & LOCATION: **EMERGENT PIPELINE REPAIRS, JBPHH, HAWAII**

BRIEF DESCRIPTION OF RFI: **Eliminate Branch Connection Radiographic Insert requirements**

RFI # 010

RFC # 00, REV. 0

TO: (b) (6)
Name

FROM: (b) (6)
Name

Title

PROJECT MANAGER, APTIM

Title

DATE SUBMITTED: **15 JUNE 2023**

PLEASE RESPOND BY: **30 JUNE 2023**

REFERENCE: SPEC. SECTION(S):
33 52 40 para 2.1.3.1

DRAWING(S) / OTHER:

1) DESCRIPTION OF EXISTING CONDITION AND/OR DEFICIENCY:

At Items K.o and the new HPV at Tank 14, the weldolets used are standard type, not insert type as specified. The weldolets are not able to be radiographically tested as per the specifications.

Item K.o is a (b) (3) (A) weldolet
Tank 14 is a weldolet

This item is noted under NCN-001

2) RECOMMENDED SOLUTION:

(b) (5)

(b) (6)

(b) (4)

REQUEST FOR INFORMATION

RFI NO:	010	Date:	15 JUNE 2023

PROJECT No.:	501777	Project Title:	EMERGENT PIPELINE REPAIRS, JBPHH	PROGRAM TO #:	N39430-20-D-2225, N3943021F4207

3) RESPONSE/DISPOSITION:

(b) (4) Concurs with the recommended disposition.

Date 6/20/2023 (b) (6) Date

RFC Required?		YES	X	NO	Schedule Impact?	X	YES		NO	Cost Impact?		YES	X	NO

4) COR RESPONSE/DISPOSITION CONCURRENCE:

Government concur with the Ktr recommended solution

(b) (6)

Contracting Officer's Representative Date

REVIEW DISTRIBUTION						FINAL DISTRIBUTION					
X	COR, FEAD	X	AFS PM	X	AFS H&S	X	COR, FEAD	X	AFS PM	X	AFS H&S
X	NTR, FEAD	X	AFS ENG	X	AFS Prog Mgr	X	NTR, FEAD	X	AFS ENG	X	AFS Prog Mgr
X	NTR, EXWC	X	AFS QCM	X	CO, FEAD	X	NTR, EXWC	X	AFS QCM	X	CO, FEAD

QUALITY VALIDATION (QV) REPORT

Red Hill Bulk Fuel Storage Facility Defuel

Validation Firm	HDR Environmental, Operations and Construction, Inc.	Repair No.	239
Address	9781 S. Meridian Blvd., Suite 400, Englewood, CO 80112	Repair ID	EPRC.K.p
Contract No.	FA890315D0007, D.O. FA8903-19-F-0027	Report Date	27 JUL 2023
QV Enginee	(b) (6)		

VALIDATION

Source	PDF Page No.	Facility Geographic Area	Location Reference
EXWC	NDAA Page 47 & 75	Tank Gallery	Tank 8

Repair Description	Remove nonstandard (b) (3) (A) HPV valve and threaded pipe on the Tank 8 cross-tunnel piping. Replace with (b) (3) (A) pipe and welded fittings and (b) (3) (A) carbon steel ball valve. (b) (3) (A)	Source Contract Reference	N3943020D2225 N3943021F4207
Description of Contractor QC Method(s) Used	Methods outlined in detail in CQCP. Pipe butt welds 100% inspection via Radiographic Testing.	Contractor QC Records Reviewed	QCP and Daily Reports
Description of QA Validation and Observations	Government Quality Assurance is documented by the QSR's in the daily CQC reports using NAVFAC Form 4296/2. Visually inspected completed installation; matched completed construction against design and material submittals. Reviewed NDE reports. JTF-RH secondary QA and 3rd Party QV completed. JTF-RH QV visually inspected repairs and reviewed contractor QC documentation (Work Plan, submittals, daily reports). Final acceptance by government. Date: 14 JUN 2023		

Rework Needed				Photo Record Attached	Repair Work Validated as Complete			
○	Yes	◉	No	See Page 2.	◉	Yes	○	No

Comments

Contractor removed threaded piping and existing gate valve on high point vent assembly. New cross-tunnel piping was fabricated using a (b) (3) (A) reducer to mate to the new ball valve on the high point. Butt welded (b) (3) (A) piping and forged elbow fittings route the piping to operator height, with a new flanged valve installed at the termination. A threaded end cap was installed.
NDE result table, NDE inspection report, weld map/design detail included for reference.

CERTIFICATION

I hereby certify that repair work validated in this report was personally substantiated and this report is true.	QV ENGINEER SIGNATURE	(b) (6)
	DATE	27 JUL 2023

(b) (3) (A)

EMERGENT PIPELINE REPAIRS

REPAIR ID	ROOT PASS							COVER PASS										
S2	FITUP P/F	DATE	WELDER	DATE	VT P/F	INSPECTOR	DATE	WELDER	DATE	VT P/F	DATE	INSPECTOR	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	INSPECTOR
INITIAL	P	01 / 25 / 2023	(b) (6)	01 / 25 / 2023	P	(b) (6)	01 / 25 / 2023	(b) (6)	01 / 26 / 2023	p	01 / 27 / 2023	(b) (6)				P	02 / 07 / 2023	(b) (6)
REWORK 1																		
REWORK 2																		

REPAIR ID	ROOT PASS							COVER PASS										
S3	FITUP P/F	DATE		DATE	VT P/F		DATE		DATE	VT P/F	DATE		MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
INITIAL	P	01 / 26 / 2023		01 / 26 / 2023	P		01 / 26 / 2023		01 / 26 / 2023	P	01 / 26 / 2023					P	02 / 07 / 2023	
REWORK 1																		
REWORK 2																		

REPAIR ID	ROOT PASS							COVER PASS										
T-1	FITUP P/F	DATE		DATE	VT P/F		DATE		DATE	VT P/F	DATE		MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
INITIAL	P	01 / 31 / 2023		01 / 31 / 2023	P		01 / 31 / 2023		02 / 01 / 2023	P	02 / 01 / 2023					P	02 / 07 / 2023	
REWORK 1																		
REWORK 2																		

REPAIR ID	ROOT PASS							COVER PASS										
T-2	FITUP P/F	DATE		DATE	VT P/F		DATE		DATE	VT P/F	DATE		MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
INITIAL	P	01 / 31 / 2023		01 / 31 / 2023	P		01 / 31 / 2023		02 / 01 / 2023	P	02 / 01 / 2023					P	02 / 07 / 2023	
REWORK 1																		
REWORK 2																		

REPAIR ID	ROOT PASS							COVER PASS										
O-1 thru O-8	FITUP P/F	DATE		DATE	VT P/F		DATE		DATE	VT P/F	DATE		MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	INSPECTOR
INITIAL	P	02 / 02 / 2023		02 / 02 / 2023	P		02 / 02 / 2023		02 / 02 / 2023	P	02 / 02 / 2023		P	02 / 24 / 2023	(b) (6)			
REWORK 1													P	03 / 24 / 2023	ACCEPTED VIA PHASE 2 HYDROTEST BY (b) (4)			
REWORK 2																		

REPAIR ID	ROOT PASS							COVER PASS										
P-1	FITUP P/F	DATE		DATE	VT P/F		DATE		DATE	VT P/F	DATE		MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	INSPECTOR
INITIAL	P	02 / 02 / 2023		02 / 02 / 2023	P		02 / 02 / 2023		02 / 02 / 2023	P	02 / 02 / 2023					P	02 / 16 / 2023	(b) (6)
REWORK 1																		
REWORK 2																		

REPAIR ID	ROOT PASS							COVER PASS										
P-2	FITUP P/F	DATE		DATE	VT P/F		DATE		DATE	VT P/F	DATE		MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
INITIAL	P	02 / 02 / 2023		02 / 02 / 2023	P		02 / 02 / 2023		02 / 02 / 2023	P	02 / 02 / 2023					P	02 / 16 / 2023	
REWORK 1																		
REWORK 2																		

EMERGENT PIPELINE REPAIRS

Repair 239

REPAIR ID	ROOT PASS							COVER PASS									
P-3	FITUP P/F	DATE	WELDER	DATE	VT P/F	INSPECTOR	DATE	WELDER	DATE	VT P/F	DATE	INSPECTOR	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	INSPECTOR
INITIAL	P	02 / 02 / 2023	(b) (6)	02 / 02 / 2023	P	(b) (6)	02 / 02 / 2023	(b) (6)	02 / 02 / 2023	P	02 / 02 / 2023	(b) (6)				P	02 / 16 / 2023	(b) (6)
REWORK 1																		
REWORK 2																		

REPAIR ID	ROOT PASS							COVER PASS									
P-4	FITUP P/F	DATE		DATE	VT P/F		DATE		DATE	VT P/F	DATE		MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
INITIAL	P	02 / 02 / 2023		02 / 02 / 2023	P		02 / 02 / 2023		02 / 02 / 2023	P	02 / 02 / 2023					P	02 / 16 / 2023	
REWORK 1																		
REWORK 2																		

REPAIR ID	ROOT PASS							COVER PASS									
P-5	FITUP P/F	DATE		DATE	VT P/F		DATE		DATE	VT P/F	DATE		MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
INITIAL	P	02 / 02 / 2023		02 / 02 / 2023	P		02 / 02 / 2023		02 / 02 / 2023	P	02 / 02 / 2023					P	02 / 16 / 2023	
REWORK 1																		
REWORK 2																		

REPAIR ID	ROOT PASS							COVER PASS									
U-1	FITUP P/F	DATE		DATE	VT P/F		DATE		DATE	VT P/F	DATE		MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
INITIAL	P	02 / 02 / 2023		02 / 02 / 2023	P		02 / 02 / 2023		02 / 02 / 2023	P	02 / 02 / 2023		P	02 / 10 / 2023	(b) (6)			
REWORK 1	P	06 / 16 / 2023		06 / 16 / 2023	P		06 / 16 / 2023		06 / 16 / 2023	P	06 / 16 / 2023					P	06 / 30 / 2023	
REWORK 2																		

REPAIR ID	ROOT PASS							COVER PASS									
C-1	FITUP P/F	DATE		DATE	VT P/F		DATE		DATE	VT P/F	DATE		MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
INITIAL	P	02 / 06 / 2023		02 / 06 / 2023	P		02 / 06 / 2023		02 / 06 / 2023	P	02 / 06 / 2023				NEEDS RESHOOT->	N/A	02 / 07 / 2023	
REWORK 1																P	02 / 24 / 2023	
REWORK 2																		

REPAIR ID	ROOT PASS							COVER PASS									
C-2	FITUP P/F	DATE		DATE	VT P/F		DATE		DATE	VT P/F	DATE		MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
INITIAL	SHOP WELD															P	04 / 19 / 2022	
REWORK 1																		
REWORK 2																		

REPAIR ID	ROOT PASS							COVER PASS									
C-3	FITUP P/F	DATE		DATE	VT P/F		DATE		DATE	VT P/F	DATE		MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
INITIAL	P	02 / 08 / 2023		02 / 08 / 2023	P		02 / 08 / 2023		02 / 09 / 2023	P	02 / 09 / 2023					P	02 / 24 / 2023	
REWORK 1																		
REWORK 2																		

(b) (3) (A), (b) (4)

(b) (4)

RADIOGRAPHIC INSPECTION REPORT

(b) (4)

W. O. No.: 23-034

Report No.: GS021623

Date: 2-16-2023

Page 1 of 2

FORM NDT-005.1

CUSTOMER (b) (4)	CUST JOB#	SPECIFICATION ASME V		ACCEPTANCE ASME B31.3	
PROJECT Red Hill Emergent Piping	DWG. NO.	PROCEDURE NDT.006	REV B	ACC. PROC. ASME B31.3	REV 2015
RT SOURCE IR192	FILM AGFA D5	PB SCREENS	PENS: ASTM	SHIMS MAT'L/THKNS	MATERIAL CS
(b) (3) (A)			TYPE 1A	TECHNIQUE USED 6	THICKNESS (b) (3) (A)
			MATERIAL SS	EXPOSURE TIME 45 sec.	JOINT TYPE Butt
			LOCATION S	PROCESSING ☒ MANUAL ☐ AUTOMATIC	PIPE DIA (b) (3) (A)

WELD #	VIEW #	GEOMETRIC UNSHARPNESS "UG"	ACCEPT	REJECT	Porosity	Slag Inclusions	Cracks	Lack of Fusion	Lack of Penet.	Undercut	Burn Thru	Suck Back	T.I.	Film Artifact	REMARKS
(b) (3) (A)	0-4	.020	X												(b) (3) (A) ITEM P
	4-8		X												
	8-0		X												
	0	.020	X												ITEM P
	60	1	X												
	120		X												
	0	.020	X												ITEM P
	60	1	X												
	120		X												

1. Single Wall — Panoramic
2. Single Wall — Offset
3. Double Wall
4. Double Wall 0/90 — Elliptical
5. Plate
6. Other

(b) (6) — Radiographer — 2-16-2023 — Date

(b) (6) — SNT-TC-1A Level — 2-16-2023 — Date of Inspection — Customer

(b) (4)

RADIOGRAPHIC INSPECTION REPORT

(b) (4) W. O. No.: 23-034

Report No.: GS021623

Page 2 of 2

WELD #	VIEW #	GEOMETRIC UNSHARPNESS *UG*	ACCEPT	REJECT	Porosity	Slag Inclusions	Cracks	Lack of Fusion	Lack of Penet.	Undercut	Burn Thru	Suck Back	T.I.	Film Artifact	REMARKS
(b) (3) (A)	0	.020	X											(b) (3) (A)	ITEM P
	60	1	X												
	120		X												
	0	.020	X												ITEM P
	60	1	X												
	120		X												

(b) (6) — Film Interpreter

II — SNT-TC-1A Level

2-16-2023 — Date of Inspection

QUALITY VALIDATION (QV) REPORT

Red Hill Bulk Fuel Storage Facility Defuel

Validation Firm	HDR Environmental, Operations and Construction, Inc.	Repair No.	INC-001
Address	9781 S. Meridian Blvd., Suite 400, Englewood, CO 80112	Repair ID	(b) (4) HP.14
Contract No.	FA890315D0007, D.O. FA8903-19-F-0027	Report Date	25 JUL 2023
QV Engineer	(b) (6)		

VALIDATION

Source	PDF Page No.	Facility Geographic Area	Location Reference
(b) (4)	N/A	Hotel Pier	Hotel Pier

Repair Description	In lieu of replacing (b) (3) (A) drain line prior to defueling, mitigate by assessing condition, repairs as necessary, and static pressure leak test of the line prior to defueling. Agreed upon mitigation IOT remove full replacement from the consolidated list of repairs prior to defueling.	Source Contract Reference	RCE_FY23N017 DLA
Description of Contractor QC Method(s) Used	Test plan/procedure post-repair.	Contractor QC Records Reviewed	Contractor Certification Report
Description of QA Validation and Observations	Government representatives witnessed repairs and head test.. JTF-RH secondary QA and 3rd Party QV completed. JTF-RH QV reviewed contractor QC documentation; utilizing contractor completion photos due to access issues below the pier. Final acceptance by government. Date: 16 JUN 2023		

Rework Needed				Photo Record Attached	Repair Work Validated as Complete			
○	Yes	◉	No	See Pages 2-4.	◉	Yes	○	No

Comments

Contractor assessed conditions below the pier and identified four locations where the PVC line was broken and in need of repair. The pier-mounted hangers (b) (3) (A) required repaired in (b) (3) (A) locations. After repairs, Contractor performed a head test by filling the trench drain at (b) (3) (A) to test the deck drains and trench drains. During the head test of the repaired piping, three transition seals were found to be faulty and were repaired for a successful test. The head test was completed 14 JUN 2023.

CERTIFICATION

I hereby certify that repair work validated in this report was personally substantiated and this report is true.	QV ENGINEER SIGNATURE	(b) (6)
	DATE	25 JUL 2023

(b) (3) (A)

(b) (3) (A)

(b) (3) (A)

QUALITY VALIDATION (QV) REPORT

Red Hill Bulk Fuel Storage Facility Defuel

Validation Firm	HDR Environmental, Operations and Construction, Inc.	Repair No.	INC 023
Address	9781 S. Meridian Blvd., Suite 400, Englewood, CO 80112	Repair ID	CAR.STR.12
Contract No.	FA890315D0007, D.O. FA8903 19 F 0027	Report	20 JUL 2023
QV Enginee	(b) (6)		

VALIDATION

Source	PDF Page No.	Facility Geographic Area	Location Reference
EXWC / 2022 (b) (4)	N/A	(b) (3) (A)	(b) (3) (A)

Repair Description	Grout missing beneath vertical support base plates, resulting in inadequate bearing between base plate and floor. Noted in NDAA Report as (b) (3) (A) (b) (3) (A). Pack non shrink grout beneath base plates.	Source Contract Reference	
Description of Contractor QC Method(s) Used	Methods outlined in CQCP.	Contractor QC Records Reviewed	CQCP and Daily Reports.
Description of QA Validation and Observations	Government Quality Assurance is documented by the QSR's in the daily CQC reports using NAVFAC Form 4296/2. Visually inspected completed installation; matched completed construction against design and material submittals. JTF RH secondary QA and 3rd Party QV completed. JTF RH QV visually inspected repairs and reviewed contractor QC documentation (Work Plan, submittals, daily reports). Final acceptance by government. Date: 14 JUN 2023		

Rework Needed				Photo Record Attached	Repair Work Validated as Complete			
○	Yes	◉	No	See Pages 2 4.	◉	Yes	○	No

Comments

Repair Description Cont.: (b) (3) (A)

Contractor broke out damaged grout. Poured new grout baseplate supports with chamfered edges.

CERTIFICATION

I hereby certify that repair work validated in this report was personally substantiated and this report is true.	QV ENGINEER SIGNATURE	(b) (6)
	DATE	20 JUL 2023

(b) (3) (A)

(b) (3) (A)

(b) (3) (A)

QUALITY VALIDATION (QV) REPORT

Red Hill Bulk Fuel Storage Facility Defuel

Validation Firm	HDR Environmental, Operations and Construction, Inc.	Repair No.	INC 026
Address	9781 S. Meridian Blvd., Suite 400, Englewood, CO 80112	Repair ID	EPRC.K.pp
Contract No.	FA890315D0007, D.O. FA8903 19 F 0027	Report Date	24 JUL 2023
QV Engineer	(b) (6)		

VALIDATION

Source	PDF Page No.	Facility Geographic Area	Location Reference
EXWC	N/A	RH Tank Gallery	TK 3, 7, 9, 11

Repair Description	Install HPVs on (b) (3) (B)	Source Contra Reference	
Description of Contractor QC Method(s) Used	Methods outlined in detail in CQCP. Pipe butt welds 100% inspection via Radiographic Testing. Socket welds 100% NDE by VT and PT.	Contractor QC Records Reviewed	CQCP and Daily Reports.
Description of QA Validation and Observations	Government Quality Assurance is documented by the QSR's in the daily CQC reports using NAVFAC Form 4296/2. Visually inspected completed installation; matched completed construction against design and material submittals. Reviewed NDE reports. JTF RH secondary QA and 3rd Party QV completed. JTF RH QV visually inspected repairs and reviewed contractor QC documentation (Work Plan, submittals, daily reports). Final acceptance by government. Date: 13 JUL 2023		

Rework Needed				Photo Record Attached	Repair Work Validated as Complete			
○	Yes	◉	No	See Pages 2 3.	◉	Yes	○	No

Comments

Contractor removed existing pipe spools at Tank 3, 7, 9, and 11. Contractor welded insert type vessolet fittings at the pipe penetration. Butt welds were 100% inspected via Radiographic Testing. Contractor pre fabricated socket welded high point vent assemblies for bolted installation in the tunnel. Socket welds were 100% inspected via visual testing and dye penetrant testing.
NDE result table, NDE inspection report, weld map/design detail included for reference.

CERTIFICATION

I hereby certify that repair work validated in this report was personally substantiated and this report is true.	QV ENGINEER SIGNATURE	(b) (6)
	DATE	24 JUL 2023

(b) (3) (A)

(b) (3) (A)

WELDERS - ID
(b) (6)

WELD INFORMATION									INSPECTION INFORMATION			
Weld ID	Number	SIZE	TYPE	JOINT		JOINT	WELDER ID	DATE	NDE TYPE	INITIALS	DATE	RESULTS
(b) (3) (A)		(b) (3) (A)					(b) (6)			(b) (6)		
	1		BW	(b) (3) Pipe	-	(b) (3) (A) vessel-o-let		6/14/2023	CWI VT		6/14/2023	PASSED
									RT		6/30/2023	PASSED
	2		BW	(b) (3) (A) vessel-o-let	-	RFWN Flange		6/9/2023	CWI VT			PASSED
									RT		6/12/2023	PASSED
	3		SW	RFSW Flange		PIPE		6/22/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	4		SW	PIPE		90* SW ELBOW		6/22/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	5		SW	90* SW ELBOW		PIPE		6/22/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	6		SW	PIPE		90* SW ELBOW		6/22/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	7		SW	90* SW ELBOW		PIPE NIPPLE (TOE)		6/22/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	1		BW	(b) (3) (A) Pipe	-	(b) (3) (A) vessel-o-let		6/16/2023	CWI VT		6/16/2023	PASSED
									RT		6/30/2023	PASSED
	2		BW	(b) (3) vessel-o-let	-	RFWN Flange		6/9/2023	CWI VT			PASSED
									RT		6/12/2023	PASSED
	3		SW	SW FLG	-	PIPE		6/28/2023	PT		6/30/2023	PASSED
												PASSED
	4		SW	PIPE		90* SW ELBOW		6/28/2023	PT		6/30/2023	PASSED
												PASSED
	5		SW	90* SW ELBOW		PIPE		6/28/2023	PT		6/30/2023	PASSED
												PASSED
	6		SW	PIPE		90* SW ELBOW		6/28/2023	PT		6/30/2023	PASSED
												PASSED
	7		SW	90* ELBOW		PIPE NIPPLE (TOE)		6/28/2023	PT		6/30/2023	PASSED
	1		BW	(b) (3) (A) Pipe	-	(b) (3) (A) vessel-o-let		6/30/2023	CWI VT			PASSED
									RT		7/5/2023	PASSED
	2		BW	(b) (3) (A) vessel-o-let	-	RFWN Flange		6/30/2023	CWI VT			PASSED
									RT		7/5/2023	PASSED
	3		SW	RFSW Flange		PIPE		6/21/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	4		SW	PIPE		90* SW ELBOW		6/21/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	5		SW	90* SW ELBOW		PIPE		6/21/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	6		SW	PIPE		90* SW ELBOW		6/21/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	7		SW	90* SW ELBOW		PIPE NIPPLE (TOE)		6/21/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	1		BW	(b) (3) (A) Pipe	-	(b) (3) (A) vessel-o-let		6/14/2023	CWI VT			PASSED
									RT		7/5/2023	PASSED
	2		BW	(b) (3) (A) vessel-o-let	-	RFWN Flange		6/15/2023	CWI VT			PASSED
									RT		7/5/2023	PASSED
	3		SW	RFSW Flange		PIPE		6/21/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	4		SW	PIPE		90* SW ELBOW		6/21/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	5		SW	90* SW ELBOW		PIPE		6/21/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	6		SW	PIPE		90* SW ELBOW		6/21/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	7		SW	90* SW ELBOW		PIPE NIPPLE (TOE)		6/21/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	1		BW	(b) (3) (A) Pipe	-	(b) (3) (A) vessel-o-let		6/14/2023	CWI VT			PASSED
									RT		7/5/2023	PASSED
	2		BW	(b) (3) (A) vessel-o-let	-	RFWN Flange		6/15/2023	CWI VT			PASSED
									RT		7/5/2023	PASSED
	3		SW	RFSW Flange		PIPE		6/21/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED

WELD INFORMATION									INSPECTION INFORMATION			
Weld ID	Number	SIZE	TYPE	JOINT		JOINT	WELDER ID	DATE	NDE TYPE	INITIALS	DATE	RESULTS
(b) (3) (A)	4	(b) (3) (A)	SW	PIPE		90* SW ELBOW	(b) (6)	6/21/2023	CWI VT	(b) (6)		PASSED
									PT		6/29/2023	PASSED
	5		SW	90* SW ELBOW		PIPE		6/21/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	6		SW	PIPE		90* SW ELBOW		6/21/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	7		SW	90* SW ELBOW		PIPE NIPPLE (TOE)		6/21/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	1		BW	(b) (3) (A) Pipe	-	(b) (3) (A) vessel-o-let		6/30/2023	CWI VT			PASSED
									RT		7/5/2023	PASSED
	2		BW	(b) (3) (A) vessel-o-let	-	RFWN Flange		6/30/2023	CWI VT			PASSED
									RT		7/5/2023	PASSED
	3		SW	RFSW Flange		PIPE		6/22/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	4		SW	PIPE		90* SW ELBOW		6/22/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	5		SW	90* SW ELBOW		PIPE		6/22/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	6		SW	PIPE		90* SW ELBOW		6/22/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	7		SW	90* SW ELBOW		PIPE NIPPLE (TOE)		6/22/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	1		BW	(b) (3) (A) Pipe	-	(b) (3) (A) vessel-o-let		6/15/2023	CWI VT		6/15/2023	PASSED
									RT		6/30/2023	PASSED
	2		BW	(b) (3) (A) vessel-o-let	-	RFWN Flange		6/9/2023	CWI VT			PASSED
									RT		6/12/2023	PASSED
	3		SW	RFSW Flange		PIPE		6/22/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	4		SW	PIPE		90* SW ELBOW		6/22/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	5		SW	90* SW ELBOW		PIPE		6/22/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	6		SW	PIPE		90* SW ELBOW		6/22/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	7		SW	90* SW ELBOW		PIPE NIPPLE (TOE)		6/22/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED

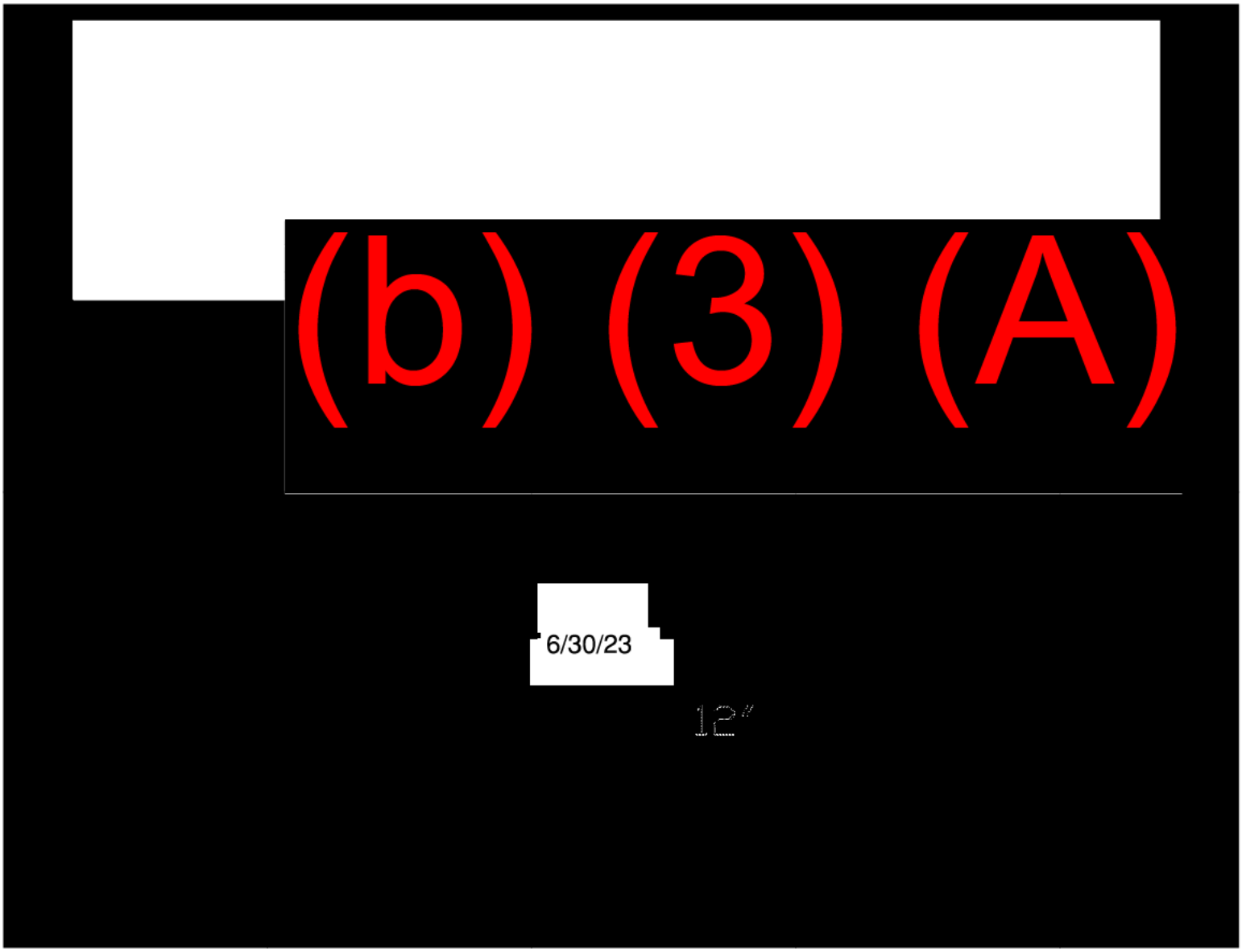
(b) (3) (A)

(b) (3) (A)

(b) (3) (A)

(b) (3) (A)

(b) (3) (A)


(b) (3) (A)
6/30/23
12"

(b) (4)

RADIOGRAPHIC INSPECTION REPORT

(b) (4)

W. O. No.: 23-034

Report No.: GS70523

Date: 7/5/23

Page 1 of 2

FORM NDT-005.1

CUSTOMER (b) (4)	CUST JOB#	SPECIFICATION ASME V	ACCEPTANCE ASME B31.3				
PROJECT Redhill Emergent piping	DWG. NO.	PROCEDURE NDT006 REV C	ACC. PROC. B31.3 REV 2015				
RT SOURCE Ir192	FILM AGFA D5	PB SCREENS	PENS: ASTM	SHIMS MAT'L/THKNS ✓	MATERIAL CS		
(b) (3) (A)			TYPE 1B	TECHNIQUE USED 3	THICKNESS (b) (3) (A)		
			MATERIAL SS	EXPOSURE TIME 40 Sec	JOINT TYPE Butt		
			LOCATION F	PROCESSING [X] MANUAL [ ] AUTOMATIC	PIPE DIA. (b) (3) (A)		

WELD #	VIEW #	GEOMETRIC UNSHARPNESS "UG"	ACCEPT	REJECT	Porosity	Slag Inclusions	Cracks	Lack of Fusion	Lack of Penet.	Undercut	Burn Thru	Suck Back	R.I.	Film Artifact	REMARKS
(b) (3) (A)	1-2	.020	X												(b) (3) (A)
	2-3	/	X												
	3-4	/	X												
	4-1		X												
	0	.020	X												
	60	/	X												
	120	/	X												
	1-2	.020	X												
	2-3	/	X												
	3-4	/	X												
	4-1	/	X												

1. Single Wall — Panoramic
2. Single Wall — Offset
3. Double Wall
4. Double Wall 0/90 — Elliptical
5. Plate
6. Other

(b) (6) II 7/5/23

Radiographer | Date | Film Interpreter | SNT-TC-1A Level | Date of Inspection | Customer

(b) (4)

RADIOGRAPHIC INSPECTION REPORT

(b) (4)

W. O. No.: 23-034

Report No.: 6S70523

WELD #	VIEW #	GEOMETRIC UNSHARPNESS "UG"	ACCEPT	REJECT	Porosity	Slag Inclusions	Cracks	Lack of Fusion	Lack of Penet.	Undercut	Burn Thru	Suck Back	T. I.	Film Artifact	REMARKS
(b) (3) (A)	0	.020	X												(b) (3) (A)
	60		X												
	120		X												
	1-2	.020	X												
	2-3		X												
	3-4		X												
	4-1		X												
	0	.020	X												
	60		X												
	120		X												
	1-2	.020	X												
	2-3		X												
	3-4		X		/										
	4-1		X												
	0	.020	X												
	60		X												
	120		X												

(b) (6)

Film Interpreter

II

SNT-TC-1A Level

7/5/23

Date of Inspection

(b) (4)

LIQUID PENETRANT EXAMINATION RECORD

Client: (b) (4)	Location: Red Hill	Page 1 of 3
P.O. No.:	Job No.: 23-034	
(b) (4) Procedure: NDT002.2 Rev C	Code: ASME B31.3	
Report No. GS062923		

ITEM: VSLT socket welds

MATERIAL		PENETRANT MATERIAL				TECHNIQUE
TYPE: CS FW		BRAND	DESIGNATION	PO#	BATCH #	Preclean Drying Time: 5 MIN
Surface Condition: ☐ As Welded ☐ Ground ☐ Other Weld Prep ☒ New weld	Cleaner	Magnaflux	SKC-S	N/A	21002K 002711	Method of Application: Brush
	Penetrant	Magnaflux	SKL-SP1	N/A	19G04K 01755	Dwell Time: 10 Min
	Emulsifier	N/A	N/A	N/A	N/A	Emulsification Time: N/A
	Developer	Magnaflux	SKD-S2	N/A	20L02U	Developing Time: 15 Min
Temperature: X 60° F – 125° F Other ____		Illumination: ☒White		FC 150	(b) (4)	Control # UV Meter ☐ N/A ☐

Item(s)	Accept	Reject	Sketch/Notes
(b) (3) (A) socket weld	☒	☐	No indications noted at time of inspection.
socket weld	☒	☐	
socket weld	☒	☐	
socket weld	☒	☐	
socket weld	☒	☐	
socket weld	☒	☐	
socket weld	☒	☐	
socket weld	☒	☐	
socket weld	☒	☐	
socket weld	☒	☐	

Performed By (b) (6) Level III Date: 6/29/2023

Reviewed By: Date:

(b) (4)

LIQUID PENETRANT EXAMINATION RECORD

Client: Oceanic	Location: Red Hill	Page 2 of 3
P.O. No.:	Job No.: 23-034	
(b) (4) Procedure: NDT002.2 Rev C	Code: ASME B31.3	
Report No. GS062923		

ITEM: VSLT socket welds

MATERIAL		PENETRANT MATERIAL				TECHNIQUE
TYPE: CS FW		BRAND	DESIGNATION	PO#	BATCH #	Preclean Drying Time: 5 MIN
Surface Condition: ☐ As Welded ☐ Ground ☐ Other Weld Prep ☒ New weld	Cleaner	Magnaflux	SKC-S	N/A	21002K 002711	Method of Application: Brush
	Penetrant	Magnaflux	SKL-SP1	N/A	19G04K 01755	Dwell Time: 10 Min
	Emulsifier	N/A	N/A	N/A	N/A	Emulsification Time: N/A
	Developer	Magnaflux	SKD-S2	N/A	20L02U	Developing Time: 15 Min
Temperature: X 60° F – 125° F Other ____		Illumination: ☒White		FC 150		(b) (4) Control # UV Meter ☐ N/A ☐

Item(s)	Accept	Reject	Sketch/Notes
(b) (3) (A) socket weld	☒	☐	No indications noted at time of inspection.
socket weld	☒	☐	
socket weld	☒	☐	
socket weld	☒	☐	
socket weld	☒	☐	
ocket weld	☒	☐	
ocket weld	☒	☐	
ocket weld	☒	☐	
ocket weld	☒	☐	
ocket weld	☒	☐	

Performed By: (b) (6) Level III Date: 6/29/2023

Reviewed By: Date:

(b) (4)

LIQUID PENETRANT EXAMINATION RECORD

Client (b) (4)	Location: Red Hill	Page 1 of 1
P.O. No.:	Job No.: 23-034	
(b) (4) Procedure: NDT002.2 Rev C	Code: ASME B31.3	
Report No. KM6292023d		

ITEM: VSLT socket welds

MATERIAL		PENETRANT MATERIAL				TECHNIQUE
TYPE: CS FW		BRAND	DESIGNATION	PO#	BATCH #	Preclean Drying Time: 5 MIN
Surface Condition: ☐ As Welded ☐ Ground ☐ Other Weld Prep ☒ New weld	Cleaner	Magnaflux	SKC-S	N/A	21002K 002711	Method of Application: Brush
	Penetrant	Magnaflux	SKL-SP1	N/A	19G04K 01755	Dwell Time: 10 Min
	Emulsifier	N/A	N/A	N/A	N/A	Emulsification Time: N/A
	Developer	Magnaflux	SKD-S2	N/A	20L02U	Developing Time: 15 Min
Temperature: X 60° F – 125° F Other ____		Illumination: ☒ White		FC 150	(b) (4) Control #	UV Meter ☐ N/A ☐

Item(s)	Accept	Reject	Sketch/Notes
(b) (3) (A) socket weld	☒	☐	No indications noted at time of inspection.
socket weld	☒	☐	
socket weld	☒	☐	
socket weld	☒	☐	
socket weld	☒	☐	
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	

Performed By: (b) (6) Level III Date: 6/29/2023

Reviewed By: Date:

QUALITY VALIDATION (QV) REPORT

Red Hill Bulk Fuel Storage Facility Defuel

Validation Firm	HDR Environmental, Operations and Construction, Inc.	Repair No.	INC-033
Address	9781 S. Meridian Blvd., Suite 400, Englewood, CO 80112	Repair ID	Spool.203
Contract No.	FA890315D0007, D.O. FA8903-19-F-0027	Report Date	25 JUL 2023
QV Engineer	(b) (6)		

VALIDATION

Source	PDF Page No.	Facility Geographic Area	Location Reference
FLC	N/A	(b) (3) (A)	(b) (3) (A)

Repair Description	Install low point drain and High Point vent on F24 Spool section upstream of (b) (3) (A)	Source Contract Reference	[redacted]
Description of Contractor QC Method(s) Used	Methods outlined in QCP.	Contractor QC Records Reviewed	QCP and Daily Reports.
Description of QA Validation and Observations	QA methods outlined in QASP. JTF-RH secondary QA and 3rd Party QV completed. JTF-RH QV visually inspected repair & reviewed contractor QC documentation. Final acceptance by government. Date: 12 JUL 2023		

Rework Needed				Photo Record Attached	Repair Work Validated as Complete			
○	Yes	◉	No	See Page 2.	◉	Yes	○	No

Comments

Contractor carefully removed (b) (3) (A) of residual fuel from the line via high point vents prior to removing spool. Full containment measures were deployed to prevent any accidental spillage of residual fuel when spool removed from Pipe Support (b) (3) (A). The spool was transported out of the tunnel for the installation of the high point vent and low point drain assemblies. Socket welds were inspected via dye penetrant testing (PT). Spool was hydrostatically tested prior to reinstallation. Recovered fuel received by the Facility.

CERTIFICATION

I hereby certify that repair work validated in this report was personally substantiated and this report is true.	QV ENGINEER SIGNATURE	(b) (6)
	DATE	25 JUL 2023

(b) (3) (A)

(b) (4)

LIQUID PENETRANT EXAMINATION RECORD

Client (b) (4)	Location (b) (4)	Page 1 of 1
P.O. No.: 62252-108	Job No.: 23-157	
(b) (4) Procedure: NDT-002.2 Rev A	Code: ASME B31.3	
Report No. KS062023		

ITEM: Socket Welds

MATERIAL		PENETRANT MATERIAL				TECHNIQUE
TYPE: Carbon Steel		BRAND	DESIGNATION	PO#	BATCH #	Preclean Drying Time: 5 Minutes
Surface Condition: ☒ As Welded ☒ Ground / Buffed ☐ Other ____ ☒ New weld	Cleaner	Magnaflux SpotCheck	SKC-S	N/A	19L06K	Method of Application: Brush
	Penetrant	Magnaflux SpotCheck	SKL-SP1	N/A	09L19K	Dwell Time: 15 Minutes
	Emulsifier	N/A	N/A	N/A		Emulsification Time: N/A
	Developer	Magnaflux SpotCheck	SKD-S2	N/A	09L01K	Developing Time: 15 Minutes
Temperature: 60° F – 125° F Other ____		Illumination: ☒ White		FC >100		(b) (4) Control # UV Meter ____ N/A X

Item(s)	Accept	Reject	Sketch/Notes
Reducing Spool Socket Welds			PT Inspection performed on the reducing spools socket welds for the high and low points. Project RHL-677E No relevant indications noted.
High Point	☒	☐	
Low Point	☒	☐	

Performed By (b) (6)	Level II	Date: 06-22-23	Reviewed By: Date:

(b) (3) (A)

(b) (4)

LIQUID PENETRANT EXAMINATION RECORD

Client: (b) (4)	Location (b) (4)	Page 1 of 1
P.O. No.: 62252-108	Job No.: 23-157	
(b) (4) Procedure: NDT-002.2 Rev A	Code: ASME B31.3	
Report No. KS062623		

ITEM: Socket Welds

MATERIAL		PENETRANT MATERIAL				TECHNIQUE
TYPE: Carbon Steel		BRAND	DESIGNATION	PO#	BATCH #	Preclean Drying Time: 5 Minutes
Surface Condition: ☒ As Welded ☒ Ground / Buffed ☐ Other ____ ☒ New weld	Cleaner	Magnaflux SpotCheck	SKC-S	N/A	19L06K	Method of Application: Brush
	Penetrant	Magnaflux SpotCheck	SKL-SP1	N/A	09L19K	Dwell Time: 15 Minutes
	Emulsifier	N/A	N/A	N/A		Emulsification Time: N/A
	Developer	Magnaflux SpotCheck	SKD-S2	N/A	09L01K	Developing Time: 15 Minutes
Temperature: 60° F – 125° F Other ____		Illumination: ☒ White		FC >100		(b) (4) Control # UV Meter ____ N/A X

Item(s)	Accept	Reject	Sketch/Notes
Reducing Spool Socket Weld			PT Inspection performed on the reducing spool socket welds for the revamped low point drain. Project RHL-677E No relevant indications noted. A second round of PT was performed after Contractor changed the LPD configuration.
Low Point Welds #1-#4	☒	☐	

Performed By (b) (6) Level II Date: 06-26-23 | Reviewed By: Date:

(b) (3) (A)

QUALITY VALIDATION (QV) REPORT

Red Hill Bulk Fuel Storage Facility Defuel

Validation Firm	HDR Environmental, Operations and Construction, Inc.	Repair No.	INC-034
Address	9781 S. Meridian Blvd., Suite 400, Englewood, CO 80112	Repair ID	NDAA.PS.250
Contract No.	FA890315D0007, D.O. FA8903-19-F-0027	Report Date	25 JUL 2023
QV Engineer	(b) (6)		

VALIDATION

Source	PDF Page No.	Facility Geographic Area	Location Reference
DOH / NDAA	N/A	(b) (3) (A)	

Repair Description	Anchor bolt (nut) loose on both sides (DOH observation) Moderate corrosion at any number of locations, may have efflorescence coating it. (NDAA Observation).	Source Contract Reference	N/A
Description of Contractor QC Method(s) Used	N/A	Contractor QC Records Reviewed	N/A
Description of QA Validation and Observations	N/A Final acceptance by government. Date: 11 JUL 2023		

Rework Needed				Photo Record Attached	Repair Work Validated as Complete			
○	Yes	◉	No	See Page 2.	◉	Yes	○	No

Comments

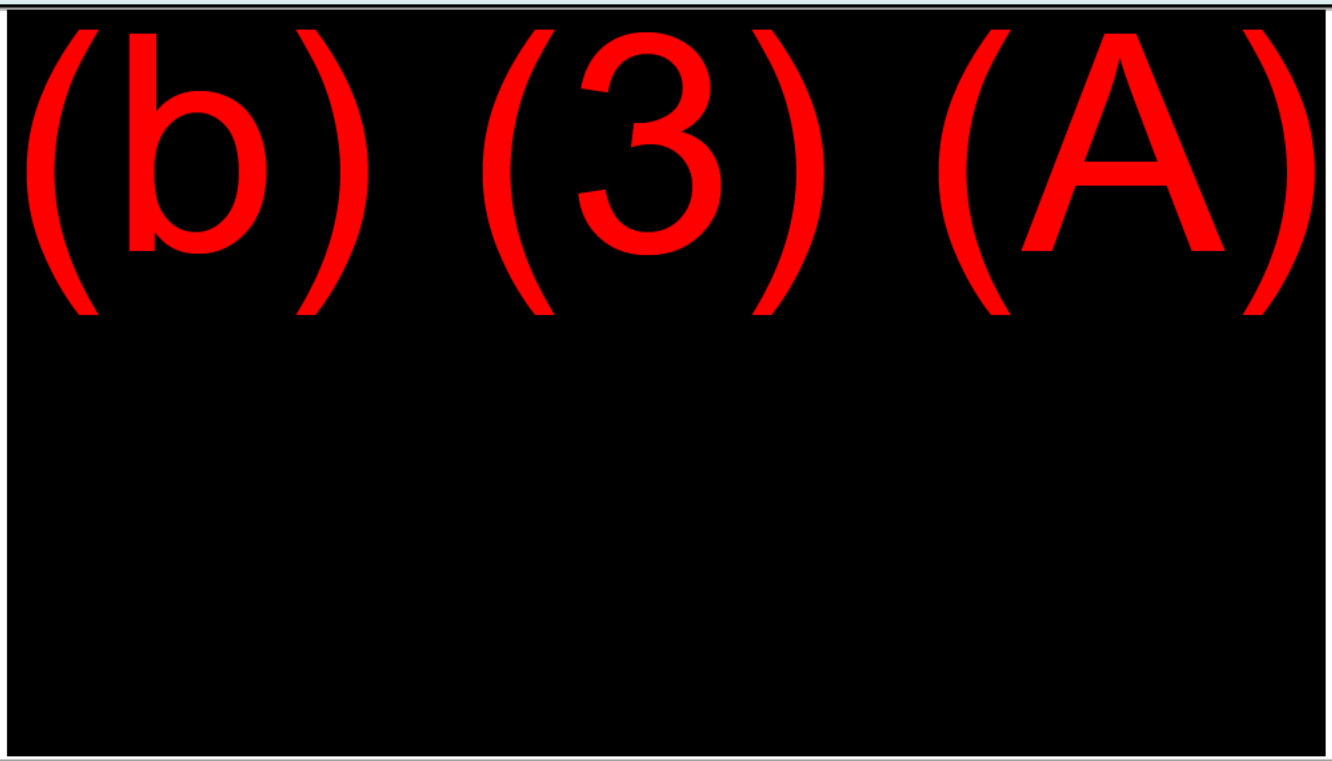
As set forth in (b) (4) memo dated 11 July 2023, "anchor bolts at the base will not be subjected to tension under operating loads and that the compression capacity of the pipe supports will not be significantly impacted even if the anchor bolt nuts are loose (such as at (b) (3) (A) " "To demonstrate that repairs are not required, (b) (4) re-evaluated the JP-5 and F-24 pipelines (b) (3) (A) assuming (very conservatively) that all the damaged pipe supports ((b) (3) (A) (b) (3) (A) had completely lost their load-carrying capacity." The modeling results "demonstrate that repairs for these pipe supports are not required prior to the defueling process, and there is enough redundancy in the system to accommodate the extra loads due to the postulated loss of pipe support." No repair was completed.

CERTIFICATION

I hereby certify that repair work validated in this report was personally substantiated and this report is true.	QV ENGINEER SIGNATURE	(b) (6)
	DATE	25 JUL 2023

QUALITY ASSURANCE VALIDATION REPORT

Red Hill Bulk Fuel Storage Facility Defuel



Existing Condition of loose anchor bolt nuts at [redacted] (DOH photo).

(b) (4)

Memorandum

Date: 11 July 2023
(Revised 24 July 2023)

To: (b) (6) (US Navy, NAVFAC, Joint Task Force, Red Hill)

From: (b) (6)

CC: (b) (6), (b) (4)

Project: 221162 – Red Hill Defueling Support, Joint Base Pearl Harbor-Hickam, Honolulu, HI

Subject: Supplemental Information for Use in JTF Response to 23 June 2023 DOH Email Regarding Red Hill Bulk Fuel Storage Facility (RHBFSF) Harbor Tunnel Pipe Supports and Pipeline Corrosion

1. BACKGROUND AND PURPOSE

This memo addresses site observations listed in an email by the Department of Health (DOH) Hawaii to the Navy, "Pipe Support and Pipe Pics for Navy," dated 23 June 2023 (see Appendix A of this memo for details). (b) (4) was present during the site walkdown with the Navy, DOH, and the Environmental Protection Agency (EPA) on 12 and 13 June 2023.

The DOH noted nine locations within the Harbor Tunnel where some pipe support defects could affect load transfer from the (b) (3) (A). These conditions comprised:

1. Nuts that were not tightened down flush against base plates (b) (3) (A)
2. A pipe support flange that was cut (b) (3) (A)
3. Grout missing under base plates (b) (3) (A)

The DOH also noted a location where the wrapping on the (b) (3) (A) pipelines was deteriorated at the invert of the pipe and where sections of exposed pipe showed surface corrosion (b) (3) (A) see Figure 1 and Figure 2.

(b) (4)

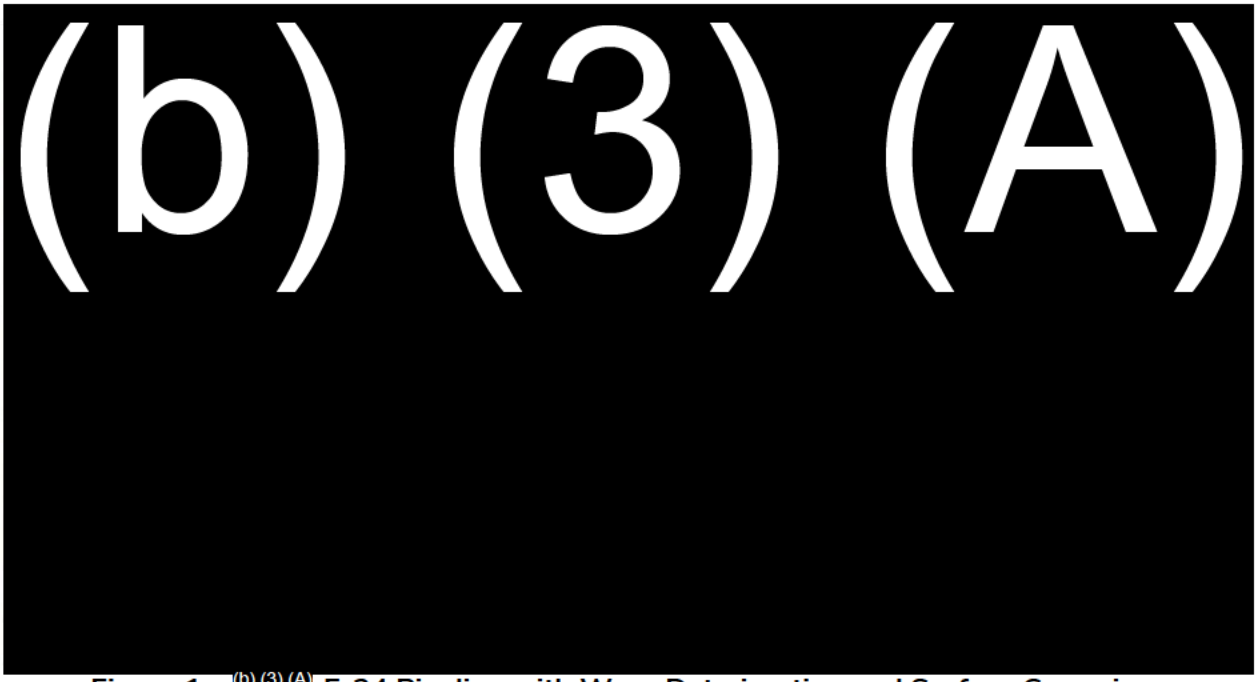


Figure 1 – (b) (3) (A) F-24 Pipeline with Wrap Deterioration and Surface Corrosion at Pipe Invert Between (b) (3) (A)

Figure 2 – (b) (3) (A) F-24 Pipeline with Wrap Deterioration and Surface Corrosion at Pipe Invert Between (b) (3) (A)

We understand that although these defects could be addressed through a new contract process, the execution of the repairs could possibly delay the currently planned defueling process. Therefore, the purpose of this memorandum is to determine if the system can be safely operated during the defueling process without the need to perform any repairs of the identified piping and pipe support deficiencies in the DOH email.

2. PIPE SUPPORTS

2.1 (b) (4) Original Evaluation of Pipe Supports in the Harbor Tunnel

In 2022, (b) (4) performed an evaluation of the pipe supports in the Harbor Tunnel, assuming all the pipe supports were in good condition. Evaluation results are shown in Section 7.4.1 of our Final Assessment Report, "Assessment of Red Hill Underground Fuel Storage Facility," dated April 2022. Our original modeling approach and evaluation of the pipe supports in the Harbor Tunnel are repeated below for completeness.

The typical pipe support in the Harbor Tunnel is made of steel angle sections, as shown in Figure 3 (identical to Figure 7-84 in our April 2022 report). (b) (3) (A)

(b) (3) (A)

Figure 3 – Representation of a Typical Pipe Support in the Harbor Tunnel

(b) (3) (A)

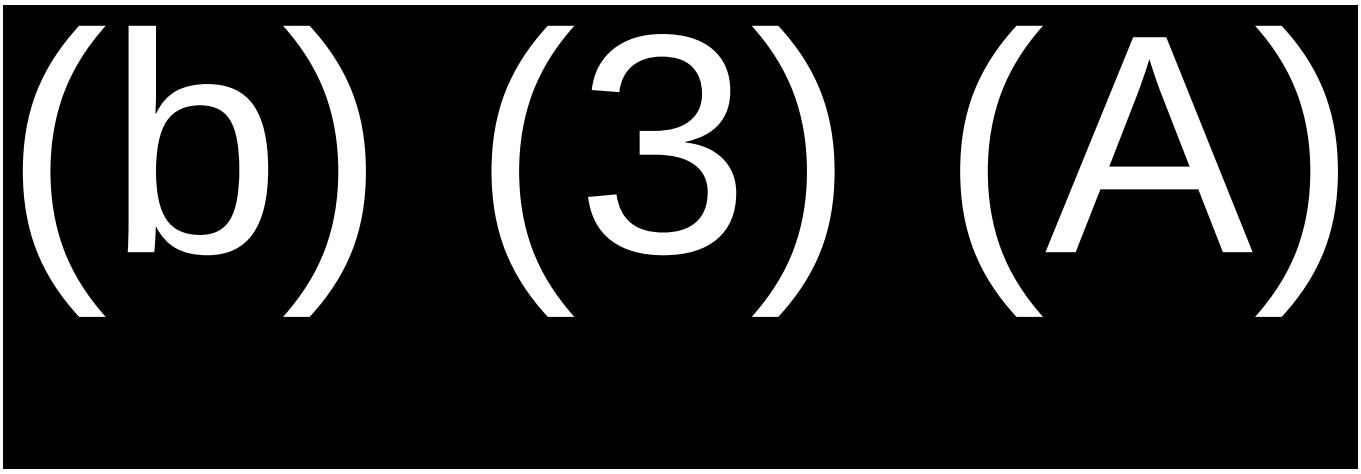


Figure 4 – Representation of Typical Pipe Supports Between Anchors

Figure 5 (identical to Figure 7-86 in our April 2022 report) shows the demand-to-capacity ratios (DCRs) for the different structural elements of the controlling pipe support under design loads. (b) (3) (A) he results indicate that the structural capacity of the pipe supports is adequate for operational and seismic loads. Note our original evaluation, as presented in our April 2022 report, assumed that the system would be continuously operated in the future. Therefore, we also considered seismic loads in accordance with the ASCE 7 code requirements.

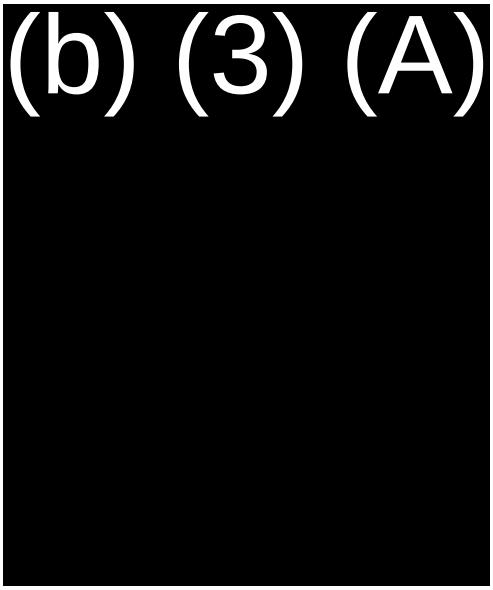


Figure 5 – Demand-to-Capacity Ratios (DCRs) for a Typical Pipe Support at the Harbor Tunnel

2.2 Re-Evaluation of the JP-5 and F-24 Lines in the Harbor Tunnel with Missing Supports

The main purpose of the steel pipe supports in the Harbor Tunnel is to provide vertical support for the JP-5 and F-24 pipelines and lateral restraint. (b) (3) (A)

The defects at (b) (3) (A), as observed by the EPA/DOH walkdown team, are summarized as follows (see Appendix A of this memo for photographs and details):

- Loose anchor bolt nuts (b) (3) (A)
- Grout damage and partial base plate contact with the grout resulting in limited vertical support capability (b) (3) (A)
- Cut flange on the double angle column for (b) (3) (A)

Note that the anchor bolts at the base will not be subjected to tension under operating loads and that the compression capacity of the pipe supports will not be significantly impacted even if the anchor bolt nuts are loose (b) (3) (A)

Although the grout damage under the base plates (b) (3) (A) may affect the compression capacity of the steel pipe supports, these issues could be addressed using steel shim plates or non-shrink grout to fill the void below the base plates, if required. However, the analysis below demonstrates that this is not required.

The damaged pipe support angle column (cut flange) at (b) (3) (A) will affect the compression capacity of this specific pipe support. However, the analysis below demonstrates that a repair is not required.

To demonstrate that repairs are not required, we re-evaluated the JP-5 and F-24 pipelines in the Harbor Tunnel, assuming (very conservatively) that all the damaged pipe supports (b) (3) (A) had completely lost their load-carrying capacity. While this is an overly conservative approach, we performed it to check if the system can be safely operated during the defueling process in this condition. We performed the re-evaluation using our original analysis model, as shown in Figure 6, by removing one pipe support (b) (3) (A) as an example) in the model, assuming that (b) (3) (A) had completely lost its load-carrying capacity. If (b) (3) (A) is removed from the analysis model, the load carried by (b) (3) (A) will be redistributed to (b) (3) (A) and (b) (3) (A) will each carry 50% more load.

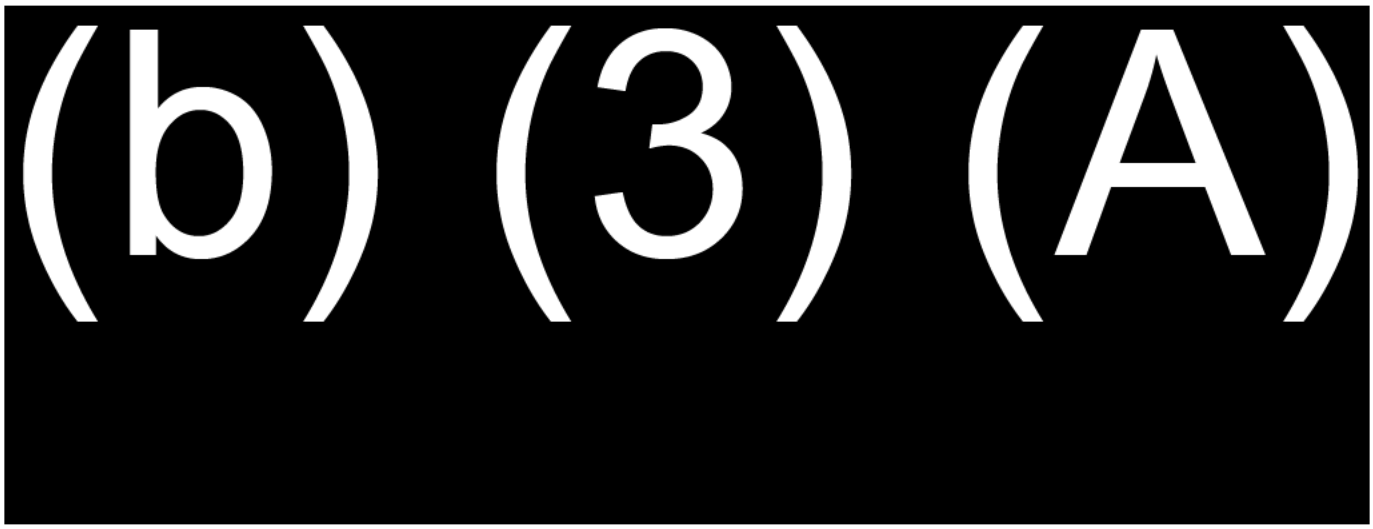


Figure 6 – Analysis Model With Missing Support (i.e., Without (b) (3) (A))

Our re-evaluation results are shown in Figure 7. Only DCR ratios above (b) (3) (A) are shown for clarity in this figure, and it shows the original analysis results with and without (b) (3) (A) included in the FE model. The maximum DCR, as shown on the right of the figure, is (b) (3) (A) (b) (3) (A) . In other words, the re-evaluation results

demonstrate that repairs for these pipe supports are not required prior to the defueling process, and there is enough redundancy in the system to accommodate the extra loads due to the postulated loss of pipe support.

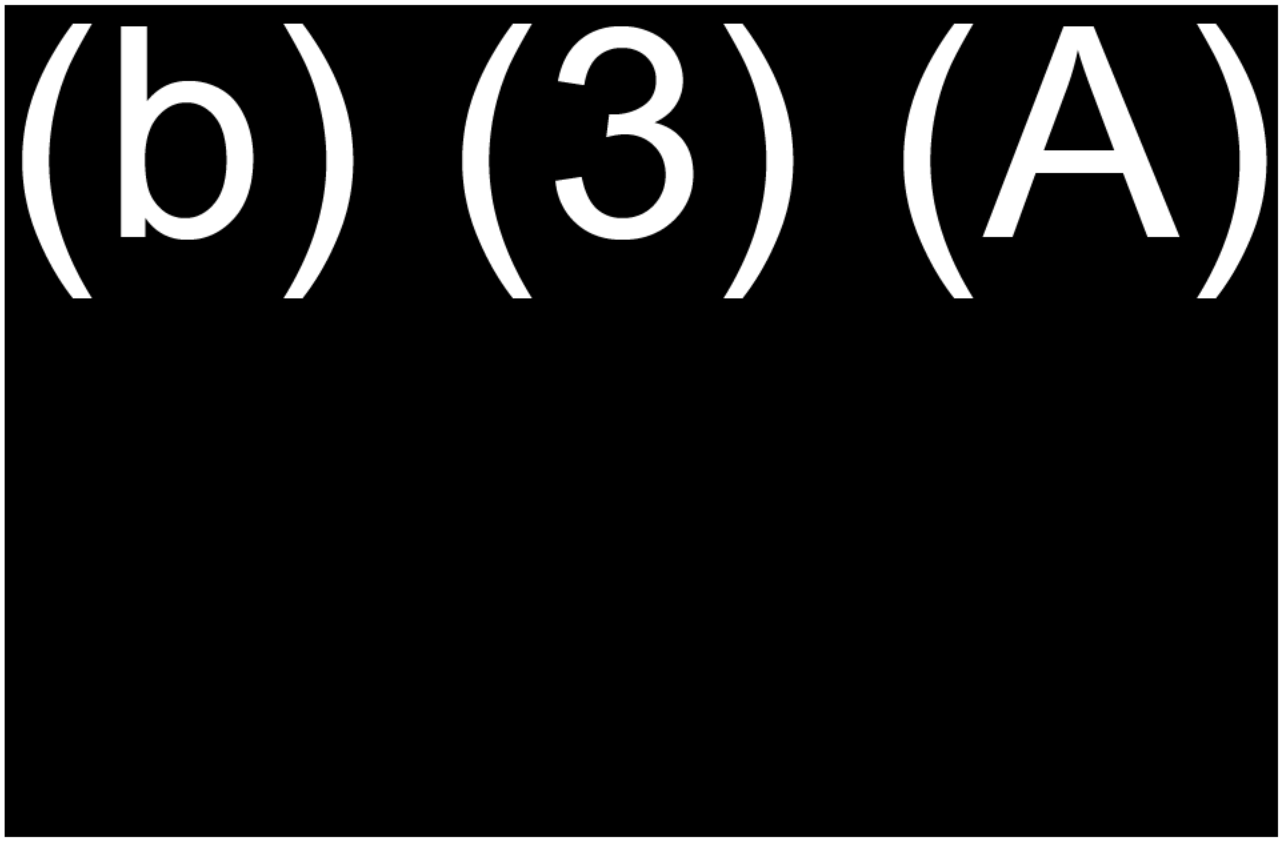


Figure 7 – DCRs for Missing Pipe Support Analysis, Harbor Tunnel

With the conservative assumption that all these pipe supports (b) (3) (A) have completely lost their load-carrying capacity, the span length for the JP-5/F-24 lines at these locations would change from (b) (3) (A) and stresses in the piping will be increased due to gravity loads. We estimated that the total longitudinal stress in the pipelines with a (b) (3) (A) which is significantly less than the basic allowable stress of (b) (3) (A) following the ASME B31.3 requirements.

In summary, the original design had a significant safety margin against normal operating loads. The performance of both the pipelines and the pipe supports still meet code requirements when subjected to gravity loads, even if all the pipe supports with deficiencies (b) (3) (A) have completely lost their load-carrying capacity. Our analysis indicates that the pipeline system in the Harbor Tunnel can be safely operated during the

defueling process without the need to address the issues observed for (b) (3) (A) in the Harbor Tunnel.

2.3 Commentary on the Base Plates with Partial Contact at (b) (3) (A)

The walkthrough team also identified missing grout and base plate with partial contact at (b) (3) (A), as shown in Figure 8.

As previously discussed, the grout damage under the base plates, as shown, may affect the compression capacity of the steel pipe supports. However, these issues can be addressed using steel shim plates or non-shrink grout to fill the void below the base plates, if required, prior to the defueling process. (b) (5)

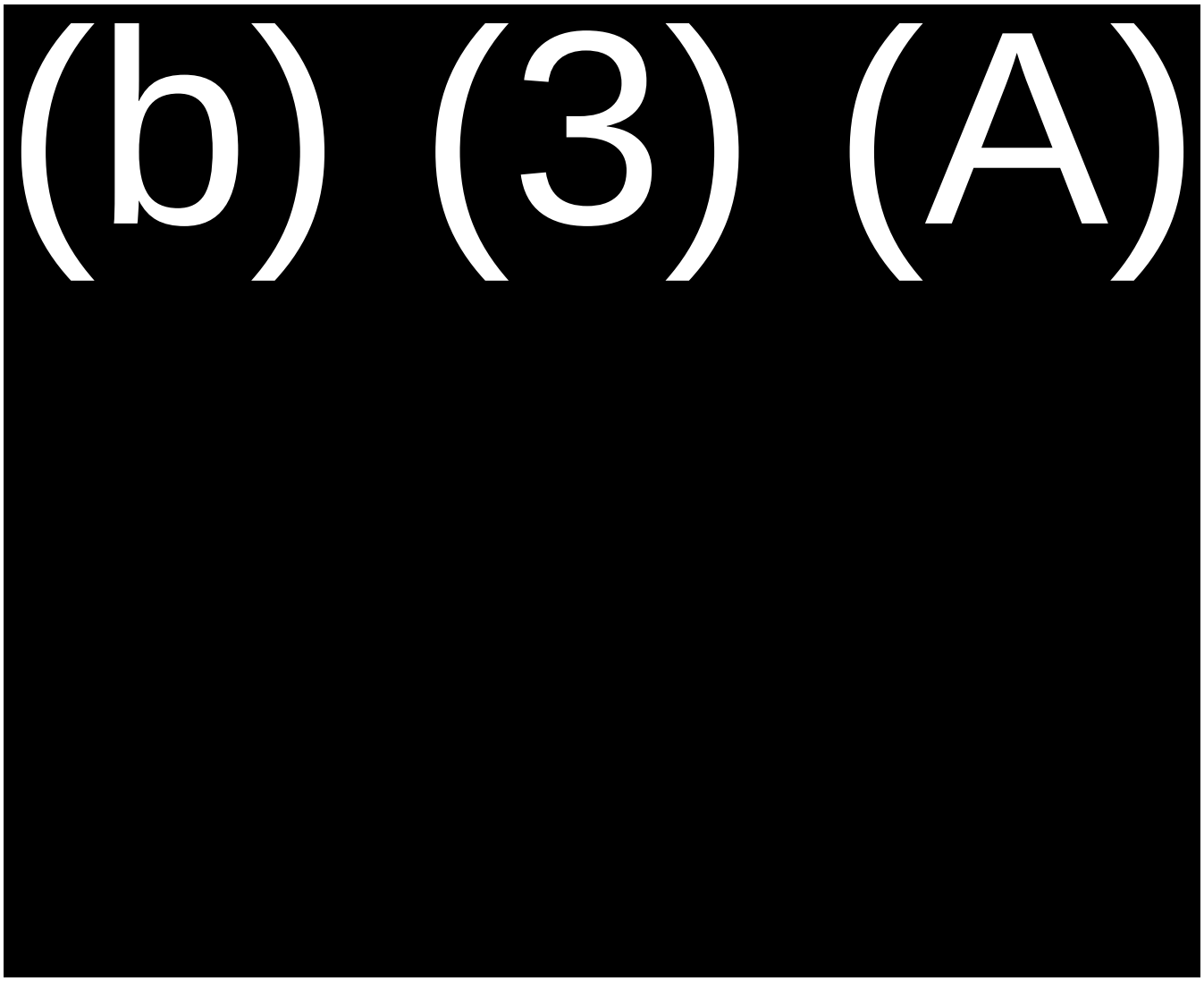


Figure 8 – Grout Damage and Partial Base Plate Supports Observed by the Walkthrough Team (extracted from Appendix A of this memo)

Figure 9 presents typical pipe support and base plate details in the Harbor Tunnel. Also shown in Figure 9 is the area with potentially missing grout for (b) (3) (A), as observed by the DOH/EPA walkthrough team. The missing grout for (b) (3) (A) is mainly located (b) (3) (A) the contact area with the base plate. (b) (3) (A), (b) (5)

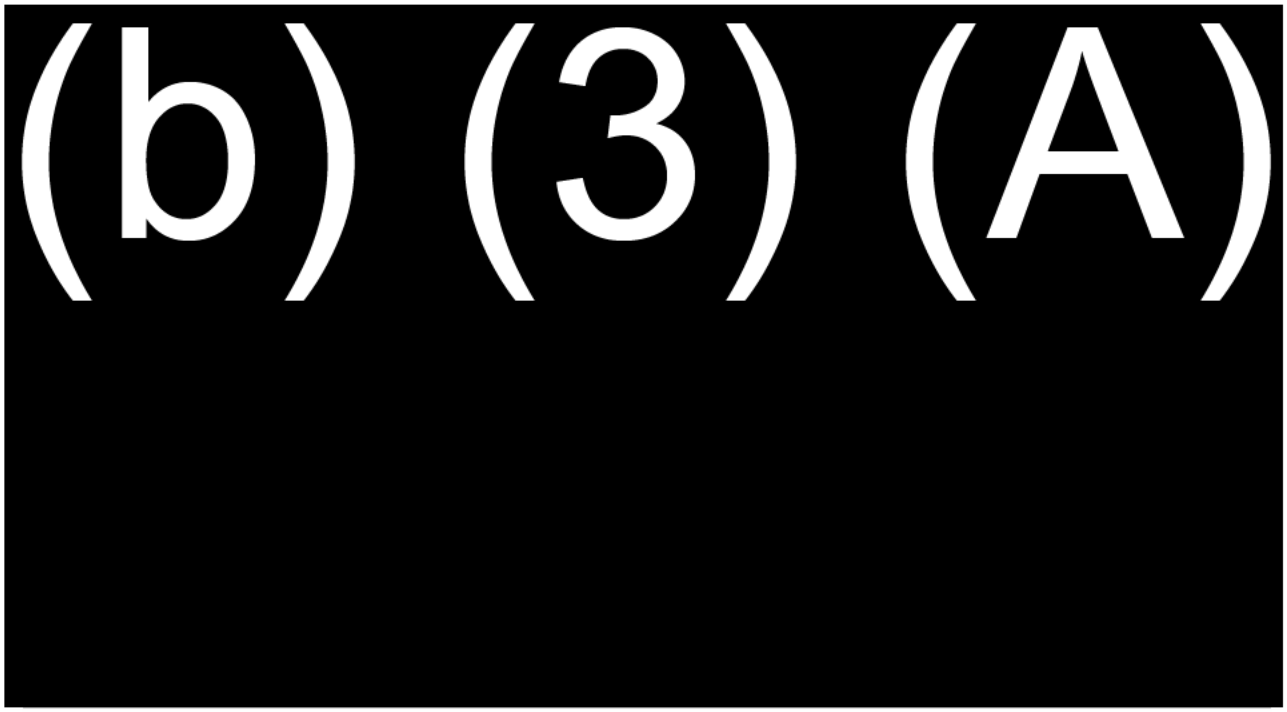


Figure 9 – Typical Pipe Support and Base Plate Details

The compression capacity of (b) (3) (A) is not materially affected by the missing grout below the base plate. Even if (b) (3) (A) completely loses its load-carrying capacity, the performance of both the pipelines and pipe supports will still meet code requirements, as previously demonstrated in Section 2.2. In other words, the pipeline system in the Harbor Tunnel can be safely operated during the defueling process without the need to address the issues observed for (b) (3) (A) and (b) (3) (A) in the Harbor Tunnel.

(b) (5)

3. EVALUATION OF CORROSION DEFECTS UNDER PIPE WRAP

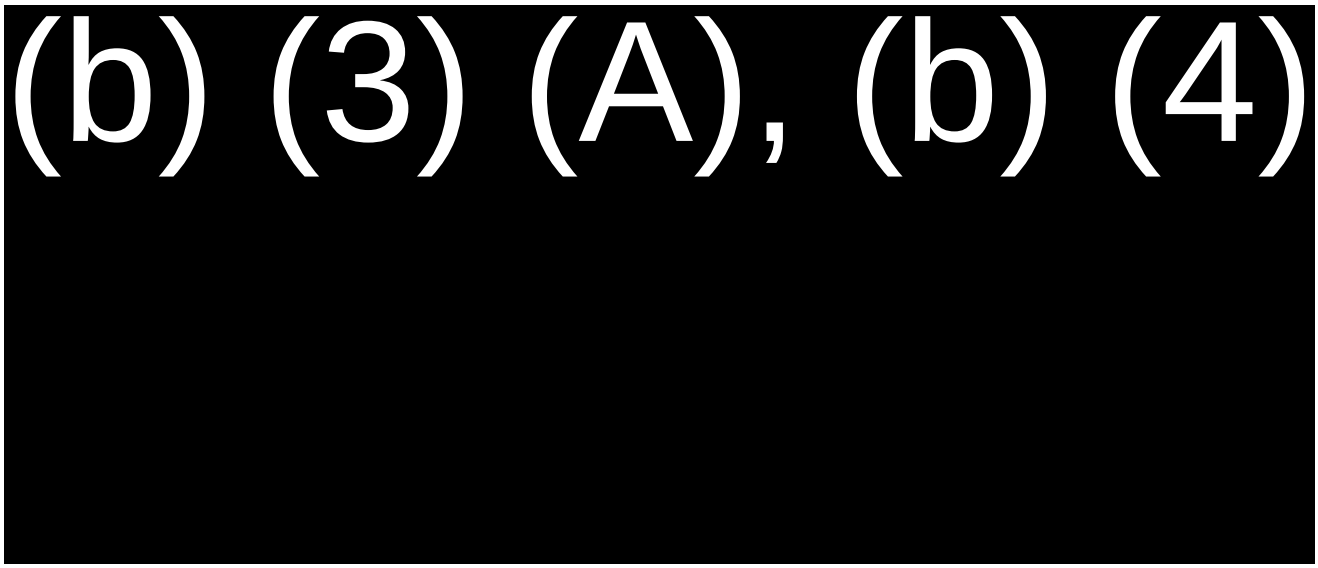
There are some sections of wrap on the fuel pipe in the Harbor Tunnel that do not lie flush against the surface of the pipe. The condition of the pipe in these areas cannot be inspected visually without removing the wrap. When these areas align with areas of water leakage for the tunnel roof or wall, the DOH is concerned that the wrap between (b) (3) (A) could capture moisture and lead to pipeline corrosion under the wrap.

In 2015, the (b) (3) (A) . pipelines in the Harbor Tunnel underwent inline inspections (ILI) by (b) (4) , which encompassed evaluating sections of wrapped pipe. The final inspection report evaluated the condition of the girth welds, areas of metal loss, and the effect of dents, among other items, as they relate to the ability of the pipeline to safely operate. Each defect evaluated was tied to a maximum allowable operating pressure (MAOP) to inform where repairs were required in the short and long term.

In (b) (4) inspection report, ID label GW2540 (GW for a girth weld) on the (b) (3) (A) pipe is between (b) (3) (A) see Figure 10, where the wrap is visible at the girth weld location). (b) (3) (A)

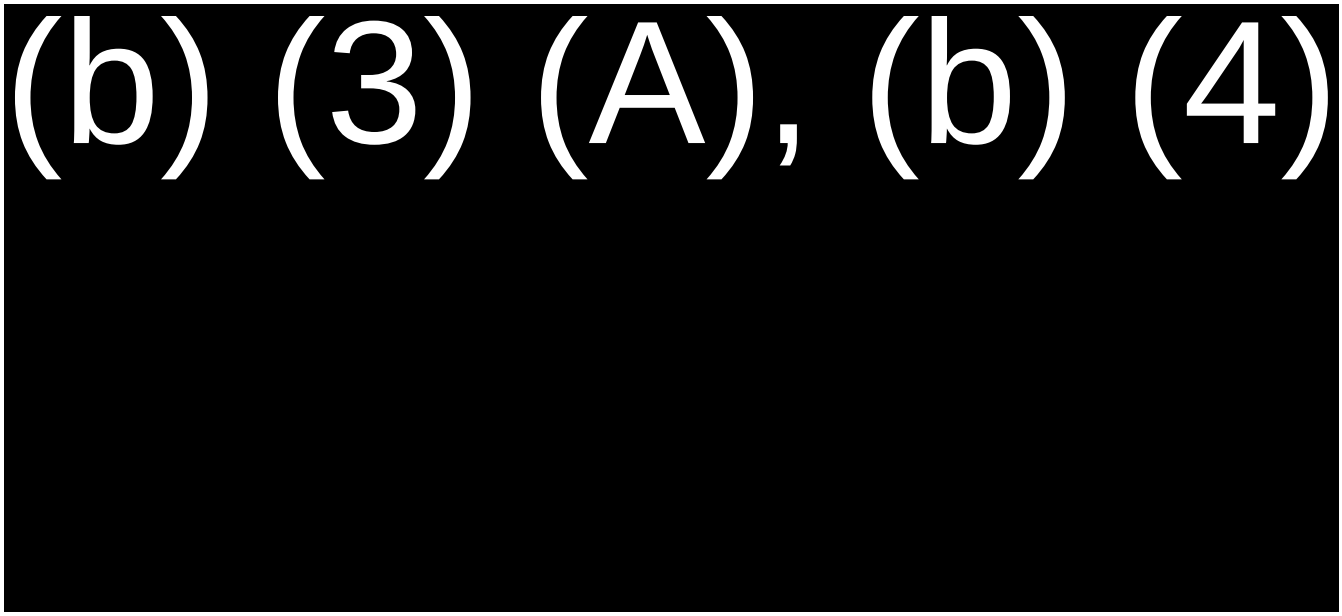
(b) (3) (A)

Since GW2540 for the F-24 pipeline lies between (b) (3) (A) , from the (b) (4) report, the girth weld downstream between (b) (3) (A) would either be GW2530 or GW2520, based on pipe support and girth weld spacing. The minimum wall thickness for these girth welds is at GW2530 and is (b) (3) (A)., with a nominal wall thickness of (b) (3) (A). (Figure 11). Therefore, at this weld, the pipeline has 88% of its nominal wall thickness. The ILI evaluation determined a maximum allowable operating pressure of (b) (3) (A) at this location. This allowable operating pressure is significantly above that which will be used during defueling. Therefore, this section of pipe is acceptable without further repair. The maximum operating pressure during the defueling process in the Harbor Tunnel is less than (b) (3) (A) psi, which is equivalent to about (b) (3) (A) .



For the JP-5 pipeline, GW2570 is between (b) (3) (A) . From the (b) (4) report, the girth weld (b) (3) (A) would be either GW2560 or GW2550, based on pipe support and girth weld spacing. (b) (3) (A)

Therefore, at this weld, the pipeline has 74% of its nominal wall thickness. The ILI evaluation determined a maximum allowable operating pressure of (b) (3) (A) psi at this location. This allowable operating pressure is still significantly above that which will be used during defueling. Therefore, this section of pipe is acceptable without further repair.



4. CONCLUSIONS

(b) (3) (A), (b) (5)

The original pipe support design in the Harbor Tunnel had a significant safety margin against gravity loads. The performance of both the pipelines and the pipe supports still meets code requirements against gravity loads even if all the other pipe supports (b) (3) (A) have completely lost their load-carrying capacity. In other words, the pipeline system in the Harbor Tunnel can be safely operated during the defueling process without the need to address the issues observed.

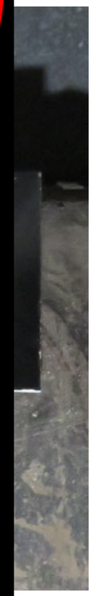
(b) (3) (A), (b) (4), (b) (5)

APPENDIX A
Pipe Support and Pipeline Photos in the Harbor Tunnel
(Attachment in DOH's Email Dated 23 June 2023)

(b) (3) (A)

(b) (3) (A)

(b) (3) (A)



(b) (3) (A)

(b) (3) (A)

(b) (3) (A)

(b) (3) (A)

QUALITY VALIDATION (QV) REPORT

Red Hill Bulk Fuel Storage Facility Defuel

Validation Firm	HDR Environmental, Operations and Construction, Inc.	Repair No.	INC-035
Address	9781 S. Meridian Blvd., Suite 400, Englewood, CO 80112	Repair ID	NDAA.PS.260
Contract No.	FA890315D0007, D.O. FA8903-19-F-0027	Report Date	25 JUL 2023
QV Engineer	(b) (6)		

VALIDATION

Source	PDF Page No.	Facility Geographic Area	Location Reference
DOH / NDAA	N/A	(b) (3) (A)	

Repair Description	Anchor bolt (nut) loose on both sides (DOH observation) Moderate corrosion at any number of locations, may have efflorescence coating it. (NDAA Observation).	Source Contract Reference	N/A
Description of Contractor QC Method(s) Used	N/A	Contractor QC Records Reviewed	N/A
Description of QA Validation and Observations	N/A Final acceptance by government. Date: 11 JUL 2023		

Rework Needed				Photo Record Attached	Repair Work Validated as Complete			
○	Yes	◉	No	See Page 2.	◉	Yes	○	No

Comments

As set forth in (b) (4) memo dated 11 July 2023, "anchor bolts at the base will not be subjected to tension under operating loads and that the compression capacity of the pipe supports will not be significantly impacted even if the anchor bolt nuts are loose (such as at (b) (3) (A) ." "To demonstrate that repairs are not required (b) (4) re-evaluated the JP-5 and F-24 pipelines (b) (3) (A) , assuming (very conservatively) that all the damaged pipe supports (b) (3) (A) (b) (3) (A) had completely lost their load-carrying capacity." The modeling results "demonstrate that repairs for these pipe supports are not required prior to the defueling process, and there is enough redundancy in the system to accommodate the extra loads due to the postulated loss of pipe support." No repair was completed.

CERTIFICATION

I hereby certify that repair work validated in this report was personally substantiated and this report is true.	QV ENGINEER SIGNATURE	(b) (6)
	DATE	25 JUL 2023

(b) (3) (A)

QUALITY VALIDATION (QV) REPORT

Red Hill Bulk Fuel Storage Facility Defuel

Validation Firm	HDR Environmental, Operations and Construction, Inc.	Repair No.	INC-036
Address	9781 S. Meridian Blvd., Suite 400, Englewood, CO 80112	Repair ID	NDAA.PS.263
Contract No.	FA890315D0007, D.O. FA8903-19-F-0027	Report Date	25 JUL 2023
QV Engineer	(b) (6)		

VALIDATION

Source	PDF Page No.	Facility Geographic Area	Location Reference
DOH / NDAA	N/A	(b) (3) (A)	

Repair Description	Tee section a (b) (3) (A) has a cut on one flange of the Tee (DOH Observation)Moderate corrosion at any number of locations, may have efflorescence coating it. (NDAA Observation).	Source Contract Reference	N/A
Description of Contractor QC Method(s) Used	N/A	Contractor QC Records Reviewed	N/A
Description of QA Validation and Observations	N/A Final acceptance by government. Date: 11 JUL 2023		

Rework Needed				Photo Record Attached	Repair Work Validated as Complete			
○	Yes	◉	No	See Page 2.	◉	Yes	○	No

Comments

As set forth in (b) (4) memo dated 11 July 2023, "The damaged pipe support angle column (cut flange) a (b) (3) (A) will affect the compression capacity of this specific pipe support." "To demonstrate that repairs are not required (b) (4) re-evaluated the JP-5 and F-24 pipelines (b) (3) (A) assuming (very conservatively) that all the damaged pipe supports (PS (b) (3) (A) had completely lost their load-carrying capacity." The modeling results "demonstrate that repairs for these pipe supports are not required prior to the defueling process, and there is enough redundancy in the system to accommodate the extra loads due to the postulated loss of pipe support." No repair was completed.

CERTIFICATION

I hereby certify that repair work validated in this report was personally substantiated and this report is true.	QV ENGINEER SIGNATURE	(b) (6)
	DATE	25 JUL 2023

(b) (3) (A)

QUALITY VALIDATION (QV) REPORT

Red Hill Bulk Fuel Storage Facility Defuel

Validation Firm	HDR Environmental, Operations and Construction, Inc.	Repair No.	INC-037
Address	9781 S. Meridian Blvd., Suite 400, Englewood, CO 80112	Repair ID	NDAA.PS.307
Contract No.	FA890315D0007, D.O. FA8903-19-F-0027	Report Date	25 JUL 2023
QV Engineer	(b) (6)		

VALIDATION

Source	PDF Page No.	Facility Geographic Area	Location Reference
DOH / NDAA	N/A	(b) (3) (A)	

Repair Description	Grout damaged beneath vertical support base plates, resulting in inadequate bearing between base plate and floor. (DOH Observation) Moderate corrosion at any number of locations, may have efflorescence coating it, corroded baseplate, no grout. (NDAA observation).	Source Contract Reference	N/A
Description of Contractor QC Method(s) Used	N/A	Contractor QC Records Reviewed	N/A
Description of QA Validation and Observations	N/A Final acceptance by government. Date: 11 JUL 2023		

Rework Needed				Photo Record Attached	Repair Work Validated as Complete			
○	Yes	◉	No	See Page 2.	◉	Yes	○	No

Comments

As set forth in (b) (4) memo dated 11 July 2023, "Grout damage and partial base plate contact with the grout resulting in limited vertical support capability (b) (3) (A) " "To demonstrate that repairs are not required, (b) (4) re-evaluated the JP-5 and F-24 pipelines in the Harbor Tunnel, assuming (very conservatively) that all the damaged pipe supports (b) (3) (A) had completely lost their load-carrying capacity." The modeling results "demonstrate that repairs for these pipe supports are not required prior to the defueling process, and there is enough redundancy in the system to accommodate the extra loads due to the postulated loss of pipe support." No repair was completed.

CERTIFICATION

I hereby certify that repair work validated in this report was personally substantiated and this report is true.	QV ENGINEER SIGNATURE	(b) (6)
	DATE	25 JUL 2023

(b) (3) (A)

QUALITY VALIDATION (QV) REPORT

Red Hill Bulk Fuel Storage Facility Defuel

Validation Firm	HDR Environmental, Operations and Construction, Inc.	Repair No.	INC-038
Address	9781 S. Meridian Blvd., Suite 400, Englewood, CO 80112	Repair ID	NDAA.PS.413
Contract No.	FA890315D0007, D.O. FA8903-19-F-0027	Report Date	25 JUL 2023
QV Engineer	(b) (6)		

VALIDATION

Source	PDF Page No.	Facility Geographic Area	Location Reference
DOH / NDAA	N/A	(b) (3) (A)	

Repair Description	Grout damaged beneath vertical support base plates, resulting in inadequate bearing between base plate and floor. (DOH Observation)Severe corrosion w/ significant loss of material at any number of locations, grout pad broken (NDAA observation).	Source Contract Reference	N/A - In house labor
Description of Contractor QC Method(s) Used	N/A	Contractor QC Records Reviewed	N/A
Description of QA Validation and Observations	Visually inspected repairs. Verified grout materials used for repairs. Final acceptance by government. Date: 14 JUL 2023		

Rework Needed				Photo Record Attached	Repair Work Validated as Complete			
○	Yes	◉	No	See Page 2.	◉	Yes	○	No

Comments

As set forth in (b) (4) memo dated 11 July 2023, "As previously discussed, the grout damage under the base plates, as shown, may affect the compression capacity of the steel pipe supports."
In-house labor mobilized tools and non-shrink grout. Cleaned loose/damaged baseplate grout to sound material. Hand mixed and packed below the baseplate. Chamfered edge applied.

CERTIFICATION

I hereby certify that repair work validated in this report was personally substantiated and this report is true.	QV ENGINEER SIGNATURE	(b) (6)
	DATE	25 JUL 2023

(b) (3) (A)

QUALITY VALIDATION (QV) REPORT

Red Hill Bulk Fuel Storage Facility Defuel

Validation Firm	HDR Environmental, Operations and Construction, Inc.	Repair No.	INC-039
Address	9781 S. Meridian Blvd., Suite 400, Englewood, CO 80112	Repair ID	NDAA.PS.414
Contract No.	FA890315D0007, D.O. FA8903-19-F-0027	Report Date	25 JUL 2023
QV Engineer	(b) (6)		

VALIDATION

Source	PDF Page No.	Facility Geographic Area	Location Reference
DOH / NDAA	N/A	(b) (3) (A)	

Repair Description	Grout damaged beneath vertical support base plates, resulting in inadequate bearing between base plate and floor. (DOH Observation) Moderate corrosion at any number of locations, may have efflorescence coating it, corroded baseplate, no grout. (NDAA observation).	Source Contract Reference	N/A - In house labor
Description of Contractor QC Method(s) Used	N/A	Contractor QC Records Reviewed	N/A
Description of QA Validation and Observations	Visually inspected repairs. Verified grout materials used for repairs. Final acceptance by government. Date: 14 JUL 2023		

Rework Needed				Photo Record Attached	Repair Work Validated as Complete			
○	Yes	◉	No	See Page 2.	◉	Yes	○	No

Comments

As set forth in (b) (4) memo dated 11 July 2023, "As previously discussed, the grout damage under the base plates, as shown, may affect the compression capacity of the steel pipe supports."
In-house labor mobilized tools and non-shrink grout. Cleaned loose/damaged baseplate grout to sound material. Hand mixed and packed below the baseplate. Chamfered edge applied.

CERTIFICATION

I hereby certify that repair work validated in this report was personally substantiated and this report is true.	QV ENGINEER SIGNATURE	(b) (6)
	DATE	25 JUL 2023

(b) (3) (A)

QUALITY VALIDATION (QV) REPORT

Red Hill Bulk Fuel Storage Facility Defuel

Validation Firm	HDR Environmental, Operations and Construction, Inc.	Repair No.	INC-040
Address	9781 S. Meridian Blvd., Suite 400, Englewood, CO 80112	Repair ID	NDAA.PS.423
Contract No.	FA890315D0007, D.O. FA8903-19-F-0027	Report Date	25 JUL 2023
QV Engineer	(b) (6)		

VALIDATION

Source	PDF Page No.	Facility Geographic Area	Location Reference
DOH / NDAA	N/A	(b) (3) (A)	

Repair Description	Grout damaged beneath vertical support base plates, resulting in inadequate bearing between base plate and floor. (DOH Observation)Severe corrosion w/ significant loss of material at any number of locations, grout pad broken. (NDAA Observation).	Source Contract Reference	N/A
Description of Contractor QC Method(s) Used	N/A	Contractor QC Records Reviewed	N/A
Description of QA Validation and Observations	N/A Final acceptance by government. Date: 11 JUL 2023		

Rework Needed				Photo Record Attached	Repair Work Validated as Complete			
○	Yes	◉	No	See Page 2.	◉	Yes	○	No

Comments

As set forth in (b) (4) memo dated 11 July 2023, "anchor bolts at the base will not be subjected to tension under operating loads and that the compression capacity of the pipe supports will not be significantly impacted even if the anchor bolt nuts are loose (such as at (b) (3) (A) " "To demonstrate that repairs are not required, (b) (4) re-evaluated the JP-5 and F-24 pipelines (b) (3) (A) assuming (very conservatively) that all the damaged pipe supports (b) (3) (A) (b) (3) (A) had completely lost their load-carrying capacity." The modeling results "demonstrate that repairs for these pipe supports are not required prior to the defueling process, and there is enough redundancy in the system to accommodate the extra loads due to the postulated loss of pipe support." No repair was completed.

CERTIFICATION

I hereby certify that repair work validated in this report was personally substantiated and this report is true.	QV ENGINEER SIGNATURE	(b) (6)
	DATE	25 JUL 2023

(b) (3) (A)

QUALITY VALIDATION (QV) REPORT

Red Hill Bulk Fuel Storage Facility Defuel

Validation Firm	HDR Environmental, Operations and Construction, Inc.	Repair No.	INC-041
Address	9781 S. Meridian Blvd., Suite 400, Englewood, CO 80112	Repair ID	NDAA.PS.427
Contract No.	FA890315D0007, D.O. FA8903-19-F-0027	Report Date	25 JUL 2023
QV Engineer	(b) (6)		

VALIDATION

Source	PDF Page No.	Facility Geographic Area	Location Reference
DOH / NDAA	N/A	(b) (3) (A)	

Repair Description	Grout damaged beneath vertical support base plates, resulting in inadequate bearing between base plate and floor. (DOH Observation) Moderate corrosion at any number of locations, may have efflorescence coating it, corroded baseplate, no grout. (NDAA observation).	Source Contract Reference	N/A
Description of Contractor QC Method(s) Used	N/A	Contractor QC Records Reviewed	N/A
Description of QA Validation and Observations	N/A Final acceptance by government. Date: 11 JUL 2023		

Rework Needed				Photo Record Attached	Repair Work Validated as Complete			
○	Yes	◉	No	See Page 2.	◉	Yes	○	No

Comments

As set forth in (b) (4) memo dated 11 July 2023, "anchor bolts at the base will not be subjected to tension under operating loads and that the compression capacity of the pipe supports will not be significantly impacted even if the anchor bolt nuts are loose (such as at (b) (3) (A) " "To demonstrate that repairs are not required, (b) (4) re-evaluated the JP-5 and F-24 pipelines (b) (3) (A) , assuming (very conservatively) that all the damaged pipe supports (b) (3) (A) (b) (3) (A) had completely lost their load-carrying capacity." The modeling results "demonstrate that repairs for these pipe supports are not required prior to the defueling process, and there is enough redundancy in the system to accommodate the extra loads due to the postulated loss of pipe support." No repair was completed.

CERTIFICATION

I hereby certify that repair work validated in this report was personally substantiated and this report is true.	QV ENGINEER SIGNATURE	(b) (6)
	DATE	25 JUL 2023

(b) (3) (A)

QUALITY VALIDATION (QV) REPORT

Red Hill Bulk Fuel Storage Facility Defuel

Validation Firm	HDR Environmental, Operations and Construction, Inc.	Repair No.	INC-042
Address	9781 S. Meridian Blvd., Suite 400, Englewood, CO 80112	Repair ID	NDAA.PS.548
Contract No.	FA890315D0007, D.O. FA8903-19-F-0027	Report Date	25 JUL 2023
QV Engineer	(b) (6)		

VALIDATION

Source	PDF Page No.	Facility Geographic Area	Location Reference
DOH/NDAA	N/A	(b) (3) (A)	

Repair Description	"Grout damaged beneath vertical support base plates, resulting in inadequate bearing between base plate and floor. (DOH Observation)Severe corrosion w/ loss of material at any number of locations, anchor bolt bent. API 570:	Source Contract Reference	N/A
Description of Contractor QC Method(s) Used	N/A	Contractor QC Records Reviewed	N/A
Description of QA Validation and Observations	N/A Final acceptance by government. Date: 11 JUL 2023		

Rework Needed				Photo Record Attached	Repair Work Validated as Complete			
○	Yes	◉	No	See Page 2.	◉	Yes	○	No

Comments

Repair Description Cont.: "Minor to moderate corrosion on the base plate due to standing water. (NDAA Observation)". As set forth in (b) (4) memo dated 11 July 2023, "To demonstrate that repairs are not required, (b) (4) re-evaluated the JP-5 and F-24 pipelines (b) (3) (A) assuming (very conservatively) that all the damaged pipe supports (b) (3) (A) had completely lost their load-carrying capacity." The modeling results "demonstrate that repairs for these pipe supports are not required prior to the defueling process, and there is enough redundancy in the system to accommodate the extra loads due to the postulated loss of pipe support." No repair was completed.

CERTIFICATION

I hereby certify that repair work validated in this report was personally substantiated and this report is true.	QV ENGINEER SIGNATURE	(b) (6)
	DATE	25 JUL 2023

(b) (3) (A)

QUALITY VALIDATION (QV) REPORT

Red Hill Bulk Fuel Storage Facility Defuel

Validation Firm	HDR Environmental, Operations and Construction, Inc.	Repair No.	INC-043
Address	9781 S. Meridian Blvd., Suite 400, Englewood, CO 80112	Repair ID	
Contract No.	FA890315D0007, D.O. FA8903-19-F-0027	Report Date	25 JUL 2023
QV Enginee	(b) (6)		

VALIDATION

Source	PDF Page No.	Facility Geographic Area	Location Reference
DOH	N/A	(b) (3) (A)	

Repair Description	Damage to pipe insulation on JP-5, F-24, and F-76 lines between (b) (3) (A) Corrosion present under the insulation. (DOH Observation).	Source Contract Reference	N/A
Description of Contractor QC Method(s) Used	N/A	Contractor QC Records Reviewed	N/A
Description of QA Validation and Observations	JTF and HDR removed wrap coating and wire brushed the subject areas. No significant pitting was observed on the F-24 line. The deepest pitting (b) (3) (A) Findings reported to NAVFAC EXWC and SGH for evaluation. Final acceptance by government. Date: 11 JUL 2023		

Rework Needed				Photo Record Attached	Repair Work Validated as Complete			
○	Yes	◉	No	See Pages 2-3.	◉	Yes	○	No

Comments

As set forth in (b) (4) memo dated 11 July 2023, for F-24 piping "The minimum wall thickness for these girth welds is at (b) (3) (A) of its nominal wall thickness. The ILI evaluation determined a maximum allowable operating pressure of 398 psi at this location." For the JP-5 piping (b) (3) (A) The ILI evaluation determined a maximum allowable operating pressure of (b) (3) (A) at this location." "This allowable operating pressure is still significantly above that which will be used during defueling." No repair was completed.

CERTIFICATION

I hereby certify that repair work validated in this report was personally substantiated and this report is true.	QV ENGINEER SIGNATURE	(b) (6)
	DATE	25 JUL 2023

(b) (3) (A)

(b) (3) (A)

Around the Horn

ENSURING A FREE AND OPEN INDO-PACIFIC

AGENCIES:

- NAVAL FACILITIES ENGINEERING SYS COMMAND-HAWAII (NAVFAC-HI)
- JOINT TASK FORCE-RED HILL (JTF-RH)
- ENVIRONMENTAL PROTECTION AGENCY (EPA)
- DEPARTMENT OF HEALTH (DOH)
- FLEET LOGISTIC CENTER-PEARL HARBOR (FLC-PH)
- DEFENSE LOGISTIC AGENCY (DLA)
- COMMANDER, NAVY REGION-HAWAII (CNR-HI)
- ENGINEERING AND EXPEDITIONARY WARFARE CENTER (EXWC)
- NAVY-OTHER