Joint Task Force-Red Hill

Monthly Quality Validation Working Group Meeting



27 April 2023

This brief is classified: UNCLASSIFIED

UNCLASSIFIED

Discussion up to: UNCLASSIFIED

This presentation is pre-decisional and not subject to FOIA

(b) (3) (A)

As of 06 0900 OCT 22



BACKGROUND/DESCRIPTION

- 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)



NO.	Validation Complete	Date	Location
32	Tunnel wall leakage leading to coating and corrosion issues ^{(b) (3) (A)} . Assess pipe integrity and repair pipe as appropriate.	19 Apr 23	(b) (3) (A)
33	pipe with unknown crack in exterior surface. Assess pipe integrity and repair pipe as appropriate.	19 Apr 23	
42	(b) (3) (A) carbon steel low point drain valve is located on . Valve classification is unknown. Replace valve with a Class 150 ball valve.	19 Apr 23	
111	^{(b) (3) (A)} ball valve located on the (b) (3) (A) pipeline is not plugged off. This valve is susceptible to being accidentally opened if something were to impact the ball valve handle causing it to open. Install plug.	19 Apr 23	
116	The (b) (3) (A) tank isolation valve on the (b) (3) (A) has product staining on the valve body. This is indicative of a prolonged slow weep possibly from valve plugs in the body. Clean valve body and monitor for drips and weeps.	19 Apr 23	
117	The (b) (3) (A) is constructed out of a combination of hard pipe and hoses. Replace connections and hoses with hard pipe.	19 Apr 23	



NO.	Validation Complete	Date	Location				
120	Three temporary pipe clamps on (b) (3) (A) pipeline within trench (b) (3) (A) . Pipe clamp lengths are (b) (3) (A) Also, UTT indicates pipe wall loss in this area over 55% metal loss is present. Repair pipe.	(b) (3) (A)					
126	(b) (3) (A) low point drain valve is missing a plug. Provide plug on valve. Facility Personnel corrected this finding during our inspection. 19 Apr 23						
127	(b) (3) (A) low point drain valve is missing a plug (b) (3) (A) . Provide plug on valve. Facility Personnel corrected this finding during our inspection.	19 Apr 23					
130	The(b) (3) (A) valve, located outside of the secondary containment, has a loose fastener. Tighten fastener.	21 Apr 23					
132	Actively dripping, medium-high corrosion, metal to metal contact, corroded at pipe support interface, photo taken for how wall support should look, labeled by others. Replace support.	21 Apr 23					
133	Highly corroded and deformed, no contact w/ pipe, labeled by ^{(b) (4)} . Replace support.	21 Apr 23					
134	Corroded, in contact w/ pipe, labeled by ^{(b) (4)} Replace support.	21 Apr 23					



NO.	Validation Complete	Date	Location					
135	Corroded, intact, metal to metal contact, only top anchor to wall present, lower part of bracket not in contact w/ wall. Replace support. 21 Apr 23 (b) (3							
136	Not supporting pipe, no anchorage to wall at top, metal to metal contact. API 570: Support anchor dislodged from tunnel wall. Replace21 Apr 23support.							
137	No guide, support broken so pipe is at end of arm. API 570: Missing pipe clamp bolt (no isolation Teflon pad). Replace support.	21 Apr 23						
138	Bottom of bracket deformed from impact. Replace support.	21 Apr 23						
139	No contact w/ pipe. Replace support or modify support to properly support pipe.	21 Apr 23						
140	No contact w/ pipe. Replace support or modify support to properly support pipe.	21 Apr 23						
141	No sleeve on U-bolt, U-bolt corroded to delamination, significant corrosion at baseplate and anchors. Replace support.	21 Apr 23						
142	Front support flange bent from apparent impact, U-bolt displaced on pipe, not U-shaped. API 570: Loose U-bolt. Replace support.	21 Apr 23						



NO.	Validation Complete	Date	Location					
143	Support completely deformed, removed from baseplate. API 570: Damaged pipe support (impacted by a moving vehicle). Replace 21 Apr 23 (b) support.							
187	Three separate corrosion findings < apart. (b) (3) (A) associated with pipe support. Remaining thickness < the structural minimum thickness per API 574. (b) (3) (A) are combined into one site. Fitness for service (FFS) assessment and repair if necessary.							
189	9 Dent with crease; Approximate dent depth measurement: 0.300". Dent located at bottom of a tee and has has a crease. Fails FFS Level 2 assessment. FFS assessment and repair if necessary.							
190	Corrosion under bubble coating. Not able to assess without coating removal.	3 Apr 23						
191	Dent, crosses long seam. FFS assessment and repair if necessary.	3 Apr 23						
192	Dent, on long seam. FFS assessment and repair if necessary.	3 Apr 23						
193	Geometric anomaly adjacent to girth weld. FFS assessment and repair if necessary.	3 Apr 23						



NO.	Validation Complete	Date	Location
195	Double dent. FFS assessment and repair if necessary.	3 Apr 23	(b) (3) (A)
196	Dent, on long seam. FFS assessment and repair if necessary.		
197	Dent, adjacent to girth weld. FFS assessment and repair if necessary.	3 Apr 23	
198	Dent, on long seam. FFS assessment and repair if necessary.	3 Apr 23	
199	Dent, on long seam. FFS assessment and repair if necessary.	3 Apr 23	
200	Dent, on long seam. FFS assessment and repair if necessary.	3 Apr 23	
201	Dent, on long seam. FFS assessment and repair if necessary.	3 Apr 23	
202	Geometric anomaly adjacent to girth weld. FFS assessment and repair if necessary.	3 Apr 23	
203	Double dent. FFS assessment and repair if necessary.	3 Apr 23	



NO.	Validation Complete	Date	Location				
204	Dent, on long seam. FFS assessment and repair if necessary. 3 Apr 23 (b) (
205	Dent, on long seam. FFS assessment and repair if necessary. 3 Apr 23						
206	Double dent. FFS assessment and repair if necessary.	3 Apr 23					
207	Double dent. FFS assessment and repair if necessary.	3 Apr 23					
208	Dent, on long seam. FFS assessment and repair if necessary.	3 Apr 23					
209	Geometric anomaly adjacent to girth weld. FFS assessment and repair if necessary.	3 Apr 23					
210	Geometric anomaly adjacent to girth weld. FFS assessment and repair if necessary.	3 Apr 23					
211	Geometric anomaly adjacent to girth weld. FFS assessment and repair if necessary.	3 Apr 23					
212	Double dent. FFS assessment and repair if necessary.	3 Apr 23					



NO.	Validation Complete	Date	Location
213	Dent, on long seam. FFS assessment and repair if necessary.	3 Apr 23	(b) (3) (A)
214	Geometric anomaly adjacent to girth weld. FFS assessment and repair if necessary.	3 Apr 23	
215	Dent, on long seam. FFS assessment and repair if necessary.	3 Apr 23	
216	Geometric anomaly adjacent to girth weld. FFS assessment and repair if necessary.	3 Apr 23	
217	Dent, on long seam. FFS assessment and repair if necessary.	3 Apr 23	
218	Poor Ultrasonic Reading; Crosses Long Seam. Estimated Depths of 25.4% and 27.4%; , remove coating and inspect. FFS assessment and repair if necessary.	3 Apr 23	
219	ILI data reports metal loss of 31.5%. Not able to assess without coating removal remove coating and inspect. FFS assessment and repair if necessary.	3 Apr 23	
220	ILI data reports metal loss of 32.0%. Not able to assess without coating removal. remove coating and inspect. FFS assessment and repair if necessary.	3 Apr 23	



NO.	Validation Complete	Date	Location
222	Metal loss of 33.0%. Not able to assess without coating removal.	3 Apr 23	(b) (3) (A)
223	Heavy corrosion reported under sleeve from ILI data. Heavy corrosion also on sleeve, ILI data reports metal loss of 45.8%, Sleeve is wide. Corrosion extends through long seam on sleeve. Need coating removed to assess. , remove coating and inspect. FFS assessment and repair if necessary.	3 Apr 23	
224	Dent/gouge measured 0.130" (0.120" dent + 0.010" gouge). FFS assessment and repair if necessary.	3 Apr 23	
225	Dent/gouge measured 0.180" (0.160" dent + 0.020" gouge). FFS assessment and repair if necessary.	3 Apr 23	
226	Metal loss of 43%. Not able to assess without coating removal.	3 Apr 23	
227	Pitting estimated at 0.050". Not able to assess without coating removal.	3 Apr 23	



NO.	Validation Complete	Date	Location
228	Pitting estimated at 0.050". Not able to assess without coating removal.	3 Apr 23	(b) (3) (A)
229	Dent with depth of 0.165". FFS assessment and repair if necessary.	3 Apr 23	
230	Dent with depth of 0.145". FFS assessment and repair if necessary.	3 Apr 23	



Rework - Quality Validation Report

NO.	Validation Complete	Date	Location



Relief - Quality Validation Report

NO.	Validation Complete	Date	Location



Transition to Microsoft Teams

		QUALITY VALIDATION (QV) REPORT		QUALITY ASSURANCE VALIDATION REPORT
	1	Red Hill Bulk Fuel Storage Fac	cility Defuel		Red Hill Bulk Fuel Storage Facility Defuel
Validation Firm			Inc. Repair No.		and the second
Address	9781 S. Meridian Bh	vd., Suite 400, Englewood, CO			
Contract No.	FA890315D0007, D	O. FA8903-19-F-0027	Report XX Date	FEB 2023	
QV Engineer	(b) (6)				
		VALIDATION			
Source	PDF Page N	o. Facility Geograph	nic Area Location Rel	ference	
Repair Description	t Codes & Criteria:	1	Source Contract Reference		
Description of Contractor QC Method(s) Used			Contractor QC Records Reviewed		Caption
Description of QA Validation and Observations	5				
Rework	Final acceptance by go k Needed	Photo Record Attacher	d Repair Work Validate	ed as Complete	
O Yes	No No		Yes	O No	
Comments		CERTIFICATION QV ENGINEER SIGNATURE			
eport was personally sub eport is true.	bstantialed and this	DATE	xx FEB 2023		ើងplipn
			1		



Testing & Inspection Dates

NO.	Testing & Inspection Dates	Date	Location
1	(b) (3) (A) Test #2 (36-hour test)	3-5 May 23	(b) (3) (A)
2			
3			
4			



Around the Horn

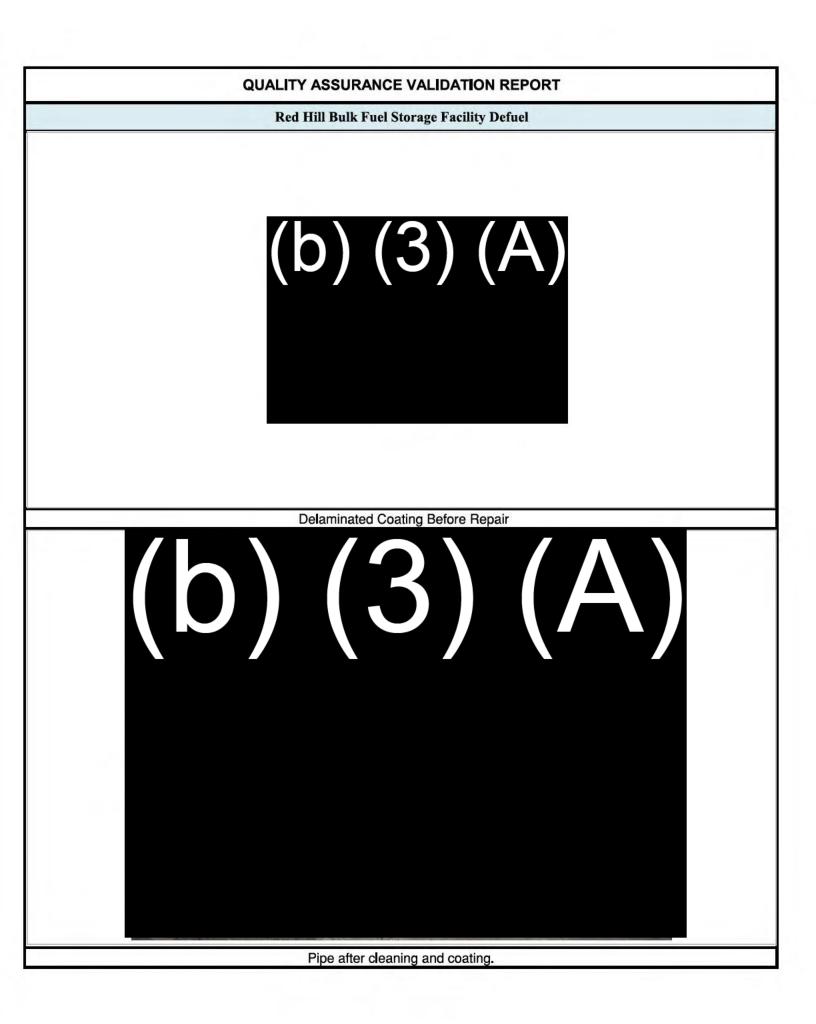
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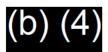
AGENCIES:

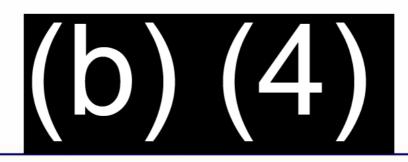
- NAVAL FACILITIES ENGINEERING SYS COMMAND-HAWAII (NAVFAC-HI)
- JOINT TASK FORCE-RED HILL (JTF-RH)
- ENVIRONMENTAL PROTECTION AGENCY (EPA)
- DEPARTMENT OF HEALTH (DOH)
- FLEET LOGISTIC CENTER-PEARL HARBOR (FLC-PH)
- DEFENSE LOGISTIC AGENCY (DLA)
- COMMANDER, NAVY REGION-HAWAII (CNR-HI)
- ENGINEERING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



	QUALITY VALIDATION (QV) REPORT											
			1	Red Hill B	ulk Fuel Storage Fac	ility Defuel	1					
Vali	dation Firm	HDR Env	ironmenta	l, Operatio	ns and Construction,	Inc.		Repair No.	32			
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112			(b) (4) _{HT.} (03		
С	Contract No.	FA89031	5D0007, D	O. FA8903-19-F-0027				Report Date		023		
Q	V Engineer	(b) (6		Phone (b) (6)			_{Emai} (b) (6)					
VALIDATION												
Source PDF Page			PDF Page N	Io. Facility Geographic Area			Location Reference					
(b) (4)		393			(b) (3) (A)							
					coating and corrosio rity and repair pipe a		Sour	ce Contract Reference	N/A for in labor.	-house		
Description of Contractor QC Method(s) Used Two-party integrity					verification by FLC personnel. Records Reviewed					(4)		
(b) (4) site visit comments issued 21 FEB 2023. Description of QA Validation and Observations												
	Rework	Needed	plance by ge		Date: 13 APR 2023 Photo Record Attached	1	Repair	r Work Vali	dated as Co	mplete		
0	Yes	ullet	No		See Page 2.		\odot	Yes	0	No		
Comments JTF-RH/QV confirmed back side of pipe has been coated, MAR 2023. CERTIFICATION												
	tify that repair personal l y sub			QV ENG	INEER SIGNATURE	(b) ((6)					
report is true	*				DATE	19 APR 2						







June 28, 2022

Inspection of Red Hill Fuel Oil (b) (3) (A)

Introduction

(b) (4) was contracted to perform a visual evaluation of Red Hill Fuel Reclamation Line (b) (3) (A). This inspection included visually inspecting the pipeline for external conditions such as active corrosion, pitting, dents, and / or physical damage. This inspection defined the corrosion and pitting into three category levels.

- 1 Minor; corrosion and / or pitting is measured to be <20% of pipe wall thickness
- 2 Moderate; corrosion and / or pitting is measured to be >20% but <50% of pipe wall thickness
- 3 Severe; corrosion and / or pitting is measured to be at 50% or greater of pipe wall thickness.

Summary of Findings

FOR Coating (b) (3) (A) was a required defueling repair & was completed as Repair #32.

• Stations (b) (3) (A) Needs proper cleaning and recoating on all bare piping.



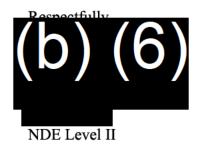
06/28/22 Page 2 of 6



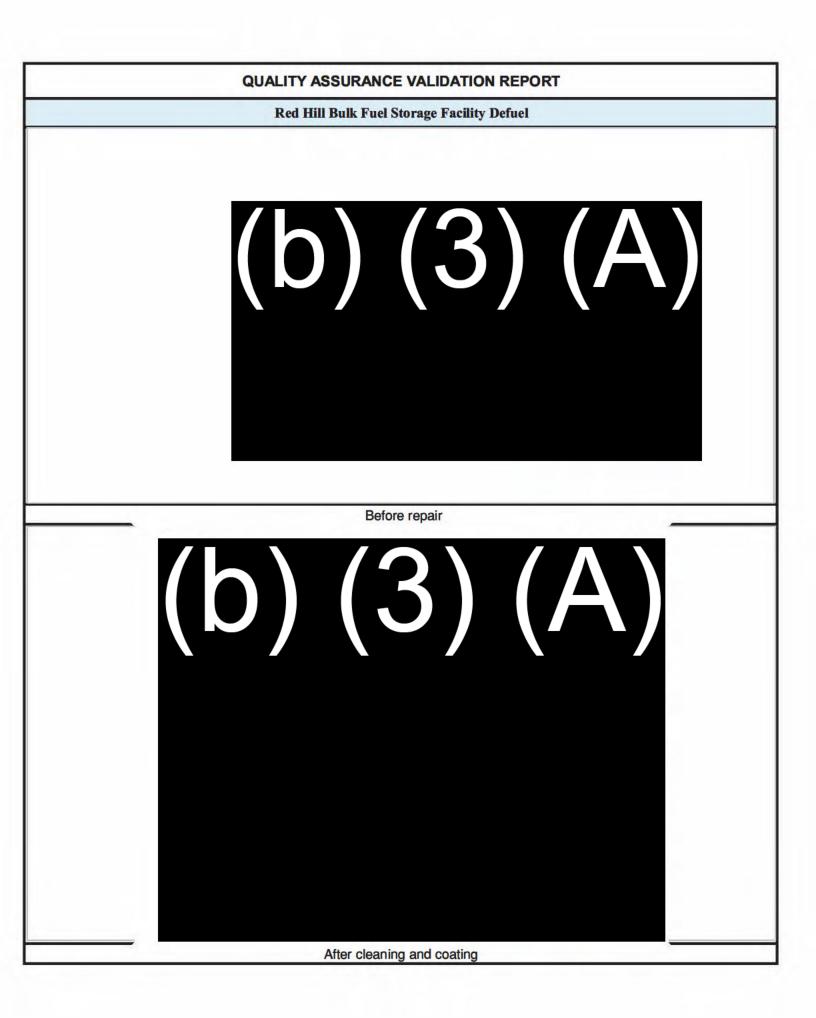
Recommendations

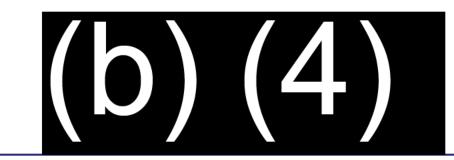


If you have any questions or concerns regarding this inspection, please feel free to contact me at



HDR Environmenta 9781 S. Meridian B FA890315D0007, D (b) (6) PDF Page N HT-6 FOR pipe with unkr pipe integrity and re	II, Operations a Ivd., Suite 400 D.O. FA8903-1	9, Englewood, CO 9-F-0027 Phone (b) (6) VALIDATION Facility Geograph	, Inc. 0 80112 hic Area	Email (b) (3) (A	Report Date (b) (6) Location	(b) (4) _{HT.}	2023
9781 S. Meridian B FA890315D0007, D (b) (6) PDF Page N HT-6 FOR pipe with unkr pipe integrity and re	Ivd., Suite 400 D.O. FA8903-1	9, Englewood, CO 9-F-0027 Phone (b) (6) VALIDATION Facility Geograph) 80112	(b) (3) (A	No. Repair ID Report Date (b) (6)	(b) (4) HT. 19 APR 2 Reference	2023
FA890315D0007, D (b) (6) PDF Page N HT-6 FOR pipe with unkr pipe integrity and re	No.	9-F-0027 Phone (b) (6) VALIDATION Facility Geograph	hic Area	(b) (3) (A	Repair ID Report Date (b) (6)	19 APR 2	2023
(b) (6) PDF Page N HT-6 FOR pipe with unkr pipe integrity and re	No.	Phone (b) (6) VALIDATION Facility Geograph	hic Area	(b) (3) (A	Report Date (b) (6) Location	19 APR 2	2023
PDF Page N HT-6 FOR pipe with unkr pipe integrity and re	No.	VALIDATION Facility Geograph	hic Area	(b) (3) (A	(b) (6)	1	house
HT-6 FOR pipe with unkr pipe integrity and re	No.	Facility Geograph				1	house
HT-6 FOR pipe with unkr pipe integrity and re	nown crack in (exterior surface.				1	house
FOR pipe with unkr pipe integrity and re			Assess			N/A for in	-house
pipe integrity and re			Assess		7.11	N/A for in	-house
(b) (C)				Sour	ce Contract Reference	labor.	HUUSE
Two-party integrity	verification by FLC personnel. Records Re-					1.28 II IN 20122 and	
	1			Ponsi	W/1- W12	dated on Co	
-			d	0		dated as Co	No
d back side of pipe	C	ERTIFICATION		(6)			
	Two-party integrity b) (4) site visit comr Final acceptance by g Needed No d back side of pipe vork validated in this	Two-party integrity verification by b) (4) site visit comments issued 2 Final acceptance by government. Da Veded Pho Image: Site of the si	Two-party integrity verification by FLC personnel. b) (4) site visit comments issued 21 FEB 2023. Final acceptance by government. Date: 13 APR 2023 Needed Photo Record Attache Image: One of the page 2. Image: One of the page 3. Image: O	Two-party integrity verification by FLC personnel. (4) site visit comments issued 21 FEB 2023. Final acceptance by government. Date: 13 APR 2023 No No See Page 2. d back side of pipe has been coated, MAR 2023. CERTIFICATION work validated in this tantiated and this QV ENGINEER SIGNATURE	Record Record (4) Site visit comments issued 21 FEB 2023. Final acceptance by government. Date: 13 APR 2023 Needed Photo Record Attached Repair Image: Colspan="2">Image: Colspan="2">Certification by FLC personnel. No Site visit comments issued 21 FEB 2023. Needed Photo Record Attached Repair Image: Colspan="2">Image: Colspan="2">O O O Certification Vector Attached Image: Colspan="2">O O O O Certification Vector validated of pipe has been coated, MAR 2023. Vector validated in this lantiated and this QV ENGINEER SIGNATURE (b) (6)	Records Reviewed Records Reviewed O(4) Site visit comments issued 21 FEB 2023. Final acceptance by government. Date: 13 APR 2023 Needed Photo Record Attached Repair Work Vali O No See Page 2. O Yes CERTIFICATION Work validated in this lantiated and this	Records Reviewed 28 JUN 2 10 AUG 2 OT (4) site visit comments issued 21 FEB 2023. Final acceptance by government. Date: 13 APR 2023 Needed Photo Record Attached Repair Work Validated as Col Image: Colspan="2">Image: Colspan="2">O Yes Image: Colspan="2">O Yes Image: Colspan="2">CERTIFICATION Vork validated in this lantiated and this





June 28, 2022

(b) (

Inspection of Red Hill Fuel Oil Reclamation(b) (3) (A) (b) (3) (A)

Introduction

(b) (4) was contracted to perform a visual evaluation of Red Hill Fuel Reclamation Line (FOR) (b) (3) (A) This inspection included visually inspecting the pipeline for external conditions such as active corrosion, pitting, dents, and / or physical damage. This inspection defined the corrosion and pitting into three category levels.

- 1 Minor; corrosion and / or pitting is measured to be <20% of pipe wall thickness
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- 3 Severe; corrosion and / or pitting is measured to be at 50% or greater of pipe wall thickness.

Summary of Findings



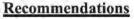


06/28/22 Page 2 of 6 (b) (3) (A)

required defueling repair & was completed as Repair #33.

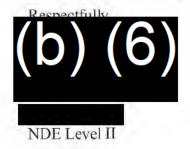
(b) (3) (A) Showed Moderate to severe pitting and corrosion. Pipe support and Ubolts need removed for further evaluation.

Ultrasonic thickness readings were taken along the pipe, during this inspection, at random areas. All readings were equated $t_c(b)(3)(A)$





If you have any questions or concerns regarding this inspection, please feel free to contact me at



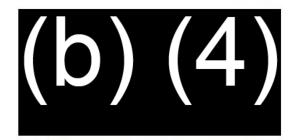
(b) (4)

(b) (4)

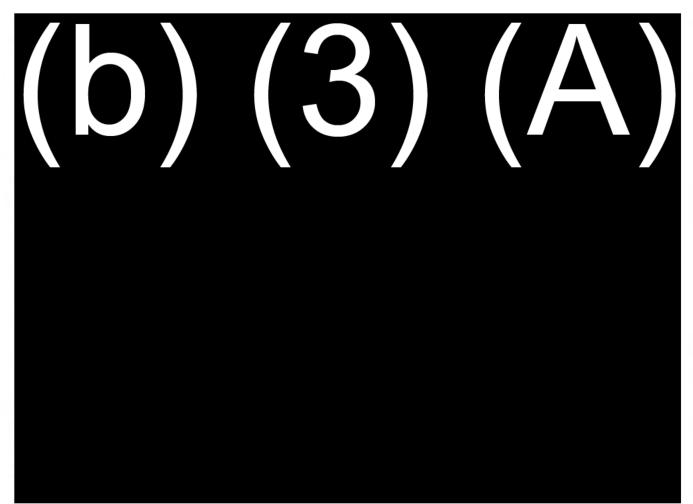
Structural	Client: NAVSUP
Pipe Casting	Report No.: <u>GS081022</u>
Tank No.:	Job No.: 22-133
Material Type: <u>CS</u>	PO No.:
Weld Type: 🗌 Fillet 🗌 Butt	Lap Other: <u>Piping</u>
Drawing No.: ISOMETRIC DRAWING	Sheet No.: Rev.:
Location: <u>Red Hill</u> (b) (3) (A)	Shop 🗌 Field 🔀
Surface Condition: In service	Stage of Mfg.: <u>Completed</u>
Specifications: Customer	Acceptance Std.: Customer Specified
Gauges:	

Item (s)	Accept	Reject	Sketch / Notes
(b) (3) (A)			Light pitting and corrosion

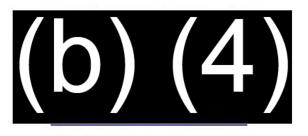
(b) (5)		
Performed By:	VT LVLII	Date: 08/10/2022
Reviewed By:		Date:
PCP-11.1		Rev. A (06/05/03



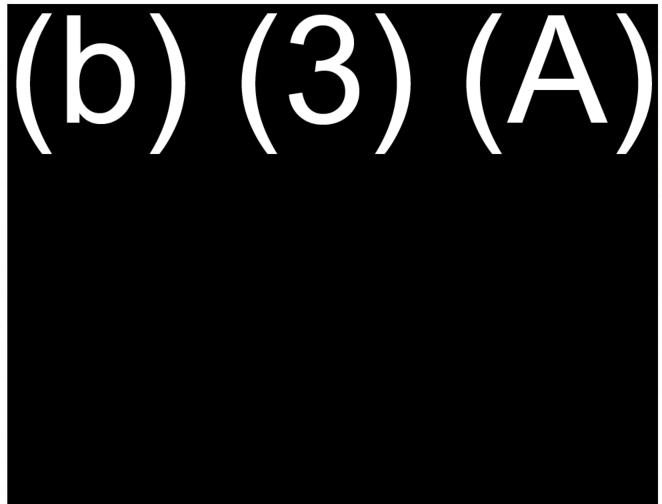
08/15/22 Page 2 of 3



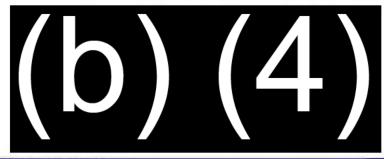
Light pitting and corrosion



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Light pitting and corrosion



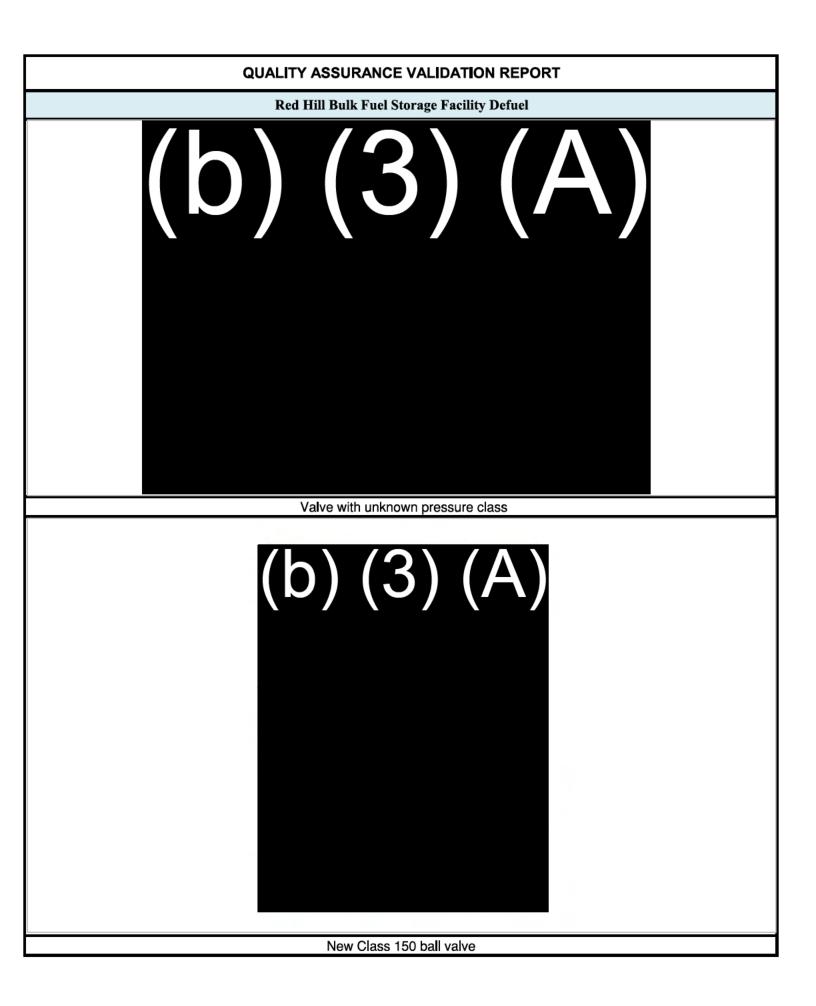
Form NDT 004.12 Rev. 0 (03/01/01)

ULTRASONIC EXAMINATION REPORT

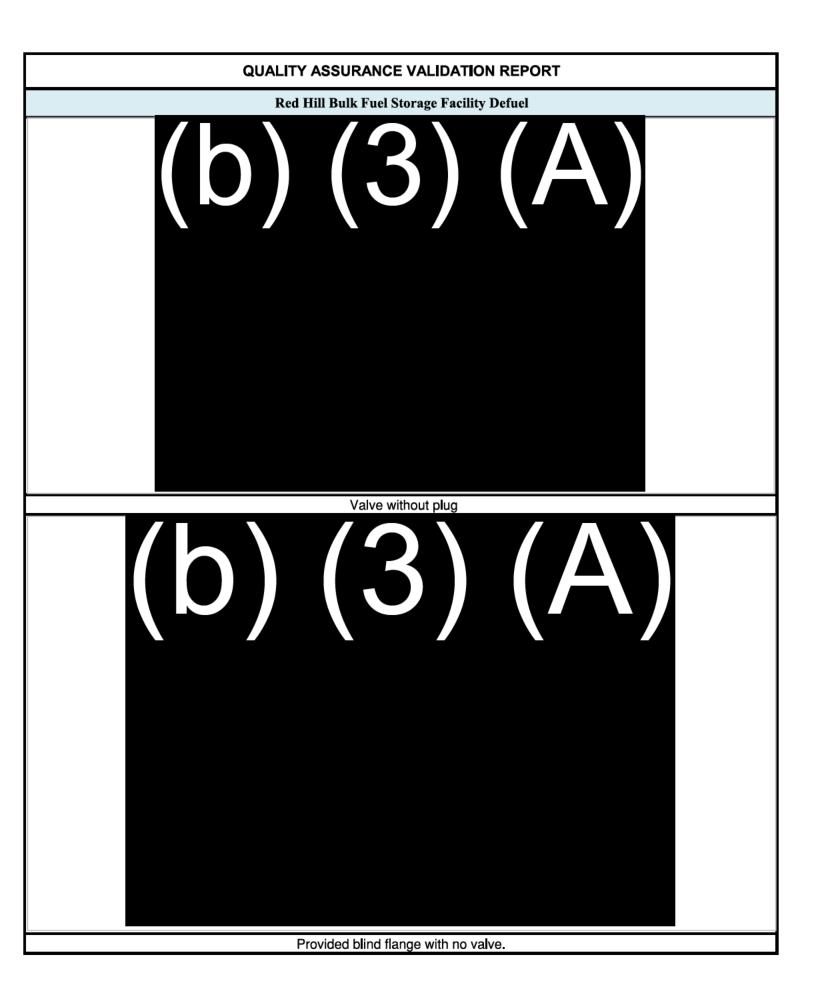
Page 1 Date: 08/10/2022

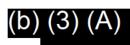
NAVSUP/Red Hill Red Hill Fuel oil reclamation pipeline/ Main	
	sump
	<u>nt</u> Type: Glycerin atch: NPD-053-8007

	QUALITY VALIDATION (QV) REPORT											
			1	Red Hill B	ulk Fuel Storage Fac	ility Defue	el					
Vali	idation Firm	HDR Env	ironmenta	l, Operation	ns and Construction,	Inc.		Repair No.	42			
	Address	9781 S. N	leridian Bl	vd., Suite 4	400, Englewood, CO	80112	Repair ID F24.012					
c	Contract No.	FA89031	5D0007, D	.O. FA890	.O. FA8903-19-F-0027			Report Date	19 APR 2	023		
QV Engineer (b) (6)				Phone (b) (6) Email			(b) (6)					
VALIDATION												
Source PDF Page 1			PDF Page N	lo.	Facility Geograph	ic Area		Location Reference				
NDAA		41			(b) (3) (A) (b) (3) (A)							
Repair Description (b) (3)) (A			Sour	ce Contract Reference	N/A for in- labor.	house		
Two-party integrity Description of Contractor QC Method(s) Used								ntractor QC s Reviewed	N/A			
(b) (4) site visit comments issued 21 FEB 2023. Description of QA Validation and Observations												
	Derrorde	Final acception	otance by go		Date: 13 APR 2023	1	Repair Work Validated as Complete					
0	Yes	•	No		Photo Record Attached See Page 2.	1	(epair	Yes		No		
Comments CERTIFICATION												
	tify that repair personal l y sub			QV ENG	INEER SIGNATURE	(D) ((6)					
report is true	*				DATE	19 APR 2	2023					

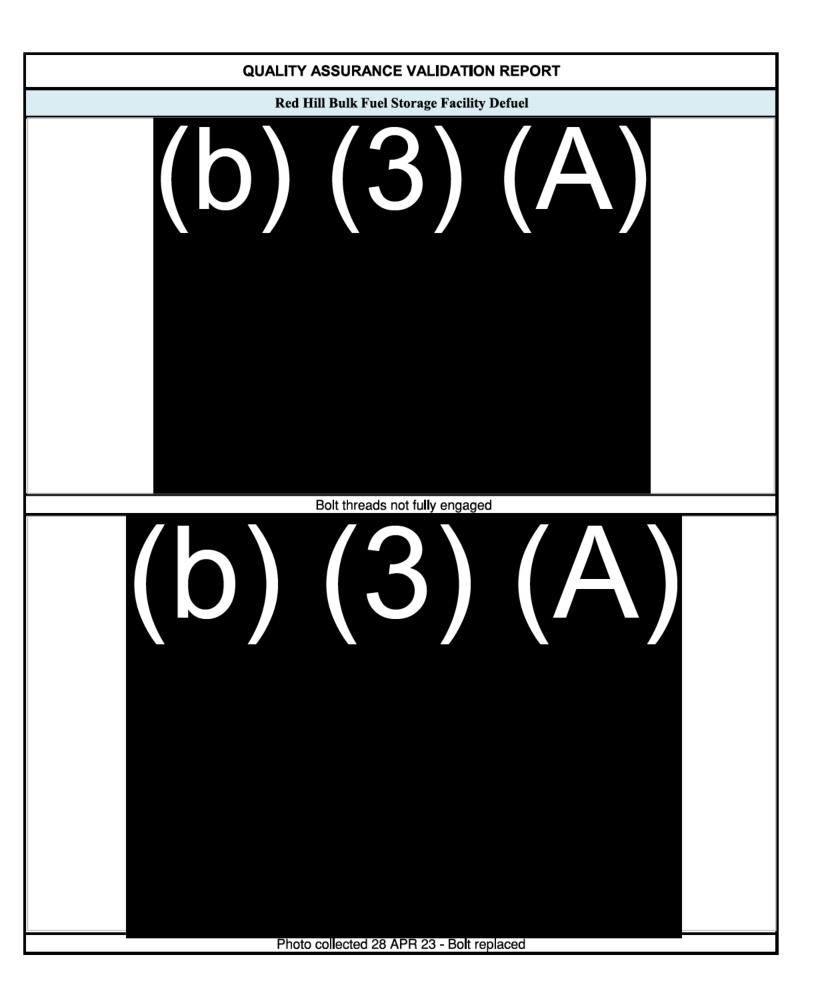


Address S Contract No. QV Engineer Source NDAA	HDR Environmenta 9781 S. Meridian B FA890315D0007, D	Red Hill Bulk Fuel Storage Faull, Operations and Construction, I, Operations and Construction, Ivd., Suite 400, Englewood, CO D.O. FA8903-19-F-0027 Phone (b) (6) VALIDATION), Inc. D 80112	Repair No. Repair ID Report Date	111 FOR.004 19 APR 2	023								
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QV Engineer Source NDAA	(b) (6) PDF Page N	Phone (b) (6)	Email	Date	19 APR 2	023								
Source NDAA (Repair Description	PDF Page N		Email											
NDAA (VALIDATION			Email (b) (6)									
NDAA (VALIDATION											
(t G Repair Description	66	No. Facility Geograph	hic Area	Location Reference										
Repair Description		(b) (3) (A)												
	(b)(3)(A) being accidentally o	cated on the (b) (3) (A) plugged off. This valve is susc opened if something were to imp ausing it to open. Install plug.		rce Contract Reference	N/A for in- labor.	house								
Description of Contractor QC Method(s) Used		verification by FLC personnel. N/A Contractor QC Records Reviewed												
Description of QA Validation and Observations	Validation and													
Rework N		overnment. Date: 13 APR 2023 Photo Record Attache	ed Repai	Repair Work Validated as Complete										
O Yes	No No	See Page 2.	\odot	Yes	0	No								
Yes No See Page 2. Yes No Comments Rather than installing a plug, a new blind flange was provided with no valve connected. This repair provides additional protection against unintended operation or weeps. This repair provides additional 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 19 APR 2023														

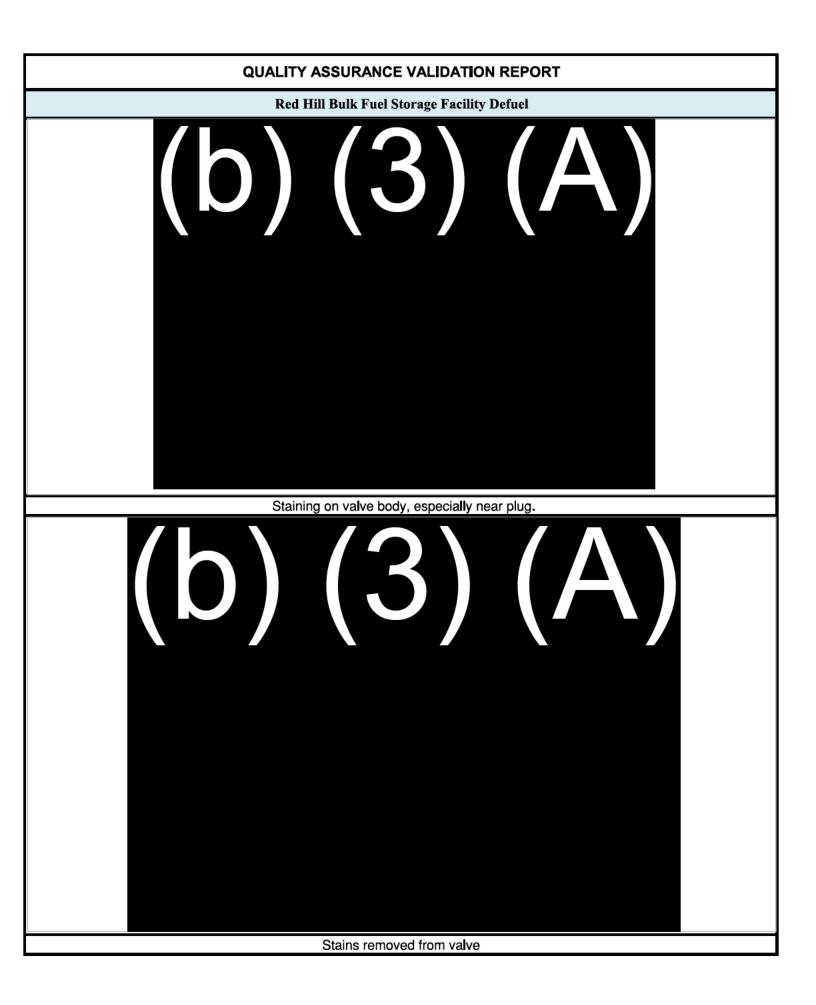


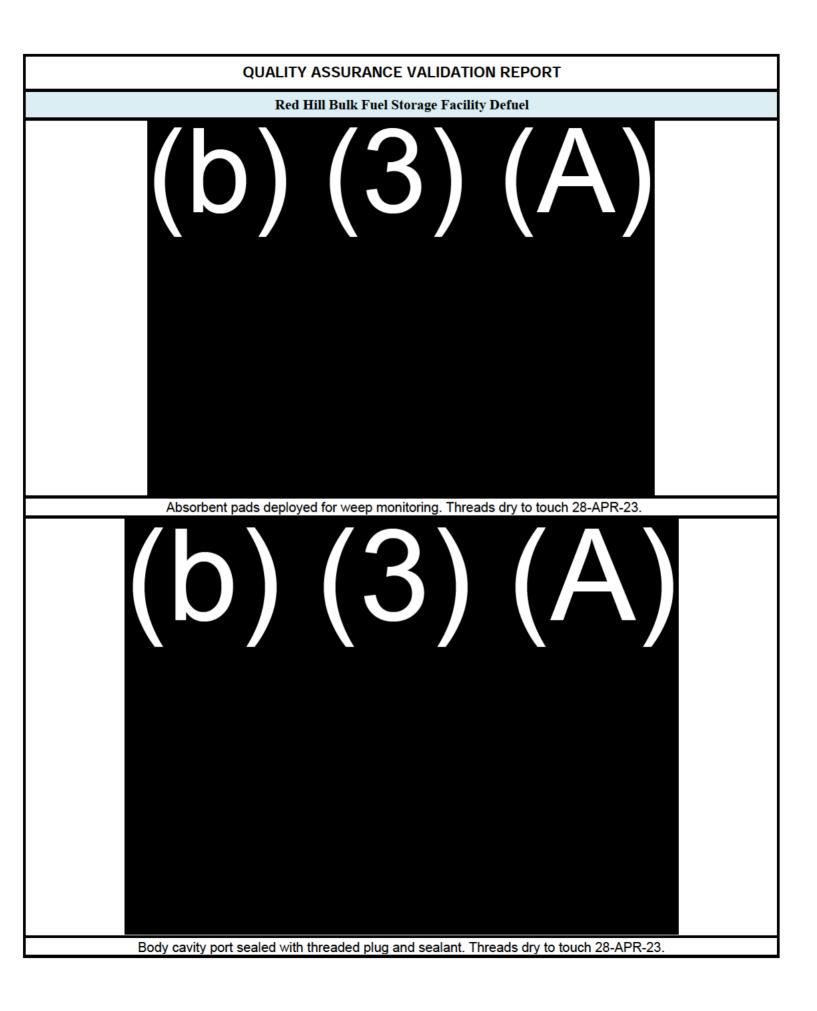


	QUALITY VALIDATION (QV) REPORT												
]	Red Hill B	ulk Fuel Storage Fa	ility Defue	el						
Valie	dation Firm	HDR Env	ironmental	, Operatior	ns and Construction,	Inc.		Repair No.	114				
	Address	9781 S. N	/leridian Bl	vd., Suite 4	100, Englewood, CO	80112		Repair ID	FOR.021				
С	ontract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	02 MAY 2	2023			
Q	V Engineer	(b) (6)			Phone (b) (6)		Email	(b) (6)					
Soι	urce	I	PDF Page N		Facility Geograph	ic Area	Location Reference						
NDAA		67			(b) (3) (A)		Tank 16						
Tank isolation value fastener that is not Repair Description) (3) (A) ha ed. Replace fastener	s one	Sourc	ce Contract Reference	N/A for in Iabor.	-house			
Cor	scription of ntractor QC nod(s) Used	Two-party integrity verification by FLC personnel.						atractor QC 8 Reviewed	N/A				
Validated com Description of QA Validation and Observations				by JTF-RH	H/QV 28APR 2023.								
		Final accept	ptance by go	overnment.	Date: 26 APR 2023								
-	Rework	Needed			Photo Record Attache	1	Repair	Work Vali	dated as Co	mplete			
\bigcirc	Yes	ullet	No		See Page 2.		igodoldoldoldoldoldoldoldoldoldoldoldoldol	Yes	O	No			
Comments													
					CERTIFICATION								
	ify that repair ersonal l y sub			QV ENG	INEER SIGNATURE	(b) ((6)						
report was p report is true		stantiateu an			DATE	02 MAY 2							



	QUALITY VALIDATION (QV) REPORT											
			Red Hill B	Bulk Fuel Storage Fac	cility Defue	el						
Validation F		vironmenta	l, Operatio	ns and Construction,	Inc.		Repair No.	116				
Add	ress 9781 S. I	Meridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	FOR.025				
Contract	No. FA89031	5D0007, D	.O. FA890)3-19-F-0027			Report Date	19 APR 2	2023			
QV Engi	eer (b) (6	6)	Phone (b) (6) Ema			Email	(b) (6)					
VALIDATION												
Source	1	PDF Page N	lo.	Facility Geograph	ic Area		Location Reference					
NDAA	67			(b) (3) (A)		Tank 15						
Repair Description The (b) (3) (A) pipeline has product staining on the valve body. This is indicative of a prolonged slow weep possibly from valve plugs in the body. Clean valve body and monitor for drips and weeps.						Sour	ce Contract Reference	N/A for in labor.	-house			
Descriptio Contractor Method(s) U	n of QC	y integrity	verification	erification by FLC personnel. Contra Records F								
Validation	Description of QA Validation and Observations Final acceptance by government. Date: 13 APR 2023											
Rev	ork Needed			Photo Record Attached	đ	Repair Work Validated as Complete						
O Yes	\odot	No		See Page 2.		$ \mathbf{O} $	Yes	0	No			
Comments JTFRH/QV performed visual inspection 03 MAR 23. Valve body has aged stains and loose corrosion product. Work item is incomplete. Additional cleaning was provided. Valve was reexamined 16 MAR 23 and found acceptable.												
				CERTIFICATION								
I hereby certify that r	epair work validat	ed in this	QV ENG	INEER SIGNATURE	(b) ((6)						
report was personally report is true.				DATE	19 APR 2023							

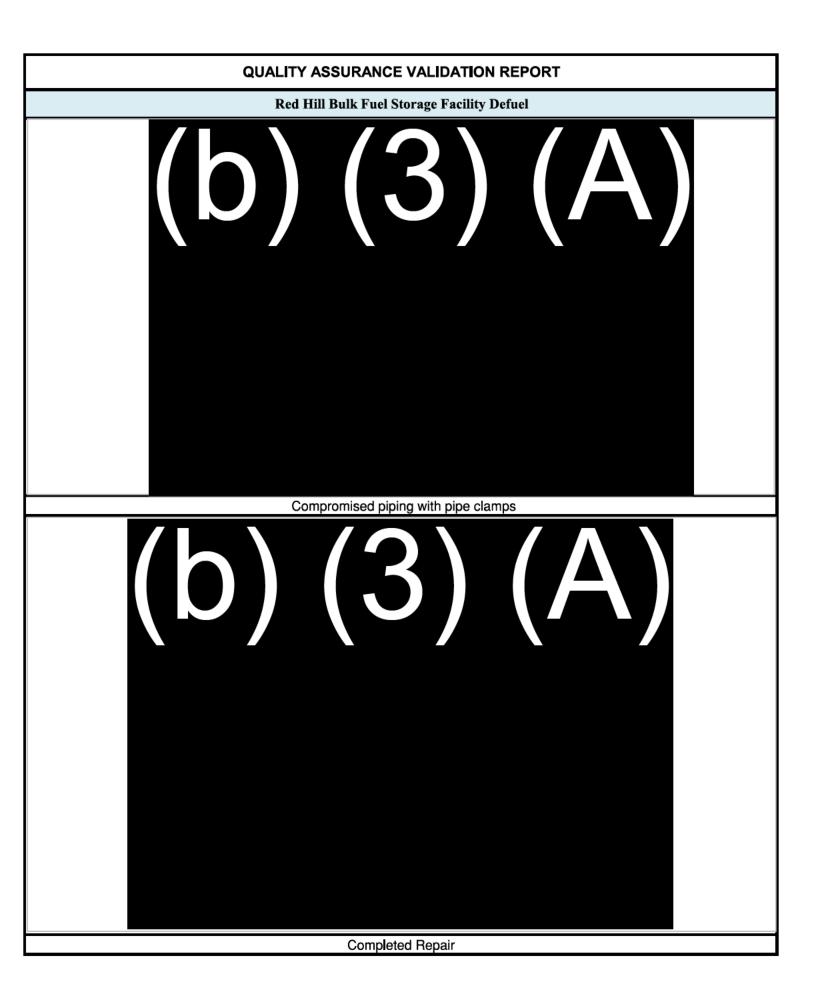




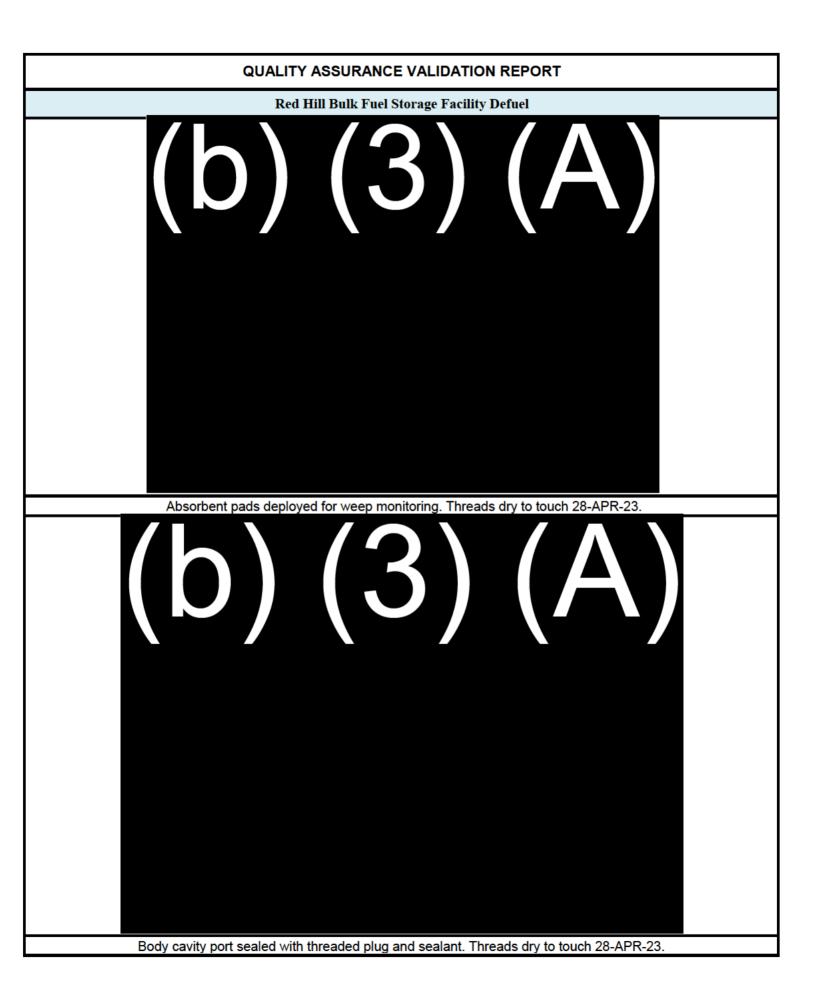
				QUALI	TY VALIDATION (QV) REPC	DRT			
			1	Red Hill B	ulk Fuel Storage Fac	ility Defue	1			
Vali	idation Firm	HDR Env	ironmenta	l, Operatior	ns and Construction,	Inc.		Repair No.	117	
	Address	9781 S. N	leridian Bl	vd., Suite 4	100, Englewood, CO	80112			FOR.026	
(Contract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	28 APR 2	023
Q	V Engineer	(b) (6			Phone (b) (6)		Email			
		•			VALIDATION					
So	ource	F	PDF Page N	lo.	Facility Geograph			Location	Reference	
NDAA		67			(b) (3) (A)		(b) (3) (A)			
Repair	Description	out of a co	ombinatior	n of hard pi	product lines is cons pe and hoses. Repla Ird pipe.		Sour	ce Contract Reference	N/A for in- labor.	house
Co	escription of ntractor QC hod(s) Used	and supe		verification	by FLC personnel; te	echnician		ntractor QC s Reviewed	N/A	
Va	ption of QA lidation and Dbservations	FLC pers			d 21 FEB 2023. accepted repair on 1	3 Apr 23.				
		Final accept	otance by go	overnment.	Date: 13 APR 2023					
	Rework	Needed			Photo Record Attached	1			dated as Cor	mplete
O	Yes	ullet	No		See Page 2.		ullet	Yes	\bigcirc	No
Comments	,									
					CERTIFICATION	(b)	6)			
	rtify that repair personal l y sub			QV ENG	NEER SIGNATURE	(b) (0)			
report is true	e.				DATE	28 APR 2	023			

QUALITY ASSURANCE VALIDATION REPORT **Red Hill Bulk Fuel Storage Facility Defuel** 5) L: Elex hose from pipeline high point vent R: Pipe with hose connections into (b) (3) (A) $(\mathbf{3})$ R: Pipe with hose connections into(b) (3) (A) L: Line from (b) removed. (3) (A)

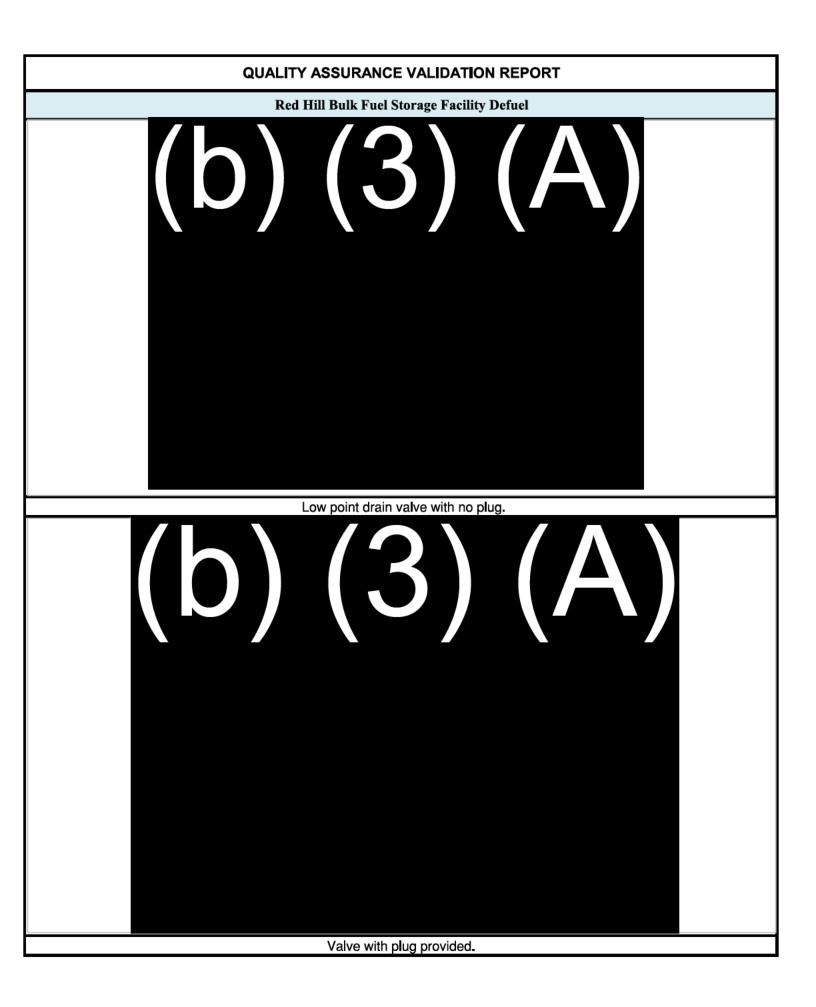
				QUALI	TY VALIDATION (QV) REPO	RT			
]	Red Hill B	ulk Fuel Storage Fac	ility Defue	1			
Vali	idation Firm	HDR Env	ironmenta	l, Operatio	ns and Construction,	Inc.		Repair No.	120	
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112			FOR.044	
С	Contract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	19 APR 2	2023
Q	V Engineer	(b) (6)		Phone (b) (6	5)	Email			
					VALIDATION					
So	ource	ł	PDF Page N	lo.	Facility Geograph	ic Area		Location	Reference	
NDAA		68			(b) (3) (A)		(b) (3) ((A)		
Repair	Description	$\frac{(b)(3)(A)}{(b)(3)}$	A) Als	o, UTT ind	on <mark>(b) (3) (A)</mark> clamp lengths are ^{(b) (} licates pipe wa ll l oss i resent. Repair pipe.	(3) (A) in this	Sour	ce Contract Reference	N/A for in- labor.	-house
Co	escription of ntractor QC hod(s) Used		y integrity v	verification	by FLC personnel.			ntractor QC s Reviewed	N/A	
Va	ption of QA lidation and Dbservations				29 MAR 2023.					
			ptance by go		Date: 13 APR 2023					
\cap	Rework Yes	Needed	No		Photo Record Attached See Page 2.	1	Repair	r Work Valı Yes	dated as Co	No
Comments							0			
					CERTIFICATION					
	rtify that repair personal l y sub									
report was p report is true	*	istantiateu an	u una		DATE	19 APR 2	023			



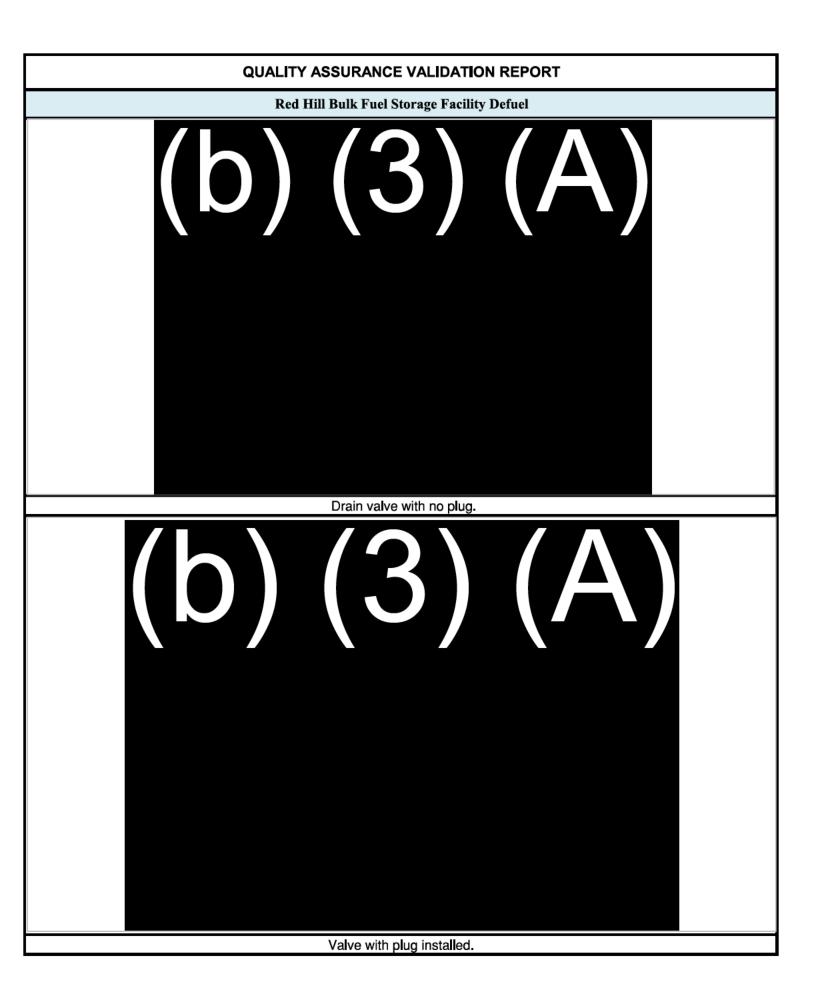
QUALITY ASSURANCE VALIDATION REPORT **Red Hill Bulk Fuel Storage Facility Defuel** b) (3) (A) Absorbent pads deployed for weep monitoring. Threads dry to touch 28-APR-23. (3)Body cavity port sealed with threaded plug and sealant. Threads dry to touch 28-APR-23.



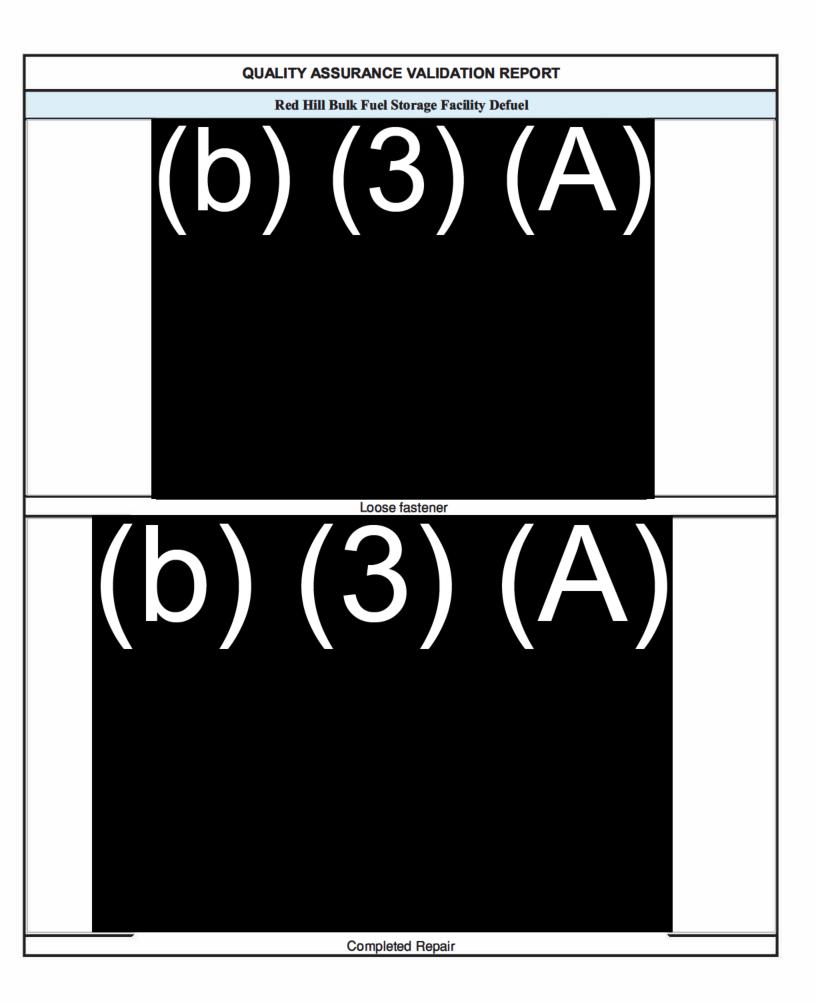
				QUALI	TY VALIDATION (QV) REPC	DRT			
			J	Red Hill B	Bulk Fuel Storage Fac	ility Defue	1			
Vali	dation Firm	HDR Env	ironmenta	l, Operatio	ns and Construction,	Inc.		Repair No.	126	
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	FOR.056	
С	Contract No.	FA89031	5D0007, D	.O. FA890)3-19-F-0027			Report Date		:023
Q	V Engineer	(b) (6)			Phone (b) (6))	Email	(L)		
					VALIDATION					
So	urce	J	PDF Page N	lo.	Facility Geograph	ic Area			Reference	
NDAA		69			(b) (3) (A)		(b) (3) (A)		
Repair	Description	(b) (3) (A on valve.		valve i	is missing a plug. Pro	vide plug	Sour	ce Contract Reference	N/A for in- labor.	-house
Co	Two-party integr Description of Contractor QC Method(s) Used				by FLC personnel.			ntractor QC s Reviewed		
Va	ption of QA lidation and Observations				ed 21 FEB 2023.					
	Pework	Final accept	otance by go		Date: 13 APR 2023 Photo Record Attached	4	Repair	r Work Vali	dated as Co	malete
0	Yes	O	No		See Page 2.			Yes		No
	I hereby certify that repair work validated in this				CERTIFICATION	(b)	(6)			
report was p report is true	personally sub e.	stantiated an	d this		DATE	19 APR 2				



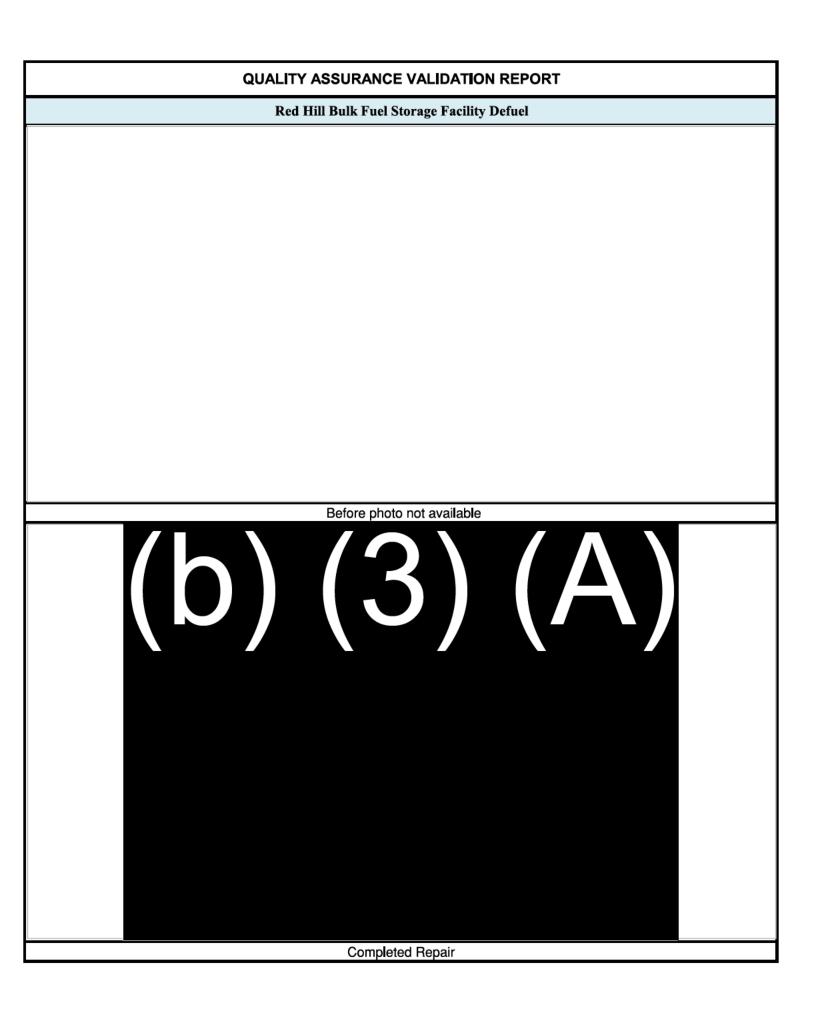
				QUALI	TY VALIDATION (QV) REPC	ORT			
			J	Red Hill B	Bulk Fuel Storage Fac	ility Defue	el			
Vali	dation Firm	HDR Env	ironmenta	l, Operatio	ons and Construction,	Inc.		Repair No.	127	
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112			FOR.057	
С	Contract No.	FA89031	5D0007, D	.O. FA890	03-19-F-0027			Report Date	19 APR 2	023
Q	V Engineer	(b) (6))		Phone (b) (6))	Email	$(1 \rightarrow)$	6)	
					VALIDATION					
So	urce	F	PDF Page N	Jo.	Facility Geograph	ic Area		Location	Reference	
NDAA		69			(b) (3) (A)		(b) (3) (A) <mark>E</mark>	ntrance		
Repair	Description	(b) (3) (A)	ow point dr	rain valve i rovide plug	is missing a plug unde g on valve.	er the	Sour	ce Contract Reference	N/A for in- labor.	-house
Co	Description of Contractor QC Method(s) Used				n by FLC personnel.			ntractor QC s Reviewed		
Va	ption of QA lidation and)bservations				ed 21 FEB 2023.					
	Rework	Final accer	ptance by go		Date: 13 APR 2023 Photo Record Attached	4	Repair	r Work Vali	dated as Co	mplete
0	Yes		No		See Page 2.		. Contraction of the second s	Yes	0	No
	I hereby certify that repair work validated in this				CERTIFICATION SINEER SIGNATURE	(b) ((6)			
report was p report is true	personally sub e.	stantiated an	d this		DATE	19 APR 2	2023			



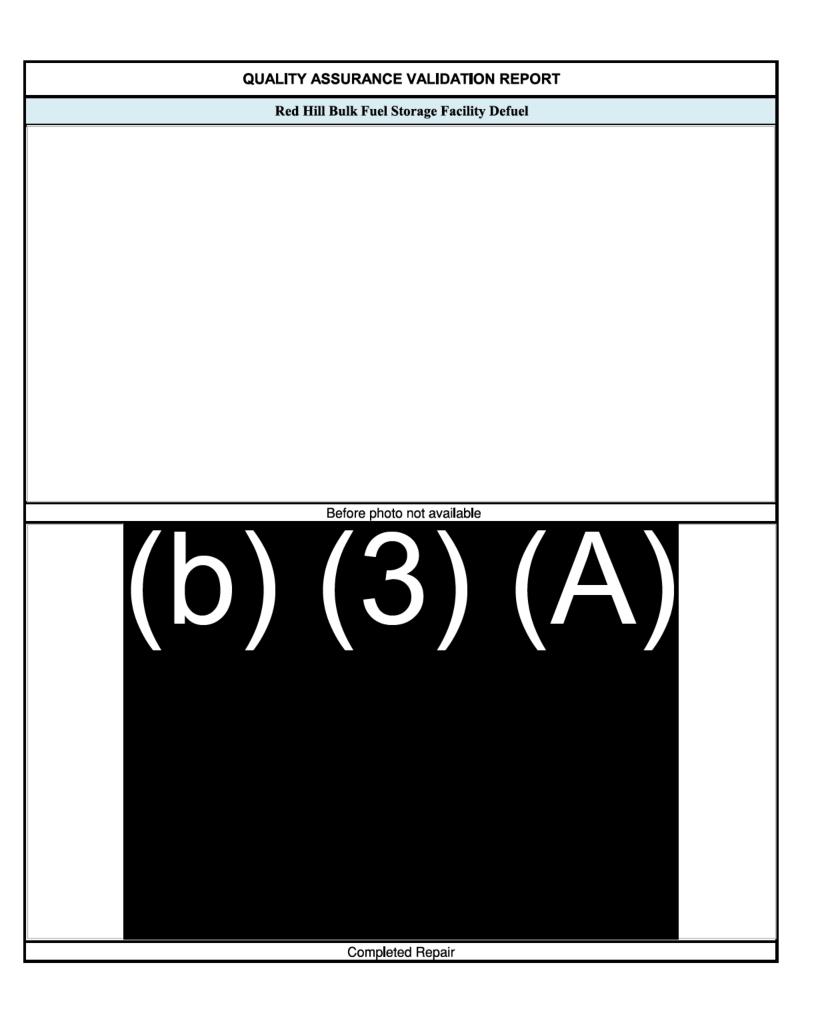
				QUALI	TY VALIDATION (QV) REPO	ORT			
		-]	Red Hill B	ulk Fuel Storage Fac	cility Defu	el			
Vali	idation Firm	HDR Env	rironmental	, Operatio	ns and Construction,	Inc.		Repair No.	130	
	Address	9781 S. I	Meridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	FOR.064	
С	Contract No.	FA89031	5D0007, D	.O. FA890	3 19 F 0027			Report Date	26 APR 2	023
Q	V Engineer	(b) (6)	3	Phone		Email		6)	
					VALIDATION					
So	urce]	PDF Page N	o .	Facility Geograph	ic Area		Location	Reference	
NDAA		69			(b) (3) (A)		(b) (3) (A)			
Repair	Description	containm			outside of the secon ener. Tighten fastene		Sour	ce Contract Reference		
Co	escription of ntractor QC hod(s) Used		outlined in	detail in Q	CP.			ntractor QC s Reviewed	QCP and Reports.	Daily
Va	ption of QA lidation and Observations		outlined in							
			ptance by go		Date: 08 MAR 2023				1.1.0	
0	Yes	Needed	No		Photo Record Attached See Page 2.	1	Repair	Yes	dated as Cor	No
Comments Valve was removed and reinstalled in new piping by Repair 128.										
					CERTIFICATION		(\mathbf{C})			
	tify that repair personally sub			QV ENG	INEER SIGNATURE	(D) ((6)			
report is true	-		_		DATE	26 APR 2	2023			



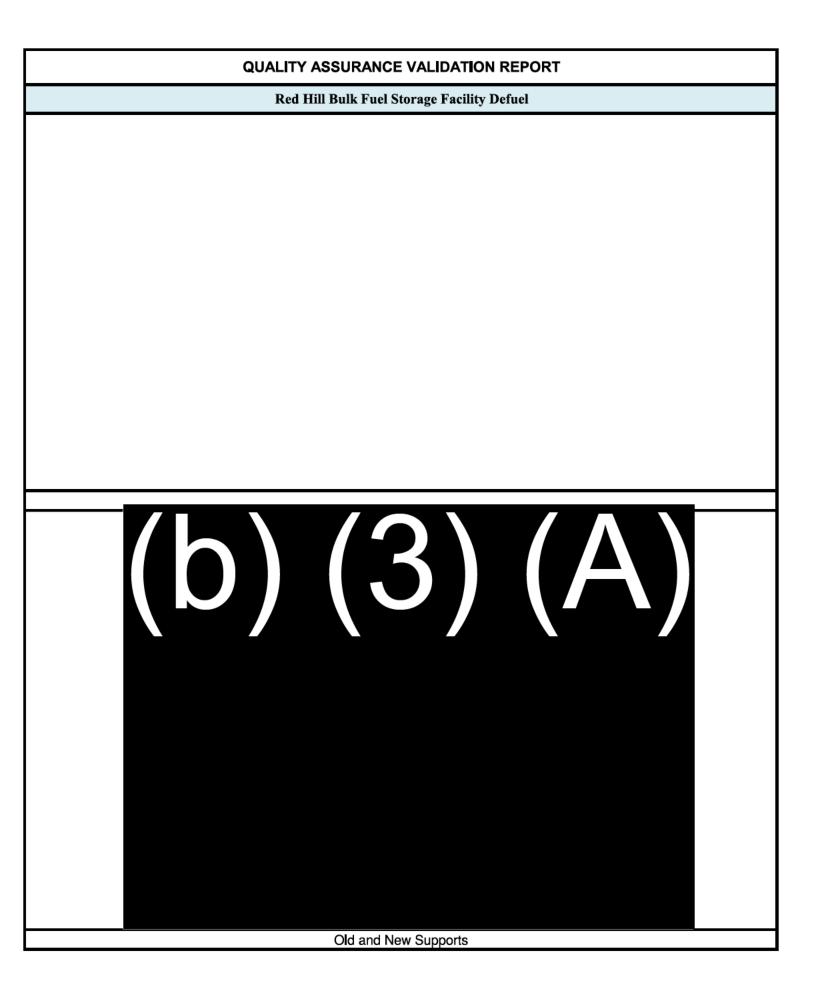
					ALIDATION (QV) REPC	DRT			
]	Red Hill Bulk	Fuel Storage Fac	ility Defue	1			
Vali	idation Firm	HDR Env	ironmental	, Operations a	nd Construction,	Inc.		Repair No.	132	
	Address	9781 S. N	leridian Bl	vd., Suite 400,	Englewood, CO	80112		Repair ID	PSF.013	
C	Contract No.	FA89031	5D0007, D	.O. FA8903-19)-F-0027			Report Date	26 APR 2	023
Q	V Engineer	(b) (6)			Phone (b) (6)	Email	(6) (6)	
				v	ALIDATION					
So	ource	F	PDF Page N	0.	Facility Geograph	ic Area			Reference	
NDAA		71		(b) (3			(b) (3) (A)			
Repair	Description	contact, c	orroded at	pipe support in	rosion, metal to nterface, photo ta led by others. Re	aken for	Sourc	ce Contract Reference		
Co	escription of ntractor QC hod(s) Used		outlined in	detail in QCP.				tractor QC Reviewed	QCP and Reports.	Daily
Va	ption of QA lidation and Dbservations		outlined in							
	Derver	Final accep	otance by go		e: 08 MAR 2023	1	Densin	West Vol:	dated as Co	uuu lata
0	Yes	•	No	Filot	See Page 2.	1	(epair	Yes		No
	tify that repair			QV ENGINEE	RTIFICATION R SIGNATURE	(b) (26 APR 2				



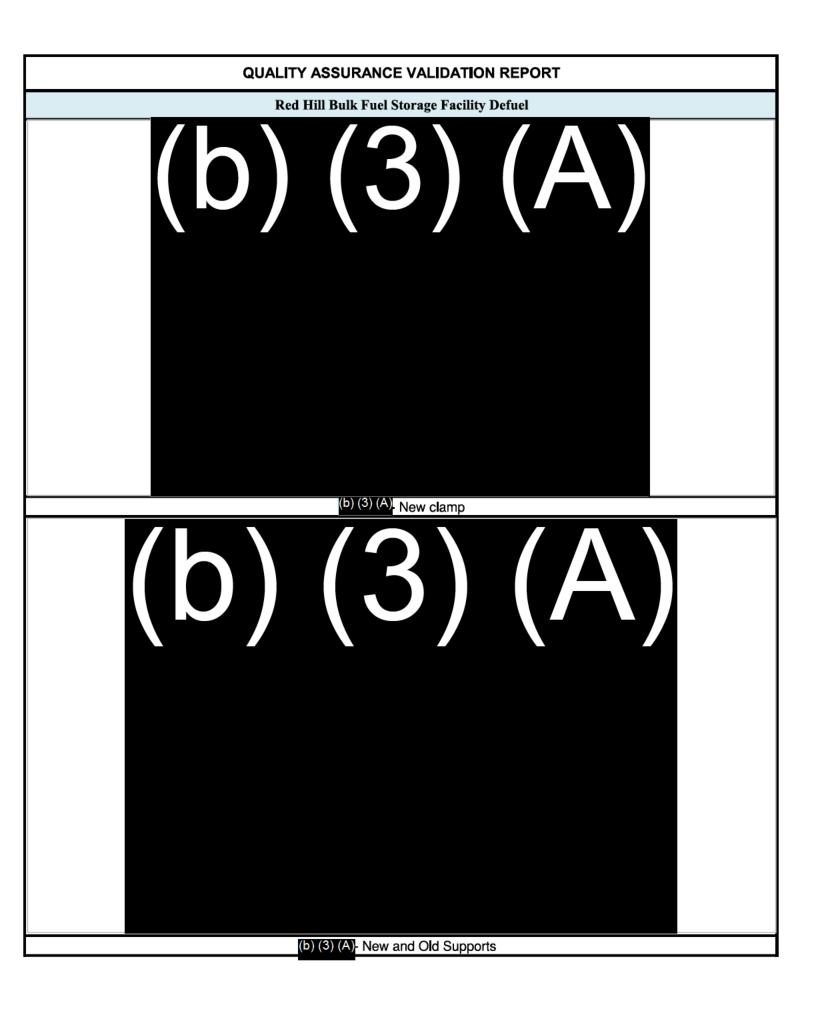
				QUALI	TY VALIDATION (QV) REPC	DRT			
				Red Hill B	Bulk Fuel Storage Fac	cility Defue	1			
Vali	idation Firm	HDR Env	ironmenta	l, Operatio	ns and Construction,	Inc.		Repair No.	133	
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	PSF.014	
0	Contract No.	FA89031	5D0007, D	.O. FA890)3-19-F-0027			Report Date	26 APR 2	023
Q	V Engineer	(b) (6			Phone (b) (6)	Email			
			,		VALIDATION					
So	urce	F	PDF Page N	lo.	Facility Geograph	ic Area		Location	Reference	
NDAA		71			(b) (3) (A)		(b) (3) (A)			
Repair	Description	b <mark>(b) (4)</mark> F	rroded and Replace su		d, no contact w/ pipe,	labeled	Sour	ce Contract Reference		
Co	Description of Contractor QC Method(s) Used				QCP.			ntractor QC s Reviewed	QCP and Reports.	Daily
Va	ption of QA lidation and Observations		outlined in		D. (
<u> </u>	Rework	Final accept	ptance by g	overnment.	Date: 08 MAR 2023 Photo Record Attached	4	Renai	work Vali	dated as Co	mnlete
0	Yes		No		See Page 2.			Yes	0	No
report was p	I hereby certify that repair work validated in this report was personally substantiated and this						6)			
report is true					DATE	26 APR 2	023			



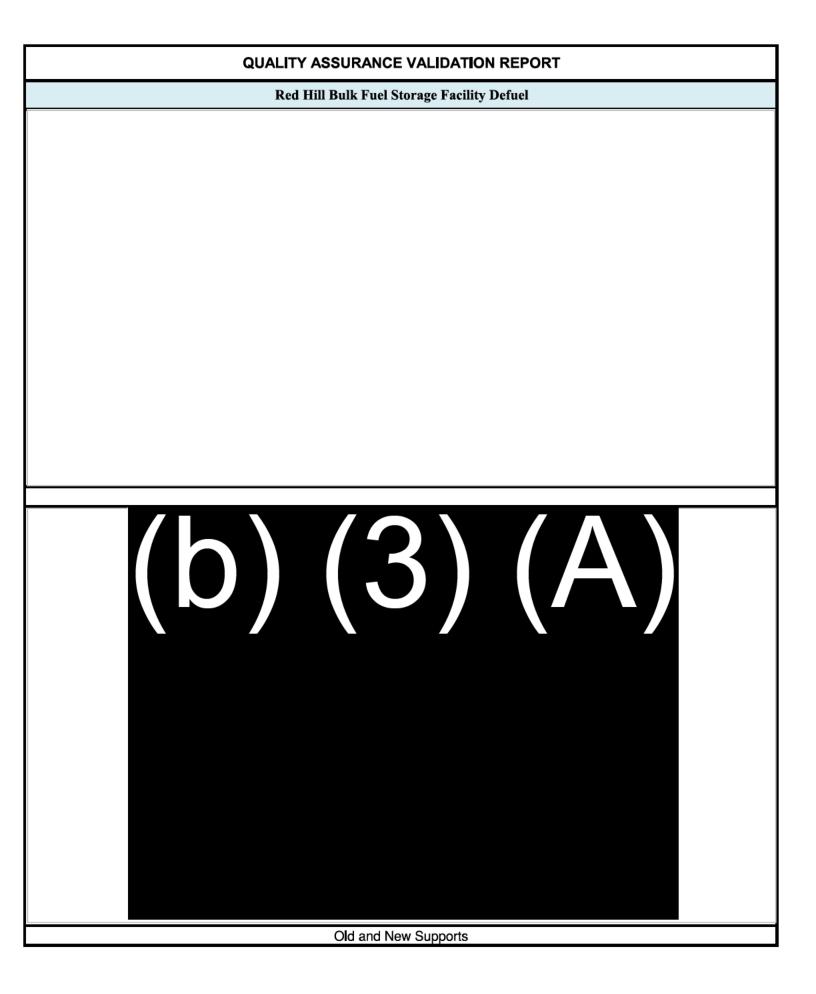
				QUALI	TY VALIDATION (QV) REPC	ORT			
]	Red Hill B	ulk Fuel Storage Fac	cility Defue	el			
Vali	idation Firm	HDR Env	ironmenta	l, Operatio	ns and Construction,	Inc.		Repair No.	134	
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112			PSF.015	
С	Contract No.	FA89031	5D0007, D	.O. FA890)3-19-F-0027			Report Date	26 APR 2	:023
Q	V Engineer	(b) (6)			Phone (b) (6))	Email		5)	
					VALIDATION					
So	urce	H	PDF Page N	lo.	Facility Geograph	nic Area		Location	Reference	
NDAA		71			(b) (3) (A)		(b) (3) (A)		
Repair	Description	support.	, in contac	t w/ pipe, l a	abeled by ^{(b) (4)} . Repl	ace	Sour	ce Contract Reference		
Co	Description of Contractor QC Method(s) Used				λCΡ.			ntractor QC s Reviewed	QCP and Reports.	Daily
Va	ption of QA lidation and Dbservations		outlined in		Date: 08 MAR 2023					
	Rework	Needed	Mance by go		Photo Record Attached	d	Repair	r Work Vali	dated as Co	mplete
0	Yes	ullet	No		See Page 2.		\odot	Yes	0	No
	I hereby certify that repair work validated in this report was personally substantiated and this				CERTIFICATION		(6)			
report was p report is true	*	istantiated an	u inis		DATE	26 APR 2	2023			



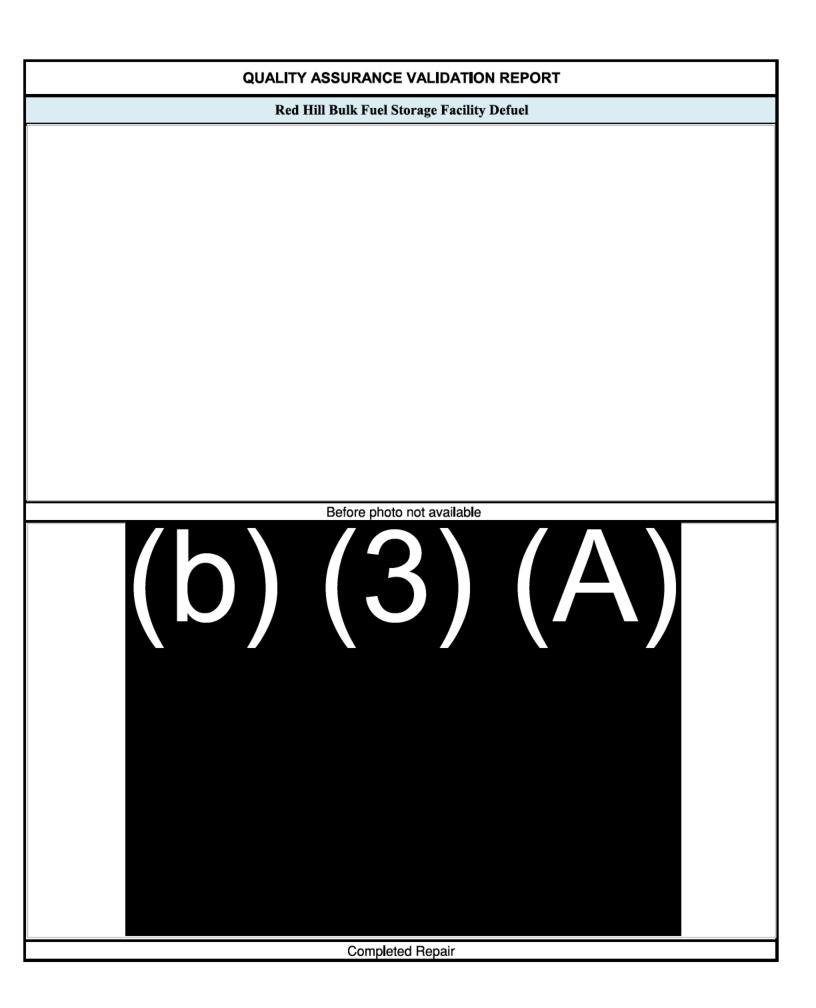
				QUALI	TY VALIDATION (QV) REPO	DRT			
]	Red Hill B	ulk Fuel Storage Fac	ility Defue	ł			
Vali	idation Firm	HDR Env	ironmenta	, Operatio	ns and Construction,	Inc.		Repair No.	135	
	Address	9781 S. N	leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	PSF.016	
C	Contract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	26 APR 2	023
Q	V Engineer	(b) (6)			Phone(b) (6		Email	(b) (6		
					VALIDATION		•			
So	urce	I	PDF Page N	lo.	Facility Geograph	ic Area		Location	Reference	
NDAA		71			(b) (3) (A)		(b) (3)) (A)		
Repair	Repair Description Corroded, intact, metal to metal contact, only top anchor wall present, lower part of bracket not in contact w/ wall. Replace support.							ce Contract Reference		
Co	escription of ntractor QC hod(s) Used		outlined in	detail in G	CP.			ntractor QC s Reviewed	QCP and Reports.	Daily
Va	ption of QA lidation and 0bservations		outlined in		Data: 08 MAR 2022					
	Rework	Needed	blance by go		Date: 08 MAR 2023 Photo Record Attached	1	Repair	· Work Vali	dated as Co	mplete
0	Yes	ullet	No		See Page 2.		\odot	Yes	0	No
Comments					CERTIFICATION	(b)-				
	tify that repair personally sub			QV ENG	INEER SIGNATURE	(b)	(6)			
report is true	*				DATE	26 APR 2	2023			



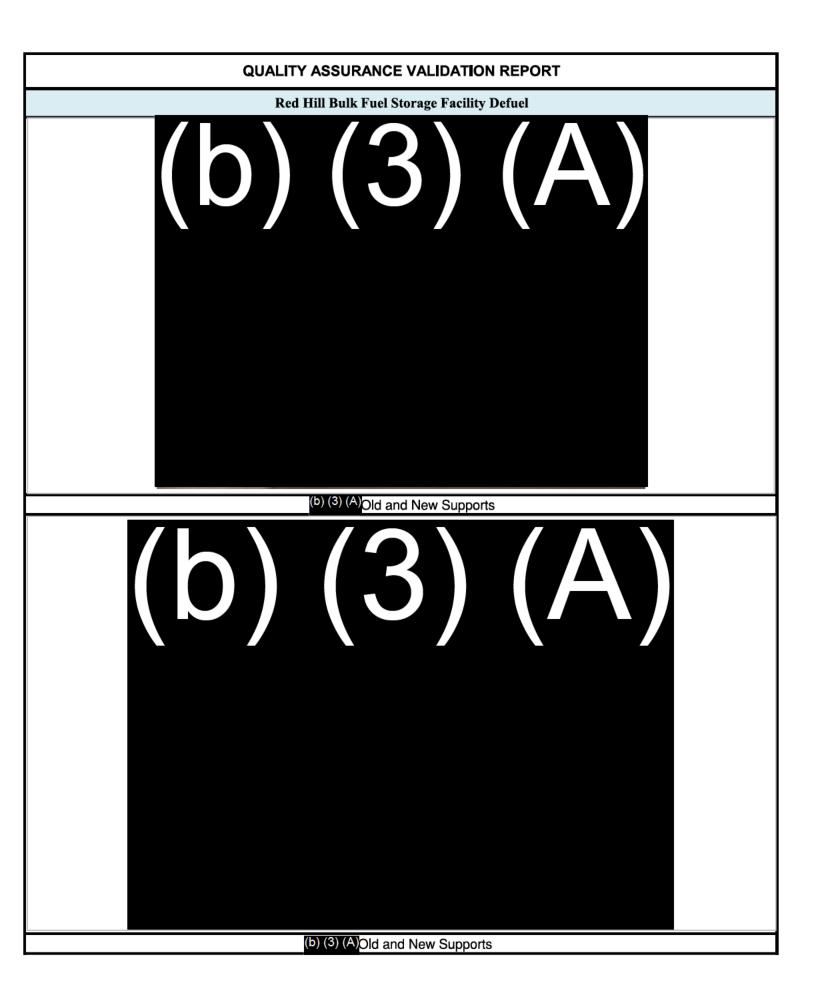
				QUALI	TY VALIDATION (QV) REPC	DRT			
			J	Red Hill B	Bulk Fuel Storage Fac	cility Defue	1			
Vali	idation Firm	HDR Env	ironmenta	l, Operatio	ons and Construction,	Inc.		Repair No.	136	
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112			PSF.042	
С	Contract No.	FA89031	5D0007, D	.O. FA890	03-19-F-0027			Report Date	26 APR 2	2023
Q	V Engineer	(b) (6	6)		Phone(b) (6		Email	(1))	
					VALIDATION					
So	ource	F	PDF Page N	Io.	Facility Geograph	iic Area		Location	Reference	
NDAA		71			(b) (3) (A)		(b) (3) (<i>i</i>	۹)		
Repair	Description	metal con	ntact. API	570: Supp	brage to wall at top, m port anchor dislodged t		Sour	ce Contract Reference		
Co	escription of ontractor QC hod(s) Used		outlined in	detail in C	λCP.			ntractor QC s Reviewed	QCP and Reports.	Daily
Va	ption of QA lidation and Dbservations		outlined in							
	Rework	Final accept	stance by go		Date: 08 MAR 2023 Photo Record Attached	a	Renaii	- Work Vali	dated as Co	mplete
0	Yes	O	No		See Page 2.	1		Yes		No
	rtify that repair persona ll y sub			QV ENG	CERTIFICATION SINEER SIGNATURE	(b) ((6)			
report is true	5.				DATE	26 APR 2	:023			



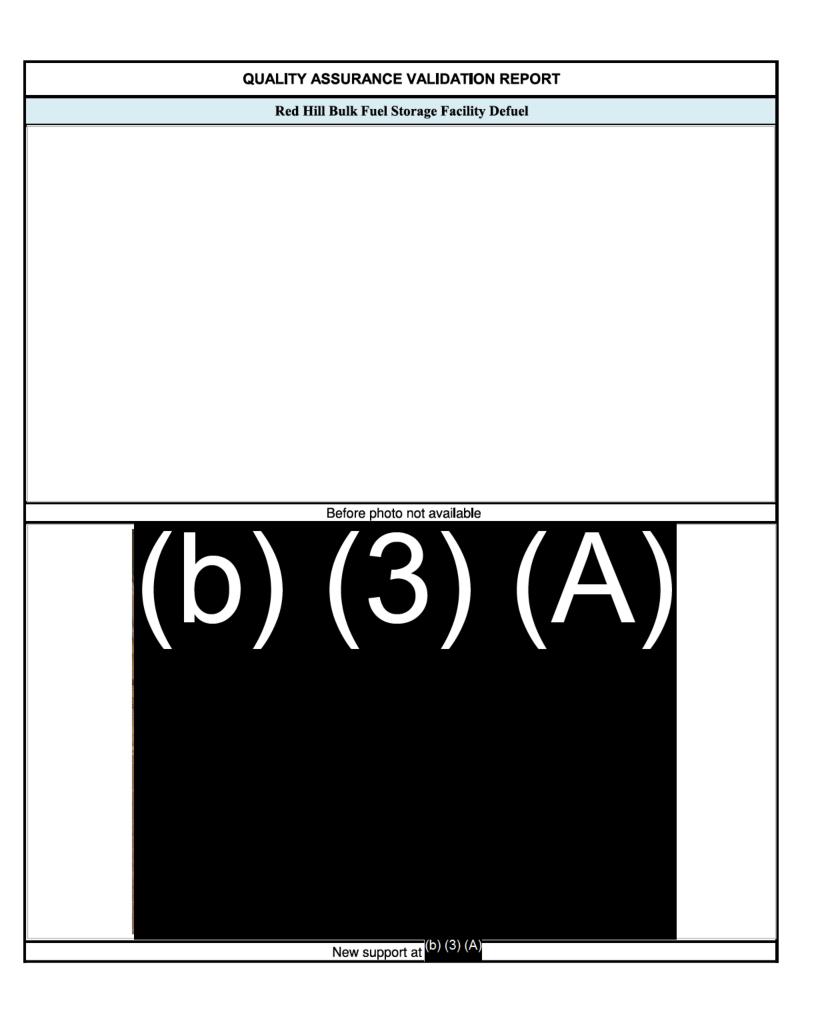
				QUALI	TY VALIDATION (QV) REPO	ORT			
			1	Red Hill B	ulk Fuel Storage Fac	cility Defue	el			
Validat	ion Firm	HDR Env	ironmenta	l, Operatio	ns and Construction,	Inc.		Repair No.	137	
	Address	9781 S. N	leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	PSF.060	
Cont	ract No.	FA89031	5D0007, D	.O. FA890)3-19-F-0027			Report Date	26 APR 2	023
QV I	Engineer	(b) (6)			Phone (b) (6)	5)	Email	(1))	
					VALIDATION					
Source	e	F	PDF Page N	lo.	Facility Geograph	ic Area		Location	Reference	
NDAA		71			(b) (3) (A)		(b) (3) (A	A)		
Repair Des	scription	API 570:	Missing pip		pipe is at end of arm. Toolt (no isolation Tefle	on pad).	Sour	ce Contract Reference		
Contra	iption of actor QC (s) Used		outlined in	detail in G	QCP.			ntractor QC s Reviewed	QCP and Reports.	Daily
	on of QA tion and ervations		outlined in		D. (
	Rework	Final accept	ptance by go	overnment.	Date: 08 MAR 2023 Photo Record Attached	4	Repair	· Work Vali	dated as Co	mnlete
0	Yes	\bullet	No		See Page 2.		•	Yes	0	No
Comments	that repair	work validate	ed in this	QV ENG	CERTIFICATION	(b) ((6)			
report was personeered to the termination of terminatio of ter					DATE	26 APR 2				



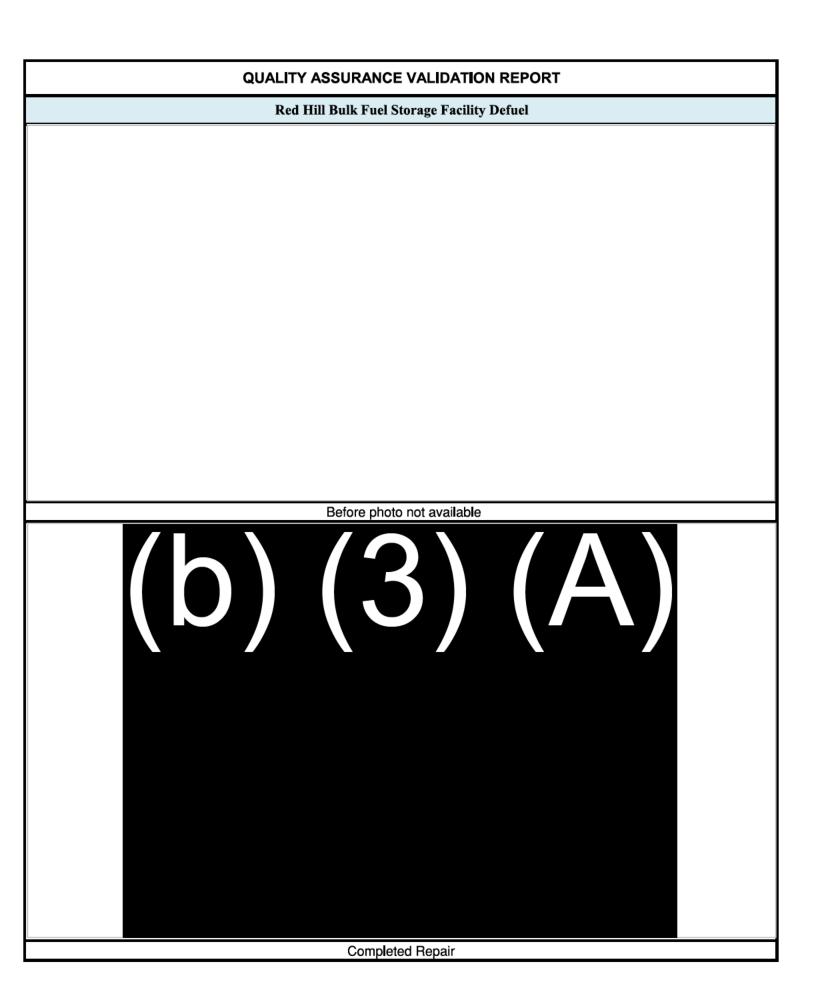
				QUALI	TY VALIDATION (QV) REPC	DRT			
]	Red Hill B	ulk Fuel Storage Fac	ility Defue	1			
Vali	dation Firm	HDR Env	ironmenta	l, Operatio	ns and Construction,	Inc.		Repair No.	138	
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112			PSF.061	
С	Contract No.	FA89031	5D0007, D	.O. FA890)3-19-F-0027			Report Date	26 APR 2	:023
Q	V Engineer	(b) (6))		Phone (b) (6)	Email		5)	
					VALIDATION					
So	urce	H	PDF Page N	lo.	Facility Geograph	ic Area		Location	Reference	
NDAA		71			(b) (3) (A)		(b) (3)	(A)		
		Bottom of	bracket de	eformed fre	om impact. Replace s	support.				
Repair	Description						Sour	ce Contract Reference		
	escription of		outlined in	detail in G	ICP.	QCP and Reports.	Daily			
	ntractor QC hod(s) Used						Record	s Reviewed		
		Methods	outlined in	QASP.						
	ption of QA									
	lidation and Observations									
		Final accept	ptance by go	overnment.	Date: 08 MAR 2023					
	Rework	Needed			Photo Record Attached	1	Repair	r Work Vali	dated as Co	mplete
0	Yes	ullet	No		See Page 2.		$oldsymbol{igodol}$	Yes	0	No
Comments										
					CERTIFICATION					
	tify that repair			QV ENG	INEER SIGNATURE	(b) ((6)			
report was p report is true	personally sub e.	stantiated an	a this		DATE	26 APR 2	2023			



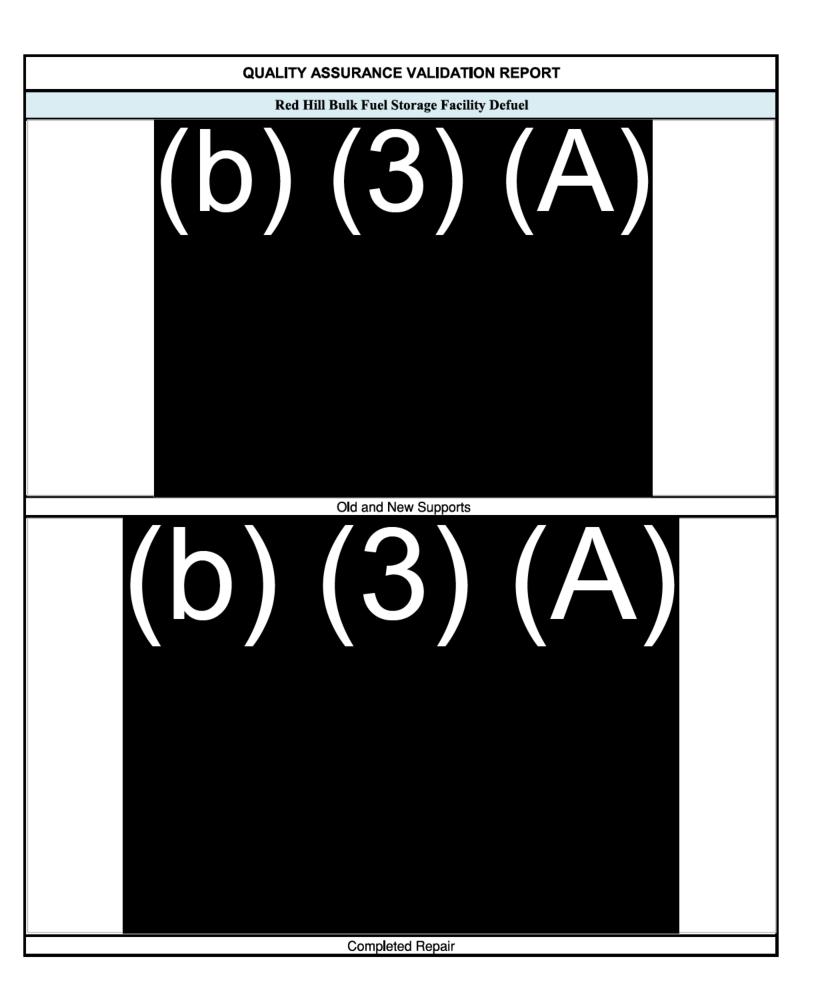
QUALITY VALIDATION (QV) REPORT											
]	Red Hill E	Bulk Fuel Storage Fac	ility Defue	1				
Valid	lation Firm	HDR Env	ironmenta	l, Operatio	ons and Construction,	Inc.		Repair No.	139		
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	PSF.087		
Cc	ontract No.	FA89031	5D0007, D	.O. FA89(03-19-F-0027			Report Date	26 APR 2	:023	
Q۱	V Engineer	(b) (6)			Phone (b) (6)			il (b) (6)			
					VALIDATION						
Sou	Source PDF Page 1				Facility Geograph	ic Area	Location Reference				
NDAA		71			(b) (3) (A)		(b) (3) (A)				
Repair Description No contact w/ pip					upport or modify supp	port to	Sour	ce Contract Reference	N/A		
Cont	scription of atractor QC od(s) Used							ntractor QC s Reviewed	N/A		
Vali	tion of QA idation and bservations		eviewed a	nd approv	red 20 APR 2023.						
		Final accept	ptance by go	overnment.	Date: 08 MAR 2023	r					
	Rework	Needed	[]	Photo Record Attached		1	Repair Work Vali		dated as Co	mplete	
0	Yes	$oldsymbol{igo}$	No		See Page 2.		$oldsymbol{igo}$	Yes	0	No	
Comments Not required. Existing new(b) (3) (A) replaces (b) (3) (A) with sufficient spacing between (b) (3) (B) Work pre-validated as complete 11/21/22.											
					GINEER SIGNATURE	(h) ((6)				
I hereby certify that repair work validated in this report was personally substantiated and this report is true.					DATE	26 APR 2023					



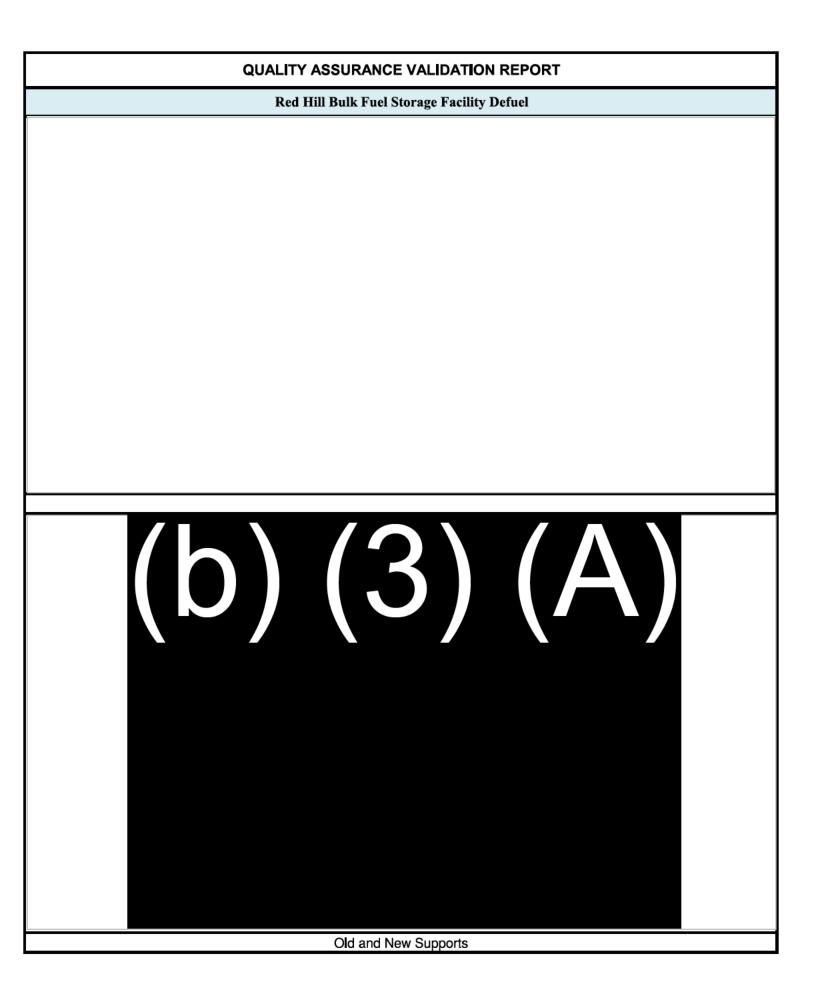
QUALITY VALIDATION (QV) REPORT											
]	Red Hill B	Bulk Fuel Storage Fac	ility Defue	1				
Vali	dation Firm	HDR Env	ironmenta	l, Operatio	ons and Construction,	Inc.		Repair No.	140		
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	PSF.089		
С	Contract No.	FA89031	5D0007, D	O. FA890)3-19-F-0027			Report Date	26 APR 2	:023	
Q	V Engineer	(b) (6)		Phone (b) (6))	Email				
	VALIDATION										
So	urce	F	PDF Page N	lo.	Facility Geograph	ic Area		Location Reference			
NDAA		71			(b) (3) (A)		(b) (3) (A	N)			
Repair Description		properly s	ct w/ pipe. support pip		upport or modify supp	port to	Source Contract Reference				
Co	escription of ntractor QC hod(s) Used		outlined in	detail in C	JCP.			ntractor QC s Reviewed		Daily	
Va	ption of QA lidation and Dbservations		outlined in		D-4 09 MAD 2022						
	Rework	Needed	Mance by go	Photo Record Attached			Repair Work Validated as Cor			mplete	
0	Yes	\bullet	No		See Page 2.		•	Yes	0	No	
Comments CERTIFICATION CERTIFICATION I hereby certify that repair work validated in this QV ENGINEER SIGNATURE (b) (6)											
	personally sub										



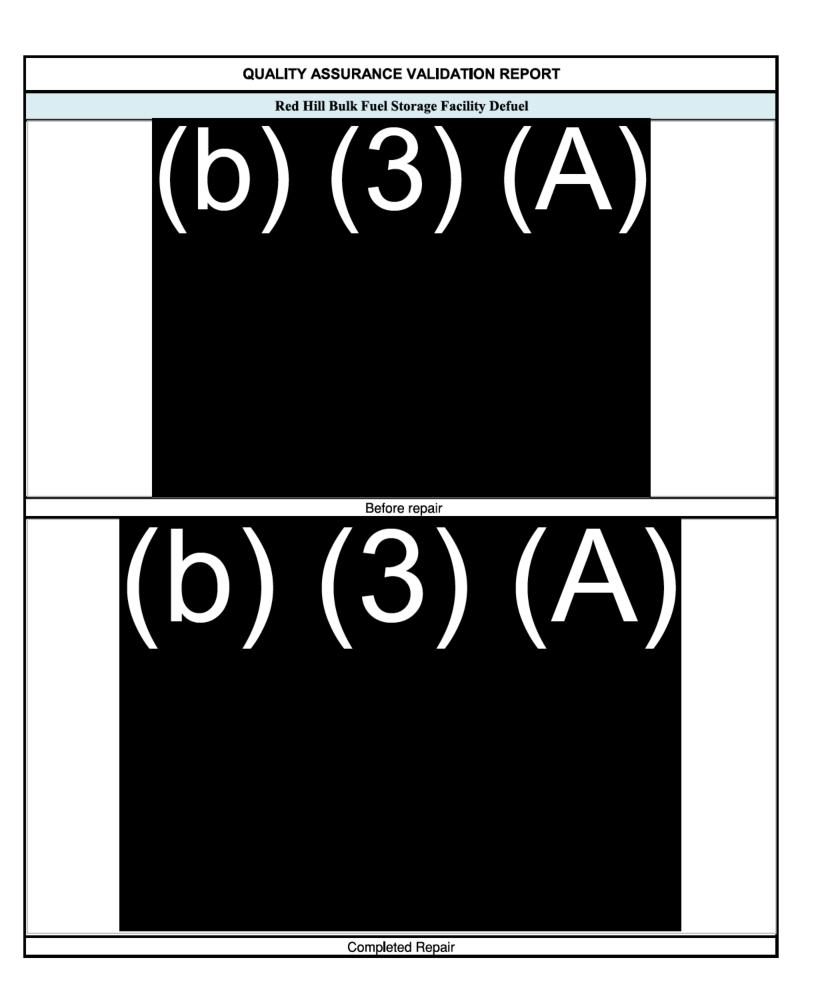
QUALITY VALIDATION (QV) REPORT												
Red Hill Bulk Fuel Storage Facility Defuel												
Vali	idation Firm	HDR Env	ironmenta	I, Operations and Construction, Inc.				Repair No.	141			
	Address	9781 S. N	leridian B	vd., Suite 4	100, Englewood, CO	80112		Repair ID	PSF.169			
c	Contract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	26 APR 2	023		
Q	V Engineer	(b) (6)		Phone (b) (6)			Email					
VALIDATION												
So	urce	F	PDF Page N	lo.	Facility Geograph	ic Area	Location Reference					
NDAA		71			(b) (3) (A)		(b) (3) (A	()				
				t, U-bolt corroded to delamination, n at baseplate and anchors. Replace Sc			Sour	Source Contract Reference				
Co	escription of ntractor QC hod(s) Used		Methods outlined in detail in QCP.					Contractor QC Records Reviewed				
Methods outlined Description of QA Validation and Observations												
			otance by g		Date: 08 MAR 2023	ed Repair Work Validated as Complete						
0	Yes	Needed	No	Photo Record Attached See Page 2.			Repair	Yes		No		
Comments CERTIFICATION L hereby certify that repair work validated in this QV ENGINEER SIGNATURE (b) (6)												
report was personally substantiated and this report is true.				DATE 26 APR 2023								



QUALITY VALIDATION (QV) REPORT												
	Red Hill Bulk Fuel Storage Facility Defuel											
Vali	idation Firm	HDR Env	ironmenta	l, Operations and Construction, Inc.				Repair No.	142			
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112			PSF.234			
0	Contract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	26 APR 2	023		
Q	V Engineer	(b) (6)	Phone (b) (6)			Email	(b) (C)				
	VALIDATION											
So	Source F			lo.	Facility Geograph	ic Area	Location Reference					
NDAA		71			(b) (3) (A)		(b) (3) (A)					
Repair	Description	displaced	on pipe, n		apparent impact, U- ed. API 570: Loose U		Source Contract Reference					
Co	escription of ntractor QC hod(s) Used		outlined in	detail in C	QCP.		Contractor QC Reports.			Daily		
Va	ption of QA lidation and Dbservations		outlined in		Data: 08 MAR 2022							
	Rework	Needed	nance by go	overnment. Date: 08 MAR 2023 Photo Record Attached			Repair Work Validated as Comp			mplete		
0	Yes	\bullet	No		See Page 2.			Yes	0	No		
Comments CERTIFICATION I hereby certify that repair work validated in this report was personally substantiated and this report was personally substantiated and this												
report is true	е.				DATE	26 APR 2	023					



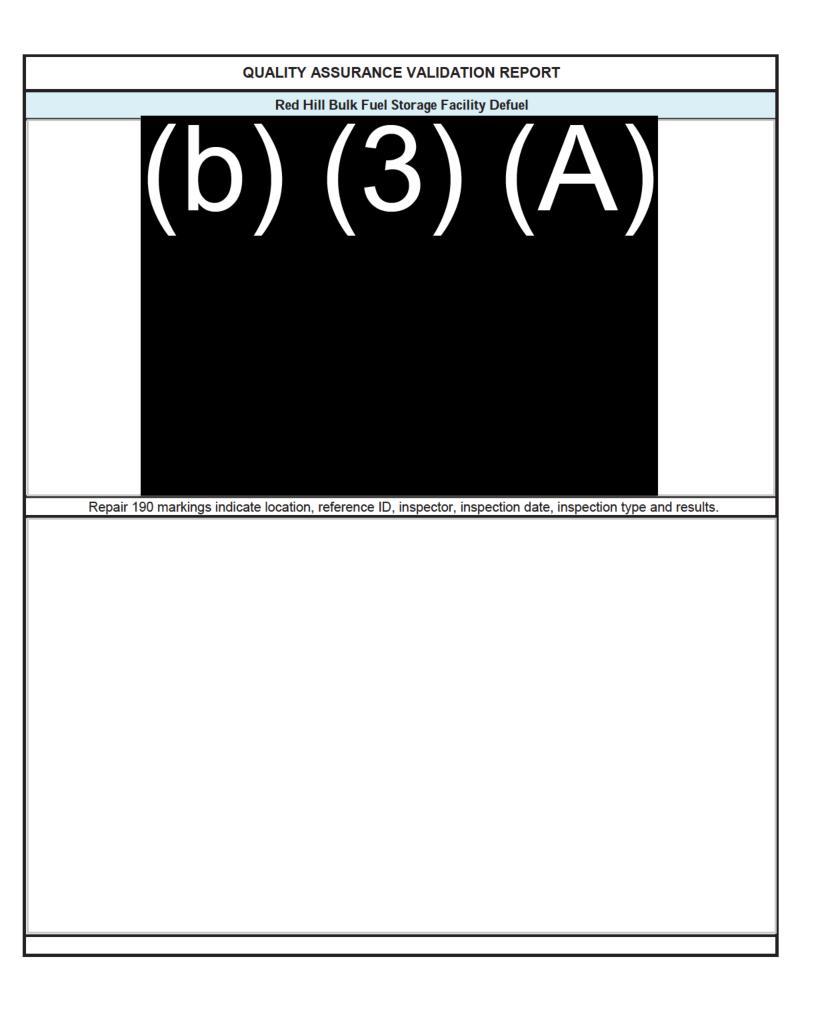
QUALITY VALIDATION (QV) REPORT												
	Red Hill Bulk Fuel Storage Facility Defuel											
Vali	idation Firm	HDR Env	ironmenta	I, Operations and Construction, Inc.				Repair No.	143			
	Address	9781 S. N	leridian B	vd., Suite	400, Englewood, CO	80112		Repair ID	PSF.238			
C	Contract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	26 APR 2	023		
Q	V Engineer	(b) (6)		Phone (b) (6)			Email)			
					VALIDATION							
So	urce	F	PDF Page N	lo.	Facility Geograph	ic Area	Location Reference					
NDAA		71			(b) (3) (A)		(b) (3) (A)					
570: Damage			port completely deformed, removed from baseplate. API Damaged pipe support (impacted by a moving vehicle). lace support.				Source Contract Reference					
Co	escription of ntractor QC hod(s) Used		outlined in	detail in C	CP.	Contractor QC Reports. Records Reviewed			Daily			
Va	Methods outlin Description of QA Validation and Observations				D-4 09 MAR 2022							
	Rework	Final accept	ptance by g		Date: 08 MAR 2023 Photo Record Attached	1	Repair Work Validated as Complete					
0	Yes		No		See Page 2.			Yes	0	No		
Comments CERTIFICATION L hereby certify that repair work validated in this QV ENGINEER SIGNATURE (b) (6)												
report was personally substantiated and this report is true.				DATE 26 APR								



	QUALITY VALIDATION (QV) REPORT Red Hill Bulk Fuel Storage Facility Defuel										
]	Red Hill B	ulk Fuel Storage Fac	ility Defue	1				
Validat	tion Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	187		
	Address	9781 S. N	leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.	01	
Con	tract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	2023	
QV	Engineer	(b) (6)			Phone (b) (6)		Email	(b) ((6)		
					VALIDATION						
Sourc	e	F	DF Page N	o.	Facility Geograph	ic Area		Location	Reference		
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (A)				
Repair De	(b) (3) (A) associated with pipe support.						Sour	ce Contract Reference			
Description of Contractor QC Method(s) Used								ntractor QC s Reviewed			
	on of QA ation and ervations				ed EXWC - Compreh Service Assessment	ensive Rep	air List Re	commend	ations		
			otance by go		Date: 08 MAR 2023						
		Needed	No		Photo Record Attached	1	0		dated as Co		
. S leveraged p	Yes No N/A Comments Localized Fitness for Service (FFS) assessments were conducted at specific indications was limited to mechanical integrity principles leveraged previous integrity management work.									No , and	
FFS performed, no repair required for defuel.											
Reference:	EXWC -	Comprehe	ensive Rep	pair List Re	ecommendations / Pi	peline Fitne	ess for Ser	vice Asses	sment		
					CERTIFICATION						
l hereby certify report was pers	-			QV ENG	INEER SIGNATURE	(b)	(6)				
report is true.	shany Sub				DATE	05 APR 2	023				

	QUALITY VALIDATION (QV) REPORT Red Hill Bulk Fuel Storage Facility Defuel										
		F	Red Hill B	ulk Fuel Storage Fac	ility Defue	I					
Validation Firm	HDR Environr	mental	, Operatio	ns and Construction,	Inc.		Repair No.	189			
Address	9781 S. Merid	lian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.	03		
Contract No	FA890315D00	007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	.023		
QV Engineer	(b) (6)			Phone (b) (6)		Email	(b) (6	5)			
				VALIDATION							
Source	PDF I	Page N	0.	Facility Geograph	ic Area		Location	Reference			
EXWC	EXWC Recom	nmend	ation	(b) (3) ((b) (3) (<i>i</i>	A)				
Repair Description	0.300". Dent lo	ocated FFS Le	at bottom	e dent depth measure of a tee and has has essment. FFS assess	a	Sour	ce Contract Reference	N3943020 TO N394302 ⁻			
Description o Contractor QC Method(s) Used			ntractor QC s Reviewed	N/A							
Description of QA Validation and Observation	Update: Pipe			ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations			
	•	e by go	vernment.	Date: 08 MAR 2023							
	Needed	N		Photo Record Attached			Work Vali	dated as Co			
Yes No N/A Yes Comments Localized Fitness for Service (FFS) assessments were conducted at specific indications on Red Hill (b) (3) (a) Selection of indications was limited to mechanical integrity principles under assumed service conditional leveraged previous integrity management work.									No , and		
FFS performed, no repair required for defuel.											
Reference: EXWC	- Comprehensi	ve Rep	air List Re	ecommendations / Pi	peline Fitne	ess for Ser	vice Asses	sment			
				CERTIFICATION	(1)						
I hereby certify that repair work validated in this report was personally substantiated and this											
report is true.	ostantiiditeu dhu tills			DATE	05 APR 2	023					

	QUALITY VALIDATION (QV) REPORT Red Hill Bulk Fuel Storage Facility Defuel										
		I	Red Hill B	ulk Fuel Storage Fac	ility Defue	I					
Validation Firn	HDR Enviro	onmental	, Operatio	ns and Construction,	Inc.		Repair No.	190			
Addres	⁶ 9781 S. Me	ridian Bl	vd., Suite 4	400, Englewood, CO	80112		Repair ID	JP5.A21.0	04		
Contract No	FA890315D	00007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	023		
QV Enginee	(b) (6)			Phone (b) (6)		Email	(b) ((6)			
				VALIDATION							
Source	PD	F Page N	ю.	Facility Geograph	ic Area		Location	Reference			
EXWC	EXWC Reco	ommend	lation	(D) (3) (.		(b) (3) (<i>i</i>	A)				
Repair Description	coating rem	noval ^{(b) (3) (4}	a remove o	g. Not able to assess coating and inspect, F ssary.		Sour	ce Contract Reference	N3943020 TO N394302 ⁻			
Description of Contractor QC Method(s) Used							ntractor QC s Reviewed	N/A			
Description of QA Validation and Observation	Update: Pij			ed EXWC - Comprehe Service Assessment	ensive Rep	air List Re	commenda	ations			
		ince by go		Date: 08 MAR 2023		D .					
Yes	k Needed	No		Photo Record Attached N/A		Repair	Work Vali		npiete No		
s. Selection leveraged previous FFS performed, no											
I hereby certify that repair work validated in this report was personally substantiated and this											
report is true.				DATE	05 APR 2	023					



	QUALITY VALIDATION (QV) REPORT Red Hill Bulk Fuel Storage Facility Defuel											
			I	Red Hill B	ulk Fuel Storage Fac	ility Defue	el .					
Validatio	on Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	191			
ļ	Address	9781 S. N	leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.	05		
Contr	ract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	2023		
QV E	ngineer	(b) (6)			Phone (b) (6)		Email	(b) ((6)			
					VALIDATION							
Source	•	F	DF Page N	0.	Facility Geograph	ic Area		Location	Reference			
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (A)				
Repair Desc	Repair Description Dent, crosses long seam. FFS assessment and repair if necessary. N3943020D2 Repair Description Source Contract Reference N3943021F4											
Description of Contractor QC Method(s) Used N/A - no work provided. N/A									N/A			
Descriptior Validat Obser		Update:			ed EXWC - Comprehe Service Assessment	ensive Rep	oair List Re	commenda	ations			
			otance by go		Date: 08 MAR 2023							
	Rework	Needed			Photo Record Attached			Work Vali	dated as Co	mplete		
\bigcirc	Yes	$oldsymbol{O}$	No		N/A		$oldsymbol{O}$	Yes	O	No		
. Se leveraged pre	Comments Localized Fitness for Service (FFS) assessments were conducted at specific indications on Red Hill (b) (3) (A) Selection of indications was limited to mechanical integrity principles under assumed service conditions, and leveraged previous integrity management work. FFS performed, no repair required for defuel. Reference: EXWC - Comprehensive Repair List Recommendations / Pipeline Fitness for Service Assessment											
					CERTIFICATION							
I hereby certify th				QV ENG	INEER SIGNATURE	(b)	(6)					
report was perso report is true.	onally sub	stantiated an	d this		DATE	05 APR 2						

	QUALITY VALIDATION (QV) REPORT Red Hill Bulk Fuel Storage Facility Defuel											
			I	Red Hill B	Bulk Fuel Storage Fac	ility Defue						
Vali	dation Firm	HDR Env	ironmental	, Operatio	ons and Construction,	Inc.		Repair No.	192			
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.0	06		
С	ontract No.	FA89031	5D0007, D	.O. FA890)3-19-F-0027			Report Date	05 APR 2	023		
Q	V Engineer	(b) (6)			Phone (b) (6)		Email	(b) (6)			
					VALIDATION							
Sou	urce	F	PDF Page N	ю.	Facility Geograph	ic Area		Location	Reference			
EXWC		EXWC Re	ecommend	lation	(b) (3) (A)		(b) (3) (A)				
Repair I	Description	necessar	-	. FFS asse	essment and repair if		Sour	ce Contract Reference	N3943020 TO N394302 ⁻			
Description of Contractor QC Method(s) Used								ntractor QC s Reviewed	N/A			
Val	otion of QA lidation and bservations	Update:			ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commend	ations			
		•	otance by go	overnment.	Date: 08 MAR 2023							
\cap		Needed	No		Photo Record Attached	1	Repair	Vork Vali Yes	dated as Co	mplete No		
leveraged	Yes No N/A Comments Localized Fitness for Service (FFS) assessments were conducted at specific indic Selection of indications was limited to mechanical integrity principles ur everaged previous integrity management work. FFS performed, no repair required for defuel.							ed Hill <mark>(b)</mark>				
Reference	e: EXWC	- Compreh	ensive Rep	oair List R	ecommendations / Pi	peline Fitne	ess for Ser	vice Asses	sment			
					CERTIFICATION							
I hereby certify that repair work validated in this QV ENGINEER SIGNATURE (b) (6)												
report was p report is true	-	ostantiated an	a mis		DATE	05 APR 2	2023					

	QUALITY VALIDATION (QV) REPORT Red Hill Bulk Fuel Storage Facility Defuel											
			I	Red Hill B	ulk Fuel Storage Fac	ility Defue	I					
Vali	dation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	193			
	Address	9781 S. N	leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.0)7		
С	ontract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	023		
Q	V Engineer	(b) (6)			Phone (b) (6)		Emai	(b) (6	5)			
		I			VALIDATION							
Sou	urce	F	PDF Page N	ю.	Facility Geograph	ic Area		Location	Reference			
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (<i>i</i>	A)				
Repair I	Description	and repair	c anomaly r if necess		o girth weld. FFS ass	essment	Sour	ce Contract Reference	N3943020 TO N3943021			
Cor	Description of Contractor QC Method(s) Used							ntractor QC s Reviewed	N/A			
Val	otion of QA lidation and bservations	Update:			ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations			
			otance by go	overnment.	Date: 08 MAR 2023							
		Needed			Photo Record Attached		0		dated as Co			
Comments	Yes	ullet	No		N/A		ullet	Yes	\bigcirc	No		
Localized Fitness for Service (FFS) assessments were conducted at specific indications on Red Hill (b) (3) (A) Selection of indications was limited to mechanical integrity principles under assumed service conditions, at leveraged previous integrity management work. FFS performed, no repair required for defuel. Reference: EXWC - Comprehensive Repair List Recommendations / Pipeline Fitness for Service Assessment								and				
					CERTIFICATION							
I hereby certify that repair work validated in this QV ENGINEER SIGNATURE												
report was p report is true		estantiated an	d this		DATE	05 APR 2	023					

	QUALITY VALIDATION (QV) REPORT Red Hill Bulk Fuel Storage Facility Defuel											
			l	Red Hill B	ulk Fuel Storage Fac	ility Defue	I					
Vali	dation Fi rm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	195			
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.0)9		
С	ontract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	023		
Q	V Engineer	(b) (6)			Phone (b) (6)		Emai	$\left(l_{a} \right) \left(l_{a} \right)$	5)			
					VALIDATION							
Sou	urce	I	PDF Page N	o.	Facility Geograph	ic Area		Location	Reference			
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (<i>i</i>	A)				
Repair	Description		ent. FFS a	ssessment	and repair if necess	ary.	Sour	ce Contract Reference	N3943020 TO N3943021			
Cor	Description of Contractor QC Method(s) Used							ntractor QC s Reviewed	N/A			
Val	otion of QA lidation and bservations	Update:			ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations			
		Final accep	ptance by go	overnment.	Date: 08 MAR 2023							
	Rework	Needed			Photo Record Attached	1	Repair	Work Vali	dated as Cor	nplete		
0	Yes	$oldsymbol{O}$	No		N/A		$oldsymbol{O}$	Yes	0	No		
Comments Localized Fitness for Service (FFS) assessments were conducted at specific indications on Red Hill (b) (3) (A) Selection of indications was limited to mechanical integrity principles under assumed service conditions, and leveraged previous integrity management work. FFS performed, no repair required for defuel. Reference: EXWC - Comprehensive Repair List Recommendations / Pipeline Fitness for Service Assessment									and			
					CERTIFICATION							
I hereby certify that repair work validated in this report was personally substantiated and this												
report was p report is true	-	stantiated an	a this		DATE	05 APR 2	.023					

	QUALITY VALIDATION (QV) REPORT Red Hill Bulk Fuel Storage Facility Defuel											
			I	Red Hill B	ulk Fuel Storage Fac	ility Defue	I					
Valio	dation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	196			
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.1	10		
C	ontract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	023		
Q	V Engineer	(b) (6)			Phone (b) (6)		Emai	(b) (e	5)			
					VALIDATION							
Sou	ırce	I	PDF Page N	0.	Facility Geograph	ic Area		Location	Reference			
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (<i>i</i>	A)				
Repair [Description	necessar	-	FFS asse	essment and repair if		Sour	ce Contract Reference	N3943020 TO N3943021			
Cor	Description of Contractor QC Method(s) Used							ntractor QC s Reviewed	N/A			
Val	ntion of QA idation and bservations	Update:			ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations			
		Final accep	otance by go	overnment.	Date: 08 MAR 2023							
	Rework	Needed			Photo Record Attached		Repair	Work Vali	dated as Cor	mplete		
0	Yes	$oldsymbol{O}$	No		N/A		$oldsymbol{O}$	Yes	0	No		
Comments Localized Fitness for Service (FFS) assessments were conducted at specific indications on Red Hill (b) (3) (A) Selection of indications was limited to mechanical integrity principles under assumed service conditions, and leveraged previous integrity management work. FFS performed, no repair required for defuel. Reference: EXWC - Comprehensive Repair List Recommendations / Pipeline Fitness for Service Assessment									and			
					CERTIFICATION		$\langle \mathbf{O} \rangle$					
I hereby certify that repair work validated in this report was personally substantiated and this												
report is true	-		u 110		DATE	05 APR 2	023					

	QUALITY VALIDATION (QV) REPORT Red Hill Bulk Fuel Storage Facility Defuel											
				Red Hill B	ulk Fuel Storage Fac	ility Defue	I					
Valid	lation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	197			
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.1	11		
Co	ontract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	023		
Q	V Engineer	(b) (6)			Phone (b) (6)		Emai	$\left(l_{a} \right) \left(l_{a} \right)$	5)			
					VALIDATION							
Sou	rce	I	PDF Page N	0.	Facility Geograph	ic Area		Location	Reference			
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (<i>i</i>	A)				
Repair D	Description	necessar	-	th weld. F	FS assessment and r	epair if	Sour	ce Contract Reference	N3943020 TO N3943021			
Con	Description of Contractor QC Method(s) Used							ntractor QC s Reviewed	N/A			
Vali	tion of QA idation and oservations	Update:			ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations			
		Final accep	ptance by go	overnment.	Date: 08 MAR 2023							
	Rework	Needed			Photo Record Attached		Repair	Work Vali	dated as Cor	mplete		
0	Yes	$oldsymbol{eta}$	No		N/A		$oldsymbol{igo}$	Yes	0	No		
Comments Localized Fitness for Service (FFS) assessments were conducted at specific indications on Red Hill (b) (3) (A) Selection of indications was limited to mechanical integrity principles under assumed service conditions, and leveraged previous integrity management work. FFS performed, no repair required for defuel. Reference: EXWC - Comprehensive Repair List Recommendations / Pipeline Fitness for Service Assessment									and			
					CERTIFICATION		$\langle \mathbf{O} \rangle$					
l hereby certi report was pe				QV ENG	INEER SIGNATURE	(b)	(6)					
report is true.	-				DATE	05 APR 2	.023					

	QUALITY VALIDATION (QV) REPORT Red Hill Bulk Fuel Storage Facility Defuel										
			I	Red Hill B	ulk Fuel Storage Fac	ility Defue	I				
Validati	ion Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	198		
	Address	9781 S. N	leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.1	12	
Cont	ract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	023	
QV E	Engineer	(b) (6)			Phone (b) (6)		Emai	(b) (e	5)		
					VALIDATION				-		
Source	e	F	DF Page N	0.	Facility Geograph	ic Area		Location	Reference		
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (<i>i</i>	A)			
Repair Des	scription	necessar	-	FFS asse	essment and repair if		Sour	ce Contract Reference	N3943020 TO N3943021		
Contra	Description of Contractor QC Method(s) Used							ntractor QC s Reviewed	N/A		
	n of QA ition and ervations				ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations		
			otance by go	overnment.	Date: 08 MAR 2023						
	Rework	Needed			Photo Record Attached				dated as Co		
O	Yes	ullet	No		N/A		ullet	Yes	\bigcirc	No	
Comments Localized Fitness for Service (FFS) assessments were conducted at specific indications on Red Hill (b) (3) (A) Selection of indications was limited to mechanical integrity principles under assumed service conditions, and leveraged previous integrity management work. FFS performed, no repair required for defuel. Reference: EXWC - Comprehensive Repair List Recommendations / Pipeline Fitness for Service Assessment									and		
					CERTIFICATION		$\langle \mathbf{O} \rangle$				
I hereby certify that repair work validated in this report was personally substantiated and this											
report is true.	onuny oub		a ano		DATE	05 APR 2	023				

	QUALITY VALIDATION (QV) REPORT Red Hill Bulk Fuel Storage Facility Defuel											
			I	Red Hill B	ulk Fuel Storage Fac	ility Defue	I					
Validatio	on Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	199			
ļ	Address	9781 S. N	leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.1	13		
Contr	act No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	023		
QV E	ngineer	(b) (6)			Phone (b) (6)		Emai	(b) (e	5)			
					VALIDATION							
Source		I	PDF Page N	0.	Facility Geograph	ic Area		Location	Reference			
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (<i>i</i>	A)				
Repair Desc	cription	necessar	ong seam. y.	FFS asse		Sour	ce Contract Reference	N3943020 TO N3943021				
Contrac	Description of Contractor QC Method(s) Used							ntractor QC s Reviewed	N/A			
Descriptior Validat Obser		Update:			ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations			
			ptance by go	overnment.	Date: 08 MAR 2023							
	Rework	Needed			Photo Record Attached				dated as Co	mplete		
\bigcirc	Yes	ullet	No		N/A		ullet	Yes	\bigcirc	No		
Comments Localized Fitness for Service (FFS) assessments were conducted at specific indications on Red Hill (b) (3) (A) Selection of indications was limited to mechanical integrity principles under assumed service conditions, and leveraged previous integrity management work. FFS performed, no repair required for defuel. Reference: EXWC - Comprehensive Repair List Recommendations / Pipeline Fitness for Service Assessment									and			
					CERTIFICATION							
I hereby certify that repair work validated in this report was personally substantiated and this												
report is true.		ostantuateu an	u (())		DATE	05 APR 2	023					

	QUALITY VALIDATION (QV) REPORT Red Hill Bulk Fuel Storage Facility Defuel											
			I	Red Hill B	ulk Fuel Storage Fac	ility Defue	I					
Valio	dation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	200			
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.1	14		
C	ontract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	023		
Q	V Engineer	(b) (6)			Phone (b) (6)		Emai	(b) (e	5)			
					VALIDATION				-			
Sou	urce	I	PDF Page N	0.	Facility Geograph	ic Area		Location	Reference			
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (A)				
Repair [Description	necessar	-	FFS asse	essment and repair if		Sour	ce Contract Reference	N3943020 TO N3943021			
Cor	Description of Contractor QC Method(s) Used							ntractor QC s Reviewed	N/A			
Val	ntion of QA idation and bservations	Update:			ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations			
		Final accep	otance by go	overnment.	Date: 08 MAR 2023							
	Rework	Needed			Photo Record Attached		Repair	Work Vali	dated as Cor	mplete		
0	Yes	$oldsymbol{O}$	No		N/A		$oldsymbol{igo}$	Yes	0	No		
Comments Localized Fitness for Service (FFS) assessments were conducted at specific indications on Red Hill (b) (3) (A) Selection of indications was limited to mechanical integrity principles under assumed service conditions, and leveraged previous integrity management work. FFS performed, no repair required for defuel. Reference: EXWC - Comprehensive Repair List Recommendations / Pipeline Fitness for Service Assessment									and			
					CERTIFICATION		$\langle \mathbf{O} \rangle$					
I hereby certify that repair work validated in this report was personally substantiated and this												
report is true	-		G UII3		DATE	05 APR 2	.023					

				QUALI	TY VALIDATION (QV) REPO	DRT			
			l	Red Hill B	ulk Fuel Storage Fac	ility Defue	I			
Valio	dation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	201	
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.1	15
C	ontract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	023
Q	V Engineer	(b) (6)			Phone (b) (6)		Emai	(b) (e	5)	
					VALIDATION					
Soι	ırce	I	PDF Page N	0.	Facility Geograph	ic Area		Location	Reference	
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (<i>i</i>	A)		
Repair I	Description Dent, on long seam. FFS assessment and repair if necessary. Source Contract Reference									
Cor	Description of Contractor QC Method(s) Used N/A - no work provided. N/A - no work provided. N/A - no work provided. N/A - no work provided. N/A - no work provided. Records Reviewed									
Val	ntion of QA idation and bservations	Update:			ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations	
		Final accep	otance by go	overnment.	Date: 08 MAR 2023					
	Rework	Needed			Photo Record Attached		Repair	Work Vali	dated as Cor	mplete
0	Yes	$oldsymbol{O}$	No		N/A		$oldsymbol{O}$	Yes	0	No
leveraged FFS perfo	Selection I previous i ormed, no i	of indication integrity ma repair requ	ons was lir anagemen ired for de	nited to me t work. fuel.	vere conducted at spe echanical integrity pri ecommendations / Pip	nciples und	ler assume	ed service	conditions,	and
					CERTIFICATION		(\mathbf{O})			
		work validate		QV ENG	INEER SIGNATURE	(D)	(6)			
report is true	-		-		DATE	05 APR 2	.023			

				QUALI	TY VALIDATION (QV) REPC	DRT			
			I	Red Hill B	ulk Fuel Storage Fac	ility Defue	I			
Valid	lation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	202	
	Address	9781 S. N	leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.1	16
Co	ontract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	023
Q	V Engineer	(b) (6)			Phone (b) (6)		Emai	$\left(\mathbf{b} \right) $	5)	
					VALIDATION					
Sou	rce	I	DF Page N	o.	Facility Geograph	ic Area		Location	Reference	
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (A)		
Repair D	Repair Description Geometric anomaly adjacent to girth weld. FFS assessment and repair if necessary. N3943020D2222 Repair Description Source Contract Reference N3943021F4207									
Description of Contractor QC Method(s) Used N/A - no work provided. N/A - no work provided. N/A Contractor QC Records Reviewed										
Vali	tion of QA idation and oservations	Update:			ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations	
			otance by go	overnment.	Date: 08 MAR 2023					
	Rework	Needed			Photo Record Attached		Repair	Work Vali	dated as Co	nplete
O	Yes	ullet	No		N/A		ullet	Yes	O	No
leveraged FFS perfo	Selection previous i rmed, no i	of indication integrity ma repair requ	ons was lir anagemen ired for def	nited to me t work. fuel.	ere conducted at spe echanical integrity priv ecommendations / Pip	nciples und	ler assume	ed service	conditions,	and
					CERTIFICATION					
		work validate		QV ENG	INEER SIGNATURE	(b)	(6)			
report was pe report is true.	-	stantiated an			DATE	05 APR 2	.023			

				QUALI	TY VALIDATION (QV) REPC	DRT			
			l	Red Hill B	ulk Fuel Storage Fac	ility Defue	I			
Valio	dation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	203	
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.1	17
C	ontract No.	FA89031	5D0007, D	.O. FA890)3-19-F-0027			Report Date	05 APR 2	023
Q	V Engineer	(b) (6)			Phone (b) (6)		Emai	$\left(l_{a} \right) \left(l_{a} \right)$	5)	
					VALIDATION					
Sou	urce	I	PDF Page N	0.	Facility Geograph	ic <mark>A</mark> rea		Location	Reference	
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (<i>i</i>	A)		
Repair I	epair Description Double dent. FFS assessment and repair if necessary. N3943020D22 Source Contract Reference									
Description of Contractor QC Method(s) Used N/A - no work provided. N/A Contractor QC Records Reviewed										
Val	ntion of QA idation and bservations	Update:			ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations	
		Final accep	ptance by go	overnment.	Date: 08 MAR 2023					
	Rework	Needed			Photo Record Attached	1	Repair	Work Vali	dated as Cor	mplete
0	Yes	$oldsymbol{O}$	No		N/A		$oldsymbol{O}$	Yes	Ο	No
leveraged FFS perfo	Selection I previous i ormed, no r	of indication integrity ma repair requ	ons was lir anagemen ired for de	nited to me t work. fuel.	vere conducted at spe echanical integrity priv ecommendations / Pip	nciples unc	ler assume	ed service	conditions,	and
					CERTIFICATION		$\langle \mathbf{O} \rangle$			
		work validate		QV ENG	INEER SIGNATURE	(b)	(6)			
report is true	-		u iio		DATE	05 APR 2	.023			

				QUALI	TY VALIDATION (QV) REPC	DRT			
				Red Hill B	ulk Fuel Storage Fac	ility Defue	I			
Vali	dation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	204	
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.1	18
С	ontract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	023
Q	V Engineer	(b) (6)			Phone (b) (6)		Emai	(b) (e	5)	
					VALIDATION					
Sou	urce	I	PDF Page N	о.	Facility Geograph	ic Area		Location	Reference	
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (<i>i</i>	A)		
Repair	air Description Dent, on long seam. FFS assessment and repair if necessary. N3943020D22 Source Contract Reference N3943020D22 N3943021F42									
Description of Contractor QC Method(s) Used N/A - no work provided. N/A - no work provided. N/A - no work provided. N/A - no work provided. Records Reviewed										
Val	otion of QA lidation and bservations	Update:			ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations	
		Final accep	otance by go	overnment.	Date: 08 MAR 2023					
	Rework	Needed			Photo Record Attached	1	Repair	Work Vali	dated as Cor	mplete
0	Yes	ullet	No		N/A		$oldsymbol{O}$	Yes	0	No
leveraged FFS perfo	Fitness fo Selection I previous i prmed, no i	of indication integrity ma repair requ	ons was lir anagemen ired for de	nited to me t work. fuel.	vere conducted at spe echanical integrity pri ecommendations / Pi	nciples unc	ler assume	ed service	conditions,	and
					CERTIFICATION		$\langle \mathbf{O} \rangle$			
	tify that repair ersonally sub			QV ENG	INEER SIGNATURE	(D)	(6)			
report is true	-				DATE	05 APR 2	023			

				QUALI	TY VALIDATION (QV) REPC	DRT			
				Red Hill B	ulk Fuel Storage Fac	ility Defue	1			
Valid	lation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	205	
	Address	9781 S. N	leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.1	19
Co	ontract No.	FA89031	5D0007, D	.O. FA890)3-19-F-0027			Report Date	05 APR 2	023
Q	V Engineer	(b) (6)			Phone (b) (6)		Emai	(b) (e	5)	
					VALIDATION					
Sou	rce	I	DF Page N	o.	Facility Geograph	ic Area		Location	Reference	
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (<i>i</i>	A)		
Repair D	Description	necessar	-	FFS asse	essment and repair if		Sour	ce Contract Reference	N3943020 TO N3943021	
Description of Contractor QC Method(s) Used N/A - no work provided. N/A - no work provided. N/A - no work provided. N/A - no work provided. Records Reviewed										
Vali	tion of QA idation and oservations	Update:			ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations	
			ance by gov	ernment. I	Date: 08 MAR 2023					
\sim		Needed			Photo Record Attached				dated as Cor	
Commente	Yes	ullet	No		N/A		ullet	Yes	\bigcirc	No
leveraged FFS perfor	Selection previous i rmed, no r	of indication integrity ma repair requ	ons was lir anagemen ired for def	nited to me t work. fuel.	vere conducted at spe echanical integrity prin ecommendations / Pip	nciples und	ler assume	ed service	conditions,	and
					CERTIFICATION					
l hereby certi				QV ENG	INEER SIGNATURE	(b)	(6)			
report was pe report is true.	-	stantiated an	d this		DATE	05 APR 2	.023			

				QUALI	TY VALIDATION (QV) REPC	DRT			
			I	Red Hill B	ulk Fuel Storage Fac	ility Defue				
Valid	lation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	206	
	Address	9781 S. N	leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.2	20
Co	ontract No.	FA89031	5D0007, D	.O. FA890)3-19-F-0027			Report Date	05 APR 2	023
Q	V Engineer	(b) (6)			Phone (b) (6)		Emai	(b) (e	5)	
					VALIDATION					
Sou	irce	F	PDF Page N	0.	Facility Geograph	ic Area		Location	Reference	
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (<i>i</i>	A)		
Repair D	Description		ent. FFS as	ssessment	t and repair if necessa	ary.	Sour	ce Contract Reference	N3943020 TO N3943021	
Description of Contractor QC Method(s) Used N/A - no work provided. N/A - no work provided. N/A - no work provided. Records Reviewed										
Vali	tion of QA idation and oservations				ed EXWC - Comprehe Service Assessment	ensive Rep	oair List Re	commenda	ations	
		Final accep	otance by go	overnment.	Date: 08 MAR 2023					
	Rework	Needed			Photo Record Attached			Work Vali	dated as Co	mplete
0	Yes	ullet	No		N/A		$oldsymbol{O}$	Yes	Ο	No
leveraged FFS perfo	Selection previous i rmed, no r	of indication ntegrity ma repair requi	ons was lir anagemen ired for def	nited to me t work. fuel.	vere conducted at spe echanical integrity prin ecommendations / Pip	nciples und	ler assume	ed service	conditions,	and
					CERTIFICATION		(\mathbf{c})			
l hereby certi report was pe				QV ENG	INEER SIGNATURE	(D)	(6)			
report is true.					DATE	05 APR 2	.023			

				QUALI	TY VALIDATION (QV) REPC	DRT			
			l	Red Hill B	ulk Fuel Storage Fac	ility Defue	I			
Valid	lation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	207	
	Address	9781 S. N	leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.2	21
Co	ontract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	023
Q	V Engineer	(b) (6)			Phone (b) (6)		Emai	$\left(\mathbf{b} \right) $	5)	
		I			VALIDATION		•			
Sou	rce	I	PDF Page N	o.	Facility Geograph	ic Area		Location	Reference	
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (<i>i</i>	A)		
Repair D	air Description Double dent. FFS assessment and repair if necessary. N3943020D22 TO N3943021F42									
Description of Contractor QC Method(s) Used N/A - no work provided. N/A Contractor QC Records Reviewed										
Vali	tion of QA dation and oservations	Update:			ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations	
		Final accep	otance by go	overnment.	Date: 08 MAR 2023					
	Rework	Needed			Photo Record Attached		Repair	Work Vali	dated as Cor	mplete
0	Yes	$oldsymbol{O}$	No		N/A		\odot	Yes	0	No
leveraged FFS perfor	Selection previous i rmed, no r	of indication integrity ma repair requ	ons was lir anagemen ired for de	nited to me t work. fuel.	ere conducted at spe echanical integrity prin ecommendations / Pip	nciples und	der assume	ed service	conditions,	and
					CERTIFICATION		$\langle \mathbf{O} \rangle$			
l hereby certit report was pe				QV ENG	INEER SIGNATURE	(b)	(6)			
report is true.	-		u u ii ə		DATE	05 APR 2	2023			

				QUALI	TY VALIDATION (QV) REPC	DRT			
			l	Red Hill B	ulk Fuel Storage Fac	ility Defue	I			
Valio	dation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	208	
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.2	22
С	ontract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	023
Q	V Engineer	(b) (6)			Phone (b) (6)		Emai	(b) (e	5)	
					VALIDATION					
Sou	urce	I	PDF Page N	0.	Facility Geograph	ic Area		Location	Reference	
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (<i>i</i>	A)		
Repair I	Description	necessar	-	FFS asse	essment and repair if		Sour	ce Contract Reference	N3943020 TO N3943021	
Description of Contractor QC Method(s) Used N/A - no work provided. N/A - no work provided. N/A - no work provided. N/A - no work provided. Records Reviewed										
Val	otion of QA lidation and bservations	Update:			ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations	
		Final accep	ptance by go	overnment.	Date: 08 MAR 2023					
	Rework	Needed			Photo Record Attached	1	Repair	Work Vali	dated as Co	nplete
0	Yes	$oldsymbol{O}$	No		N/A		$oldsymbol{O}$	Yes	0	No
leveraged FFS perfo	Fitness fo Selection I previous i prmed, no i	of indication integrity ma repair requ	ons was lir anagemen ired for de	nited to me t work. fuel.	rere conducted at spe echanical integrity prin ecommendations / Pip	nciples unc	ler assume	ed service	conditions,	and
					CERTIFICATION	(b)	(\mathbf{C})			
		work validate		QV ENG	INEER SIGNATURE	(D)	(6)			
report is true	-				DATE	05 APR 2	.023			

				QUALI	TY VALIDATION (QV) REPO	DRT			
			I	Red Hill B	ulk Fuel Storage Fac	ility Defue	I			
Valio	dation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	209	
	Address	9781 S. N	leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.2	23
C	ontract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	023
Q	V Engineer	(b) (6)			Phone (b) (6)		Emai	(b) (6	5)	
					VALIDATION					
Sou	urce	I	PDF Page N	0.	Facility Geograph	ic Area		Location	Reference	
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (<i>i</i>	A)		
Repair [Repair Description Geometric anomaly adjacent to girth weld. FFS assessment and repair if necessary. N3943020D222 Repair Description Source Contract Reference N3943021F4207									
Description of Contractor QC Method(s) Used N/A - no work provided. N/A - no work provided. N/A Contractor QC Records Reviewed										
Val	ntion of QA idation and bservations	Update:			ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations	
			otance by go	overnment.	Date: 08 MAR 2023					
	Rework	Needed			Photo Record Attached		Repair	Work Vali	dated as Co	mplete
0	Yes	$oldsymbol{O}$	No		N/A		$oldsymbol{O}$	Yes	O	No
leveraged FFS perfo	Fitness fo Selection I previous i prmed, no i	of indication integrity ma repair requ	ons was lir anagemen ired for def	nited to me t work. fuel.	rere conducted at spe echanical integrity pri ecommendations / Pip	nciples unc	der assume	ed service	conditions,	and
					CERTIFICATION					
		work validate		QV ENG	INEER SIGNATURE	(b)	(6)			
report is true	-	ostantuateu an	u (())		DATE	05 APR 2	2023			

				QUALI	TY VALIDATION (QV) REPO	DRT			
			I	Red Hill B	ulk Fuel Storage Fac	ility Defue	I			
Valio	dation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	210	
	Address	9781 S. N	leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.2	24
C	ontract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	023
Q	V Engineer	(b) (6)			Phone (b) (6)		Emai	$\left(\mathbf{b} \right) $	5)	
		I			VALIDATION					
Sou	ırce	I	PDF Page N	o.	Facility Geograph	ic Area		Location	Reference	
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (<i>i</i>	A)		
Repair I	Repair Description Geometric anomaly adjacent to girth weld. FFS assessment and repair if necessary. N3943020D2228 N3943020D2228 TO N3943021F4207									
Description of Contractor QC Method(s) Used N/A - no work provided. N/A - no work provided. N/A Contractor QC Records Reviewed										
Val	ntion of QA idation and bservations	Update:			ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations	
			otance by go	overnment.	Date: 08 MAR 2023					
	Rework	Needed			Photo Record Attached		Repair	Work Vali	dated as Co	mplete
0	Yes	$oldsymbol{O}$	No		N/A		$oldsymbol{O}$	Yes	O	No
leveraged FFS perfo	Fitness fo Selection I previous i prmed, no i	of indication integrity ma repair requ	ons was lir anagemen ired for def	nited to me t work. fuel.	rere conducted at spe echanical integrity prive ecommendations / Pip	nciples unc	der assume	ed service	conditions,	and
					CERTIFICATION					
		work validate		QV ENG	INEER SIGNATURE	(b)	(6)			
report was p report is true	-	stantiated an	a this		DATE	05 APR 2	2023			

				QUALI	TY VALIDATION (QV) REPO	DRT			
				Red Hill B	ulk Fuel Storage Fac	ility Defue				
Valid	ation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	211	
	Address	9781 S. N	leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.2	25
Co	ontract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	023
QV	/ Engineer	(b) (6)			Phone (b) (6)		Emai	(b) (6	5)	
					VALIDATION					
Sou	rce	I	DF Page N	0.	Facility Geograph	ic Area		Location	Reference	
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (<i>i</i>	A)		
Repair D	Repair Description Geometric anomaly adjacent to girth weld. FFS assessment and repair if necessary. N3943020D222 Repair Description Source Contract Reference N3943021F420									
Description of Contractor QC Method(s) Used N/A - no work provided. N/A - no work provided. N/A - no work provided. N/A - no work provided. Records Reviewed										
Vali	tion of QA dation and oservations	Update:			ed EXWC - Comprehe Service Assessment	ensive Rep	oair List Re	commenda	ations	
		Final accep	otance by go	overnment.	Date: 08 MAR 2023					
	Rework	Needed			Photo Record Attached		Repair	Work Vali	dated as Co	nplete
0	Yes	$oldsymbol{O}$	No		N/A		$oldsymbol{O}$	Yes	0	No
leveraged FFS perfor	Selection previous i rmed, no i	of indication integrity ma repair requ	ons was lir anagemen ired for def	nited to me t work. fuel.	ere conducted at spe echanical integrity prin ecommendations / Pip	nciples unc	ler assume	ed service	conditions,	and
					CERTIFICATION		$\langle \mathbf{O} \rangle$			
l hereby certif report was pe				QV ENG	INEER SIGNATURE	(b)	(6)			
report is true.	-		u ulio		DATE	05 APR 2	.023			

				QUALI	TY VALIDATION (QV) REPC	DRT			
			l	Red Hill B	ulk Fuel Storage Fac	ility Defue	I			
Valio	dation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	212	
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.2	26
C	ontract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	023
Q	V Engineer	(b) (6)			Phone (b) (6)		Emai	(b) (e	5)	
					VALIDATION					
Sou	ırce	I	PDF Page N	о.	Facility Geograph	ic Area		Location	Reference	
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (<i>i</i>	A)		
Repair I	air Description Double dent. FFS assessment and repair if necessary. N3943020D22 Source Contract Reference N3943021F42									
Description of Contractor QC Method(s) Used N/A - no work provided. N/A - no work provided. N/A Contractor QC Records Reviewed										
Val	ntion of QA idation and bservations	Update:			ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations	
		Final accep	ptance by go	overnment.	Date: 08 MAR 2023					
	Rework	Needed			Photo Record Attached		Repair	Work Vali	dated as Cor	mplete
0	Yes	$oldsymbol{O}$	No		N/A		$oldsymbol{O}$	Yes	0	No
leveraged FFS perfo	Selection I previous i ormed, no r	of indication integrity ma repair requ	ons was lir anagemen ired for de	nited to me t work. fuel.	rere conducted at spe echanical integrity pri ecommendations / Pip	nciples und	ler assume	ed service	conditions,	and
					CERTIFICATION					
		work validate		QV ENG	INEER SIGNATURE	(b)	(6)			
report is true	-		u iio		DATE	05 APR 2	.023			

				QUALI	TY VALIDATION (QV) REPC	DRT			
			I	Red Hill B	ulk Fuel Storage Fac	ility Defue	I			
Valio	dation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	213	
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.2	27
С	ontract No.	FA89031	5D0007, D	.O. FA890)3-19-F-0027			Report Date	05 APR 2	023
Q	V Engineer	(b) (6)			Phone (b) (6)		Emai	(b) (e	5)	
					VALIDATION					
Sou	urce	I	PDF Page N	0.	Facility Geographic Area			Location	Reference	
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (<i>i</i>	A)		
Repair I	Dent, on long seam. FFS assessment and repair if necessary. Repair Description							Source Contract Reference N3943020D2 TO N3943021F42		
Description of Contractor QC Method(s) Used							N/A Contractor QC Records Reviewed			
Val	otion of QA lidation and bservations	Update:			ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations	
		Final accep	otance by go	overnment.	Date: 08 MAR 2023					
	Rework	Needed			Photo Record Attached		Repair	Work Vali	dated as Cor	nplete
0	Yes	$oldsymbol{O}$	No		N/A		$oldsymbol{O}$	Yes	0	No
leveraged FFS perfo	Comments Localized Fitness for Service (FFS) assessments were conducted at specific indications on Red Hill (b) (3) (A) Selection of indications was limited to mechanical integrity principles under assumed service conditions, and leveraged previous integrity management work. FFS performed, no repair required for defuel. Reference: EXWC - Comprehensive Repair List Recommendations / Pipeline Fitness for Service Assessment									
					CERTIFICATION		(\mathbf{O})			
		work validate		QV ENG	INEER SIGNATURE	(D)	(6)			
report is true	-				DATE	05 APR 2	.023			

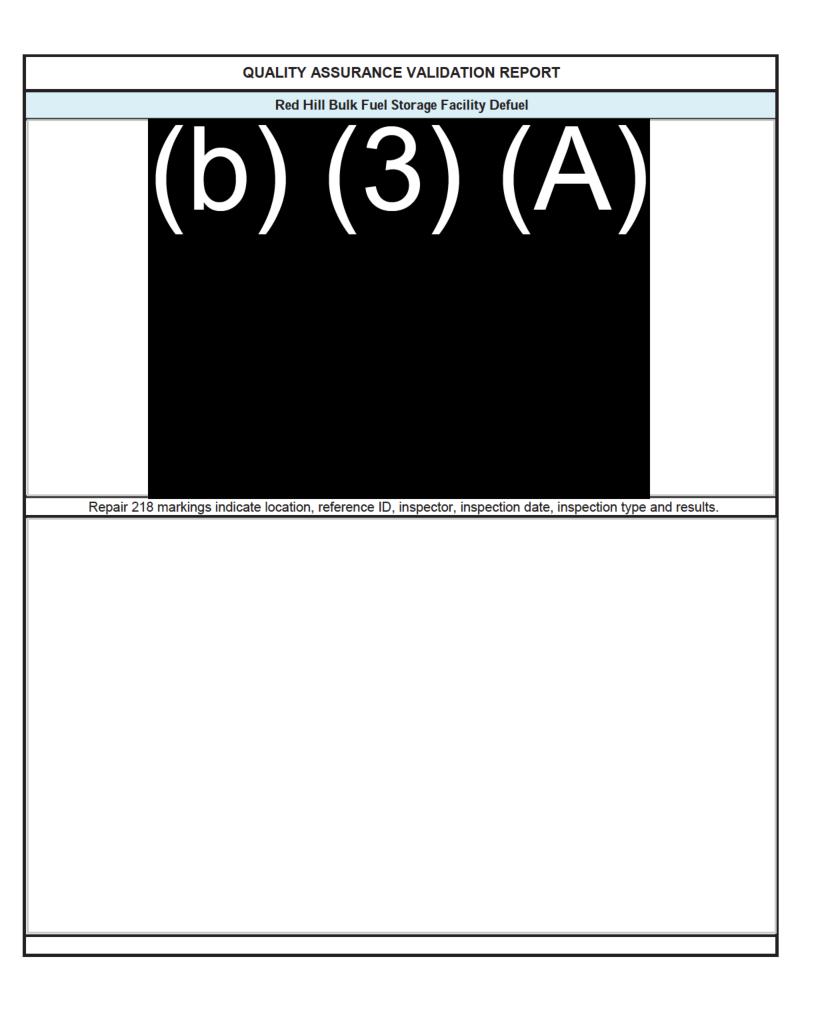
				QUALI	TY VALIDATION (QV) REPO	DRT			
				Red Hill B	ulk Fuel Storage Fac	ility Defue				
Valio	dation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	214	
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.2	28
С	ontract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	023
Q	V Engineer	(b) (6)			Phone (b) (6)		Emai	(b) (6	5)	
					VALIDATION					
Sou	urce	I	PDF Page N	0.	5. Facility Geographic Area			Location	Reference	
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (A)			
Repair I	Repair Description Geometric anomaly adjacent to girth weld. FFS assessment and repair if necessary.							Source Contract Reference N3943020D22 TO N3943021F420		
Cor	Description of Contractor QC Method(s) Used							N/A Contractor QC Records Reviewed		
Val	otion of QA lidation and bservations	Update:			ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations	
		Final accep	otance by go	overnment.	Date: 08 MAR 2023					
	Rework	Needed			Photo Record Attached		Repair	Work Vali	dated as Co	mplete
0	Yes	$oldsymbol{O}$	No		N/A		$oldsymbol{O}$	Yes	Ο	No
leveraged FFS perfo	Comments Localized Fitness for Service (FFS) assessments were conducted at specific indications on Red Hill (b) (3) (A) Selection of indications was limited to mechanical integrity principles under assumed service conditions, and leveraged previous integrity management work. FFS performed, no repair required for defuel. Reference: EXWC - Comprehensive Repair List Recommendations / Pipeline Fitness for Service Assessment									
					CERTIFICATION		$\langle \mathbf{O} \rangle$			
		work validate		QV ENG	INEER SIGNATURE	(D)	(6)			
report is true	-				DATE	05 APR 2	2023			

				QUALI	TY VALIDATION (QV) REPO	ORT			
			I	Red Hill B	ulk Fuel Storage Fac	ility Defue	I			
Validat	tion Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	215	
	Address	9781 S. N	leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.2	29
Con	ntract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	023
QV	Engineer	(b) (6)			Phone (b) (6)		Emai	(b) (6	5)	
					VALIDATION					
Sourc	ce	F	PDF Page N	0.	Facility Geographic Area			Location	Reference	
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (A)			
Repair De	Repair Description Dent, on long seam. FFS assessment and repair if							ce Contract Reference	N3943020 TO N3943021	
Contra	Description of Contractor QC Method(s) Used							N/A Contractor QC Records Reviewed		
	on of QA ation and ervations				ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations	
			ptance by go	overnment.	Date: 08 MAR 2023					
	Rework	Needed			Photo Record Attached				dated as Co	
O	Yes	ullet	No		N/A		ullet	Yes	\bigcirc	No
Localized Fi S leveraged p FFS perform	Comments Localized Fitness for Service (FFS) assessments were conducted at specific indications on Red Hill (b) (3) (A) Selection of indications was limited to mechanical integrity principles under assumed service conditions, and leveraged previous integrity management work. FFS performed, no repair required for defuel. Reference: EXWC - Comprehensive Repair List Recommendations / Pipeline Fitness for Service Assessment									
					CERTIFICATION					
I hereby certify report was pers				QV ENG	INEER SIGNATURE	(b) (6)				
report is true.	sonany sub		u ulio		DATE	05 APR 2	023			

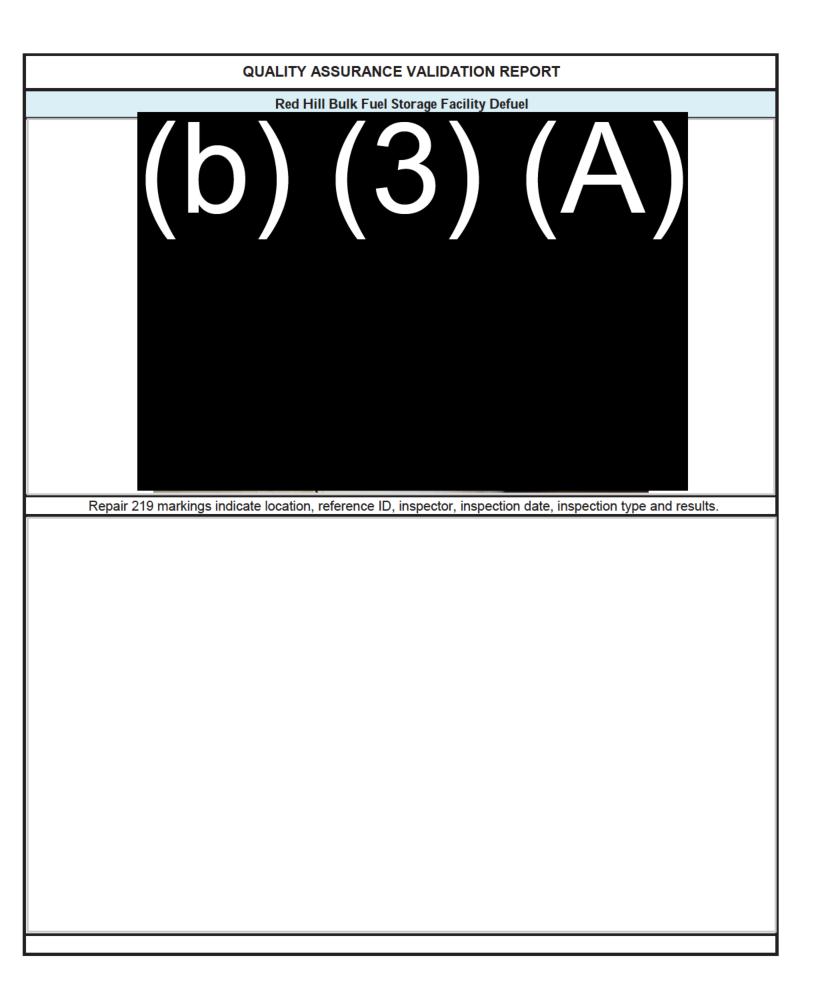
				QUALI	TY VALIDATION (QV) REPO	DRT			
				Red Hill B	ulk Fuel Storage Fac	ility Defue				
Valio	dation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	216	
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.3	30
C	ontract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	023
Q	V Engineer	(b) (6)			Phone (b) (6)		Emai	(b) (e	5)	
					VALIDATION				-	
Sou	urce	I	PDF Page N	о.	o. Facility Geographic Area			Location	Reference	
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (A)			
Repair I	Geometric anomaly adjacent to girth weld. FFS assessmen and repair if necessary.							Source Contract Reference N3943020D22 TO N3943021F42		
Cor	Description of Contractor QC Method(s) Used							N/A Contractor QC Records Reviewed		
Val	ntion of QA idation and bservations	Update:			ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations	
			ance by gov		Date: 08 MAR 2023					
	Rework	Needed			Photo Record Attached			Work Vali	dated as Cor	nplete
O	Yes	ullet	No		N/A		ullet	Yes	\bigcirc	No
leveraged FFS perfo	Comments Localized Fitness for Service (FFS) assessments were conducted at specific indications on Red Hill (b) (3) (A) Selection of indications was limited to mechanical integrity principles under assumed service conditions, and leveraged previous integrity management work. FFS performed, no repair required for defuel. Reference: EXWC - Comprehensive Repair List Recommendations / Pipeline Fitness for Service Assessment									
					CERTIFICATION					
		work validate		QV ENG	INEER SIGNATURE	(b)	(6)			
report was p report is true	-	stantiated an	a this		DATE	05 APR 2	2023			

				QUALI	TY VALIDATION (QV) REPC	DRT			
			I	Red Hill B	ulk Fuel Storage Fac	ility Defue				
Valid	lation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	217	
	Address	9781 S. N	leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.3	31
Co	ontract No.	FA89031	5D0007, D	.O. FA890)3-19-F-0027			Report Date	05 APR 2	023
Q	V Engineer	(b) (6)			Phone (b) (6)		Emai	(b) (e	5)	
					VALIDATION					
Sou	rce	I	PDF Page N	o.	Facility Geographic Area			Location	Reference	
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (<i>i</i>	A)		
Repair D	Repair Description Dent, on long seam. FFS assessment and repair if							ce Contract Reference	N3943020 TO N3943021	
Con	Description of Contractor QC Method(s) Used							N/A Contractor QC Records Reviewed		
Vali	tion of QA dation and oservations	Update:			ed EXWC - Comprehe Service Assessment	ensive Rep	oair List Re	commenda	ations	
			otance by go	overnment.	Date: 08 MAR 2023					
	Rework	Needed			Photo Record Attached			Work Vali	dated as Co	mplete
0	Yes	ullet	No		N/A		$oldsymbol{O}$	Yes	O	No
Localized leveraged FFS perfor	Comments Localized Fitness for Service (FFS) assessments were conducted at specific indications on Red Hill (b) (3) (A) Selection of indications was limited to mechanical integrity principles under assumed service conditions, and leveraged previous integrity management work. FFS performed, no repair required for defuel. Reference: EXWC - Comprehensive Repair List Recommendations / Pipeline Fitness for Service Assessment									
					CERTIFICATION		(\mathbf{O})			
l hereby certit report was pe				QV ENG	INEER SIGNATURE	(D)	(6)			
report is true.					DATE	05 APR 2	023			

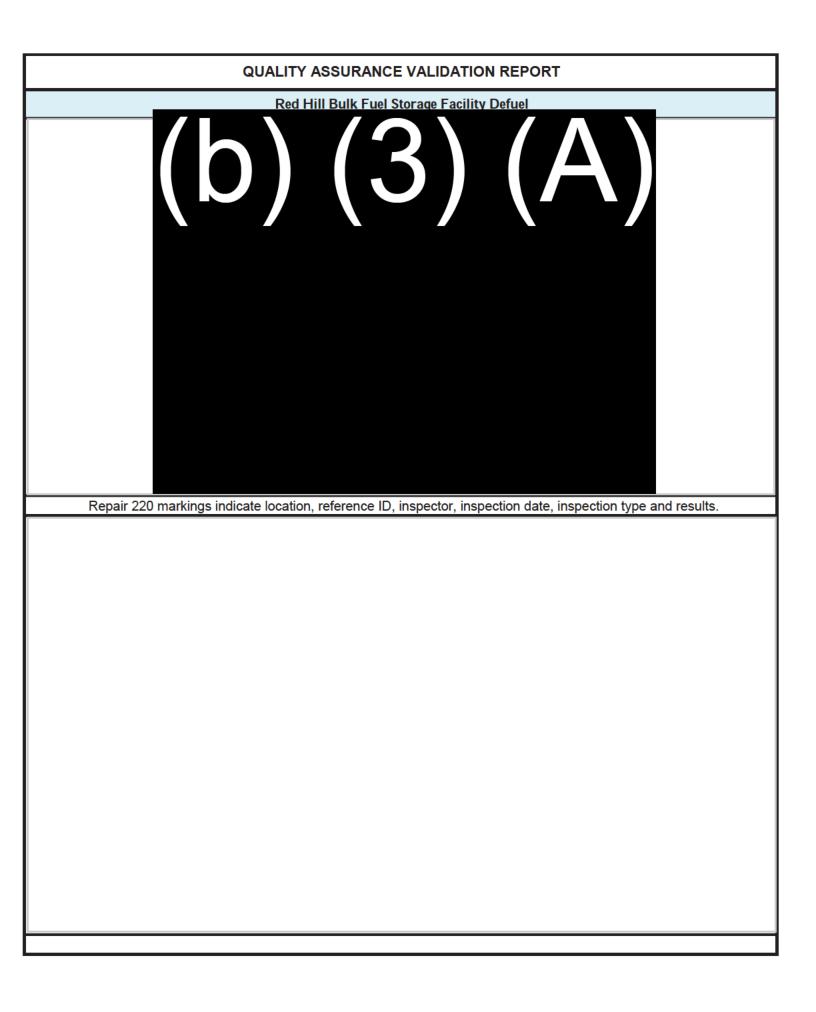
	QUALITY VALIDATION (QV) REPORT												
			I	Red Hill B	ulk Fuel Storage Fac	ility Defue	I						
Vali	dation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	218				
	Address	9781 S. N	leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.3	32			
С	ontract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	023			
Q	V Engineer	(b) (6)			Phone (b) (6)		Emai	$\left(l_{a} \right) \left(l_{a} \right)$	5)				
		1			VALIDATION								
Sou	urce	F	DF Page N	o. Facility Geographic Area				Location	Reference				
EXWC		EXWC Re	ecommend	ation	(b)			A)					
Repair I	Repair Description Repair Description Repair Description Poor Ultrasonic Reading; Crosses Long Seam. Estimated remove coating and inspect. FFS assessment and repair if necessary.							Source Contract Reference N3943020D N3943021F					
Cor	Description of Contractor QC Method(s) Used							N/A Contractor QC Records Reviewed					
Val	otion of QA lidation and bservations	Update:			ed EXWC - Comprehe Service Assessment	ensive Rep	oair List Re	commenda	ations				
			otance by go	overnment.	Date: 08 MAR 2023								
	Rework	Needed			Photo Record Attached		Repair	Repair Work Validated as Complete					
O	Yes	ullet	No		N/A		ullet	Yes	\bigcirc	No			
Localized leveraged FFS perfo	Comments Localized Fitness for Service (FFS) assessments were conducted at specific indications on Red Hill (b) (3) (A) Selection of indications was limited to mechanical integrity principles under assumed service conditions, and leveraged previous integrity management work. FFS performed, no repair required for defuel. Reference: EXWC - Comprehensive Repair List Recommendations / Pipeline Fitness for Service Assessment												
					CERTIFICATION								
-			ork validated in this QV ENGINEER SIGNATURE										
report was p report is true		ostantiated an	u this		DATE	05 APR 2	023						



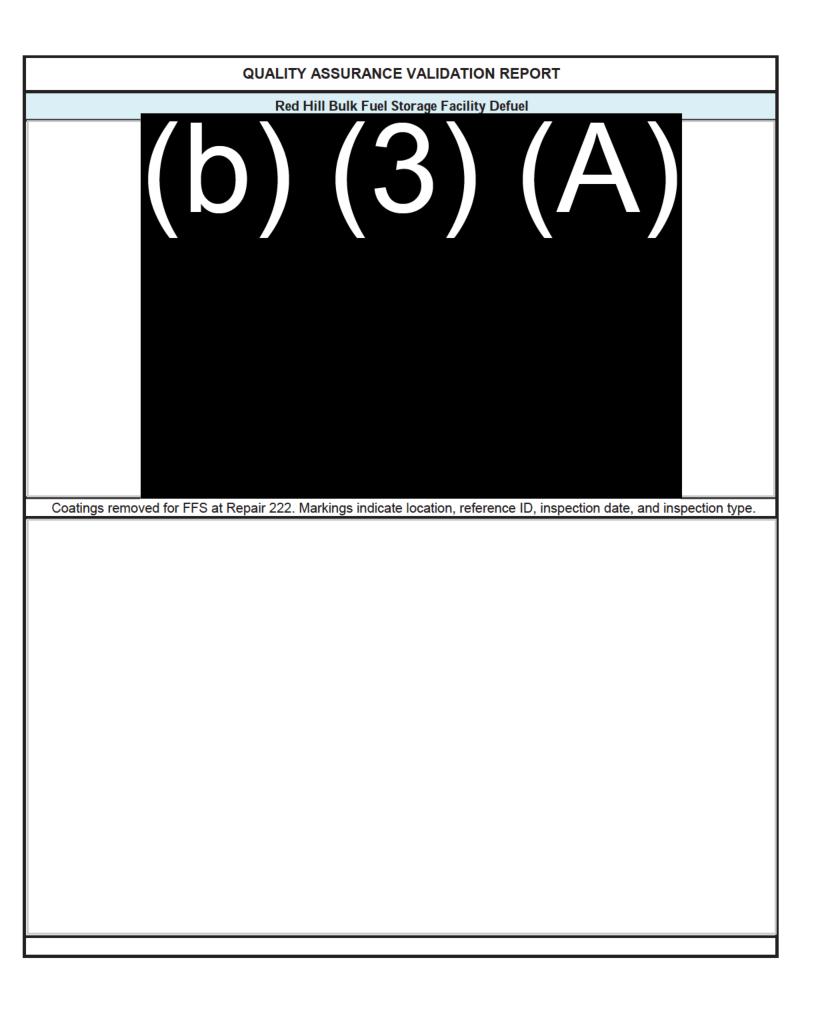
				QUALI	TY VALIDATION (QV) REPC	DRT				
			I	Red Hill B	ulk Fuel Storage Fac	ility Defue	Į				
Valid	lation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	219		
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.3	33	
Co	ontract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	023	
Q	V Engineer	(b) (6)			Phone (b) (6)		Email	(b) (6)			
					VALIDATION						
Sou	irce	I	PDF Page N	o. Facility Geographic Area				Location	Location Reference		
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (<i>i</i>	A)			
Repair D	Repair Description ILI data reports metal loss of 31.5%. Not able to assess without coating removal remove coating and inspect. FFS assessment and repair if necessary.							Source Contract Reference N3943020D2 TO N3943021F4			
Con	Description of Contractor QC Method(s) Used							N/A Contractor QC Records Reviewed			
Vali	tion of QA idation and oservations	Update:			ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations		
			ptance by go	overnment.	Date: 08 MAR 2023						
	Rework	Needed			Photo Record Attached	i	Repair	Work Vali	idated as Complete		
0	Yes	$oldsymbol{O}$	No		N/A		$oldsymbol{O}$	Yes	0	No	
leveraged FFS perfo	Comments Localized Fitness for Service (FFS) assessments were conducted at specific indications on Red Hill (b) (3) (A) Selection of indications was limited to mechanical integrity principles under assumed service conditions, and leveraged previous integrity management work. FFS performed, no repair required for defuel. Reference: EXWC - Comprehensive Repair List Recommendations / Pipeline Fitness for Service Assessment										
					CERTIFICATION	(b)-	(\mathbf{C})				
l hereby certi report was pe				QV ENG	INEER SIGNATURE	(D) ((6)				
report was pe report is true.		ostantilatieu an			DATE	05 APR 2	023				



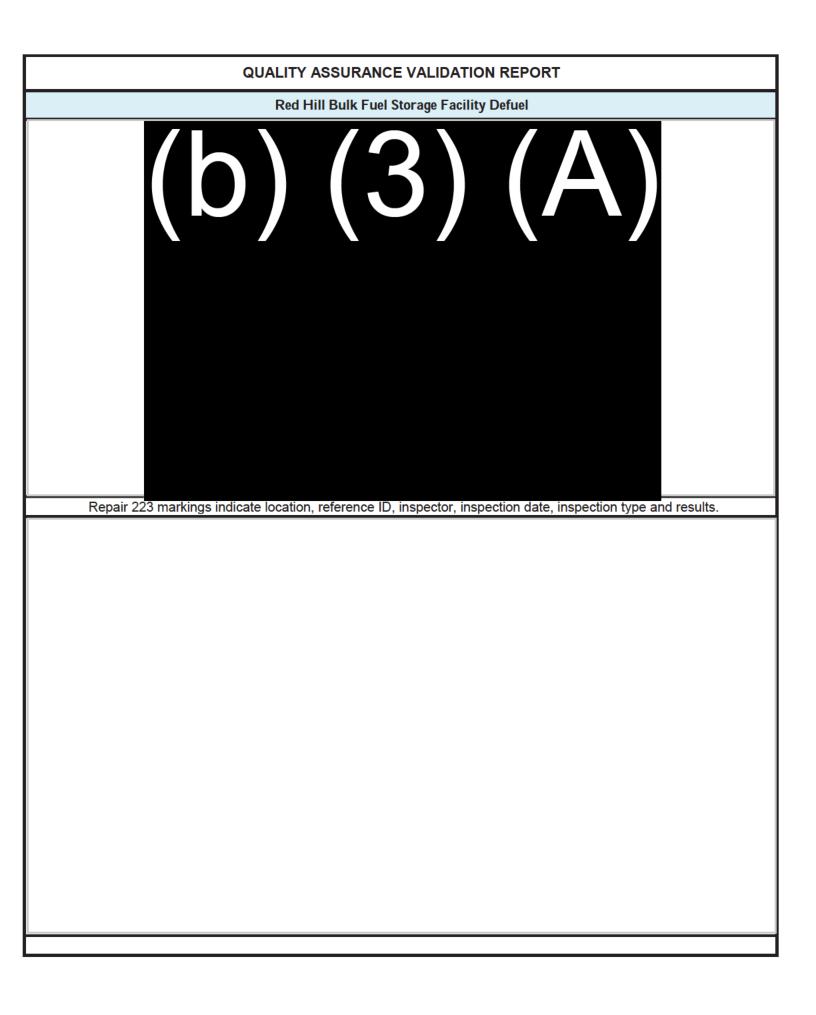
	QUALITY VALIDATION (QV) REPORT												
			l	Red Hill B	Bulk Fuel Storage Fac	ility Defue							
Vali	dation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	220				
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.3	34			
С	ontract No.	FA89031	5D0007, D	.O. FA890)3-19-F-0027			Report Date	05 APR 2	023			
Q	V Engineer	(b) (6)			Phone (b) (6)		Email	(b) (6)				
		•			VALIDATION								
So	urce	I	PDF Page N	o. Facility Geographic Area				Location	Reference				
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (<i>i</i>	A)					
Repair	Description	without co	ating remo	oval. (()(3)(A)	32.0%. Not able to ass remove coating and ir necessary.	sess ispect.	Sour	ce Contract Reference	N3943020 TO N3943021				
Description of Contractor QC Method(s) Used								ntractor QC s Reviewed	N/A				
Va	otion of QA lidation and bservations	Update:			ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations				
		Final accep	ptance by go	overnment.	Date: 08 MAR 2023								
	Rework	Needed			Photo Record Attached		Repair	Work Vali	dated as Cor	mplete			
O	Yes	$ \mathbf{O} $	No		N/A		ullet	Yes	O	No			
Localized leveraged FFS perfo	Comments Localized Fitness for Service (FFS) assessments were conducted at specific indications on Red Hill (b) (3) (A) Selection of indications was limited to mechanical integrity principles under assumed service conditions, and leveraged previous integrity management work. FFS performed, no repair required for defuel. Reference: EXWC - Comprehensive Repair List Recommendations / Pipeline Fitness for Service Assessment												
					CERTIFICATION	(b) (l)	2)						
		work validate		QV ENG	INEER SIGNATURE	(b) (6	0)						
report is true	9.				DATE	05 APR 2	023						



				QUALI	TY VALIDATION (QV) REPO	DRT					
				Red Hill B	ulk Fuel Storage Fac	ility Defue						
Valid	ation Firm	HDR Env	ironmenta	, Operatio	ns and Construction,	Inc.		Repair No.	222			
	Address	9781 S. N	leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.3	36		
Co	ontract No.	FA89031	5D0007, D	.O. FA890)3-19-F-0027			Report Date	05 APR 2	023		
Q	7 Engineer	(b) (6)			Phone (b) (6)		Email	(6) (6	5)			
		I			VALIDATION		I					
Sou	rce	F	PDF Page N	ю.	Facility Geograph	ic Area		Location	Reference			
EXWC		EXWC Re	ecommend	lation	(b) (3) (A)		(b) (3) (A)					
Repair D	Description	(b) (3) (<i>i</i>		e coating	to assess without coa and inspect. FFS ass	•	Sour	ce Contract Reference	N3943020 TO N3943027			
Con	cription of tractor QC od(s) Used		work provid	(ntractor QC s Reviewed	N/A			
Vali	tion of QA dation and oservations	Update:	Pipeline Fi	tness for S	ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations			
			otance by go	overnment.	Date: 08 MAR 2023			M 1 1 1 1				
\bigcirc	Yes	Needed	No		Photo Record Attached	1		Yes	dated as Co	No		
leveraged FFS perfor												
CERTIFICATION												
l hereby certif report was pe				(b)	(6)							
report is true.	-		G U113	05 APR 2	2023							



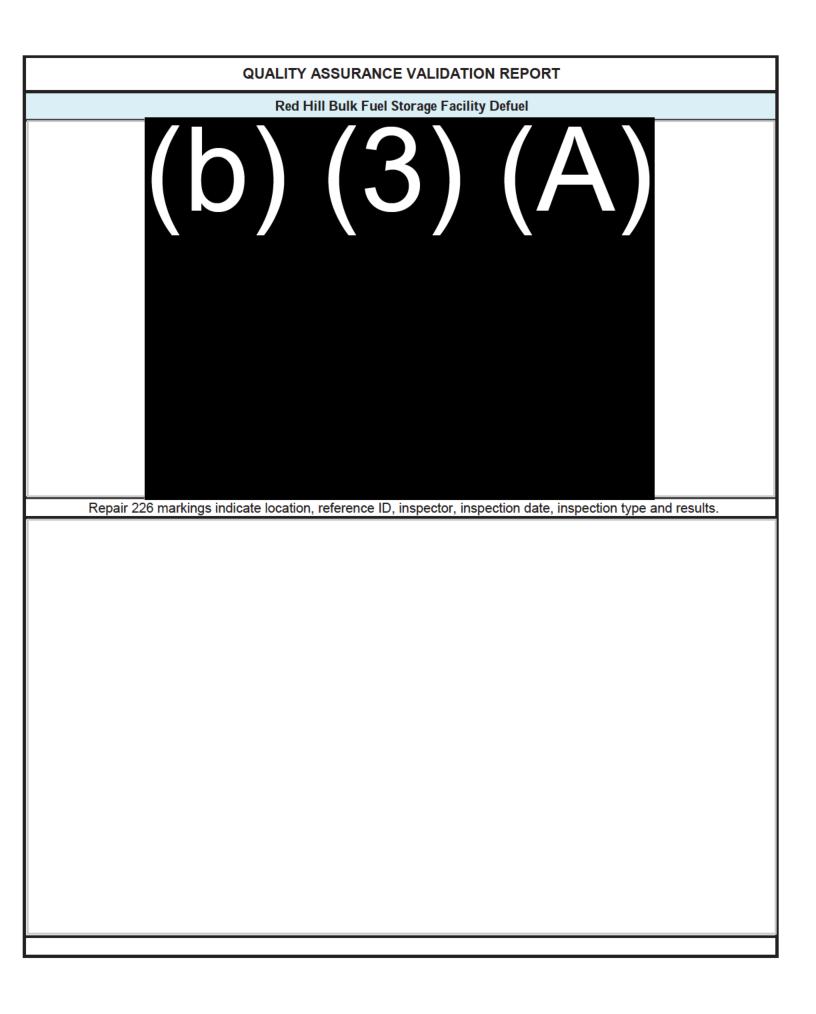
			QUALI	TY VALIDATION (QV) REPO	DRT			
			Red Hill B	ulk Fuel Storage Fac	ility Defue	Į			
Validation Fi	m HDR Env	ironmenta	l, Operatio	ns and Construction,	Inc.		Repair No.	223	
Addr	ss 9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.3	37
Contract I	o. FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	023
QV Engin	er (b) (6)			Phone (b) (6)		Email	(b) (6	5)	
				VALIDATION					
Source]	PDF Page N	lo.	Facility Geograph	ic Area		Location	Reference	
EXWC	EXWC R	ecommenc	lation	(b) (3) (A)		(b) (3) (A)			
Repair Descript	corrosion	rrosion rep also on sl leeve is ^(b) sleeve.	of	Sour	ce Contract Reference	N3943020 TO N3943021			
Description Contractor (Method(s) U	of QC	work provi					ntractor QC s Reviewed	N/A	
Description of (Validation a Observatio	A Update:			ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations	
		ance by gov		Date: 08 MAR 2023					
Yes	ork Needed	No		Photo Record Attached	1		Yes	dated as Co	mpiete No
Comments Localized Fitness . Select leveraged previou FFS performed, r	for Service (on of indicati s integrity m o repair requ	FFS) asse ons was lir anagemen ired for de	nited to me t work. fuel.	ere conducted at spe echanical integrity pri ecommendations / Pi	nciples unc	tions on Re	ed Hill <mark>(b)</mark> ed service	conditions,	
I hereby certify that re			(b) ((6)					
report was personally report is true.	substantiated an	d this	05 APR 2	.023					



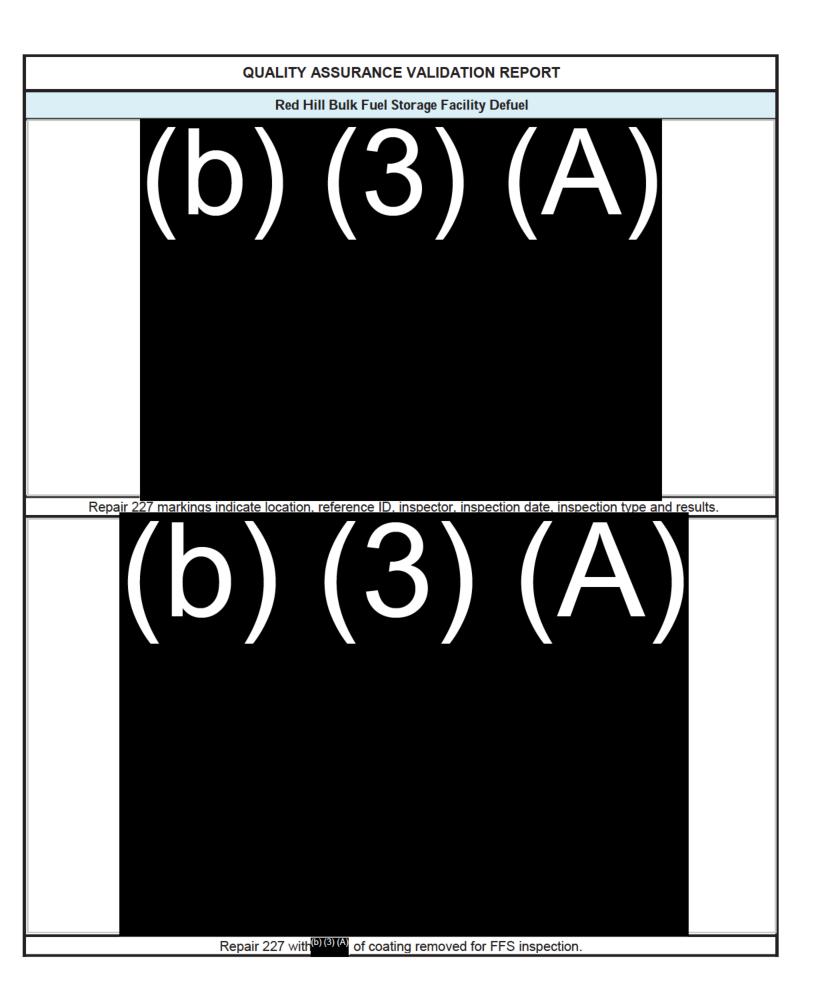
				QUALI	TY VALIDATION (QV) REPO	ORT			
				Red Hill B	Bulk Fuel Storage Fac	ility Defue	el			
Vali	dation Firm	HDR Env	ironmenta	, Operatio	ns and Construction,	Inc.		Repair No.	224	
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.	38
С	Contract No.	FA89031	5D0007, D	.O. FA890)3-19-F-0027			Report Date	05 APR 2	:023
Q	V Engineer	(b) (6)			Phone (b) (6)		Email	(b) (6)	
					VALIDATION					
So	urce	F	PDF Page N	ю.	Facility Geograph	ic Area		Location	Reference	
EXWC		EXWC Re	ecommend	lation	(b) (3) (A)		(b) (3) (A)		
Repair	Description	FFS asse			(0.120" dent + 0.010 necessary.	" gouge).	Sour	ce Contract Reference	N3943020 TO N394302 ⁻	
Со	Description of Contractor QC Method(s) Used						ntractor QC s Reviewed	N/A		
Va	ption of QA lidation and bservations	Update:	Pipeline Fi	tness for S	ed EXWC - Comprehe Service Assessment	ensive Rep	oair List Re	commenda	ations	
	Rework	Needed	ptance by go	overnment.	Date: 08 MAR 2023 Photo Record Attached	1	Repair	Work Vali	dated as Co	mplete
0	Yes		No		N/A			Yes	0	No
leveraged FFS perfo	l Fitness fo Selection d previous i prmed, no i	of indication integrity ma repair requi	ons was lir anagemen ired for de	nited to me t work. fuel.	vere conducted at spe echanical integrity prin ecommendations / Pip	nciples und	der assume	ed service	conditions,	, and
					CERTIFICATION					
-	tify that repair			QV ENGINEER SIGNATURE			(6)			
report was p report is true	ersonally sub e.	stantiated an	a this		DATE	05 APR 2	2023			

				QUALI	QV) REPC	DRT						
			I	Red Hill B	ulk Fuel Storage Fac	ility Defue	I					
Valid	lation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	225			
	Address	9781 S. N	leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.3	39		
Co	ontract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	023		
Q	V Engineer	(b) (6)			Phone (b) (6)		Email	(b)	(6)			
					VALIDATION							
Sou	urce	I	PDF Page N	ю.	Facility Geograph	ic Area		Location	Reference			
EXWC		EXWC Re	ecommend	lation	(b) (3) (A)		(b) (3) (<i>i</i>	A)				
Repair [Description	FFS asse			(0.160" dent + 0.020 necessary.	" gouge).	Sour	ce Contract Reference	N3943020 TO N3943021			
Con	scription of atractor QC od(s) Used		work provid					ntractor QC s Reviewed	N/A			
Val	tion of QA idation and bservations	Update:			ed EXWC - Compreh Service Assessment	ensive Rep	pair List Re	commenda	ations			
			ptance by go	overnment.	Date: 08 MAR 2023							
\sim		Needed			Photo Record Attached	i			dated as Co			
Commonto	Yes	\bullet	No		N/A		ullet	Yes	\bigcirc	No		
Localized leveraged FFS perfo	Comments Localized Fitness for Service (FFS) assessments were conducted at specific indications on Red Hill (b) (3) (A) Selection of indications was limited to mechanical integrity principles under assumed service conditions, and everaged previous integrity management work. FFS performed, no repair required for defuel. Reference: EXWC - Comprehensive Repair List Recommendations / Pipeline Fitness for Service Assessment											
		work validate		(b) (6)							
report was pe report is true		stantiated an	a this		05 APR 2	023						

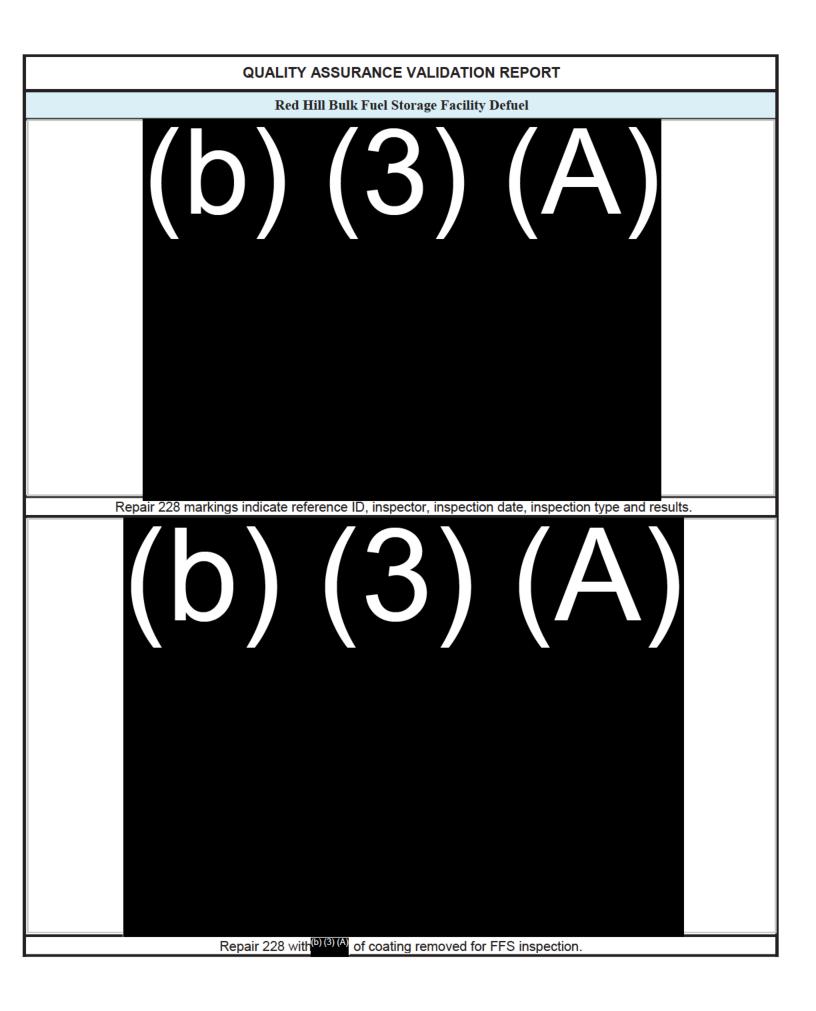
				QUALI	TY VALIDATION (QV) REPO	DRT			
			l	Red Hill B	ulk Fuel Storage Fac	ility Defue	I			
Valio	dation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	226	
	Address	9781 S. N	leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.4	12
С	ontract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	023
Q	V Engineer	(b) (6)			Phone (b) (6)		Email	(b)	(6)	
					VALIDATION					
Sou	urce	F	DF Page N	ō.	Facility Geograph	ic <mark>A</mark> rea		Location	Reference	
EXWC		EXWC Re	ecommend	ation	(b) (3) (A)		(b) (3) (A)		
Repair I	Description	removal.	s of 43%. N ^{NOIM} remov r if necess	e coating a		Sour	ce Contract Reference	N3943020 TO N3943021		
Cor	scription of ntractor QC nod(s) Used		work provid	ded.	ed. Contractor (Records Review					
Val	otion of QA lidation and bservations	Update:			ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commenda	ations	
			otance by go	overnment.	Date: 08 MAR 2023					
		Needed			Photo Record Attached				dated as Co	· · · ·
Commonte	Yes	ullet	No		N/A		ullet	Yes	\bigcirc	No
leveraged FFS perfo	Fitness fo Selection I previous ormed, no i	of indication integrity ma repair requi	ons was lir anagemen ired for de	nited to me t work. fuel.	rere conducted at spe echanical integrity pri ecommendations / Pij	nciples unc	ler assume	ed service	conditions,	and
		work validate		(b) (6)					
report was p report is true		ostantiated an	d this		05 APR 2	023				



				QUALI	TY VALIDATION (QV) REPO	DRT					
			I	Red Hill B	ulk Fuel Storage Fac	ility Defue	l					
Validati	ion Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	227			
	Address	9781 S. N	leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.4	43		
Cont	tract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	05 APR 2	023		
QV E	Engineer	(b) (6)			Phone (b) (6)		Email	(b) (6	5)			
					VALIDATION							
Source	e	P	DF Page N	0.	Facility Geograph	ic Area		Location	Reference			
EXWC		EXWC Re	commend	ation	(b) (3) (A)		(b) (3) (<i>i</i>	A)				
Repair Des	scription	coating re	moval ^{(b) (3) (}		t able to assess with coating and inspect. ssary.		Sour	ce Contract Reference	N3943020 TO N3943021			
Contra	iption of actor QC I(s) Used		work provid	Co				ntractor QC s Reviewed	N/A			
	on of QA ation and ervations	Update: I			ed EXWC - Compreh Service Assessment	ensive Rep	bair List Re	commenda	ations			
			otance by go	overnment.	Date: 08 MAR 2023							
	Rework	Needed			Photo Record Attached	I	Repair	Work Vali	dated as Co	mplete		
0	Yes	$oldsymbol{O}$	No		N/A		$oldsymbol{O}$	Yes	Ο	No		
. S leveraged pr FFS perform	Comments Localized Fitness for Service (FFS) assessments were conducted at specific indications on Red Hill (b) (3) (A) . Selection of indications was limited to mechanical integrity principles under assumed service conditions, and leveraged previous integrity management work. FFS performed, no repair required for defuel. Reference: EXWC - Comprehensive Repair List Recommendations / Pipeline Fitness for Service Assessment											
CERTIFICATION												
I hereby certify t			(b) ((6)								
report was perso report is true.	onally sub	stantiated an	u this		DATE	05 APR 2	2023					



				QUALI	TY VALIDATION (QV) REPO	DRT			
				Red Hill B	Bulk Fuel Storage Fac	ility Defue				
Valida	tion Firm	HDR Env	ironmenta	l, Operatio	ns and Construction,	Inc.		Repair No.	228	
	Address	9781 S. N	leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.4	44
Con	ntract No.	FA89031	5D0007, D	.O. FA890)3-19-F-0027			Report Date	05 APR 2	2023
QV	Engineer	(b) (6)			Phone (b) (6)		Email	(b) (6)	
					VALIDATION					
Sourc	ce	F	DF Page N	lo.	Facility Geograph	ic Area		Location	Reference	
EXWC		EXWC Re	ecommend	lation	(b) (3) (A)		(b) (3) (A)		
Repair De	escription	coating re		^{A)} remove	ot able to assess with coating and inspect. essary.		Sour	ce Contract Reference	N3943020 TO N394302	
Contr	Description of Contractor QC Method(s) Used				ded. Contrac Records Ret					
	on of QA ation and ervations	Update:	Pipeline Fi	tness for S	ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commend	ations	
	Rework	Needed	nance by go	overnment.	Date: 08 MAR 2023 Photo Record Attached	1	Repair	Work Vali	dated as Co	mplete
0	Yes	۲	No		N/A	-	•	Yes	0	No
. S leveraged p FFS perform	Selection previous i med, no r	of indication ntegrity ma repair requi	ons was lir anagemen ired for de	nited to mo t work. fuel.	vere conducted at spe echanical integrity pri ecommendations / Pij	nciples und	der assume	ed service	conditions,	, and
					CERTIFICATION					
I hereby certify	-			QV ENG	INEER SIGNATURE	(b)	(6)			
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			QUALI	TY VALIDATION (QV) REPO	DRT						
			Red Hill E	Bulk Fuel Storage Fac	ility Defue	el l						
Validation Fi	m HDR Env	ironmenta	l, Operatio	ons and Construction,	Inc.		Repair No.	229				
Addre	ss 9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	JP5.A21.4	46			
Contract N	o. FA89031	5D0007, D	.O. FA890	03-19-F-0027			Report Date	05 APR 2	023			
QV Engine	er <mark>(b) (6)</mark>			Phone (b) (6)		Email	(b) (6)				
				VALIDATION				-				
Source]	PDF Page N	lo.	Facility Geograph	ic Area		Location	Reference				
EXWC	EXWC R	ecommend	lation	(b) (3) (A)		(b) (3) (A)					
Repair Descripti	necessar).165". FFS	S assessment and rep	oair if	Sour	ce Contract Reference	N3943020 TO N394302 ⁻				
Description Contractor (Method(s) Us	of C	work provid	ded.				ntractor QC s Reviewed	N/A				
Description of C Validation a Observatio	A Update: nd			ed EXWC - Compreh Service Assessment	ensive Rep	oair List Re	commend	ations				
		ptance by go	overnment.	Date: 08 MAR 2023			M 1 1 1 1					
Yes	rk Needed	No		Photo Record Attached	1		Yes	dated as Co	mpiete No			
. Selecti leveraged previou FFS performed, n												
I horoby and if the t	oir work of the first of	ad in this	(h)	(6)								
I hereby certify that rep report was personally report is true.				DATE	05 APR 2							

) REPORT	EPORT									
	l	Red Hill Bulk Fuel St	torage Facilit	y Defuel								
Validation Firm	HDR Environmenta	l, Operations and Cor	nstruction, Inc).	Repair No.	230						
Address	9781 S. Meridian Bl	vd., Suite 400, Engle	wood, CO 80)112	Repair ID	JP5.A21.4	47					
Contract No.	FA890315D0007, D	.O. FA8903-19-F-002	27		Report Date	05 APR 2	023					
QV Engineer	(b) (6)	Phone	(b) (6)	Emai	(b) (6)						
	•	VALID	ATION									
Source	PDF Page N	To. Facility	y Geographic A	Area	Location	Reference						
EXWC	EXWC Recommend	lation (b) (3) (A	4)	(b) (3) (A)							
Repair Descriptior	necessary.	.145". FFS assessme	ent and repair		ce Contract Reference	N3943020 TO N3943021						
Description of Contractor QC Method(s) Used		ded.		ntractor QC s Reviewed	N/A							
Description of QA Validation and Observations	Update: Pipeline Fi	nd approved EXWC - itness for Service Ass		sive Repair List Re	commenda	ations						
		overnment. Date: 08 M			147 1 17 11							
Yes	Needed No		rd Attached	Repair	Yes	dated as Co	npiete No					
. Selection leveraged previous FFS performed, no	Comments Localized Fitness for Service (FFS) assessments were conducted at specific indications on Red Hill (b) (3) (A) . Selection of indications was limited to mechanical integrity principles under assumed service conditions, and everaged previous integrity management work. FFS performed, no repair required for defuel. Reference: EXWC - Comprehensive Repair List Recommendations / Pipeline Fitness for Service Assessment CERTIFICATION OVERGINEER SIGNATURE											
report was personally su report is true.	bstantiated and this	5 APR 2023										



Naval Facilities Engineering Systems Command Engineering and Expeditionary Warfare Center 1000 23rd Avenue Port Hueneme, CA 93043

Comprehensive Repair List Recommendations Update: Pipeline Fitness for Service Assessment

Ref: (a) API Standard 570 Piping Inspection Code: In-service Inspection, Rating, Repair, and Alteration of Piping Systems, 4th Ed, Feb 2016

(b) API Recommended Practice 1183 Assessment and Management of Pipeline Dents, 1st Ed, Errata 1, Jan 2021

(c) API 579-1/ASME FFS-1 Fitness for Service, Dec 2021

(d) NAVFAC EXWC HAR 2022-2301, 19 Oct 2022

- Encl: (1) FFS New Repair Actionable Summary, 08Mar2023
 - (2) Comprehensive Repair List Table, 08Mar2023

Localized Fitness for Service (FFS) assessments were conducted at specific indications on Red Hill F-24 and JP-5 transfer pipelines. Selection of indications was limited to mechanical integrity principles under assumed service conditions, and leveraged previous integrity management work.

F-24 and JP-5 pipelines and pipe stands were also screened for concerns of mechanical and structural integrity using principles of API 570.

Enclosure (1) details FFS assessment results. Enclosure (2) provided details on RMMR-recommended actions.

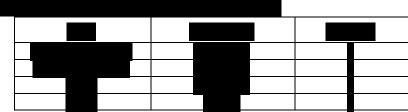
Assessment Assumptions

- 1. Service conditions of gravity transfer defuel
- 2. Assessment limits: Red Hill and the Underground Pumphouse
- 3. Indications cleared at lowest of Level 2 or Level 3 FFS
- 4. Temporary repairs acceptable for service conditions
- 5. Recommendations based on information known as of the date of this document. Should conditions change or further information become available, these recommendations are subject to change.

FFS Assessment Sources of Indications

Source	Year	Title
EEI	2017	Pipeline Inline Inspection
EEI	2019	Update to FFS, (b) (3) (A) in Pipelines
NDAA	2022	Fuel Transfer System Inspection Report
EEI	2022	Pipeline API Integrity Screening Survey







						ity							[]
						cy/Prior							
ID	Source	Produc	(b) (4) Cross Source ID Cross Ref Ref	Geographic Area Loc Reference	Description	Urgeno	Repair	Repair Rec	Rationale	Contract Disposition	Under Contract	Repair Comp	RAC
	-												
	-		-										
Renai	r #187		(b) (2) (A)										
JP5 A21.01	2017 EEI	JP5	(b) (3) (A)	(b) (3) (A)	Three separate corrosion findings < ¹² ft apart.(b) (3) (A) associated with pipe support. Remaining thickness < the structural minimum thickness per API 574.	Urgent	(b) (3) (A) are combined into one site. Fitness for service (FFS) assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	Ν	Medium
JP5 A21.02	2017 EEI	JP5			Corrosion at bulkhead. Three separate features. Reported corrosion depths 26.8%, 30.8%, and 38.0%. Remaining thickness < minimum thickness per API 574.	Urgent	Remove, provide, and install $(0, 3)$ (A) pup piece to eliminate the corroded areas in the bulkhead. One repair for (b) (3) (A)	А		FY21EPRC	Y	N	Medium
JP5 A21.03	ir #189 2017 EEI	JP5			Dent with crease; Approximate dent depth measurement: 0.300". Dent located at bottom of a tee and has has a crease. Fails FFS Level 2 assessment.	Urgent	FFS assessment	А	[JP5 <mark>(b) (3) (A)</mark>]; FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.04	ir #190 2017 EEI	JP5			Corrosion under bubble coating. Not able to assess without coating removal.	Urgent	Interpretending and inspect, FFS assessment	А	[JP5 ^{(b) (3) (A)}]; FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.05	ir #191 2017 EEI ir #192	JP5			Dent, crosses long seam	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	Ν	Medium
JP5 A21.06	2017 EEI ir #193	JP5			Dent, on long seam	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.07	2017 EEI	JP5			Geometric anomaly adjacent to girth weld	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.08	2017 EEI ir #195	JP5			Dent, on long seam	Urgent	FFS assessment		FFS performed with failed result. Repair required. Temporary means acceptable for defuel	FY21EPRC	Ν	N	Serious
JP5 A21.09	2017 EEI ir #196	JP5			Double dent	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.10	2017 EEI ir #197	JP5			Dent, on long seam	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.11	2017 EEI ir #198	JP5			Dent, adjacent to girth weld	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	Ν	Medium
JP5 A21.12	2017 EEI ir #199	JP5			Dent, on long seam	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.13	2017 EEI ir #200	JP5			Dent, on long seam	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.14	2017 EEI r #201	JP5			Dent, on long seam	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.15	2017 EEI ir #202	JP5			Dent, on long seam	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.16	2017 EEI r #203	JP5			Geometric anomaly adjacent to girth weld	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.17	2017 EEI	JP5			Double dent	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
Repai		JP5			Dent, on long seam	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.19 Repair	r #205 2017 EEI #206	JP5			Dent, on long seam	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.20	2017 EEI	JP5			Double dent	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
	•	· · · · ·					•						

							Priority							
	HO Source	Product	(비생) Cross Source ID Cross Ref Ref	Geographic Area	Loc Reference	Description	Urgency/I	Repair	Repair Rec	Rationale	Contract Disposition	Under Contract	Repair Comp	RAC
JP5 A21.21	#207 2017 EEI	JP5	(b) (3) (A)	(b) (3	S) (A)	Double dent	Urgent	FFS assessment	A	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
Repair	2017 EEI	JP5			· · · · ·	Dent, on long seam	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.23	2017 EEI	JP5				Geometric anomaly adjacent to girth weld	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
Repair JP5 AZ1.24 Repair	2017 EEI	JP5				Geometric anomaly adjacent to girth weld	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.25 Repair	2017 EEI	JP5				Geometric anomaly adjacent to girth weld	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.26 Repair	2017 EEI	JP5				Double dent	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.27	2017 EEI	JP5				Dent, on long seam	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.28	2017 EEI	JP5				Geometric anomaly adjacent to girth weld	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
Repair JP5 A21.29 Repair	2017 EEI	JP5				Dent, on long seam	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.30 Repair	2017 EEI	JP5				Geometric anomaly adjacent to girth weld	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.31	2017 EEI	JP5				Dent, on long seam	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.32 Repair	2017 EEI	JP5				Poor Ultrasonic Reading; Crosses Long Seam. Estimated Depths of 25.4% and 27.4%;	Urgent	remove coating and inspect. FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.33	2017 EEI	JP5				ILI data reports metal loss of 31.5%. Not able to assess without coating removal.	Urgent	remove coating and inspect. FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
Repair JP5 A21.34	2017 EEI	JP5				ILI data reports metal loss of 32.0%. Not able to assess without coating removal.	Urgent	remove coating and inspect. FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.35 Repair	2017 EEI #777	JP5				Two separate corrosion findings < 6 ft apart. Remaining thickness < the minimum thickness per API 574.	Urgent	FFS assessment	А	FFS performed with failed result. Repair required. Temporary means acceptable for defuel.	FY21EPRC	N	N	Serious
JP5 A21.36	2017 EEI	JP5				Metal loss of 33.0%. Not able to assess without coating removal.	Urgent	remove coating and inspect. FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
Repair 4	2017 EEI	JP5		-		Heavy corrosion reported under sleeve from ILI data. Heavy corrosion also on sleeve, ILI data reports metal loss of 45.8%, Sleeve is ft wide. Corrosion extends through long seam on sleeve. Need coating removed to assess.	Urgent	remove coating and inspect. FFS assessment	A	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.38	2017 EEI	JP5				Dent/gouge measured 0.130" (0.120" dent + 0.010" gouge)	Urgent	FFS assessment	А	[JP5 <mark>(b) (3) (A)</mark>] FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
Repair # JP5 A21.39	225 2017 EEI	JP5				Dent/gouge measured 0.180" (0.160" dent + 0.020" gouge)	Urgent	FFS assessment		(b) (3) (A) FFS [FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.40	2017 EEI	JP5		-		Dent has crease, crosses over long seam, measured depth of 0 275" Fails FFS Level 2 assessment.	Urgent	ອາອາດ pup to eliminate the dent.		(b) (3) (A) $]^{[b](4)}$ has notified this repair has been completed 01/2/2018 under the 2017 EEI repair ;repair (b) (3) (A) ID JP5 (b) (3) (A)	N/A	Dup		
JP5 A21.41 Repair #	2017 EEI	JP5		_		Dent/gouge measured 0.190" (0.160" dent + 0.030" gouge)	Urgent	pup piece to eliminate the dent/gouge.	А	[JP5 <mark>(b) (3) (A)</mark> ^{[b) (4)} duplicate repair covered by [JP5 ^(b) (3) (A) (b) (3) (A)	N/A	Dup		
JP5 A21.42	2017 EEI	JP5				Metal loss of 43%. Not able to assess without coating removal.	Urgent	remove coating and inspect. FFS assessment	А	[JP5 <mark>(b) (3) (A)</mark>] FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
Repair #	2017 FFI	JP5				Pitting estimated at 0.050". Not able to assess without coating removal.	Urgent	remove coating and inspect. FFS assessment	A	(b) (3) (A) FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
Repair # JP5 A21.44	2017 EEI	JP5				Pitting estimated at 0.050". Not able to assess without coating removal.	Urgent	remove coating and inspect. FFS assessment	А	[JP5 ^{(D) (3) (A)}] FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.45	2017 EEI	JP5				Corrosion at (b) (3) (A) Pitting measured at 0.080". Additional pitting (b) (3) (A) measured at 0.100".	Urgent	N/A	A	(5) (3) (FY21EPRC	Dup		
Repair #	229 2017 EEI	JP5				Dent with depth of 0.165".	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium

Bonoi	- un source	Product		(b) (4) Cross Ref	Geographic Area	Loc Reference	Description	Urgency/Priority	Repair	Repair Rec		Contract Disposition	Under Contract	Repair Comp	RAC
JP5 A21.47	2017 EEI	JP5	(b) (3) (A)		(b) (3	3) (A)	Dent with depth of 0.145".	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	Ν	Medium
JP5 A21.48	NDAA	JP5	-			////	One indication approximately (()) -inches from LRUT setup	Urgent	FFS assessment		FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.49	NDAA	JP5					Deteriorated sample piping on Tank [©]	Urgent	FFS assessment		Reviewed for FFS. Replacement of sample pipes too risky, not recommended. Close four sample pipe valves to mitigate risk: 1) (b) (3) (A)	RMMR	N	N	Serious
JP5 A21.50	NDAA	JP5	-				Dent was on bell joint. Measured depth was 0.320 in.	Urgent	FFS assessment	А	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
JP5 A21.51	2022 EEI	JP5					Dent on bell joint	Urgent	API and FFS assessments		FFS performed with failed result. Repair with welded pup required.	FY21EPRC	N	N	Serious
JP5 A21.52	2022 EEI	JP5					Dent near seam weld. Failed Level 2 FFS.	Urgent	API and FFS assessments	٨	FFS performed, no repair required for defuel.	FY21EPRC	N/A	N	Medium
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