Joint Task Force-Red Hill

Bi-Monthly Quality Validation Working Group Meeting



27 July 2023



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)



ENSURING A FREE AND OPEN INDO-PACIFIC

•QV Accounting – see next slide



QV Accounting

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

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



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

ENSURING A FREE AND OPEN INDO-PACIFIC

TASK FR

NO.	Validation Complete	Date	Location
INC -033		27 JUL 23	(b) (3) (A)
INC -034	assuming (very conservatively) that all the damaged	27 JUL 23	(b) (3) (A)

ENSURING A FREE AND OPEN INDO-PACIFIC

TASK Fr

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

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

ENSURING A FREE AND OPEN INDO-PACIFIC

TASK FR

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

ENSURING A FREE AND OPEN INDO-PACIFIC

TASK FR

NO.	Validation Complete	Date	Location
INC -042	Repair Description Cont.: "Minor to moderate corrosion on the base plate due to standing water. (NOAA Observation)". As set forth in (b) (4) memo dated 11 July 2023, "To demonstrate that repairs are not required, (b) (4) re-evaluated the JP-5 and F-24 pipelines (b) (3) (A) assuming (very conservatively) that all the damaged pipe supports (b) (3) (A) had completely lost their load-carrying capacity." The modeling results "demonstrate that repairs for these pipe supports are not required prior to the defueling process, and there is enough redundancy in the system to accommodate the extra loads due to the postulated loss of pipe support." No repair was completed.	27 JUL 23	(b) (3) (A)
INC -043	As set forth in (b) (4) memo dated 11 July 2023, for F-24 piping "The minimum wall thickness for these girth welds is at (b) (3) (A) Therefore, at this weld, the pipeline has 88% of its nominal wall thickness. The ILi evaluation determined a maximum allowable operating pressure of (b) (3) (A) at this location." For the JP-5 piping, "The minimum wall thickness for these girth welds is at (b) (3) (A), with a nominal wall thickness of (b) (3) (A) at this location." For the JP-5 piping, "The minimum wall thickness for these girth welds is at (b) (3) (A), with a nominal wall thickness of (b) (3) (A), with a nominal wall thickness of (b) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c	27 JUL 23	1



Rework - Quality Validation Report

NO.	Validation Complete	Date	Location



Relief - Quality Validation Report

ENSURING A FREE AND OPEN INDO-PACIFIC

NO.	Validation Complete	Date	Location

Seeking Repair Relief: #006, UGPH



Testing & Inspection Dates

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

QUALITY VALIDATION (QV) REPORT											
]	Red Hill B	ulk Fuel Storage Fac	ility Defue	1				
Valida	tion Firm	HDR Env	nc.		Repair No.	238					
	Address	9781 S. N	leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	EPRC.K.	þ	
Con	ntract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date)23	
QV	Engineer	(b) (6)								
					VALIDATION						
Sourc	ce	F	PDF Page N		Facility Geograph	ic Area		Location	Reference		
EXWC		NDAA Pa	ge 75		Tank Gallery		(b) (3) (A	()			
Repair De	escriptior	Between threaded b) (3) (A) _{ff} b) (3) (100.000	N3943020D2225 N3943021F4207	
Description of Contractor QC Method(s) Used				n detail in CQCP. Socket welds inspected Contractor QC Reports Contractor QC Contracto					d Daily		
	on of QA ation and ervations	4296/2. Vi material se JTF-RH see JTF-RH QV	sually inspe ubmittals. F condary QA / visually ins	ected comp Reviewed N and 3rd Pa spected rep	is documented by the e leted installation; mate IDE reports. arty QV completed. pairs and reviewed con	ched compl	leted const	ruction aga	inst design	and	
			otance by go		Date: 30 JUN 2023			*** 1 ** 1		E	
0	Yes	Needed	No		Photo Record Attached See Page 2.	L		Yes	dated as Co	No	
Yes No See Page 2. Yes No Comments Contractor removed threaded high point vent assembly. Replaced pipe connection with socket weld o-let small bore piping connections socket welded to and through flanges for new ball valve. Threaded end cap installed. Contractor pre-fabricated socket-welded high point vent assemblies for bolted installation in the tunnel. Socket welds were 100% inspected via visual testing and dye penetrant testing. Additionally, assembly was included in Phase 2 hydrostatic/leak testing performed by (b) (4) 14 Mar 2023. NDE result table, NDE inspection report, weld map/design detail included for reference. Interest work validated in this report was personally substantiated and this											
report is true.					DATE	24 JUL 20	023				

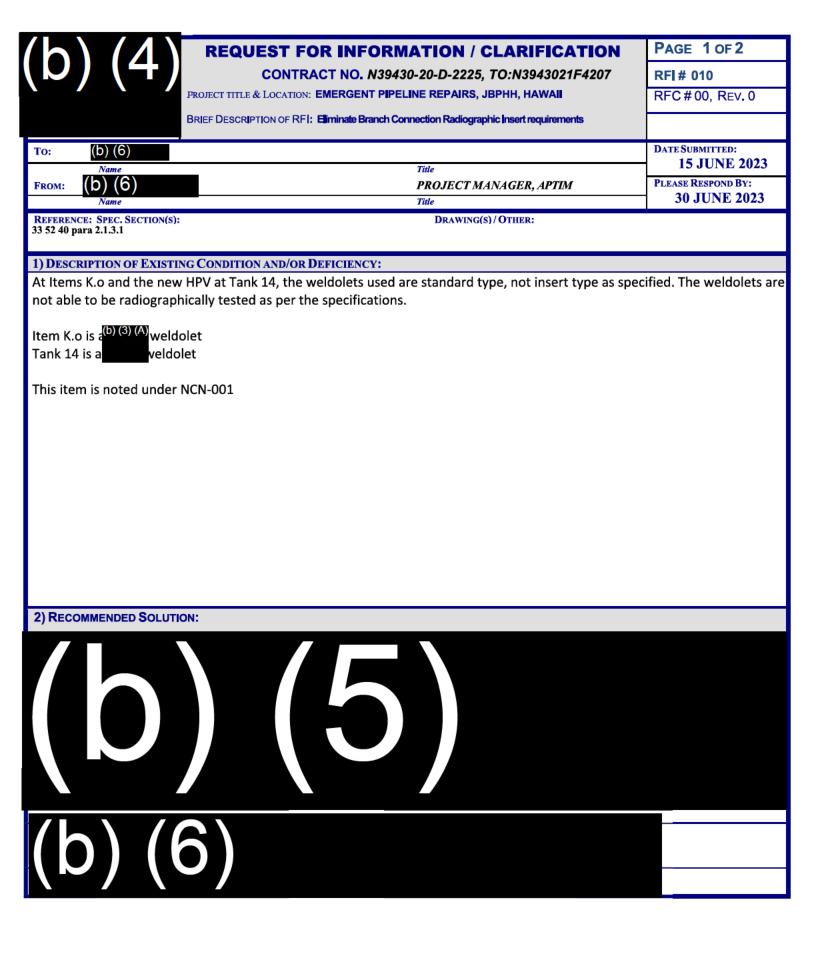
EMERGENT PIPELINE REPAIRS

REPAIR ID	ROOT PASS							COVER PASS										
52	FITUP	DATE	WELDER	DATE	VT	INSPECTOR	DATE	WELDER	DATE	VT D/F	DATE	INSPECTOR	MT / PT	DATE	INSPECTOR	RT	DATE	INSPECTOR
INITIAL	P/F P	01 / 25 / 2023	(b) (6)	01 / 25 / 2023	P/F P	(b) (6)	01 / 25 / 2023	(b) (6)	01/26/2023	P/F	01 / 27 / 2023	(b) (6)	P/F			P/F P	02 / 07 / 2023	(b) (6
REWORK 1						(0) (0)												
REWORK 2																		
REPAIR ID		J		ROOT PASS					11				COVER PASS	1				
\$3	FITUP P/F	DATE		DATE	VT P/F		DATE		DATE	VT P/F	DATE	IN	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
INITIAL	P	01 / 26 / 2023	-	01 / 26 / 2023	P		01 / 26 / 2023	_	01 / 26 / 2023	P	01 / 26 / 2023		171			Р	02 / 07 / 2023	
REWORK 1																		
REWORK 2																		
REPAIR ID		· ·		ROOT PASS									COVER PASS	· · · · ·				
T-1	FITUP P/F	DATE		DATE	VT P/F		DATE	_	DATE	VT P/F	DATE	IN	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
INITIAL	P	01 / 31 / 2023		01/31/2023	P		01 / 31 / 2023	_	02 / 01 / 2023	P	02 / 01 / 2023					Р	02 / 07 / 2023	
REWORK 1																		
REWORK 2																		
REPAIR ID				ROOT PASS				_					COVER PASS					_
T-2	FITUP P/F	DATE		DATE	VT P/F		DATE		DATE	VT P/F	DATE	IN	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
INITIAL	P	01 / 31 / 2023		01/31/2023	P		01 / 31 / 2023	_	02 / 01 / 2023	P	02 / 01 / 2023					Р	02 / 07 / 2023	
REWORK 1																		
REWORK 2																		
REPAIR ID				ROOT PASS				_					COVER PASS					
0-1 thru 0-8	FITUP P/F	DATE		DATE	VT P/F		DATE		DATE	VT P/F	DATE	IN	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
INITIAL	P	02 / 02 / 2023		02 / 02 / 2023	Р		02 / 02 / 2023	_	02 / 02 / 2023	P	02 / 02 / 2023		Р	02 / 24 / 2023	GS			
REWORK 1													Р	03 / 24 / 2023	ACCEPTED VIA PHA	E 2 HYDROTEST	BYHCNA	
REWORK 2																		
REPAIR ID				ROOT PASS									COVER PASS					
P-1	FITUP P/F	DATE		DATE	VT P/F		DATE		DATE	VT P/F	DATE	IN	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
INITIAL	P	02 / 02 / 2023		02 / 02 / 2023	Р		02 / 02 / 2023		02 / 02 / 2023	P	02 / 02 / 2023					Р	02 / 16 / 2023	
REWORK 1																		
REWORK 2																		
REPAIR ID				ROOT PASS									COVER PASS					
P-2	FITUP P/F	DATE		DATE	VT P/F		DATE		DATE	VT P/F	DATE	IN	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
INITIAL	Р	02 / 02 / 2023		02 / 02 / 2023	Р		02 / 02 / 2023		02 / 02 / 2023	P	02 / 02 / 2023					Р	02 / 16 / 2023	
REWORK 1																		
REWORK 2																		

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

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

b) (4		Client: (b) (P.O. No.:	4) edure: NDT002.2 Rev	C	Job No.:	: Red Hill 23-034 SME B31.3	Page 1 of 1		
		Report No.		C	Code: As	SME D31.5			
TEM: ITEM O Socket welds				TEDI	A T				
MATERIAL YPE: CS SW	BRAND	PENETRANT MA DESIGNATION	PO#	BATCH #	Preclean Drying Time:	5 MIN			
urface Condition: As Welded	Cleaner	Magnaflux	SKC-S	N/A	1A01K 030929	Method of Application			
Ground Other <u>Weld Prep</u>	Penetrant	Magnaflux	SKL-SP1	N/A	06010K 04394	Dwell Time: 10 Min			
New weld	Emulsifier	N/A	N/A	N/A	N/A	Emulsification Time: N/A			
	Developer	Magnaflux	SKD-S2	N/A	07K15K 08738	Developing Time: 15 N	Ain		
emperature: $\underline{X} 60^{\circ} \text{ F} - 125^{\circ} \text{ F}$ ther		Illumination		FC 150		(b) (4) Control # UV Meter N/A			
		Reject	ketch/Notes	\sim	\sim	\sim	\sim		
(3) (A) Socket weld	\boxtimes						7		
Socket weld	\boxtimes						~ ~		
Socket weld	\boxtimes			No ind	liantiana mat	d at time of in an acti			
Socket weld	\boxtimes			No inc	lications not	ed at time of inspection	\sim		
Socket weld	\boxtimes						4		
Socket weld	\boxtimes						4		
Socket weld	\boxtimes						5		
Socket weld							5		
mm	rever	لمما	ىبىبى	J	<u> </u>	uuu	uu)		





(b) (4	4)				REC	QUEST FO	DR INFOR	MATION
	- /				RFI NO:	010	Date:	15 JUNE 2023
PROJECT No.:	501777	Project Title:	EMERGENT PIP	ELINE RE	PAIRS, JBPHH	I	PROGRAM TO #:	N39430-20-D-2225, N3943021F4207
•I		1						
3) RESPONSE/DIS	POSITION:							
^{(b) (4)} Concurs wit	h the reco	mmended dispo	sition.					
			7					
			Date 6/20/2023	D) (t	\mathbf{D}	Da	te
RFC Requir		YES X NO		X YES		Cost Imp	act?	YES X NO
4) COR RESPONS	e/Dispositio	ON CONCURRENCE:						
Governme	nt concur v	with the Ktr reco	mmended solution					
					b		(6	
Contracting Off	ricer's Repr	esentative	Date					
REVIEW DISTRIBU					STRIBUTION			
X COR, FEAD		AFS PM	X AFS H&S X	,	FEAD	X AFS PN		S H&S
X NTR, FEAD		AFS ENG	X AFS Prog Mgr X		FEAD	X AFS EN		S Prog Mgr
X NTR, EXWC	X	AFS QCM	X CO, FEAD X	INTR,	EXWC	X AFS QC	а х со	D, FEAD



	QUALITY VALIDATION (QV) REPORT												
]	Red Hill B	ulk Fuel Storage Fac	ility Defue	1						
Valida	ation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	239				
	Address	9781 S. N	leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	EPRC.K.	o			
Сог	ntract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date	27 JUL 20	023			
QV	Enginee	(b) (6)										
VALIDATION													
Sour	Source PDF Page				Facility Geograph	ic Area		Location	Reference				
EXWC		NDAA Pa	ge 47 & 75	5	Tank Gallery		Tank 8						
Repair Do	escription	pipe on th	ie Tank 8 d we l ded fitti	cross-tunn	A)HPV valve and thr el piping. Replace wit (3) (A)carbon stee	n ^{(b) (3) (}	Sour	ce Contract Reference	N3943020D2225 N3943021F4207				
Description of Contractor QC Method(s) Used							Cor Records	Daily					
Valid	ion of QA lation and servations	4296/2. Vi material se JTF-RH see JTF-RH QV daily repo	sually inspe ubmittals. F condary QA / visually ins rts).	ected comp Reviewed N and 3rd Pa spected rep	is documented by the pleted installation; mat IDE reports. arty QV completed. pairs and reviewed con Date: 14 JUN 2023	ched compl	leted const	ruction aga	inst design	and ittals,			
	Rework	Needed	nance by go	overninent.	Photo Record Attached	1	Renair	Work Vali	dated as Co	mplete.			
0	Yes	\bullet	No		See Page 2.		•	Yes	0	No			
Comments Contractor removed threaded piping and existing gate valve on high point vent assembly. New cross-tunnel piping was fabricated using a (b) (3) (A) reducer to mate to the new ball valve on the high point. Butt welded (b) (3) (A) piping and forged elbow fittings route the piping to operator height, with a new flanged valve installed at the termination. A threaded end cap was installed. NDE result table, NDE inspection report, weld map/design detail included for reference. CERTIFICATION													
I hereby certify report was per							(6))					
report is true.	-				DATE	27 JUL 20	023						

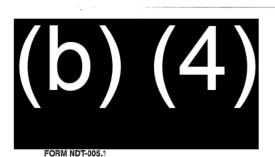
EMERGENT PIPELINE REPAIRS

REPAIR ID				ROOT PASS				COVER PASS										
52	FITUP P/F	DATE	WELDER	DATE	VT P/F	INSPECTOR	DATE	WELDER	DATE	VT P/F	DATE	INSPECTOR	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	INSPECTOR
INITIAL	P	01 / 25 / 2023	(b) (6)	01 / 25 / 2023	P	(b) (6)	01 / 25 / 2023	(b) (6)	01 / 26 / 2023	p	01 / 27 / 2023	(b) (6)	P/F			Р	02 / 07 / 2023	(b) (6
REWORK 1																		
REWORK 2																		
REPAIR ID	ROOT PASS											COVER PASS						
53	FITUP P/F	DATE		DATE	VT P/F	1	DATE		DATE	VT P/F	DATE	R	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	1
INITIAL	Р	01/26/2023		01 / 26 / 2023	Р		01/26/2023		01/26/2023	Р	01/26/2023					Р	02 / 07 / 2023	
REWORK 1																		
REWORK 2																		
REPAIR ID				ROOT PASS									COVER PASS					
T-1	FITUP P/F	DATE		DATE	VT P/F	I	DATE		DATE	VT P/F	DATE	I R	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	1
INITIAL	Р	01/31/2023		01 / 31 / 2023	Р		01/31/2023		02 / 01 / 2023	Р	02 / 01 / 2023					Р	02 / 07 / 2023	
REWORK 1																		
REWORK 2			_									_						
REPAIR ID				ROOT PASS									COVER PASS					
T-2	FITUP P/F	DATE		DATE	VT P/F	1	DATE		DATE	VT P/F	DATE	I R	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	1
INITIAL	Р	01/31/2023		01 / 31 / 2023	Р		01/31/2023		02 / 01 / 2023	Р	02 / 01 / 2023					Р	02 / 07 / 2023	
REWORK 1																		
REWORK 2			_															
REPAIR ID				ROOT PASS		_							COVER PASS					
0-1 thru 0-8	FITUP P/F	DATE		DATE	VT P/F	1	DATE		DATE	VT P/F	DATE	R	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	INSPECTOR
INITIAL	Р	02 / 02 / 2023		02 / 02 / 2023	Р		02 / 02 / 2023	_	02 / 02 / 2023	Р	02 / 02 / 2023		Р	02 / 24 / 2023	(b) (6)			
REWORK 1													Р	03 / 24 / 2023	ACCEPTED VIA PHA	SE 2 HYDROTEST B	(b) (4)	
REWORK 2			-	\sim			\sim	\checkmark		\sim	\sim	\checkmark	$h \sim$	\sim	\sim	\sim	$\neg \uparrow$	\sim
REPAIR ID			_	ROOT PASS		·		a	ir 239			- -	COVER PASS					
P-1	FITUP P/F	DATE		DATE	VT P/F	1	DATE		DATE	VT P/F	DATE	R	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	INSPECTOR
INITIAL	Р	02 / 02 / 2023		02 / 02 / 2023	Р		02 / 02 / 2023		02 / 02 / 2023	Р	02 / 02 / 2023					Р	02 / 16 / 2023	(b) (6)
REWORK 1																		
REWORK 2																		
REPAIR ID				ROOT PASS									COVER PASS					
P-2	FITUP P/F	DATE		DATE	VT P/F	1	DATE		DATE	VT P/F	DATE	R	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
INITIAL	Р	02 / 02 / 2023		02 / 02 / 2023	P		02 / 02 / 2023		02 / 02 / 2023	Р	02 / 02 / 2023					P	02 / 16 / 2023	
REWORK 1																		
REWORK 2																		

EMERGENT PIPELINE REPAIRS

<u> </u>	\sim	\sim	\sim	\sim	\sim	\sim	\sim	\sim											
	REPAIR ID				ROOT PASS				Repa	air 239				COVER PASS					
-	P-3	FITUP P/F	DATE	WELDER	DATE	VT P/F	INSPECTOR	DATE	WELDER	DATE	VT P/F	DATE	INSPECTOR	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	INSPECTOR
-[INITIAL	Р	02 / 02 / 2023	(b) (6)	02 / 02 / 2023	Р	(b) (6)	02 / 02 / 2023	(b) (6)	02 / 02 / 2023	Р	02 / 02 / 2023	(b) (6)				Р	02 / 16 / 2023	(b) (6)
-	REWORK 1																		
-	REWORK 2																		_
-	REPAIR ID				ROOT PASS									COVER PASS					
-	P-4	FITUP P/F	DATE		DATE	VT P/F	1	DATE		DATE	VT P/F	DATE	R	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
-	INITIAL	Р	02 / 02 / 2023		02 / 02 / 2023	Р		02 / 02 / 2023		02 / 02 / 2023	Р	02 / 02 / 2023					Р	02 / 16 / 2023	_
-[REWORK 1																		
- [REWORK 2																		
-	REPAIR ID ROOT PASS												COVER PASS						
-	P-5	FITUP P/F	DATE		DATE	VT P/F	1	DATE		DATE	VT P/F	DATE	R	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
-	INITIAL	Р	02 / 02 / 2023		02 / 02 / 2023	Р		02 / 02 / 2023		02 / 02 / 2023	Р	02 / 02 / 2023					Р	02 / 16 / 2023	
- [REWORK 1																		
•[REWORK 2																		
Ч	REPAIRID	$\overline{\gamma}$	\mathcal{L}	×	ROOT PASS	\mathcal{L}			$ \rightarrow $	\mathcal{L}	\mathcal{L}		ر ر	COVER PASS	\mathcal{I}				- 7
ľ	U-1	FITUP P/F	DATE		DATE	VT P/F	1	DATE		DATE	VT P/F	DATE	R	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
	INITIAL	Р	02 / 02 / 2023		02 / 02 / 2023	Р		02 / 02 / 2023		02 / 02 / 2023	Р	02 / 02 / 2023		Р	02 / 10 / 2023	(b) (6)			
	REWORK 1	Р	06 / 16 / 2023		06 / 16 / 2023	Р		06 / 16 / 2023		06 / 16 / 2023	Р	06 / 16 / 2023					Р	06 / 30 / 2023	
	REWORK 2																		
	REPAIR ID				ROOT PASS									COVER PASS					
	C-1	FITUP P/F	DATE		DATE	VT P/F	1	DATE		DATE	VT P/F	DATE	R	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	-
l	INITIAL	Р	02 / 06 / 2023		02 / 06 / 2023	Р		02 / 06 / 2023		02 / 06 / 2023	Р	02 / 06 / 2023				NEEDS RESHOOT-	N/A	02 / 07 / 2023	
	REWORK 1																Р	02 / 24 / 2023	
	REWORK 2																		
Í	REPAIR ID				ROOT PASS									COVER PASS					
ľ	C-2	FITUP P/F	DATE		DATE	VT P/F	1	DATE		DATE	VT P/F	DATE	R	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	
ł	INITIAL	SHOP WELD				.,.			s		.,,			.,,			P	04 / 19 / 2022	-
	REWORK 1																		
	REWORK 2																		
İ	REPAIR ID				ROOT PASS									COVER PASS					
ľ	C-3	FITUP P/F	DATE		DATE	VT P/F	1	DATE		DATE	VT P/F	DATE	R	MT / PT P/F	DATE	INSPECTOR	RT P/F	DATE	-
	INITIAL	P	02 / 08 / 2023		02 / 08 / 2023	Р		02 / 08 / 2023		02 / 09 / 2023	P	02 / 09 / 2023		r/r			Р	02 / 24 / 2023	
	REWORK 1						┼╼══┛╴												
l	REWORK 2																		

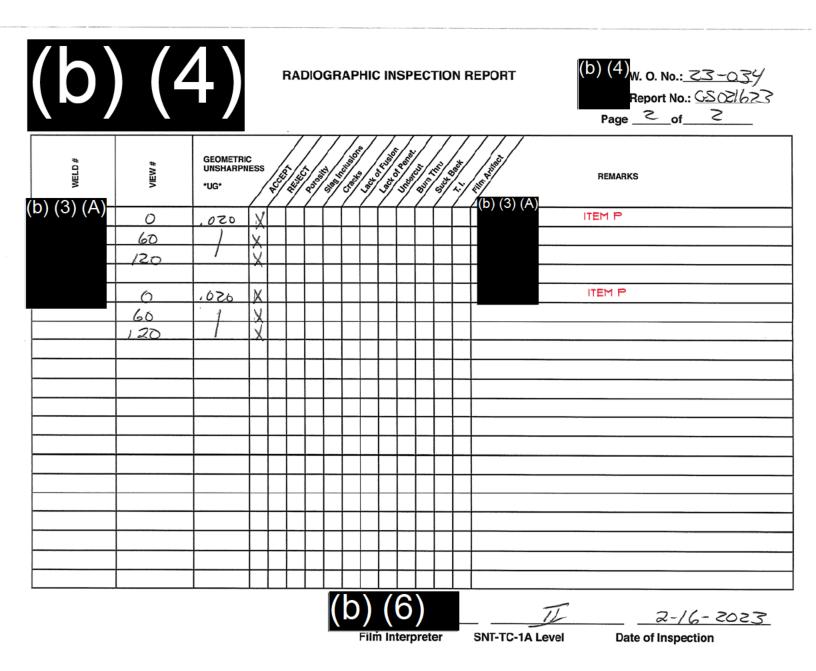
(b) (3) (A), (b) (4)



RADIOGRAPHIC INSPECTION REPORT

(b) (4) w. o. no.: <u>23-034</u>
Report No.: (-302/625
Date: 2-16-2023
Page of

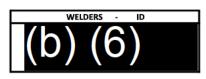
SPECIFICATION ASMEV ACCEPTANCE ASME B31.3 1. Single Wall CUSTOMER (b) (4) CUST JOB# ASME 1331.3 PROJECT Red hill Emergant PROCEDUREN DT. OCOREV B ACC. PROC. Elos var DWG. NO. ۰ PENS: ASTM CS FILM ACTER S PB SCREENS RT SOURCE SHIMS MAT'L/THKNS MATERIAL (b) (3) (A) TECHNIQUE USED THICKNESS TYPE 6 1 A Panoramic EXPOSURE TIME 4/5 Sec. JOINT TYPE BUTT 2. Single Wall MATERIALSS PIPE DIA. (b) (3) (A) LOCATION S PROCESSING GEOMETRIC UNSHARPNESS set of the VIEW # Post -RESECT WELD # Offset SUST з. Double Wall *UG* C.CO in the REMARKS (b) (3) (A) (b) (3) (A) ITEM P 0-4 OZO X 4-8 X X 8-0 4. Double Wall 0/90 ITEM P Χ ,020, Ό X 60 Elliptical 1 X 120 Plate 5. . ITEM P Ó Х -026 60 Х 6. Other Y 120 2-16-2023 Ŧ 2-16-2023 Date SNT-TC-1A Level Date of Inspection Customer



			QUAL	TY VALIDATION (QV) REPO	ORT						
			Red Hill B	Bulk Fuel Storage Fac	ility Defue	el						
Validation Fi	m HDR Env	vironmenta	l, Operatio	ns and Construction,	Inc.		Repair No.	INC-001				
Addr	ess 9781 S. M	Veridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	(b) (4) _{HP} .	14			
Contract 1	Io. FA89031	5D0007, D	.O. FA890)3-19-F-0027			Report Date		023			
QV Engin	er(b)	6)					Duite					
				VALIDATION								
Source]	PDF Page N	lo.	Facility Geograph	ic Area		Location	Reference				
(b) (4)	N/A			Hotel Pier		Hotel Pie	r					
Repair Descript	on static pre upon miti	by assessir ssure leak gation IOT	ng conditio test of the remove fu	drain line prior to defu n, repairs as necessa line prior to defueling Il replacement from to or to defueling.	ary, and g. Agreed	Sour	ce Contract Reference	RCE_FY2 DLA	23N017			
Description Contractor (Method(s) Us	of QC	n/procedure	e post-repa	air.			ntractor QC s Reviewed	D a value a val				
Validation a	Description of QA Validation and Observations											
	Final acce	ptance by g	overnment.	Date: 16 JUN 2023		1						
Rew	ork Needed	<u> </u>		Photo Record Attached	1	Repair	Work Vali	dated as Co	mplete			
O Yes	ullet	No		See Pages 2-4.		$oldsymbol{igo}$	Yes	O	No			
Comments Contractor assessed conditions below the pier and identified four locations where the PVC line was broken and in need of repair. The pier-mounted hangers (b) (3) (A) required repaired in the pier and identified four locations. After repairs, Contractor performed a head test by filling the trench drain at (b) (3) (A) the head test of the repaired piping, three transition seals were found to be faulty and were repaired for a successful test. The head test was completed 14 JUN 2023.												
				CERTIFICATION								
I hereby certify that re			QV ENG	INEER SIGNATURE	(b)	(6)						
report was personally report is true.	substantiated ar	เน เทเร		DATE	25 JUL 2	023						

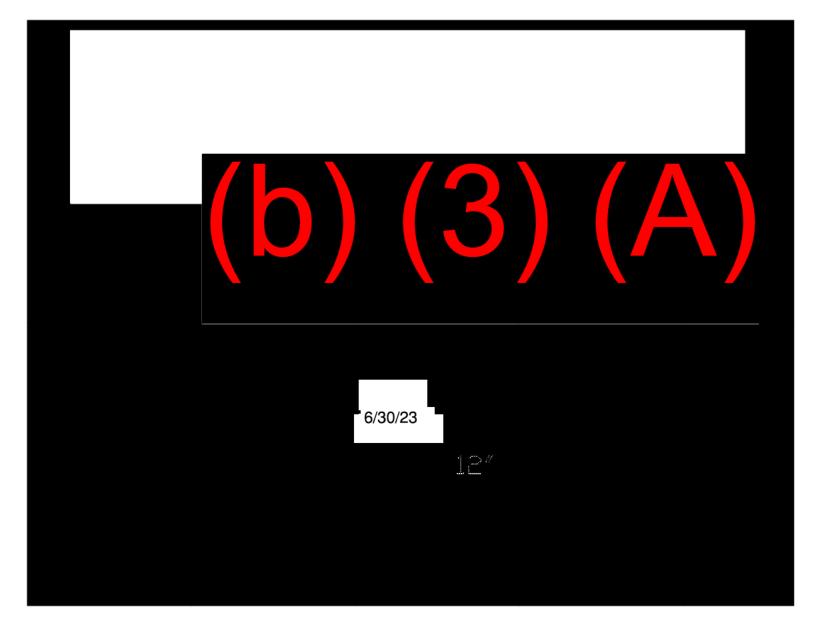
				QUALI	TY VALIDATION (QV) REPO	ORT				
]	Red Hill B	Bulk Fuel Storage Fac	ility Defue	el			3	
Vali	idation Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	INC 023		
	Address	9781 S. N	Meridian Bl	vd., Suite	400, Englewood, CO		CAR.STR.12				
c	Contract No.	FA89031	5D0007, D	.O. FA890	03 19 F 0027			Report	20 JUL 20	023	
Q	V Enginee	(b)	(6)								
VALIDATION											
So	urce	I	PDF Page N	o .	Facility Geograph	ic Area		Location	Reference		
	2022 ^{(b) (4)}	N/A		:	(b) (3) (A)		(b) (3) (A)			•	
Repair Description (b) (3) (A) Repair Description Grout missing beneath vertical support base plates, resulting in inadequate bearing between base plate and floor. Noted in NDAA Report as(b) (3) (A) Pack non shrink grout beneath base plates.											
Co	escription of ntractor QC hod(s) Used	Contractor QC hepoins.						d Daily			
Va	ption of QA lidation and observations	Form 429 design ar JTF RH s JTF RH (submittal	96/2. Visua nd material secondary QV visually s, daily rep	lly inspect submittals QA and 3r inspected orts).	ce is documented by t ed completed installa s. d Party QV complete I repairs and reviewed Date: 14 JUN 2023	tion; match d.	ned comple	eted constr	uction agai	inst	
	Rework	Needed	June of Be		Photo Record Attached		Repair	Work Vali	dated as Co	mplete	
0	Yes	\odot	No		See Pages 2 4.	A,	$\overline{\bullet}$	Yes	0	No	
Comments Repair Description Cont.: (b) (3) (A) Contractor broke out damaged grout. Poured new grout baseplate supports with chamfered edges. CERTIFICATION											
	tify that repair personally sub			QV ENG	INEER SIGNATURE	(b)	(6)				
report was p report is true	•	Signifiated an			DATE	20 JUL 2	023				

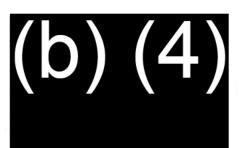
				QUALI	TY VALIDATION (QV) REPO	ORT				
]	Red Hill B	ulk Fuel Storage Fac	ility Defue	ł			2	
Vali	dation Firm	HDR Env	ironmental	l, Operatio	ns and Construction,	Inc.		Repair No.	INC 026		
	Address	9781 S. N	Meridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	EPRC.K.	op	
С	Contract No.	FA89031	5D0007, D	.O. FA890	3 19 F 0027			Report Date	24.00 20	023	
Q	V Engineer	(b) (6)								
			-		VALIDATION					1.5	
So	urce	I	PDF Page N	ю.	Facility Geograph	ic Area		Location	Reference		
EXWC		N/A			RH Tank Gallery		TK 3, 7, 9, 11				
, v. 7				2) (D)	×		5 1		L:	E	
Donair	Description		Vs on (b) (3) (B)			Sour	ce Contra			
Kepair	Description							Reference			
Con	escription of ntractor QC nod(s) Used	inspection		graphic T	QCP. Pipe butt weld esting. Socket welds		ntractor QC s Reviewed		d Daily		
Val	ption of QA lidation and bbservations	Form 429 design ar JTF RH s JTF RH 0 submittal	96/2. Visua nd material secondary QV visually s, daily rep	lly inspect submittals QA and 3r inspected ports).	e is documented by t ed completed installa s. Reviewed NDE rep d Party QV complete I repairs and reviewed Date: 13 JUL 2023	tion; match orts. d.	ned comple	eted constr	uction agai	inst	
	Rework	Needed			Photo Record Attached	1	Repair	Work Vali	dated as Co	mplete	
0	Yes	\bullet	No		See Pages 2 3.	, A	\odot	Yes	0	No	
penetratio vent asse testing.	or removed on. Butt we emblies for	lds were 1 bolted inst	00% inspe allation in t	cted via R the tunnel.	7, 9, and 11. Contrac adiographic Testing. Socket welds were 1 /design detail include	Contractor 00% inspe	pre fabrica ected via vi	ated socke	t welded h	igh point	
	tify that repair			QV ENG	INEER SIGNATURE	(b) ((6)				
report was p report is true	ersonally sub e.	stantiated an	id this		DATE	24 JUL 2	023				



				WELD INFORMATION			14/PT				N INFORMATIO	
Weld ID	Number	SIZE (b) (3) (A)	TYPE	JOINT		JOINT	WELDER ID	DATE	NDE TYPE	(b) (6)	DATE	RESULTS
) (3) (A)	1	(BW	(^{b) (8)} Pipe	<u> </u>	(0) (0) (vessel-o-let	(b) (6)	6/14/2023	CWI VT	(/(-/	6/14/2023	PASSED
) (0) (/ ()									RT	í	6/30/2023	PASSED
	2		BW	vessel-o-let	-	RFWN Flange		6/9/2023	CWI VT			PASSED
					<u> </u>				RT	-	6/12/2023	PASSED
	3		SW	RFSW Flange	┣	PIPE		6/22/2023	CWIVT		6/20/2022	PASSED
	4		sw	PIPE	⊢	90* SW ELBOW		6/22/2023	PT CWI VT		6/29/2023	PASSED PASSED
			511	- Fire	\vdash	50 50 2000		0/22/2025	PT		6/29/2023	PASSED
	5		SW	90* SW ELBOW		PIPE		6/22/2023	CWIVT	í l	0/20/2020	PASSED
									PT	í	6/29/2023	PASSED
	6		SW	PIPE		90* SW ELBOW		6/22/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	7		SW	90* SW ELBOW		PIPE NIPPLE (TOE)		6/22/2023	CWI VT	L .		PASSED
					<u> </u>				PT	-	6/29/2023	PASSED
					┣							
	1		BW	(b) (3) (A) _{Pipe}		(b) (3) (4		6/16/2022	CMUNT	ł	6/16/2022	PASSED
			BVV	Pipe	<u> </u>	vessel-o-let		6/16/2023	CWI VT RT		6/16/2023 6/30/2023	PASSED
	2		BW	(b) (3) vessel-o-let	<u> </u>	RFWN Flange		6/9/2023	CWIVT	r i i i i i i i i i i i i i i i i i i i	0/30/2023	PASSED
	-				<u> </u>			-, -, -, -, -, -, -, -, -, -, -, -, -, -	RT		6/12/2023	PASSED
	3		SW	SW FLG	-	PIPE		6/28/2023	PT		6/30/2023	PASSED
										i da la companya da l		PASSED
	4		SW	PIPE		90* SW ELBOW		6/28/2023	PT		6/30/2023	PASSED
												PASSED
	5		SW	90* SW ELBOW		PIPE		6/28/2023	PT	Ļ l	6/30/2023	PASSED
					<u> </u>					-		PASSED
	6		SW	PIPE	┣	90* SW ELBOW		6/28/2023	PT		6/30/2023	PASSEE
	7		sw	00* EL POW/	┣			6/20/2022	РТ	ł	6/20/2022	PASSED
	/		500	90* ELBOW	├	PIPE NIPPLE (TOE)		6/28/2023	PI		6/30/2023	PASSED
	KYY	-	YY	YYYY		KYYY		rrr	YYY		YYY	YYY
	1		BW	(^{b)} (³) (^{A)} Pipe	<u> </u>	(D) (3) (A vessel-o-let	· ·	6/30/2023	CWIVT	í l		PASSED
				·		İ			RT	í	7/5/2023	PASSED
	2		BW	^{(b) (3) (A} vessel-o-let	-	FWN Flange		6/30/2023	CWI VT			PASSEE
									RT	i l	7/5/2023	PASSEE
	3		SW	RFSW Flange		PIPE		6/21/2023	CWI VT			PASSEE
					┡				PT		6/29/2023	PASSEE
	4		SW	PIPE	<u> </u>	90* SW ELBOW		6/21/2023	CWI VT	-	- (PASSEI
			C14/		<u> </u>	DIDE		c /21 /2022	PT	ł	6/29/2023	PASSE
	5		SW	90* SW ELBOW		PIPE		6/21/2023	CWI VT PT		6/29/2023	PASSEI
	6		sw	PIPE	-	90* SW ELBOW		6/21/2023	CWIVT	r i i i i i i i i i i i i i i i i i i i	0/23/2023	PASSE
	Ť			1.1.2		Jo Di LLDOII		0,21,2020	PT	í l	6/29/2023	PASSE
	7		SW	90* SW ELBOW		PIPE NIPPLE (TOE)		6/21/2023	CWI VT	í l		PASSE
									PT		6/29/2023	PASSEI
	L L	_	L.	adde	2	Labor		source	soos		<u> </u>	S
			~ ~	^{(b) (3) (A)} Pipe		(0) (3) (4	<u>`</u>		-1-1-1	4	1-1-1-	4-4-
	1		BW	Pipe	-	vessel-o-let		6/14/2023	CWIVT		7/5/2022	PASSE
	2		BW	(0) (8) (fvessel-o-let	<u> </u>	RFWN Flange		6/15/2023	RT CWI VT		7/5/2023	PASSEE
			500	vessei-0-iet	<u> </u>	r wiv riange		0/15/2025	RT	í se se b>	7/5/2023	PASSEL
	3		sw	RFSW Flange	<u> </u>	PIPE		6/21/2023	CWIVT		., 5/2020	PASSEE
									PT		6/29/2023	PASSEE
	4		SW	PIPE		90* SW ELBOW		6/21/2023	CWI VT			PASSEE
									PT		6/29/2023	PASSEE
	5		SW	90* SW ELBOW	L	PIPE		6/21/2023	CWI VT			PASSEE
				DIDE	<u> </u>	00* 014 51 5001		6/24/2022	PT		6/29/2023	PASSEE
	6		SW	PIPE	-	90* SW ELBOW		6/21/2023	CWI VT PT		6/20/2022	PASSEI
	7		sw	90* SW ELBOW	-	PIPE NIPPLE (TOE)		6/21/2023	CWIVT		6/29/2023	PASSEI
	1 '		5.0	55 547 120044	<u> </u>			5/21/2023	PT	í se	6/29/2023	PASSEI
											512512025	- ASSE
				151/55/4		1-5-75-01						
	1		BW	(b) (3) (# Pipe	-	(b) (3) (/ vessel-o-let		6/14/2023	CWI VT			PASSE
									RT		7/5/2023	PASSEI
	2		BW	(0) (3) (* vessel-o-let	-	RFWN Flange		6/15/2023	CWI VT			PASSEE
									RT		7/5/2023	PASSED
				DECIM/ Element		PIPE		6/21/2023	CWI VT			PASSED
	3		SW	RFSW Flange	┣─	FIFE		0/21/2025	PT		6/29/2023	PASSED

(mmm)	\sim	\sim	VELD INFORMATION	$\boldsymbol{\gamma}$	$\gamma \gamma \gamma \gamma$	Y	\sim	\sim	\sim	INSPECTION	NIFORMATIC	
Number	SIZE	TYPE	JOINT		JOINT		WELDER ID	DATE	NDE TYPE	INITIALS	DATE	RESULTS
(b) (3) (A) 4	(b) (3) (A)	SW	PIPE		90* SW ELBOW		(b) (6)	6/21/2023	CWI VT	(b) (6)		PASSED
							$(\mathbf{D})(\mathbf{O})$		PT	$(\mathbf{S})(\mathbf{S})$	6/29/2023	PASSED 🖌
5		SW	90* SW ELBOW		PIPE			6/21/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
6		SW	PIPE		90* SW ELBOW			6/21/2023	CWI VT			PASSED 🧹
(PT		6/29/2023	PASSED
7		SW	90* SW ELBOW		PIPE NIPPLE (TOE)			6/21/2023	CWI VT			PASSED 🛃
									PT		6/29/2023	PASSED
	_			し							C	
Y Y Y	K	YY	YYYY	Y	(b)(3)(A)	Y		\mathbf{Y} \mathbf{Y} \mathbf{Y}	YYY		YYY	YYY)
1		BW	(^{0) (3) (#} Pipe	-	vessel-o-let			6/30/2023	CWI VT			PASSED 🖌
									RT		7/5/2023	PASSED
2		BW	(b) (3) (^a vessel-o-let	-	RFWN Flange			6/30/2023	CWI VT			PASSED
-									RT		7/5/2023	PASSED 🥖
3		SW	RFSW Flange		PIPE			6/22/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED 💙
4		SW	PIPE		90* SW ELBOW			6/22/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
5		SW	90* SW ELBOW		PIPE			6/22/2023	CWI VT			PASSED 🔺
									PT		6/29/2023	PASSED
6	_	SW	PIPE		90* SW ELBOW			6/22/2023	CWI VT			PASSED
-									PT		6/29/2023	PASSED 🥒
7		SW	90* SW ELBOW		PIPE NIPPLE (TOE)			6/22/2023	CWI VT			PASSED
									PT		6/29/2023	PASSED
	<u> </u>	$\overline{\mathbf{\lambda}}$		K		γ				L		
	-		(b) (3) (<u> </u>	0.03.04					-		
1	-	BW	Pipe	<u> </u>	(b) (3) (A vessel-o-let			6/15/2023	CWI VT	-	6/15/2023	PASSED
	-		(b) (3) (<u> </u>					RT	-	6/30/2023	PASSED
2	-	BW	vessel-o-let	<u> </u>	RFWN Flange			6/9/2023	CWI VT	-		PASSED
	-			┣──				a /a a /a a a a	RT	-	6/12/2023	PASSED
3	-	SW	RFSW Flange	┣──	PIPE			6/22/2023	CWI VT	-		PASSED
	-			┣──				a /a a /a a a a	PT	-	6/29/2023	PASSED
4	-	SW	PIPE	<u> </u>	90* SW ELBOW	\vdash		6/22/2023	CWI VT	-	c /20 /2022	PASSED
	-	614		<u> </u>	NIDE	\vdash		c /22 /2022	PT	-	6/29/2023	PASSED
5	-	SW	90* SW ELBOW	<u> </u>	PIPE	\vdash		6/22/2023	CWIVT	-	c /20 /2022	PASSED
	-	614	DIDE	<u> </u>		\vdash		c /22 /2022	PT	-	6/29/2023	PASSED
6	-	SW	PIPE	<u> </u>	90* SW ELBOW	\vdash		6/22/2023	CWI VT	-	c /20 /2022	PASSED
	-	614		<u> </u>		\vdash		c /22 /2022	PT	-	6/29/2023	PASSED
7	-	SW	90* SW ELBOW	<u> </u>	PIPE NIPPLE (TOE)	\vdash		6/22/2023	CWIVT	-	c /20 /2022	PASSED
									PT	L	6/29/2023	PASSED

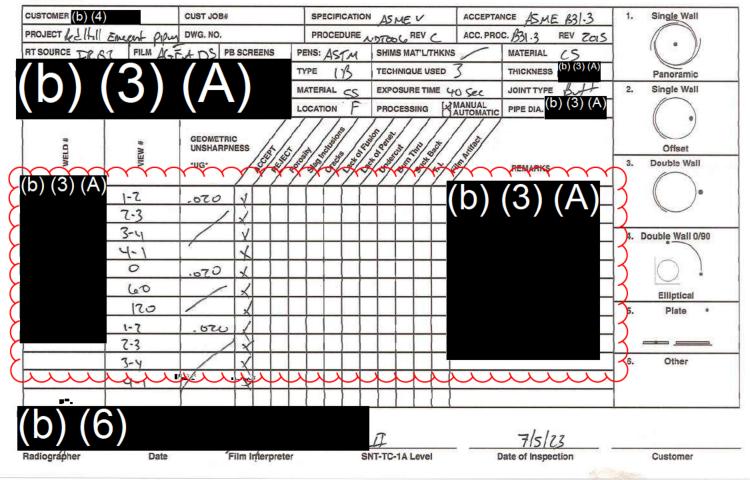


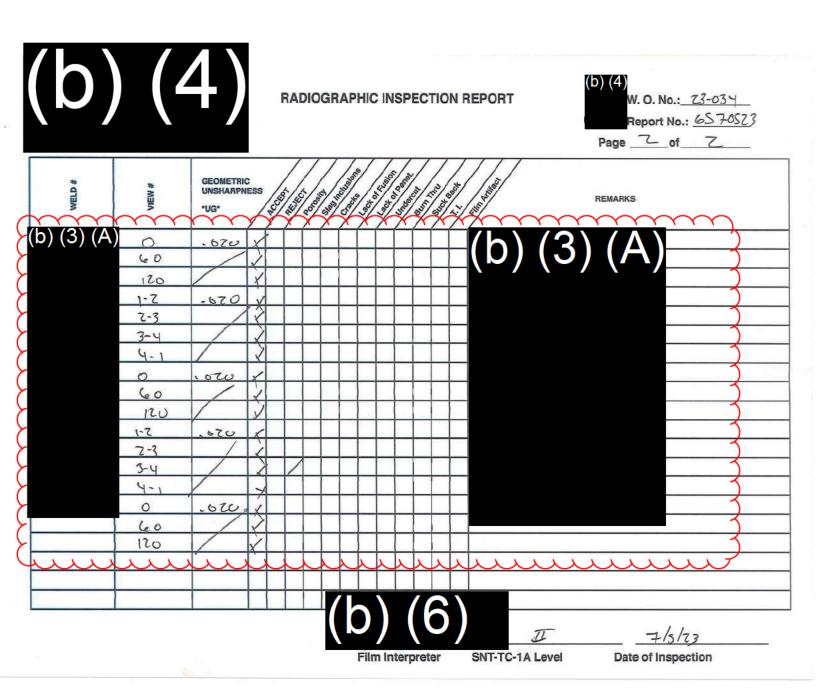


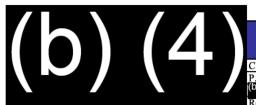
RADIOGRAPHIC INSPECTION REPORT

b) (4) W	. 0. 1	No.:_ 2	3-03	4
	epori	No.: 1 7151	<u>(570</u>	523
Date: _ Page _	١		2	_

FORM NDT-005.1







LIQUID PENETRANT EXAMINATION RECORD

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

MATERIAL		P	ENETRANT M	ATER <u>L</u>	AL	TECHNIQUE
TYPE: CS FW		BRAND	DESIGNATION	PO#	BATCH #	Preclean Drying Time: 5 MIN
Surface Condition: As Welded	Cleaner	Magnaflux	SKC-S	N/A	21002K 002711	Method of Application: Brush
Ground Other <u>Weld Prep</u>	Penetrant	Magnaflux	SKL-SP1	N/A	19G04K 01755	Dwell Time: 10 Min
New weld	Emulsifier	N/A	N/A	N/A	N/A	Emulsification Time: N/A
	Developer	Magnaflux	SKD-S2	N/A	20L02U	Developing Time: 15 Min
Temperature: $\underline{X} 60^{\circ} \text{ F} - 125^{\circ} \text{ F}$ Other	-	Illumination:		FC 150		b) (4) Control # UV Meter N/A
(b) (3) (A) socket weld socket weld			tetch/Notes		lications not	ed at time of inspection.
Performed By (b) (6)	evel III Date: 6	/29/2023	Res	iewed By		Date:

PCP-02.1 REV. B (06/04/03)



LIQUID PENETRANT EXAMINATION RECORD

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

MATERIAL		P	ENETRANT M	ATERL	AL	TECHNIQUE
TYPE: CS FW		BRAND	DESIGNATION	PO#	BATCH #	Preclean Drying Time: 5 MIN
Surface Condition: As Welded	Cleaner	Magnaflux	SKC-S	N/A	21002K 002711	Method of Application: Brush
Ground Other <u>Weld Prep</u>	Penetrant	Magnaflux	SKL-SP1	N/A	19G04K 01755	Dwell Time: 10 Min
New weld	Emulsifier	N/A	N/A	N/A	N/A	Emulsification Time: N/A
	Developer	Magnaflux	SKD-S2	N/A	20L02U	Developing Time: 15 Min
Temperature: $\underline{X} 60^{\circ} \text{ F} - 125^{\circ} \text{ F}$ Other		Illumination	White	FC 150		(b) (4) Control # UV Meter N/A
$\frac{1}{2} \frac{1}{3} \frac{1}{4} \frac{1}{3} \frac{1}$	Accept	Reject SI	cetch/Notes			
(3) (A) socket weld						
socket weld						
socket weld						
socket weld			(YY		m
socket weld			3	No inc		ed at time of inspection.
socket weld			E	No ind		
			5	No ind		
socket weld			6	No ind		
socket weld Focket weld ocket weld ocket weld			6	No inc		
socket weld Focket weld ocket weld ocket weld ocket weld			6	No inc		
socket weld Focket weld ocket weld ocket weld			6	No inc		

PCP-02.1 REV. B (06/04/03)

b) (4)	Client (b) (4 P.O. No.:		<i>.</i>	Job No.:		Page 1 of 1
		(b) (4) Proced Report No. K	ure: NDT002.2 Rev M6292023d	С	Code: As	SME B31.3	
TEM: VSLT socket welds MATERIAL		р	ENETRANT MA	ATERI	AT.	TEC	HNIQUE
YPE: CS FW		BRAND	DESIGNATION	PO#	BATCH #	Preclean Drying Time:	
urface Condition: As Welded	Cleaner	Magnaflux	SKC-S	N/A	21002K 002711	Method of Application:	Brush
Ground Other <u>Weld Prep</u> New weld	Penetrant	Magnaflux	SKL-SP1	N/A	19G04K 01755	Dwell Time: 10 Min	
New weld	Emulsifier	N/A	N/A	N/A	N/A	Emulsification Time: 1	
	Developer	Magnaflux	SKD-S2	N/A	20L02U	Developing Time: 15 N	ſin
Cemperature: <u>X</u> 60° F – 125° F Other		Illumination:	White	FC 150		b) (4) UV Meter N/A	
() (3) (A)	Accest	Reject Sk	etch/Notes				
socket weld							
socket weld				~~~			\sim
socket weld			(Noin	diantiana not	ed at time of inspectio	
socket weld			(
socket weld				\sim	000		\sim
mm							

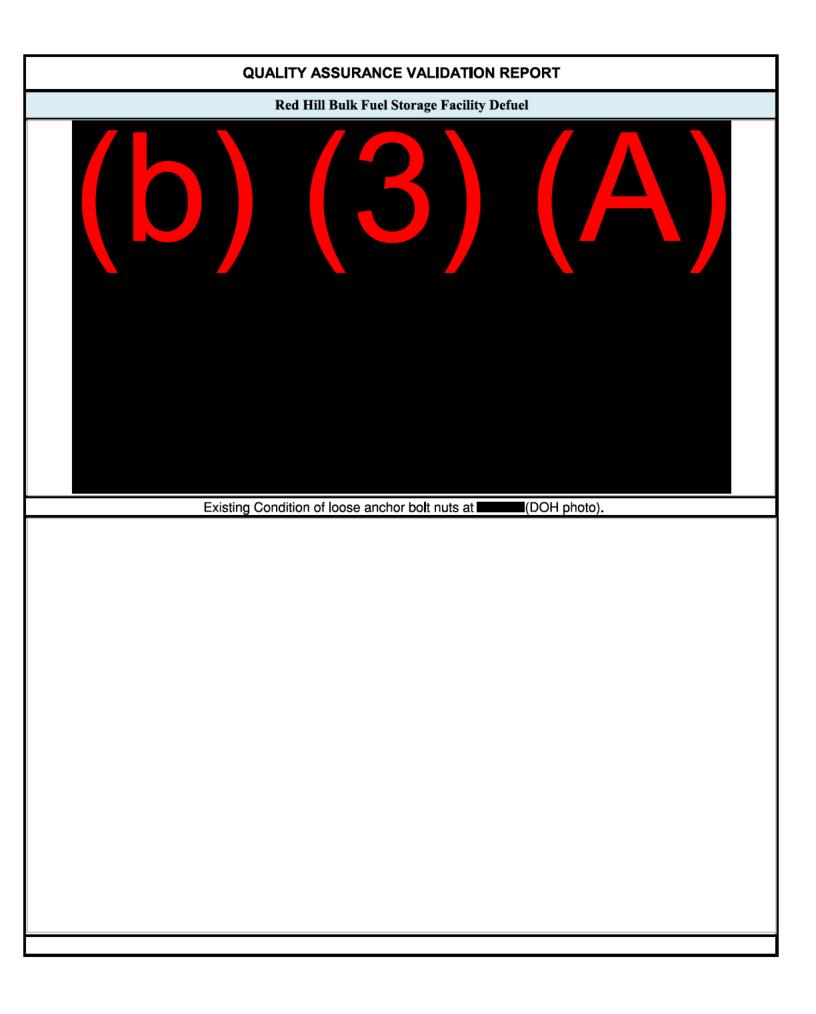
PCP-02.1 REV. B (06/04/03)

			QUALI	TY VALIDATION (QV) REPC	DRT			
		1	Red Hill B	Bulk Fuel Storage Fac	ility Defue	1			
Validation Firm	HDR Env	ironmenta	, Operatio	ns and Construction,	Inc.		Repair No.	INC-033	
Addres	s 9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	Spool.203	3
Contract No	. FA89031	5D0007, D	.O. FA890)3-19-F-0027			Report Date	25 JUL 20	023
QV Enginee	(b) (6)					Duit		
		-		VALIDATION					
Source	1	PDF Page N	ío.	Facility Geograph	ic Area		Location	Reference	
FLC	N/A			(b) (3) (A)		(b) (3) (A)			E
Repair Description	section u	v point drai ostream of	n_and_Hiok (b) (3) (A	Point vent on F24 S	pool	Sour	ce Contract Reference		
Description o Contractor Q0 Method(s) Use	f	Methods outlined in QCP.					ntractor QC s Reviewed	QCP and Reports.	Daily
Description of QA Validation an Observation	JTF-RH s JTF-RH (1		QA and 3r	o d Party QV complete I repair & reviewed co		C docume	ntation.		
		ptance by g	overnment.	Date: 12 JUL 2023					
Yes	k Needed	No		Photo Record Attached	1		Work Vali Yes	dated as Co	mplete No
Comments Contractor carefully containment measu Support	removed ures were d pool was tra t welds were	b) (3) (A eployed to ansported e inspected	prevent a out of the d via dye p	See Page 2. idual fuel from the line ny accidental spillage tunnel for the installat penetrant testing (PT) ty.	of residuation of the h	l fuel when high point v	prior to rer spool rem vent and lo	noved from w point dra	ool. Full Pipe
				CERTIFICATION					
I hereby certify that repa			QV ENG	INEER SIGNATURE	(b) ((6)			
report was personally su report is true.	ostantiated an	ia this		DATE	25 JUL 20	023			

b) (Client P.O. No.: 62	252-108		Job No.:		Page 1 of 1	
		Report No. F	lure: NDT-002.2 Rev \$\$062023	A	Code: AS	SME B31.3		
TEM: Socket Welds					0/1			
MATERIA	L	1.252	ENETRANT M	and the second second	Second.	5	ECHNIQUE	
IYPE: Carbon Steel Surface Condition: As Welded	Cleaner	BRAND Magnaflux SpotCheck	DESIGNATION SKC-S	PO#	BATCH# 19L06K	Preclean Drying T Method of Applica		
Ground / Buffed	Penetrant	Magnaflux SpotCheck	SKL-SP1	N/A	09L19K	Dwell Time: 15 N	Ainutes	
New weld	Emulsifier	N/A	N/A	N/A		Emulsification Tir		
	Magnaflux SpotCheck	SKD-S2	N/A	09L01K	Developing Time:	15 Minutes		
Temperature: 60° F – 125° F Other		Illumination	White	FC <u>>1</u>	00	(b) (4) Control # UV Meter N/A X		
ltem(s) Accep	t Reject Sketc	h/Notes						
Reducing Spool Socket Welds High Point Low Point		PT Inspec	tion performed on		cing spools soo roject RHL-67		high and low points.	
				No rele	vant indication	ns noted.		

(b)				Client: (b) (P.O. No.: 622 (b) (4)			Job No.:	Course Doold	Page 1 of 1	
				Report No. K		VA	Code. As	ME B31.3		
EM: Socket Welds MA	TERIAI	2		P	ENETRANT N	IATERI	AL		TECHNIQUE	
YPE: Carbon Steel				BRAND	DESIGNATION	PO#	BATCH #	Preclean Drying Time: 5 Minutes		
rface Condition: As Welded		Clea	ner	Magnaflux SpotCheck	SKC-S	N/A	19L06K	Method of Application: Brush		
☐ Ground / Buffed ☐ Other ☑ New weld		Pene	trant	Magnaflux SpotCheck	SKL-SP1	N/A	09L19K	Dwell Time: 15 M	Minutes	
		Emu	lsifier	N/A	N/A	N/A		Emulsification Tin		
Developer				Magnaflux SpotCheck	SKD-S2	N/A	09L01K	Developing Time: (b) (4) Control #	15 Minutes	
mperature: 60° F - her	125° F			Illumination:	N/A <u>X</u>					
em(s)	Accept	Reject	Skete	h/Notes						
educing Spool ocket Weld ow Point 'elds #1-#4				PT Inspectio	n performed on th	Р	roject RHL-67	7E	amped low point drain.	
	-					No rele	evant indication	is noted.		
				A second round of PT was performed after Contractor changed the LPD configuration.						

QUALITY VALIDATION (QV) REPORT									
]	Red Hill B	ulk Fuel Storage Fac	ility Defue	ł			
Validation Firm	HDR Env	HDR Environmental, Operations and Construction, Inc. Repair No. INC-034							
Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	NDAA.PS	.250
Contract No	FA89031	5D0007, D	.O. FA890)3-19-F-0027			Report Date	25 JUL 20)23
QV Engineer	(b) (6	5)							
				VALIDATION					
Source	1	PDF Page N	0.	Facility Geograph	ic Area		Location	Reference	
DOH / NDAA	N/A			(b) (3) (A)					
Repair Description	Moderate	corrosion	at any nur	I h sides (DOH observa nber of locations, may A Observation).		Sour	ce Contract Reference	N/A	+
Description of Contractor QC Method(s) Used	Contractor QC Records Reviewed								
N/A Description of QA Validation and Observations									
Final acceptance by government. Date: 11 JUL 2023 Rework Needed Photo Record Attached Repair Work Validated as Complete					mu lata				
Yes		No		Photo Record Attached See Page 2.		(epair	Yes		No
loads and that the c are loose (such as and $F-24$ pipelines (b) (3) (A) repairs for these pipelines	ompressio at (b) (3) (b) (3) (A) be supports odate the et r work validate	ad comple are not re atra loads o	of the pipe " "To assuming etely lost th quired prio due to the	chor bolts at the base e supports will not be demonstrate that repa (very conservatively) neir load-carrying capa or to the defueling pro postulated loss of pip CERTIFICATION SINEER SIGNATURE DATE	significantl airs are no that all the acity " The cess, and	y impacted t required, e damaged modeling t there is end " No repair (6)	l even if the (b) (4) re-e pipe supp results "de ough redui	e anchor b evaluated to orts ((b) (3) monstrate ndancy in t	olt nuts he JP-5 (A) that





Memorandum

- Date:11 July 2023
(Revised 24 July 2023)To:(b) (6)From:(b) (6)CC:(b) (6), (b) (4)Project:221162 Red Hill Defueling Support, Joint Base Pearl Harbor-Hickam,
Honolulu, HI
- Subject: Supplemental Information for Use in JTF Response to 23 June 2023 DOH Email Regarding Red Hill Bulk Fuel Storage Facility (RHBFSF) Harbor Tunnel Pipe Supports and Pipeline Corrosion

1. BACKGROUND AND PURPOSE

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

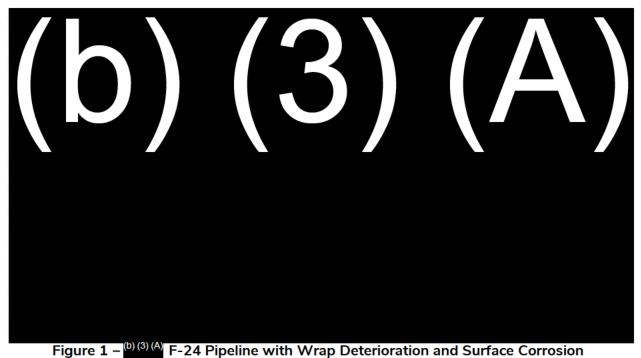
The DOH noted nine locations within the Harbor Tunnel where some pipe support defects could affect load transfer from the (b) (3) (A) . These conditions comprised:

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

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



Memo to <mark>(b) (6)</mark>
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at Pipe Invert Between (b) (3) (A)

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

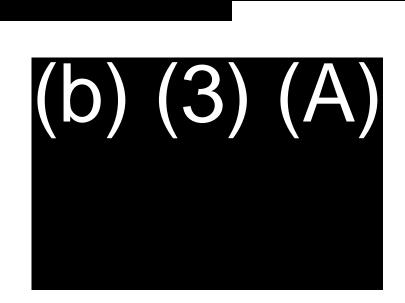
We understand that although these defects could be addressed through a new contract process, the execution of the repairs could possibly delay the currently planned defueling process. Therefore, the purpose of this memorandum is to determine if the system can be safely operated during the defueling process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

2. PIPE SUPPORTS

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

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

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







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Figure 4 – Representation of Typical Pipe Supports Between Anchors

Figure 5 (identical to Figure 7-86 in our April 2022 report) shows the demand-to-capacity ratios (DCRs) for the different structural elements of the controlling pipe support under design loads. (b) (3) (A)

he results indicate that the

structural capacity of the pipe supports is adequate for operational and seismic loads. Note our original evaluation, as presented in our April 2022 report, assumed that the system would be continuously operated in the future. Therefore, we also considered seismic loads in accordance with the ASCE 7 code requirements.

Memo to <mark>(b) (6)</mark>	
Project 221162	

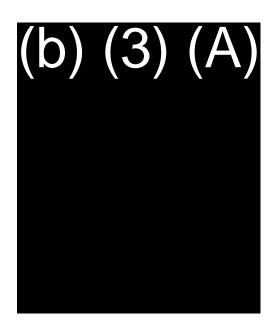


Figure 5 – Demand-to-Capacity Ratios (DCRs) for a Typical Pipe Support at the Harbor Tunnel

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

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

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

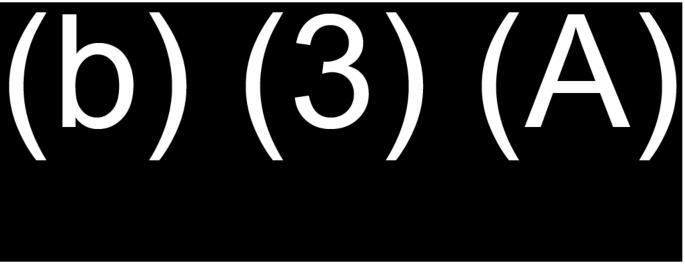
- Loose anchor bolt nuts (b) (3) (A)
- Grout damage and partial base plate contact with the grout resulting in limited vertical support capability (b) (3) (A)
- Cut flange on the double angle column for (b) (3) (A)

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

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

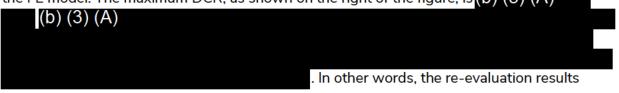
The damaged pipe support angle column (cut flange) at (b) (3) (A) will affect the compression capacity of this specific pipe support. However, the analysis below demonstrates that a repair is not required.

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





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



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

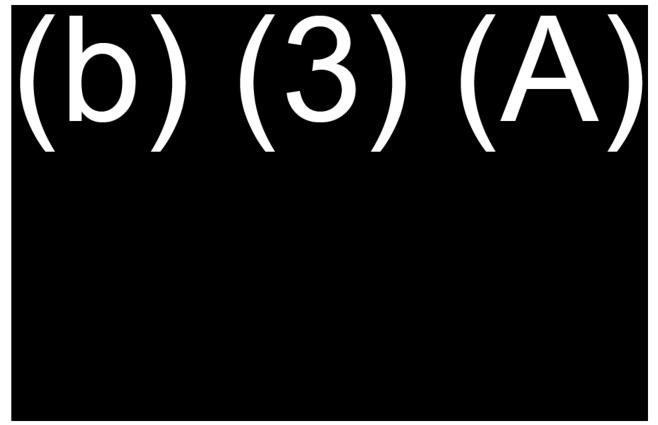


Figure 7 – DCRs for Missing Pipe Support Analysis, Harbor Tunnel

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

allowable stress of (b) (3) (A)

which is significantly less than the basic following the ASME B31.3 requirements.

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

Memo to <mark>(b) (6)</mark>	- 8 -
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defueling process without the need to address the issues observed for (b) (3) (A) in the Harbor Tunnel.

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

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

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

Memo to <mark>(b) (6</mark>)	
Project 221162	

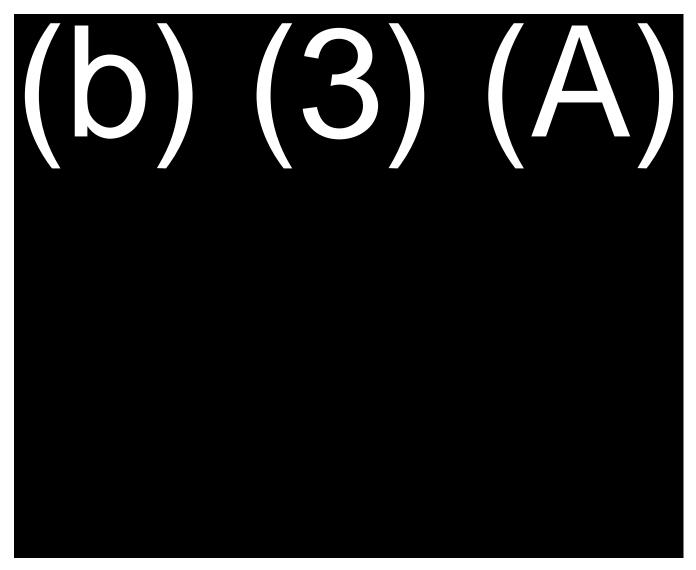
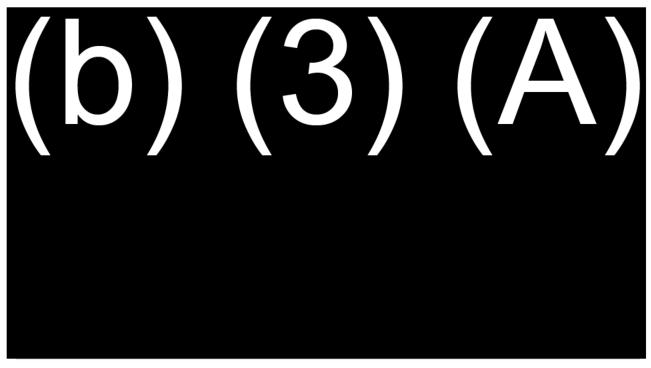


Figure 8 – Grout Damage and Partial Base Plate Supports Observed by the Walkthrough Team (extracted from Appendix A of this memo)

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

- 9 -

Memo to <mark>(b) (6)</mark>	
Project 221162	



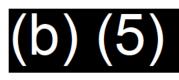
Typical Pipe Support - Detail of Footing

Base Plate Details - Plan View

Potential Missing Grout for^(b) (3) (A)

Figure 9 – Typical Pipe Support and Base Plate Details

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



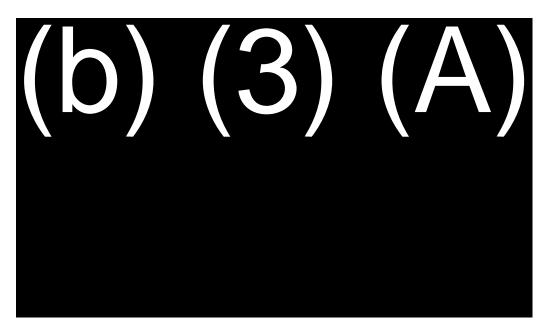
3. EVALUATION OF CORROSION DEFECTS UNDER PIPE WRAP

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

Memo to <mark>(b) (6</mark>)
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In 2015, the (b) (3) (A) pipelines in the Harbor Tunnel underwent inline inspections (ILI) by (b) (4) which encompassed evaluating sections of wrapped pipe. The final inspection report evaluated the condition of the girth welds, areas of metal loss, and the effect of dents, among other items, as they relate to the ability of the pipeline to safely operate. Each defect evaluated was tied to a maximum allowable operating pressure (MAOP) to inform where repairs were required in the short and long term.

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



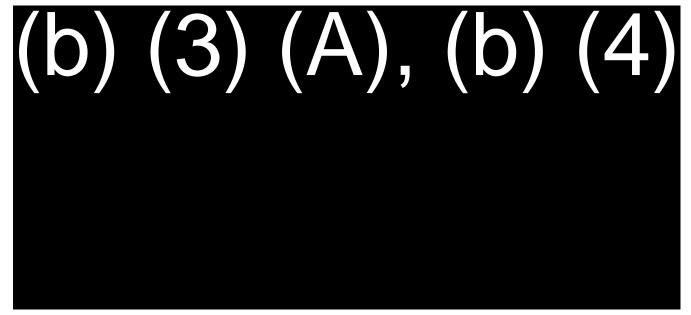
Since GW2540 for the F-24 pipeline lies between (b) (3) (A) would either be GW2530 or GW2520, based on pipe support and girth weld spacing. The minimum wall thickness for these girth welds is at GW2530 and is (b)(3)(A), with a nominal wall thickness of (b)(3)(A). (Figure 11). Therefore, at this weld,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

Memo to (b) (6)
Project 221162

(b) (3) (A), (b) (4) For the JP-5 pipeline, GW2570 is between (b) (3) (A) . From the (b) (4)

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

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



Memo to (b) (6)	
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4. CONCLUSIONS

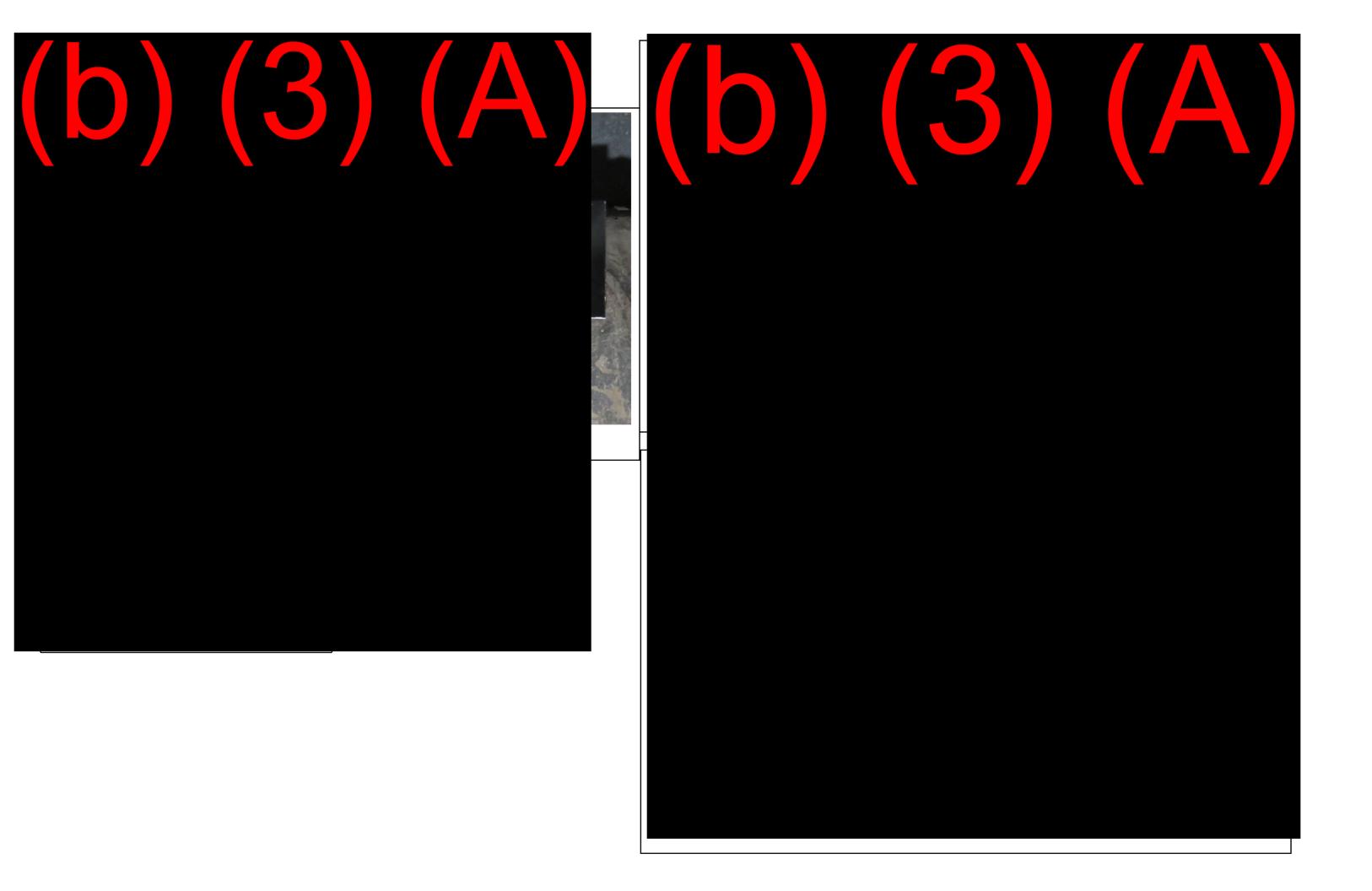


The original pipe support design in the Harbor Tunnel had a significant safety margin against gravity loads. The performance of both the pipelines and the pipe supports still meets code requirements against gravity loads even if all the other pipe supports (b) (3) (A)

have completely lost their load-carrying capacity. In other words, the pipeline system in the Harbor Tunnel can be safely operated during the defueling process without the need to address the issues observed.

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

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



9781 S. Meridian E FA890315D0007, I (b) (6) PDF Page 1 N/A Anchor bolt (nut) Io		, Inc.		Repair No. Repair ID Report Date	INC-035 NDAA.PS 25 JUL 20											
9781 S. Meridian E FA890315D0007, I (b) (6) PDF Page 1 N/A Anchor bolt (nut) Io	Nvd., Suite 400, Englewood, CO D.O. FA8903-19-F-0027 VALIDATION No. Facility Geograp	0 80112		No. Repair ID Report	NDAA.PS											
FA890315D0007, I (b) (6) PDF Page I N/A Anchor bolt (nut) Io	D.O. FA8903-19-F-0027 VALIDATION No. Facility Geograp			Report												
(b) (6) PDF Page 1 N/A Anchor bolt (nut) lo	VALIDATION No. Facility Geograp	hic Area			25 JUL 20)23										
N/A Anchor bolt (nut) lo	No. Facility Geograp	hic Area		Dur												
N/A Anchor bolt (nut) lo	No. Facility Geograp	hic Area														
N/A Anchor bolt (nut) lo		hic Area			VALIDATION											
Anchor bolt (nut) lo	(b) (3) (A)			Location	Reference											
		Sourc	ce Contract Reference	N/A												
N/A					N/A											
N/A Description of QA Validation and Observations																
		d			dated as Cor	1										
Yes No See Page 2. Yes No Comments As set forth in [0][4] memo dated 11 July 2023, "anchor bolts at the base will not be subjected to tension under operating loads and that the compression capacity of the pipe supports will not be significantly impacted even if the anchor bolt nuts are loose (such as at (b) (3) (A) "To demonstrate that repairs are not required (b) (4) re-evaluated the JP-5 and F-24 pipelines (b) (3) (A) "To demonstrate that repairs are not required (b) (4) re-evaluated the JP-5 had completely lost their load-carrying capacity." The modeling results "demonstrate that repairs for these pipe supports are not required prior to the defueling process, and there is enough redundancy in the system to accommodate the extra loads due to the postulated loss of pipe support." No repair was completed. CERTIFICATION I hereby certify that repair work validated in this report was personally substantiated and this report was personally substantiated and this																
	Anchor bolt (nut) lo Moderate corrosion efflorescence coati N/A N/A N/A Rinal acceptance by <u>g</u> Reeded No emo dated 11 July npression capacity (h) (3) (A) had compl supports are not re ate the extra loads	M/A (b) (3) (A) Anchor bolt (nut) loose on both sides (DOH observation). M/A Anchor bolt (nut) loose on both sides (DOH observation). M/A M/A N/A N/A N/A Sinal acceptance by government. Date: 11 JUL 2023 N/A Sinal acceptance by government. Date: 11 JUL 2023 Needed Photo Record Attache No See Page 2. emo dated 11 July 2023, "anchor bolts at the base inpression capacity of the pipe supports will not be be by (3) (A), " "To demonstrate that reports are not required prior to the defueling private the extra loads due to the postulated loss of picture in the extra loads due to the postulated loss of picture in the extra loads due to the postulated loss of picture in this	V/A (b) (3) (A) Anchor bolt (nut) loose on both sides (DOH observation) Moderate corrosion at any number of locations, may have efflorescence coating it. (NDAA Observation). W/A N/A SeePage 2. Paceded Photo Record Attached No See Page 2. No See Page 2. N/A , assuming (very conservatively) that all the nad completely lost their load-carrying capacity." The mad	V/A (b) (3) (A) Anchor bolt (nut) loose on both sides (DOH observation) Moderate corrosion at any number of locations, may have offlorescence coating it. (NDAA Observation). Sourd N/A Con Records N/A See Page 2. Image: See Page 2. Image: See Page 2. Image: See Page 2. Image: See Page 2. Image: See Page 2. Image: See Page 2. Image: See Page 2. Image: See Page 2. Image: See Page 2. Image: See Page 2. Image: See Page 2. Image: See Page 2. Image: See Page 2. Image: See Page 2. Image: See Page 2. Image: See Page 2. Image: See Page 2. Image: See Page 2. Image: See Page 2. Image: See Page 2. Image: See Page 2. Image: See Page 2. Image: See Page 2. Image: See Page 2. Image: See Page 2. Image: See Page 2. Image: See Page 2. Image: See Page 2. <td< td=""><td>V/A (b) (3) (A) Anchor bolt (nut) loose on both sides (DOH observation) work validated in this antiated and this Source Contract Reference V/A Source Contract Reference N/A Contractor QC Records Reviewed N/A Contractor QC Records Reviewed N/A Contractor QC Records Reviewed N/A See Page 2. Image: Source Contract Repair Work Valiant Yes Second Photo Record Attached Repair Work Valiant Image: Source Contract Repair Work Valiant Yes Image: Source Contract Repair Work V</td><td>V/A (b) (3) (A) Anchor bolt (nut) loose on both sides (DOH observation) Moderate corrosion at any number of locations, may have offlorescence coating it. (NDAA Observation). N/A N/A Contractor QC Records Reviewed N/A V/A See Page 2. Yes Image: See Page 2. Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes</td></td<>	V/A (b) (3) (A) Anchor bolt (nut) loose on both sides (DOH observation) work validated in this antiated and this Source Contract Reference V/A Source Contract Reference N/A Contractor QC Records Reviewed N/A Contractor QC Records Reviewed N/A Contractor QC Records Reviewed N/A See Page 2. Image: Source Contract Repair Work Valiant Yes Second Photo Record Attached Repair Work Valiant Image: Source Contract Repair Work Valiant Yes Image: Source Contract Repair Work V	V/A (b) (3) (A) Anchor bolt (nut) loose on both sides (DOH observation) Moderate corrosion at any number of locations, may have offlorescence coating it. (NDAA Observation). N/A N/A Contractor QC Records Reviewed N/A V/A See Page 2. Yes Image: See Page 2. Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes										

			QUALI	TY VALIDATION (QV) REPO	DRT					
]	Red Hill B	ulk Fuel Storage Fac	ility Defue	el					
Validation Fir	n HDR Envi	ironmental	, Operatio	ns and Construction,	nc.		Repair No.	INC-036			
Addre	s 9781 S. N	leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	NDAA.PS	6.263		
Contract N	. FA890315	5D0007, D	.O. FA890)3-19-F-0027			Report Date	25 JUL 20	023		
QV Engine	ar <mark>(b) (</mark> 6)									
	-			VALIDATION							
Source	Р	DF Page N	0.	Facility Geograph	ic Area		Location	Reference			
DOH / NDAA	N/A			(b) (3) (A)							
Repair Descriptic	e Tee per of N	Sour	ce Contract Reference	N/A	£						
Description of Contractor QC Method(s) Used							ntractor QC s Reviewed	N/A			
Validation ar	N/A Description of QA Validation and Observations										
		otance by go		Date: 11 JUL 2023							
$\left(\right)$	k Needed			Photo Record Attached				dated as Co			
<u>V</u> Yes	ullet	No		See Page 2.		ullet	Yes	\cup	No		
Comments As set forth in (b) (4) memo dated 11 July 2023, "The damaged pipe support angle column (cut flange) $a^{(b)}$ (3) (A) will affect the compression capacity of this specific pipe support." "To demonstrate that repairs are not required (b) (4) re-evaluated the JP-5 and F-24 pipelines (b) (3) (A) assuming (very conservatively) that all the damaged pipe supports (PS (b) (3) (A) had completely lost their load-carrying capacity." The modeling results "demonstrate that repairs for these pipe supports are not required prior to the defueling process, and there is enough redundancy in the system to accommodate the extra loads due to the postulated loss of pipe support." No repair was completed.											
				CERTIFICATION							
hereby certify that rep			QV ENG	INEER SIGNATURE	(b)	(6)					
report was personally s report is true.	udstantiated and	a this		DATE	25 JUL 2	. 2023					

				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.	INC-037		
	Address	9781 S. N	leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	NDAA.PS	3.307	
С	ontract No.	FA89031	5D0007, D	.O. FA890)3-19-F-0027			Report Date	25 JUL 2	023	
Q	V Engineer	(b) (6)					Duit			
					VALIDATION						
Sou	urce	F	PDF Page N	Io. Facility Geographic Area				Location Reference			
DOH / N	AA	N/A			(b) (3) (A)			l			
Repair Description Repair Description Repair Description Repair Description Repair Description Grout damaged beneath vertical support base plates, resulting in inadequate bearing between base plate and floor. (DOH Observation) Moderate corrosion at any number of locations, may have efflorescence coating it, corroded baseplate, no grout. (NDAA observation).								ce Contract Reference			
Cor	Contractor ()C							ntractor QC s Reviewed	N/A		
Val	otion of QA idation and bservations										
			ptance by g	overnment.	Date: 11 JUL 2023						
\cap		Needed	No		Photo Record Attached	1			dated as Co		
Yes No <u>Comments</u> As set forth in (b) (4) memo dated 11 July 2023, "Grout damage and partial base plate contact with the grout resulting in limited vertical support capability (b) (3) (A) " "To demonstrate that repairs are not required, (b) (4) re-evaluated the JP-5 and F-24 proteines in the marcor runnel, assuming (very conservatively) that all the damaged pipe supports (b) (3) (A) had completely lost their load-carrying capacity." The modeling results "demonstrate that repairs for these pipe supports are not required prior to the defueling process, and there is enough redundancy in the system to accommodate the extra loads due to the postulated loss of pipe support." No repair was completed.											
					CERTIFICATION		(\mathbf{O})				
		r work validate		QV ENG	INEER SIGNATURE	(b)	(6)				
report is true	*		4 4110		DATE	25 JUL 20	023				

				QUALI	TY VALIDATION (QV) REPO	DRT			
]	Red Hill B	ulk Fuel Storage Fac	ility Defue	el			
Valid	lation Firm	HDR Env	ironmenta	, Operatio	ns and Construction,	Inc.		Repair No.	INC-038	
	Address	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	NDAA.PS	.413
Co	ontract No.	FA89031	5D0007, D	.O. FA890	3-19-F-0027			Report Date)23
Q	V Engineer	(b) ((6)							
					VALIDATION					
Sou	rce	F	PDF Page N	ío.	Facility Geograph	ic Area	Location Reference			
DOH / ND	AA	N/A			(b) (3) (A)				E
Repair I	Description Grout damaged beneath vertical support base plates, resulting in inadequate bearing between base plate and floor. (DOH Observation)Severe corrosion w/ significant loss of material at any number of locations, grout pad broken (NDAA observation).									ouse
Description of Contractor QC Method(s) Used N/A N/A Contractor QC Records Reviewed										
Vali	Visually inspected repairs. Verified grout materials used for repairs. Description of QA Validation and Observations									
			ptance by go	overnment.	Date: 14 JUL 2023					
\sim		Needed			Photo Record Attached	1			dated as Cor	
O	Yes	ullet	No		See Page 2.		ullet	Yes	\cup	No
Comments As set forth in (b) (4) memo dated 11 July 2023, "As previously discussed, the grout damage under the base plates, as shown, may affect the compression capacity of the steel pipe supports." In-house labor mobilized tools and non-shrink grout. Cleaned loose/damaged baseplate grout to sound material. Hand mixed and packed below the baseplate. Chamfered edge applied.										
					CERTIFICATION	(b)	(\mathbf{C})			
I hereby certi report was pe		r work validate ostantiated an		QV ENG	INEER SIGNATURE	(D) (0)			
report is true.	*				DATE	25 JUL 2	023			

			QUAL	TY VALIDATION (QV) REPO	DRT				
		1	Red Hill B	Bulk Fuel Storage Fac	ility Defue	1				
Validation Firm	HDR Env	ironmenta	l, Operatio	ns and Construction,	Inc.		Repair No.	INC-039		
Addres	s 9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112			NDAA.PS	5.414	
Contract No	. FA89031	5D0007, D	.O. FA890)3-19-F-0027			Report	25 JUL 20	023	
QV Enginee	(b)	(6)								
				VALIDATION						
Source	F	PDF Page N	lo.	Facility Geograph	ic Area		Location	Reference		
DOH / NDAA	N/A			(b) (3) (A)						
Repair Description	resulting i floor. (DO of location	naged ben in inadequa H Observa ns, may ha a, no grout.	ate bearing ation) Mod we efflores	and number	r Source Contract Iabor			ouse		
Description o Contractor Q0 Method(s) Use	or QC						ntractor QC s Reviewed	N/A		
Description of QA Validation an Observation	1	nspected r	epairs. Ve	rified grout materia l s	used for re	pairs.				
		ptance by g	overnment.	Date: 14 JUL 2023						
	k Needed	No		Photo Record Attached	1			dated as Cor		
Yes No See Page 2. Yes No Comments As set forth in (b) (4) memo dated 11 July 2023, "As previously discussed, the grout damage under the base plates, as shown, may affect the compression capacity of the steel pipe supports." In-house labor mobilized tools and non-shrink grout. Cleaned loose/damaged baseplate grout to sound material. Hand mixed and packed below the baseplate. Chamfered edge applied. CERTIFICATION										
I hereby certify that repa report was personally su			QV ENG	INEER SIGNATURE	(b) ((6)				
report is true.	botantiateu an			DATE	25 JUL 20	023				

				QUALIT	Y VALIDATION (QV) REPC	DRT				
			1	Red Hill Bu	ılk Fuel Storage Fac	ility Defue	1				
Vali	dation Firm	HDR Env	ironmenta	l, Operation	is and Construction,	Inc.		Repair No.	INC-040		
	Address	9781 S. N	/leridian Bl	vd., Suite 4	00, Englewood, CO	80112		Repair ID	NDAA.PS	6.423	
С	ontract No.	FA89031	5D0007, D	.O. FA8903	3-19-F-0027			Report Date	25 JUL 20	023	
Q	V Engineer	(b) ((6)					Bute			
					VALIDATION						
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DOH / N	DAA	N/A			(b) (3) (A)						
Repair 1	Description	resulting i floor. (DO of materia	naged ben in inadequa H Observa al at any nu bservation	and cant loss	Sour	ce Contract Reference	N/A	#			
Cor	N/A Description of Contractor QC Method(s) Used							ntractor QC s Reviewed	N/A		
Val	N/A Description of QA Validation and Observations										
			ptance by g		Date: 11 JUL 2023						
		Needed		I	Photo Record Attached	1	0		dated as Co	-	
Commonto	Yes	ullet	No		See Page 2.		ullet	Yes	\cup	No	
Comments As set forth in (b) (4) hemo dated 11 July 2023, "anchor bolts at the base will not be subjected to tension under operating loads and that the compression capacity of the pipe supports will not be significantly impacted even if the anchor bolt nuts are loose (such as at (h) (3) (A) "" "To demonstrate that repairs are not required, (b) (4) re-evaluated the JP-5 and F-24 pipelines (b) (3) (A) assuming (very conservatively) that all the damaged pipe supports (b) (3) (A) had completely lost their load-carrying capacity." The modeling results "demonstrate that repairs for these pipe supports are not required prior to the defueling process, and there is enough redundancy in the system to accommodate the extra loads due to the postulated loss of pipe support." No repair was completed.											
					CERTIFICATION		$\langle \mathbf{C} \rangle$				
		work validate		QV ENG	NEER SIGNATURE	(D) (6)				
report is true	*				DATE	25 JUL 20	023				

QUALITY VALIDATION (QV) REPORT											
	Red Hill B	ulk Fuel Storage Fac	ility Defue	2 1							
HDR Environmenta	l, Operatio	ns and Construction,	nc.		Repair No.	INC-041					
9781 S. Meridian B	lvd., Suite	400, Englewood, CO	80112		Repair ID	NDAA.PS	. 427				
FA890315D0007, I	.O. FA890)3-19-F-0027			Report Date	25 JUL 20)23				
(b) (6)											
		VALIDATION									
PDF Page 1	No.	Facility Geograph	ic Area		Location	Reference					
N/A					H						
resulting in inadequ floor. (DOH Observ of locations, may he	and number	Sour	ce Contract Reference	N/A							
Description of Contractor QC Method(s) Used											
N/A Description of QA Validation and Observations											
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No No		See Page 2.		(epair	Yes		No				
Yes No See Page 2. Yes No Comments As set forth in (b) (4) memo dated 11 July 2023, "anchor bolts at the base will not be subjected to tension under operating loads and that the compression capacity of the pipe supports will not be significantly impacted even if the anchor bolt nuts are loose (such as at (b) (3) (A) "To demonstrate that repairs are not required, (b) (4) re-evaluated the JP-5 and F-24 pipelines (b) (3) (A) had completely lost their load-carrying capacity." The modeling results "demonstrate that repairs for these pipe supports are not required prior to the defueling process, and there is enough redundancy in the system to accommodate the extra loads due to the postulated loss of pipe support." No repair was completed. Interest certify that repair work validated in this report was personally substantiated and this report is true.											
	HDR Environmenta 9781 S. Meridian B FA890315D0007, D (b) (6) PDF Page N N/A Grout damaged berresulting in inadequide floor. (DOH Observor of locations, may habaseplate, no grout N/A N/A N/A N/A N/A Final acceptance by g Needed No memo dated 11 July ompression capacity of (b) (3) (A) had complete supports are not resolute the extra loads	Red Hill B HDR Environmental, Operatio 9781 S. Meridian Blvd., Suite FA890315D0007, D.O. FA890 (b) (6) PDF Page No. N/A Grout damaged beneath vertion resulting in inadequate bearing floor. (DOH Observation) Mod of locations, may have efflores baseplate, no grout. (NDAA of N/A N/A Final acceptance by government. Needed N/A Image dated 11 July 2023, "and on pression capacity of the pipe of (5) (3) (A) memo dated 11 July 2023, "and on pression capacity of the pipe of (b) (3) (A) memo dated 11 July 2023, "and on pression capacity of the pipe of (b) (3) (A) memo dated 11 July 2023, "and on pression capacity of the pipe of (b) (3) (A) memo dated 11 July 2023, "and on pression capacity of the pipe of (b) (3) (A) memo dated 11 July 2023, "and on pression capacity of the pipe of (b) (3) (A) memo dated 11 July 2023, "and on pression capacity of the pipe of (b) (3) (A) memo dated 11 July 2023, "and on pression capacity of the pipe of (b) (3) (A) memo dated 11 July 2023, "and on pression capacity of the pipe of (b) (3) (A) memo dated in this	Red Hill Bulk Fuel Storage Fac HDR Environmental, Operations and Construction, 9781 S. Meridian Blvd., Suite 400, Englewood, CO FA890315D0007, D.O. FA8903-19-F-0027 (b) (6) VALIDATION PDF Page No. PDF Page No. Facility Geograph N/A Grout damaged beneath vertical support base plate resulting in inadequate bearing between base plate floor. (DOH Observation) Moderate corrosion at any of locations, may have efflorescence coating it, corr baseplate, no grout. (NDAA observation). N/A N/A N/A N/A N/A See Page 2. N/A See Page 2. No See Page 2. Memo dated 11 July 2023, "anchor bolts at the base ompress	Red Hill Bulk Fuel Storage Facility Defue HDR Environmental, Operations and Construction, Inc. 9781 S. Meridian Blvd., Suite 400, Englewood, CO 80112 FA890315D0007, D.O. FA8903-19-F-0027 (b) (6) VALIDATION PDF Page No. Facility Geographic Area N/A (b) (3) (A) Grout damaged beneath vertical support base plates, resulting in inadequate bearing between base plate and floor. (DOH Observation) Moderate corrosion at any number of locations, may have efflorescence coating it, corroded baseplate, no grout. (NDAA observation). 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N/A Con Record N/A Con Record Attached Repair Image: A submit (very conservatively) that all the damaged compression capacity of the pipe supports will not be significantly impacted on pression capacity of the pipe supports will not be significantly impacted on the submit (very conservatively) that all the damaged beam for the detueling process, and there is end date the extra loads due to the postulated loss of pipe support. No repair	Red Hill Bulk Fuel Storage Facility Defuel HDR Environmental, Operations and Construction, Inc. Repair No. 9781 S. Meridian Blvd., Suite 400, Englewood, CO 80112 Repair ID FA890315D0007, D.O. FA8903-19-F-0027 Report Date (b) (5) VALIDATION PDF Page No. Facility Geographic Area Location N/A (b) (3) (A) Source Contract Reference Grout damaged beneath vertical support base plates, resulting in inadequate bearing between base plates, resulting in inadequate bearing between base plates, resulting in inadequate bearing between base plates, resulting in inadequate bearing between base plates, resulting in adequate bearing between base plates, resulting in acequate bearing be	Red Hill Bulk Fuel Storage Facility Defuel HDR Environmental, Operations and Construction, Inc. Repair No. INC-041 9781 S. Meridian Blvd., Suite 400, Englewood, CO 80112 Repair ID NDAA,PS FA890315D0007, D.O. FA8903-19-F-0027 Report Date 25 JUL 20 (b) (6) VALIDATION PDF Page No. Facility Geographic Area N/A Location Reference N/A (b) (3) (A) N/A Grout damaged beneath vertical support base plates, resulting in inadequate bearing between base plate and tfoor. 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		Red Hill B	ulk Fuel Storage Fac	114 D.C.										
	ronmental	Red Hill Bulk Fuel Storage Facility Defuel												
9781 S M		, Operatio	ns and Construction,	nc.		Repair No.	INC-042							
	eridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID	NDAA.PS	5.548						
FA890315	D0007, D	.O. FA890	3-19-F-0027			Report Date	25 JUL 20)23						
(b) (6)													
	-		VALIDATION											
P	DF Page N		Facility Geograph	ic Area	Location Reference									
N/A			(b) (3) (A)											
Repair Description floor (DOLLObe an internetion) Course correction w/ loss of motorial														
Description of Contractor QC Method(s) Used							N/A							
N/A Description of QA Validation and Observations														
	tance by go													
	No		See Page 2.	L		Yes		No						
Yes No See Page 2. Yes No Comments Repair Description Cont.: "Minor to moderate corrosion on the base plate due to standing water. (NDAA Observation)". As set forth in (b)(4) memo dated 11 July 2023, "To demonstrate that repairs are not required, (b)(4) re-evaluated the JP-5 and F-24 pipelines(b)(3)(A) As set forth in (b)(4) memo dated 11 July 2023, "To demonstrate that repairs are not required, (b)(3)(A) As set forth in (b)(4) re-evaluated the JP-5 assuming (very conservatively) that all the damaged pipe supports (b) (3)(A) (b) (3) (A) had completely lost their load-carrying capacity." The modeling results "demonstrate that repairs for these pipe supports are not required prior to the defueling process, and there is enough redundancy in the system to accommodate the extra loads due to the postulated loss of pipe support." No repair was completed. I hereby certify that repair work validated in this report was personally substantiated and this report is true.														
	FA890315 (b) (P) N/A "Grout dar resulting ir floor. (DOF at any num floor. (DOF at at at any num floor. (DOF at at FA890315D0007, D (b) (6) PDF Page N N/A "Grout damaged ber resulting in inadequa floor. (DOH Observa at any number of loc N/A N/A N/A Final acceptance by get No Cont.: "Minor to mode memo dated 11 July (3) (A) had comple be supports are not re- bodate the extra loads of ir work validated in this	FA890315D0007, D.O. FA890 (b) (6) PDF Page No. N/A "Grout damaged beneath vertiresulting in inadequate bearing floor. (DOH Observation)Severat any number of locations, and N/A N/A N/A N/A N/A Severation N/A N/A N/A N/A Severation N/A Severation No Cont.: "Minor to moderate corros memo dated 11 July 2023, "To No No A A A A A B	FA890315D0007, D.O. FA8903-19-F-0027 VALIDATION VALIDATION PDF Page No. Facility Geograph N/A (b) (3) (A) "Grout damaged beneath vertical support base plate floor. (DOH Observation)Severe corrosion w/ loss of at any number of locations, anchor bolt bent. API 57 N/A See Page 2. Cont.: "Minor to moderate corrosion on the base plate memo dated 11 July 2023, "To demonstrate that rep (9)(4) assuming (very conservatively) had completely lost their load-carrying capa podate the extra loads due to the postulated loss of pip CERTIFICATION CERTIFICATION	FA890315D0007, D.O. FA8903-19-F-0027 VALIDATION VALIDATION PDF Page No. Facility Geographic Area N/A (b) (3) (A) "Grout damaged beneath vertical support base plates, resulting in inadequate bearing between base plate and floor, (DOH Observation)Severe corrosion w/ loss of material at any number of locations, anchor bolt bent. API 570: N/A	FA890315D0007, D.O. FA8903-19-F-0027 (b) (b) PDF Page No. Facility Geographic Area N/A (b) (c) "Grout damaged beneath vertical support base plates, resulting in inadequate bearing between base plate and floor. (DOH Observation)Severe corrosion wi loss of material at any number of locations, anchor bolt bent. API 570: N/A Corr N/A N/A Corr N/A N/A Corr N/A Corr N/A Corr N/A Corr Records N/A Corr N/A Corr Records N/A Corr N/A Final acceptance by government. Date: 11 JUL 2023 K Needed Photo Record Attached Repair No See Page 2. Cont.: "Minor to moderate corrosion on the base plate due to standing watheremodated 11 July 2023, "To demonstrate that repairs are not required, assuming (very conservatively) that all the damaged had completely lost their load-carrying capacity." The modeling that completely lost their load-carr	Report Date FA890315D0007, D.O. FA8903-19-F-0027 Colspan="2">Report Date VALIDATION VALIDATION VALIDATION VALIDATION VALIDATION VALIDATION VALIDATION VALIDATION VGCONT damaged beneath vertical support base plates, resulting in inadequate bearing between base plate and Hoor. (DOH Observation)Severe corrosion w/ loss of material at any number of locations, anchor bolt bent. API 570: Source Contract Reference N/A Contractor QC Records Reviewed N/A N/A Contractor QC Records Reviewed N/A N/A Contractor QC Records Reviewed Yes N/A See Page 2. Yes Cont:: "Minor to moderate corrosion on the base plate due to standing water. (NDAA memo dated 11 July 2023, "To demonstrate that repairs are not required, [D) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4	FA890315D0007, D.O. FA8903-19-F-0027 Report Date 25 JUL 20 (b) (b) (b) (c) VALIDATION Identify and the set of							

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]	Red Hill B	ulk Fuel Storage Fac	ility Defue	1			
Validation	n Firm	HDR Env	ironmental	, Operatio	ns and Construction,	Inc.		Repair No.	INC-043	
A	ddress	9781 S. N	/leridian Bl	vd., Suite	400, Englewood, CO	80112		Repair ID		
Contra	ct No.	FA89031	5D0007, D	.O. FA890)3-19-F-0027			Report Date	25 JUL 2	023
QV Eng	ginee	(b) (6	5)					2		
					VALIDATION					
Source		I	PDF Page N	lo.	Facility Geograph	ic Area		Location	Reference	
DOH		N/A			(b) (3) (A)					
Repair Descr	Repair Description Repair Description (DOH Observation).								N/A	
Description of Contractor QC Method(s) Used N/A Contractor QC Records Reviewed								N/A		
Description Validatio Observ	on and	observed reported	on the F-2 to NAVFA	24 line. The C EXWC a	coating and wire brus e deepest pitting (b) (and SGH for evaluatio Date: 11 JUL 2023	3) (A)	bject areas	s. No signif		g was Findings
R	ework	Needed	plance by go	overnment.	Photo Record Attached	1	Repair	Work Vali	dated as Co	mplete
	7es	$oldsymbol{igo}$	No		See Pages 2-3.		\odot	Yes	0	No
Comments As set forth in (b) (4) nemo dated 11 July 2023. for F-24 piping "The minimum wall thickness for these girth welds is at (b) (3) (A) of its nominal wall thickness. The ILI evaluation determined a maximum allowable operating pressure of 398 psi at this location." For the JP-5 piping (b) (3) (A) The ILI evaluation determined a maximum allowable operating pressure of ${}^{(b) (3) (A)}$ at this location." "This allowable operating pressure is still significantly above that which will be used during defueling." No repair was completed.										
					CERTIFICATION					
I hereby certify that				QV ENG	INEER SIGNATURE	(b) ((6)			
report was person report is true.	ally sub	stantiated an	d this		DATE	25 JUL 20	023			



Around the Horn

ENSURING A FREE AND OPEN INDO-PACIFIC

AGENCIES:

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