

Consolidated List of Repairs for Safe Defueling

Count	ID	Source	ID Cross Ref	Geographic Area	Loc Reference	Description/Repair
1	SGH.01	SGH	SGH-1 SGH.8.2.1	RHL	Various	Performance of a surge analysis for the three fuel pipelines to determine whether a larger load than we evaluated could occur during defueling, considering the existing piping configurations and the expected sequence of valve openings associated with defueling. Based on the computed surge loads, any Dresser couplings subject to tension should be evaluated to determine whether they have sufficient capacity, with consideration to replace or strengthen the Dresser couplings.
2	SGH.06	SGH	SGH-6 SGH.PHA.06 Table 8-1.8	TG HT	Various	Install additional Pressure Indicating Transmitters (PITs) in piping in Red Hill Tank Gallery (at a minimum, on each side of sectional valves) and Harbor Tunnel. Ensure new and existing PITs are in the scheduled Preventive Maintenance (PM) program for improved reliability of critical instrumentation.
3	SGH.08	SGH	SGH-8 SGH.PHA.08 Table 8-1.7	TG UGPH	Various	Consult manufacturer on reverse pressure capability (vacuum) of Dresser Couplings installed around pumps in UGPH and tank gallery. Consider modifying the design if the manufacturer has an alternate sealing system and Dresser Couplings remain part of the design.
4	SGH.14	SGH	SGH-14 SGH.PHA.14 Table 8-1.14	RHL to Pier	Various	Evaluate the current ratings of all piping and hoses between RHL and piers to identify areas of concern due to deadhead pumps and static pressure when transferring or defueling RHL.
5	SGH.27	SGH	SGH-27 SGH.PHA.27 EPRC.K.bb	TG	Various	If possible, add an equalization line across the outboard main tank valve prior to defueling to reduce the likelihood of sudden opening of a large valve and resultant surge. Provide small bore pressure equalization piping, valve, and analog pressure gauges for each of JP-5, F-24, and F-76 product pipelines.
6	SGH.28	SGH	SGH-28 SGH.PHA.28 Table 8-1.28	TG	Various	Ensure Oil Tight Door 1) will remain functional during the loss of power and 2) is part of a PM program to improve the reliability of closure on demand.
7	SGH.31	SGH	SGH-31 SGH.PHA.31 Table 8-1.31	TG	Various	Evaluate underlying cause(s) of line sag creating vacuum and modify as warranted.
8	SGH.32	SGH	SGH-32 SGH.PHA.32 Table 8-1.32 NDAA JP5.070 NDAA JP5.071 EPRC.K.dd	TG	Various	Evaluate the need for Dresser Couplings in the 32" and 18" main distribution piping in Red Hill Tank Gallery between TK 114 JP-5 Tank and TK 116 F-76 Tank, shown on Drawing M-101. If they can be removed safely, remove the Dresser Couplings. JP-5 Emergent Pipeline Repairs were underway at the time of the PHA and will include eliminating old Dresser Coupling on 18" JP-5 piping. This recommendation should be completed prior to returning JP-5 piping to service. Remove the JP-5 mainline compression sleeve pipe coupling. Provide welded pup replacement.
9	SGH.LAT.03	SGH	LAT-3 EPRC.K.bb	TG	Various	Design piping system to withstand repeat of surge event. Design of repairs to damaged piping IAW and qualified by pressure test to ASME B31.3. Surge pressures mitigated by operational changes and equalization piping.
10	SGH.LAT.20	SGH	LAT-20	TG	PS 18, 19, 20	Elevated pipe (JP-5, 18") has limited or no lateral restraint. Provide lateral restraint to the existing pipe at PS 18, PS 19, PS 20.
11	SGH.LAT.24	SGH	LAT-24	TG	PS 21 to 103	Elevated pipe (F-24, 16") has limited or no lateral restraint. Provide lateral stops as per SGH retrofit concept drawings.
12	SGH.LAT.32	SGH	LAT-32	TG	PS 27	Interference of valves/pipes. Provide protection around valve to avoid unintentional damage.
13	SGH.LAT.38	SGH	LAT-38 PSAR.10 EPRC.K.II	TG	46 to 47	Existing brace is heavily corroded. Replace brace as per SGH retrofit concept design. Repair design done by others in conjunction with pipe stress analysis report. [K.II] On PS 47a, construct lateral and longitudinal braces to reduce load on the baseplate. Add diagonal braces to stabilize PS 47. Provide in accordance with recommendation in Pipeline Stress Analysis and Structural Evaluation Report dated Sep 2022. [PSAR.10]

14	SGH.LAT.40	SGH	LAT-40 SGH.LAT.40 NDAA PS.047 NDAA 16-TG-5 EPRC.K.aa	TG	47	Existing column is heavily corroded at the base. Replace column and anchorage. Repair design of pipe stand and baseplate done by others in conjunction with pipe stress analysis report. Repair PS-47 and PS-48 at MOV-0163 to account for deterioration and structural adequacy. Butt weld in-kind replacement vertical structural members to eliminate corroded portions and provide new baseplates and anchors. Replace missing lateral brace on PS-47. [K.aa]
15	SGH.LAT.41	SGH	LAT-41 SGH.LAT.41 NDAA PS.048 NDAA 16-TG-5 EPRC.K.aa	TG	48	Existing column is heavily corroded at the base. Replace column and anchorage. Repair design of pipe stand and baseplate done by others in conjunction with pipe stress analysis report. Repair PS-47 and PS-48 at MOV-0163 to account for deterioration and structural adequacy. Butt weld in-kind replacement vertical structural members to eliminate corroded portions and provide new baseplates and anchors. Replace missing lateral brace on PS-47. [K.aa]
16	SGH.LAT.42	SGH	LAT-42 EPRC.K.kk	TG	48	Existing beam is heavily corroded at end closer to the tunnel wall. Replace beam. Repair design of pipe stand and baseplate done by others in conjunction with pipe stress analysis report.[K.kk]
17	SGH.LAT.46	SGH	LAT-46	TG	PS 69 to 71	Existing beam is heavily corroded at end closer to the tunnel wall. Replace beam and connect to tunnel wall.
18	SGH.LAT.47	SGH	LAT-47 EPRC.P.d	TG	PS 73	Elevated pipe (16") is not supported, pipe is not fully bearing on cradle. Provide lateral stops and reset pipe cradle.
19	SGH.LAT.48	SGH	LAT-48	TG	PS 74	Elevated pipe (16") is not supported, cradle is missing. Provide missing cradle and lateral stops.
20	SGH.LAT.55	SGH	LAT-55 EPRC.P.b	TG	PS 6	Missing pipe cradle on one side. Repair pipe cradle.
21	SGH.PM.01	SGH	PM-1	TG	Tank 20	Lack of bypass from Tank 20 to other side of DBB Valve on JP-5 line. Install bypass from Tank 20 to other side of DBB valve using existing sample outlets and drain line.
22	SGH.PM.02	SGH	PM-2	TG	Tank 20	Lack of bypass from after Tank 20 DBB valve to main JP-5 lateral. Install bypass from after Tank 20 ball valve to main JP-5 lateral.
23	SGH.PM.05	SGH	PM-5	TG	Tank 6	Lack of bypass from Tank 6 to other side of DBB Valve on F-24 line. Install bypass from Tank 6 to other side of DBB valve using existing sample outlets and drain line.
24	SGH.PM.06	SGH	PM-6	TG	Tank 6	Lack of bypass from after Tank 6 DBB valve to main F-24 lateral. Install bypass from after Tank 6 ball valve to main F-24 lateral.
25	SGH.PM.10	SGH	PM-10 NDAA JP5.075 EPRC.K.f	TG	PS 1	JP-5 piping is unrestrained at the end of the main 18-in. header. Pipeline is free to displace in the event of a surge and could cause overstress. Provide JP-5 mainline and cross-tunnel piping restraint at the end of line near PS1.
26	SGH.PM.11	SGH	PM-11 EPRC.K.oo	TG	PS 21	F-24 piping is longitudinally unrestrained at the end of the main 16-in. header. Pipeline is free to displace in the event of a surge and could cause overstress. Provide F-24 mainline and cross-tunnel piping restraint at the end of line near PS21.
27	SGH.PM.19	SGH	PM-19	TG	Tank 20	Dresser coupling may not have capacity to withstand surge load similar to May 6 event (if it is replaced-in-kind and laterals to Tanks 19 and 20 are not connected appropriately). See SGH recommendations if laterals to even numbered tanks are disconnected.
28	SGH.PM.20	SGH	PM-20	TG	Tank 18	Dresser coupling may not have capacity to withstand surge load similar to May 6 event. See SGH recommendations if laterals to even numbered tanks are disconnected.
29	SGH.PM.21	SGH	PM-21	TG	TK 2, 4, 6, 8, 10, 12, 14, 16	Dresser coupling may not have capacity to withstand surge load similar to May 6 event. (20-in. Dresser Coupling at Tanks 2, 4, 6, 8, 10, 12, 14, 16 Lateral). See SGH recommendations if laterals to even numbered tanks are disconnected.
30	SGH.PM.22	SGH	PM-22	TG	TK 2, 4, 6, 8, 10, 12, 14, 16	Dresser coupling may not have capacity to withstand surge load similar to May 6 event. (12-in. Dresser Coupling at Tanks 2, 4, 6, 8, 10, 12, 14, 16 Lateral). See SGH recommendations if laterals to even numbered tanks are disconnected.
31	SGH.PM.25	SGH	PM-25 EPRC.K.c	TG	Tank 10	Replace calcium silicate insulation, stainless straps, and jacketing on 12-inch compression sleeve pipe coupling near Tank 10.

32	SGH.HT.03	SGH	HT-3	HT	PS 124	Tunnel wall leakage leading to coating and corrosion issues at FOR line. Assess pipe integrity and repair pipe as appropriate.
33	SGH.HT.06	SGH	HT-6	HT	PS 146	FOR pipe with unknown crack in exterior surface. Assess pipe integrity and repair pipe as appropriate.
34	SGH.AGP.01	SGH	AGP-1	JBPHH	North Road	Crevice corrosion and deep pits at pipe support contact. Repair pipe sections.
35	SGH.AGP.02	SGH	AGP-2	JBPHH	North Road	Crevice corrosion and deep pits at pipe support contact. Repair pipe sections.
36	F24.002	NDAA		RHTF	TK 1, 2, 3, 4, 5, 6	Tank sample piping open to the atmosphere. If the isolation valves were bumped open, this could lead to fuel spill. Provide threaded caps on tank sample piping downstream of isolation valves.
37	F24.003	NDAA		RHTF	PS 20-21	Brass/bronze valve (low melting point) attached to the blind flange on the F-24 16-inch pipeline. Replace valve with a Class 150 ball valve.
38	F24.004	NDAA		RHTF	TK 2, 3, 4, 6, 15, 16	The DBB valves are equipped with a drain valve in lieu of a plug. The end of the valves is not secured with a pipe plug. Provide threaded plug on ball valve drain. - Tank 2 – 12-inch DBB; Tank 3 – 20 & 12-inch DBBs; Tank 4 – 20 & 12-inch DBBs; Tank 6 – 20-inch DBB; Tank 15 – 12-inch DBB; Tank 16 – 12-inch DBB
39	F24.009	NDAA	EPRC.P.a	TG	Tank 1 to PS 1	For JP-5 piping between the Sectional valves near Tank 1 to PS 1: Various sections of pipe are floating from the saddles and the saddles are offset from the support frame. Reset saddles to bear the pipe and also be centered on the support frame. Assume 15 support saddles need to be reset.
40	F24.010	NDAA		RHTF	PS 78 to 85	F-24 pipeline is unsupported between supports, approximately 58 feet. Install saddle or shim the pipe or pipe supports to uniformly support the pipe.
41	F24.011	NDAA		RHTF	PS 86 to 92	F-24 pipeline is unsupported between supports. Support is partial engagement on one side of the pipeline. Shim the pipe or adjust pipe supports to uniformly support the pipe.
42	F24.012	NDAA		RHTF	PS 101 to 102	Threaded 2-inch carbon steel low point drain valve is located on 16-inch F-24 pipeline. Valve classification is unknown. Replace valve with a Class 150 ball valve.
43	F24.014	NDAA		RHTF	TK 6	Two loose joint harness fasteners were noted on the Dresser coupling on the 12-inch F-24 pipeline. Tighten fasteners.
44	F24.016	NDAA		RHTF	PS 102 to 103	3-inch welded and flanged branch connection on top of F-24 pipeline. Six flange fasteners are not fully engaged. Replace hardware to ensure fasteners are fully engaged (nuts are fully engaged with threaded bolts).
45	F24.020	NDAA		HT	PS 690 to UGPH Bulkhead	There are two high point vents on the F-24 pipeline between UGPH concrete bulkhead and PS 690 constructed of threaded valves, nipples, and piping. Staining and weeping were noted around the threaded fittings. Valve classifications are unknown. Disassemble threaded connections, retape, and reassemble to prevent future weeps. Replace valves with Class 150 carbon steel ball valves.
46	F24.021	NDAA		HT	PS 690 to UGPH	There are two low point drains on the F-24 pipeline between the UGPH concrete bulkhead and PS-690 that are constructed of threaded valves, nipples, and piping. Notable corrosion was observed on the LPD just before the bulkhead to the UGPH. Valve classifications are unknown. Replace low point drains with Class 150 carbon steel ball valves, replace corroded piping, and recoat affected areas.
47	F24.023	NDAA		HT	PS 690 to UGPH	The 16-inch DBB valve has eight studs not fully engaged. Engagement between 0.250 and 0.550 inches was observed with the valve flange. Replace fasteners that are not fully engaged.

48	F24.025	NDA		HT	PS 106-107 PS 144 PS 146 PS 189 PS 190 PS 267-268 PS 276-278 PS 583-584 PS 595-598 PS 650-651	Several HPVs and LPDs Throughout . These are composed of threaded valves, piping, and components. Minor staining was noted on some of these fittings. Also, the valve classifications in several locations are unknown. Disassemble threaded connections, retape, and reassemble to prevent future weeps at the high point vent between PS-267 and PS-268. Replace all associated valves with Class 150 ball valves. Locations include: <ul style="list-style-type: none"> - 1-inch threaded plug on top of pipe (PS-650 and PS-651) - 1-inch threaded plug on top of pipe (PS-597 and PS-598) - Two 2-inch high point vents (PS-595 and PS-596) - 1.5-inch high point vent (PS-583 and PS-584) - 2-inch high point vent (PS-277 and PS-278) - 2-inch high point vent (PS-276 and PS-277) - 1.5-inch high point vent (PS-267 and PS-268) (weeping) - 1.5-inch high point vent (PS-189 and PS-190) - 1.5-inch threaded plug on bottom (PS-144 and PS-146) - 1.5-inch low point drain (PS-106 and PS-107) - 1.5-inch high point vent (PS-106 and PS-107)
49	F24.031	NDA		UGPH	P-209 through P-211	Conduit plug is being used to plug tee fitting on pressure gauge assemblies. Install appropriate threaded pipe plugs on tee fittings.
50	F24.036	NDA		UGPH	Various	Fuel staining and weeping was noted on the pipe tie-ins associated with the temperature sensors, pressure sensors, high point vents, and low point drains. Weeping is present at threaded connections associated with these fittings. Disassemble threaded connections, retape, and reassemble to prevent future weeps. The following locations should be addressed: <ul style="list-style-type: none"> - PIT-301 and adjacent Temperature Sensor - Valve GI58B - Valve GI18H - Valve GI38B - Valve GI38C - Valve GI48B - Valve GI48C - Valve GI48D
51	F24.038	NDA		UGPH	Various	Several transducers are attached to the piping and the conduits do not have seal off fittings. Additionally, the conduits are ridged which could break under pipe movement. Provide appropriate seal fittings and flexible conduit connections at transducers.
52	F24.039	NDA		UGPH	Various	It was noted that several of the pressure transducers are past due for calibration. (Calibration due date of 10/23/18). Perform calibration of all temperature and pressure devices in the UGPH.
53	F24.040	NDA		UGPH	Ball Valves	There is staining and some minor drips noted on the Cameron ball valves throughout the UGPH. Drips appear to be coming from the stem injection port. Service valves.
54	F24.041	NDA		UGPH	Valve 216E3	There is a 3/4-inch high point vent located on the 16-inch F-24 pipeline downstream of MOV 216E3. The 3/4-inch piping terminates just before the UGPH sump and is lacking a threaded pipe plug. Provide threaded pipe plug to prevent accidental discharge of product from high point vent.
55	F24.042	NDA		UGPH	Valve GI48B	There is a 3/4-inch threaded valve mounted on the side of the 16-inch F-24 pipeline. There is no pipe cap or plug at the end of the valve. Note: It is not clear as to the purpose of this connection. Valve classification is unknown. Provide plug or cap to prevent accidental discharge of product. Replace valve with Class 150 ball valve.
56	F24.043	NDA		UGPH	Various	There was noticeable fuel drips and weeps coming from pressure relieving devices on the valve above the grating. (Class 150 relief devices). Service valves.
57	F24.045	NDA		UGPH	Valve 216ES	Valve flange for the 12-inch gate valves is missing a fastener. Install fastener.

58	PS.288	NDA		HT	PS 288	Severe corrosion w/ significant loss of material at any number of locations, impacted and deformed column flanges. Repair/replace support.
59	PS.304	NDA		HT	PS 304	Extreme corrosion w/ no or very little material at any number of locations, moderate column corrosion, complete loss of section at JP-5 and F-24 anchor to wall on ADIT 1 side. Repair/replace support.
60	PS.305	NDA		HT	PS 305	Extreme corrosion w/ no or very little material at any number of locations, column moderately corroded, JP-5 anchor to wall complete section loss. Repair/replace support.
61	PS.306	NDA		HT	PS 306	Extreme corrosion w/ no or very little material at any number of locations, extreme corrosion at bottom of column and significant loss of column flange section at baseplate interface. Repair/replace support.
62	PS.310	NDA		HT	PS 310	Extreme corrosion w/ no or very little material at any number of locations, column flanges completely deteriorated at slab, baseplate is dust, JP-5 attachments to wall completely corroded - not attached at (1) side. API 570: Corrosion on base of pipe support (attachment to tunnel floor). Repair/replace support.
63	PS.399	NDA		HT	PS 399	Extreme corrosion w/ no or very little material at any number of locations, JP-5 at wall. Repair/replace support.
64	PS.411	NDA		HT	PS 411	Severe corrosion w/ significant loss of material at any number of locations, grout pad broken, loss of bearing. Repair/replace support.
65	PS.466	NDA		HT	PS 466	Severe corrosion w/ significant loss of material at any number of locations, column flange deformed. Repair/replace support.
66	PS.467	NDA		HT	PS 467	Severe corrosion w/ significant loss of material at any number of locations, column flange deformed. Repair/replace support.
67	PS.468	NDA		HT	PS 468	Severe corrosion w/ significant loss of material at any number of locations, column flange deformed. Repair/replace support.
68	PS.469	NDA		HT	PS 469	Severe corrosion w/ significant loss of material at any number of locations, column flange deformed. Repair/replace support.
69	PS.472	NDA		HT	PS 472	Extreme corrosion w/ no or very little material at any number of locations, extreme delamination at baseplate, columns not attached due to extreme deterioration, JP-5 bracket to the wall deteriorated and detached. API 570: Corrosion on base of pipe support (attachment to tunnel floor). Repair/replace support.
70	PS.473	NDA		HT	PS 473	Extreme corrosion w/ no or very little material at any number of locations, extreme corrosion at baseplate and column flanges, appears unattached and detached when sounded. Repair/replace support.
71	PS.475	NDA		HT	PS 475	Extreme corrosion w/ no or very little material at any number of locations, wall anchor not visible, flanges at angle column not attached to baseplate, severe delamination at baseplate. API 570: Support wear plate to support not engaged (JP-5) (floating pipe). Repair/replace support.
72	PS.492	NDA		HT	PS 492	Extreme corrosion at any number of locations, severe corrosion over entire support complete loss of support at bottom of both columns and both flanges, delamination (severe) at baseplate, angles to wall severely deteriorated. Repair/replace support.
73	PS.493	NDA		HT	PS 493	Extreme corrosion at any number of locations, complete deterioration through bottom front flange of both columns, extreme deterioration of anchor bolts over back flange of both columns. Repair/replace support.
74	PS.510	NDA		HT	PS 510	Corrosion to loss of support, wall anchors not visible. Repair/replace support.
75	PS.592	NDA		HT	PS 592	Extreme corrosion w/ no or very little material at any number of locations, active dripping. Repair/replace support. Repair/replace support.
76	PS.596	NDA		HT	PS 596	Severe corrosion and loss of support at baseplate and lower column connection. Repair/replace support. Repair/replace support.
77	PS.685	NDA		HT	PS 685	Severely corroded base plate and bottom of column, loss of steel in column, delamination of base plate, no grout pad, F-24 connected to wall severely corroded. Repair/replace support.

78	PSC.44A	NDA		HT	Anchor Bulkhead between PSC-44 & PSC 45	Concrete has been chipped out and removed on tank side around flange for the F-24 and JP-5 lines; concrete around F-24 line has broken out (but not fallen) on opposite side. Repair concrete.
79	PSC.71A	NDA		HT	Anchor Bulkhead between PSC-71 & PSC 72	Concrete at F-24 line has been broken out on tanks side, no flange visible. Repair concrete.
80	JP5.003	NDA		RHTF	Tank 7, 8, 9, 10, 11, 12, 13, 14, 17, 18, 20	Tank sample piping downstream of the isolation valve are open to the atmosphere. If the isolation valves were to be bumped or inadvertently forced open, this could lead to an accidental fuel spill. Provide threaded caps on tank sample piping downstream of isolation valves.
81	JP5.005	NDA		RHTF	Tank 16	HPV on Tank 16 jet fuel piping downstream of the 12-inch tank isolation valve is missing a threaded plug. Some fuel was noted inside the valve body. Provide threaded plug on high point vent.
82	JP5.006	NDA		RHTF	Tank 7, 8, 9, 10	The DBB valves are equipped with a drain valve in lieu of a plug. The end of the valves is not secured with a pipe plug. Install plugs. <ul style="list-style-type: none"> - Tank 7 – 20 & 12-inch DBBs - Tank 8 – 12-inch DBB - Tank 9 – 20-inch DBB - Tank 10 – 20-inch DBB
83	JP5.014	NDA	JP5.A21.48	Harbor Tunnel	PS 570 / PS 571	One indication was observed approximately -460 inches from setup on the 18-inch JP-5 pipeline. Remove pipe wrap and inspect the pipeline at these locations.
84	JP5.026	NDA		HT	PS 690 to UGPH Bulkhead	There are two low point drains on the 18-inch JP-5 pipeline between the UGPH concrete bulkhead and PS-690 that are constructed of threaded valves, nipples, and piping. There is evidence of fuel staining and weeping noted around the threaded fittings. Moderate corrosion was observed on low point drain piping adjacent to PS-690. Notable corrosion was observed on LPD pipe adjacent to isolation valve #0156. Valve classification is unknown. Replace.
85	JP5.032	NDA		HT	Throughout	Several HPVs and LPDs Throughout . These are composed of threaded valves, piping, and components. Minor staining was noted on some of these fittings. Also, the valve classifications in several locations are unknown. Disassemble threaded connections, retape, and reassemble to prevent future weeps at the two high point vents between PS-595 and PS-596 and the threaded plug between PS-298 and PS-299. Replace all associated valves with Class 150 ball valves. <ul style="list-style-type: none"> - 1-inch high point vent (PS-650 and PS-651) - Two 2-inch high point vents (PS-595 and PS-596) (weeping) - 2-inch high point vent (PS-473 and PS-474) - 0.5-inch threaded plug on top of pipe (PS-311 and PS-312) - 0.5-inch threaded plug on top of pipe (PS-300 and PS-301) - 1-inch threaded plug on top (PS-298 and PS-299) (weeping) - 2-inch high point vent (PS-277 and PS-278) - 2-inch high point vent (PS-276 and PS-277) - Two 1.5-inch threaded plugs on top (PS-215 and PS-216) - Two 1-inch high point vent (PS-206 and PS-207) - 2-inch high point vent (PS-205 and PS-206)
86	JP5.038	NDA		UGPH	P-206 through P-208	Conduit plug is being used to plug tee fitting on pressure gauge assemblies. Install appropriate threaded pipe plugs on tee fittings.
87	JP5.044	NDA		UGPH	Various	Fuel staining and weeping was noted on the pipe tie-ins associated with the temperature sensors, pressure sensors, high point vents, and low point drains. Weeping is present at threaded connections associated with these fittings. Disassemble threaded connections, retape, and reassemble to prevent future weeps.
88	JP5.046	NDA		UGPH	Various	Several transducers are attached to the piping and the conduits do not have seal off fittings. Additionally, the conduits are ridged which could break under pipe movement. Provide appropriate seal fittings and flexible conduit connections at transducers.

89	JP5.047	NDAA		UGPH	Various	It was noted that several of the pressure transducers are past due for calibration. (Calibration due date of 10/23/18). Perform calibration of all temperature and pressure devices.
90	JP5.048	NDAA		UGPH	Ball Valves	There is staining and some minor drips noted on the Cameron ball valves throughout the UGPH. Drips appear to be coming from the stem injection port. Service valves.
91	JP5.049	NDAA		UGPH	Various	There was noticeable fuel drips and weeps coming from pressure relieving devices on the valve above the grating. (Cla Val relief devices). Service valves.
92	JP5.050	NDAA		UGPH	JP-5 Header (Above Grating)	The JP-5 header manifold has a 3/4-inch gate valve (Valve GP98J) at the end of the header. The 3/4-inch valve is allowing product to weep by and drip into a catchment basin. It was also noted that there are no pressure relief devices installed on the header piping. Service or replace valve.
93	JP5.052	NDAA		UGPH	Valve 0212D	4-inch gate valve is weeping at bonnet. Service valve.
94	JP5.056	NDAA		UGPH	Surge Tank Piping	The 1-inch ball valve that is mounted on the 4-inch low suction line at Surge Tank 2 is missing a plug. Install plug.
95	JP5.057	NDAA	EPRC.K.a EPRC.K.b EPRC.K.d EPRC.K.e	TG	Tank 17-20	Dresser coupling joints and associated joint harness at Tanks 18, 19, and 20 are damaged due to the May 6th event. Repair damaged piping. Carefully reset the mainline into its original position at the Tanks 17/18 and 19/20 cross-tunnels. Provide cross-tunnel pipe supports and frames at Tanks 18 and 20. Quantity is four (two at each of Tanks 18 and 20). Provide new frames and adjustable height low friction pipe supports. Remove existing piping and replace the cross-tunnel piping at Tank 18 and Tank 20 from (including) the reducer to the ball valve. Provide new insulated compression sleeve pipe coupling, Buna-N resilient material, and restraint harness.
96	JP5.065	NDAA	EPRC.D50.a	TG	MOV-0163	Replace corroded conduits serving MOV-0163.
97	JP5.077	NDAA	EXWC JP5.A21.50	HT	PS 572 / PS 573	A dent was observed at the bell joint. Due to location of anomaly's proximity to a weld this will not pass API 579 Section 12 Level 1 assessment. Measured depth of anomaly was 0.320 inches. Assess and repair, if necessary.
98	F76.069	NDAA		UGPH	Various	There are several open conduits, junction boxes, and unsealed electrical fittings throughout the UGPH that will not meet hazardous area ratings. Provide covers on electrical fittings.
99	F76.070	NDAA		UGPH	Various	There are several locations throughout the UGPH where abandoned/open conduit penetrates the UGPH floor, potentially negating the secondary containment. Provide covers on open electrical conduits.
100	F76.071	NDAA		UGPH	Various	There are several bronze/brass valves installed on the small ancillary piping systems within the UGPH. A few examples are Gate Valve G158I, G158G, and G158H. Valve classification is unknown. Replace valves.
101	F76.072	NDAA		UGPH	Various	Fuel staining and weeping was noted on the pipe tie-ins associated with the temperature sensors, pressure sensors, high point vents, and low point drains. Weeping is present at threaded connections associated with these fittings. Disassemble threaded connections, retape, and reassemble to prevent future weeps. <ul style="list-style-type: none"> - PIT-0285 and adjacent Temperature Sensor - Valve G136C - Valve G126G - Valve G116E
102	F76.074	NDAA		UGPH	Bypass Loop	Lack of thread engagement was observed on 12 fasteners on the bypass loop flanges associated with the 32-inch F-76 pipeline. Replace fasteners.
103	F76.075	NDAA		UGPH	Various	Several transducers are attached to the piping and the conduits do not have seal off fittings. Additionally, the conduits are ridged which could break under pipe movement. Provide appropriate seal fittings and flexible conduit connections at transducers.
104	F76.076	NDAA		UGPH	Various	It was noted that several of the pressure transducers are past due for calibration. (Calibration due date of 10/23/18). Perform calibration of all temperature and pressure devices.

105	F76.077	NDAA		UGPH	Ball Valves	There is staining and some minor drips noted on the Cameron ball valves throughout the UGPH. Drips appear to be coming from the stem injection port. Service valves.
106	F76.079	NDAA		UGPH	Valve GR68B	Gate valve GR68B is missing wheel nut on valve stem. Install new wheel nut.
107	F76.080	NDAA		UGPH	Valve 232E2	The 18-inch DBB valve on the F-76 pipeline has six fasteners/studs that are not fully engaged. Install studs properly.
108	F76.081	NDAA		UGPH	Various	There was noticeable fuel drips and weeps coming from pressure relieving devices on the valve above the grating. (Cla Val relief devices). Service valves.
109	F76.087	NDAA		UGPH	Surge Tank Piping	Lack of thread engagement on nuts and bolts associated with the 4-inch low suction pipe flange for Surge Tank 3 at the pipe branch tie-in connection. Replace fasteners.
110	F76.088	NDAA		UGPH	Surge Tank Piping	The 1-inch ball valves that are mounted on the 4-inch low suction line at Surge Tanks 3 and 4 are missing plugs. A brass/bronze valve was noted at Surge Tank 3 location. Valve classification is unknown. Install plugs.
111	FOR.004	NDAA		RHTF	Tank 18	1-inch ball valve located on the blind flange on Tank 18's FOR 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.
112	FOR.011	NDAA		RHTF	Sump 7 near Door C	The pressure gauge on the FOR line on the discharge side of the sump pump is out of calibration and the glass gauge is cracked. Replace gage.
113	FOR.012	NDAA		RHTF	Door C	The 2-inch FOR pipeline between the tee and gate valve at Door C is covered with a stained plastic wrap and c-clamps. This is indicating a weep at the threaded joint. Replace piping.
114	FOR.021	NDAA		RHTF	Tank 16	Tank isolation valve on the 6-inch FOR pipeline has one fastener that is not fully engaged. Replace fastener.
115	FOR.023	NDAA		RHTF	Tank 15	The FOR-gate valve flange has three fasteners that are not fully engaged. Replace fasteners.
116	FOR.025	NDAA		RHTF	Tank 15	The 6-inch DBB tank isolation valve on the 6-inch FOR 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. Service the DBB valve as required.
117	FOR.026	NDAA		RHTF	PS 25	The FOR connection from the product lines is constructed out of a combination of hard pipe and hoses. Replace connections and hoses with hard pipe.
118	FOR.031	NDAA	EXWC JP5.A21.49	RHTF	Tank 1-20	The tank sampling piping associated with Tanks is showing signs of minor to moderate corrosion at areas where the piping has not been upgraded. Tank 9 sample piping is severely corroded and requires replacement. Repair by replacement the small-bore tank sample piping up to the sampling stations associated with Tank 9.
119	FOR.043	NDAA		RHTF	Sump S-23	Unsecured flange and pipe nozzle at 6-inch ball valve. The flange is missing several fasteners and the pipe is not capped. Replace fasteners and provide cap.
120	FOR.044	NDAA		RHTF	Sump S-23	Three temporary pipe clamps on 4-inch FOR pipeline within trench adjacent to S-23. Pipe clamp lengths are 6-inch, 16-inch, 8-inch. Also, UTT indicates pipe wall loss in this area over 55% metal loss is present. Repair pipe.
121	FOR.045	NDAA		RHTF	Sump S-23	A loose fastener was observed on a 4-inch pipe flange within the pipe trench adjacent to S-23. Tighten fastener.
122	FOR.046	NDAA		RHTF	Sump S-23	The 6-inch DBB on the sump pump discharge piping within Sump S-23 is missing a body cavity relief handle and does not have a plug. Provide handle and plug.
123	FOR.053	NDAA		ADIT 3	PSF-170	2-inch Low Point Drain – No cap on cam-lock fitting. Two fasteners are not fully engaged on the 2-inch low point drain flange. Replace camlock cap. Provide fasteners.
124	FOR.054	NDAA		ADIT 3	PSF-73 / PSF-74	2-inch Low Point Drain – No cap on cam-lock fitting. Two fasteners are not fully engaged on the 2-inch low point drain flange. Replace camlock cap. Provide fasteners.

125	FOR.055	NDAA		ADIT 3	ADIT 3 Entrance	Condition of underground segment of the FOR pipeline is unknown. Per the 2021 CP Report, this section of buried pipe had ineffective magnesium anodes. Perform borescope examination of the underground pipeline segment to assess internal condition of the pipeline.
126	FOR.056	NDAA		ADIT 3	PSF 30	1 ½-inch low point drain valve is missing a plug. Provide plug on valve. NOTE: Facility Personnel corrected this finding during our inspection.
127	FOR.057	NDAA		ADIT 3	ADIT 3 Entrance	1 ½-inch low point drain valve is missing a plug under the ADIT 3 staircase. Provide plug on valve. NOTE: Facility Personnel corrected this finding during our inspection.
128	FOR.059	NDAA		TK S-311 – ADIT 3 Entrance	Outside ADIT 3 FOR Piping	Severe corrosion and pitting at several locations between ADIT 3 and S-311. Wall Loss observed between 60%-79%. Severe corrosion also observed at pipe support cradle interfaces. Repair pipe.
129	FOR.063	NDAA		TK S-311	Tank S-311	The body cavity relief valve on the 8-inch DBB located on the FOR-receipt pipeline is discharging to isolated segment of piping downstream and should be discharging to the atmospheric, tank side of the valve. Replumb the body cavity relief to relieve towards Tank S-311.
130	FOR.064	NDAA		TK S-311	Tank S-311	The 8-inch DBB valve, located outside of the secondary containment, has a loose fastener. Tighten fastener.
131	FOR.065	NDAA		TK S-311	Tank S-311	The body cavity relief valve on the 8-inch DBB located on the FOR-issue pipeline is discharging to isolated segment of piping downstream and should be discharging to the atmospheric, tank side of the valve. Replumb the body cavity relief to relieve towards Tank S-311.
132	PSF.013	NDAA		ADIT 3	PSF-13	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.
133	PSF.014	NDAA		ADIT 3	PSF-14	Highly corroded and deformed, no contact w/ pipe, labeled by ABA. Replace support.
134	PSF.015	NDAA		ADIT 3	PSF-15	Corroded, in contact w/ pipe, labeled by ABA. Replace support.
135	PSF.016	NDAA		ADIT 3	PSF-16	Corroded, intact, metal to metal contact, only top anchor to wall present, lower part of bracket not in contact w/ wall. Replace support.
136	PSF.042	NDAA		ADIT 3	PSF-42	Not supporting pipe, no anchorage to wall at top, metal to metal contact. API 570: Support anchor dislodged from tunnel wall. Replace support.
137	PSF.060	NDAA		ADIT 3	PSF-60	No guide, support broken so pipe is at end of arm. API 570: Missing pipe clamp bolt (no isolation Teflon pad). Replace support.
138	PSF.061	NDAA		ADIT 3	PSF-61	Bottom of bracket deformed from impact. Replace support.
139	PSF.087	NDAA		ADIT 3	PSF-87	No contact w/ pipe. Replace support or modify support to properly support pipe.
140	PSF.089	NDAA		ADIT 3	PSF-89	No contact w/ pipe. Replace support or modify support to properly support pipe.
141	PSF.169	NDAA		ADIT 3	PSF-169	No sleeve on U-bolt, U-bolt corroded to delamination, significant corrosion at baseplate and anchors. Replace support.
142	PSF.234	NDAA		ADIT 3	PSF-234	Front support flange bent from apparent impact, U-bolt displaced on pipe, not U-shaped. API 570: Loose U-bolt. Replace support.
143	PSF.238	NDAA		ADIT 3	PSF-238	Support completely deformed, removed from baseplate. API 570: Damaged pipe support (impacted by a moving vehicle). Replace support.
144	F24.TG.002	NDAA	NDAA 16-TG-2	RHTF	PS 26 / PS 27	Remove 2" threaded bronze gate valve. Provide 2" carbon steel Class 150 ball valve. Review for mechanical integrity. Disassemble and reassemble only if warranted.
145	JP5.HP.001	UGPH		Hotel Pier - Side A	Trench Cover A0	(4) failed boot seals at concrete wall penetrations for 12" piping. Replace boot seals.
146	JP5.HP.002	UGPH		Hotel Pier - Side A	Trench Cover A51	(2) failed boot seals and no mechanically adjustable elastomeric seals at concrete wall penetration for 12" piping. Provide mechanically adjustable elastomeric seals and replace boot seals.

167	F76.HP.007	UGPH		Hotel Pier - Side B	Trench Cover B98	(2) failed boot seals and no mechanically adjustable elastomeric seals at concrete wall penetration for 18" piping. Provide mechanically adjustable elastomeric seals and replace boot seals.
168	F76.HP.008	UGPH		Hotel Pier - Side B	Trench Cover B147	(2) failed boot seals and no mechanically adjustable elastomeric seals at concrete wall penetration for 18" piping. Provide mechanically adjustable elastomeric seals and replace boot seals.
169	F24.A22.01	EXWC	NDA F24.016 16-TG-20	TG	PS 102 PS 103	Failing Gasket. Remove the failing gasket on the 3" blind flange. Provide and install new gasket.
170	F24.A22.02	EXWC	NDA F24.TG.021 16-TG-21	TG	PS 51 PS 52	4-ft, remove coating and inspect. Fitness for service (FFS) assessment and repair if necessary.
171	F24.A22.03	EXWC	NDA F24.TG.023 16-TG-23	TG	PS 69	Remove 4 ft of coating and inspect. FFS assessment and repair if necessary.
172	F24.A22.04	EXWC		ADIT 2 to TG		Dent on long seam. FFS assessment and repair if necessary.
173	F24.A22.05	EXWC		ADIT 2 to TG		Dent on long seam. FFS assessment and repair if necessary.
174	F24.A22.06	EXWC		ADIT 2 to TG		Dent on long seam. FFS assessment and repair if necessary.
175	F24.A22.07	EXWC		ADIT 2 to TG		Dent on long seam. FFS assessment and repair if necessary.
176	F24.A22.08	EXWC		ADIT 2 to TG		Dent on long seam. FFS assessment and repair if necessary.
177	F24.A22.09	EXWC		ADIT 2 to TG		Dent on long seam. FFS assessment and repair if necessary.
178	F24.A22.10	EXWC		ADIT 2 to TG		Dent on long seam. FFS assessment and repair if necessary.
179	F24.A22.11	EXWC		ADIT 2 to TG		Dent on long seam. FFS assessment and repair if necessary.
180	F24.A22.12	EXWC		ADIT 2 to TG		Dent on long seam. FFS assessment and repair if necessary.
181	F24.A22.13	EXWC		ADIT 2 to TG		Dent on long seam. FFS assessment and repair if necessary.
182	F24.A22.14	EXWC	NDA F24.022 16-UGPH-1	HT	PS 651 PS 652	Non-standard repair at bulkhead. Pipe is anchored to the bulkhead using welded collars inside cast in place concrete. There is a repair sleeve through the bulkhead. The UGPH side of the bulkhead has a full encirclement sleeve. The ADIT 2 side of the bulkhead has a half sleeve. 10 ft pup to eliminate the non-standard repair in the bulkhead. The piping will need to be re-anchored. Replace piping through bulkhead.
183	F24.A22.15	EXWC		ADIT 2 to TG		Reported corrosion of 46% at the bulkhead. Pipe is anchored to the bulkhead using welded collars inside cast in place concrete. 10 ft pup to eliminate metal loss at the bulkhead. The piping will need to be re-anchored.
184	F24.A22.16	EXWC		ADIT 2 to TG		Reported corrosion of 71% at the bulkhead. Pipe is anchored to the bulkhead using welded collars inside cast in place concrete. 10 ft pup to eliminate metal loss at the bulkhead. The piping will need to be re-anchored.
185	F24.A22.17	EXWC	NDA F24.TG.015 16-TG-15	TG	PS 77	2" patch plate on 16" tee, Tanks 3/4. FFS assessment and repair if necessary.
186	F24.A22.18	EXWC	NDA F24.051	HT	PS 239 PS 240	Two areas of pitting under the pipe wrap. FFS assessment and repair if necessary.
187	JP5.A21.01	EXWC		ADIT 2 to TG	PS 769 PS 772 PS 773	Three separate corrosion findings < 8 ft apart. EML-2570-02 associated with pipe support. Remaining thickness < the structural minimum thickness per API 574. 10-ft, EML-2570-02, EML-2570-05, and EML-2570-05 are combined into one site. Fitness for service (FFS) assessment and repair if necessary.
188	JP5.A21.02	EXWC		ADIT 2 to TG	PS 818 PS 822 PS 824	Corrosion at bulkhead. Three separate features. Reported corrosion depths 26.8%, 30.8%, and 38.0%. Remaining thickness < minimum thickness per API 574. Remove, provide, and install 10 ft 18" pup piece to eliminate the corroded areas in the bulkhead. One repair for 18-ILI-27, 18-ILI-28, and 18-ILI-29.
189	JP5.A21.03	EXWC	NDA JP5.TG.011 18-TG-11	TG	PS 10 PS 11	Dent with crease; Approximate dent depth measurement: 0.300". Dent located at bottom of a tee and has a crease. Fails FFS Level 2 assessment. FFS assessment and repair if necessary.
190	JP5.A21.04	EXWC	NDA JP5.TG.027 18-TG-27	TG	PS 20 PS 21	Corrosion under bubble coating. Not able to assess without coating removal. 2-ft, remove coating and inspect, FFS assessment and repair if necessary.
191	JP5.A21.05	EXWC		ADIT 2 to TG		Dent, crosses long seam. FFS assessment and repair if necessary.
192	JP5.A21.06	EXWC		ADIT 2 to TG		Dent, on long seam. FFS assessment and repair if necessary.

193	JP5.A21.07	EXWC		ADIT 2 to TG		Geometric anomaly adjacent to girth weld. FFS assessment and repair if necessary.
194	JP5.A21.08	EXWC		ADIT 2 to TG		Dent, on long seam. FFS assessment and repair if necessary.
195	JP5.A21.09	EXWC		ADIT 2 to TG		Double dent. FFS assessment and repair if necessary.
196	JP5.A21.10	EXWC		ADIT 2 to TG		Dent, on long seam. FFS assessment and repair if necessary.
197	JP5.A21.11	EXWC		ADIT 2 to TG		Dent, adjacent to girth weld. FFS assessment and repair if necessary.
198	JP5.A21.12	EXWC		ADIT 2 to TG		Dent, on long seam. FFS assessment and repair if necessary.
199	JP5.A21.13	EXWC		ADIT 2 to TG		Dent, on long seam. FFS assessment and repair if necessary.
200	JP5.A21.14	EXWC		ADIT 2 to TG		Dent, on long seam. FFS assessment and repair if necessary.
201	JP5.A21.15	EXWC		ADIT 2 to TG		Dent, on long seam. FFS assessment and repair if necessary.
202	JP5.A21.16	EXWC		ADIT 2 to TG		Geometric anomaly adjacent to girth weld. FFS assessment and repair if necessary.
203	JP5.A21.17	EXWC		ADIT 2 to TG		Double dent. FFS assessment and repair if necessary.
204	JP5.A21.18	EXWC		ADIT 2 to TG		Dent, on long seam. FFS assessment and repair if necessary.
205	JP5.A21.19	EXWC		ADIT 2 to TG		Dent, on long seam. FFS assessment and repair if necessary.
206	JP5.A21.20	EXWC		ADIT 2 to TG		Double dent. FFS assessment and repair if necessary.
207	JP5.A21.21	EXWC		ADIT 2 to TG		Double dent. FFS assessment and repair if necessary.
208	JP5.A21.22	EXWC		ADIT 2 to TG		Dent, on long seam. FFS assessment and repair if necessary.
209	JP5.A21.23	EXWC		ADIT 2 to TG		Geometric anomaly adjacent to girth weld. FFS assessment and repair if necessary.
210	JP5.A21.24	EXWC		ADIT 2 to TG		Geometric anomaly adjacent to girth weld. FFS assessment and repair if necessary.
211	JP5.A21.25	EXWC		ADIT 2 to TG		Geometric anomaly adjacent to girth weld. FFS assessment and repair if necessary.
212	JP5.A21.26	EXWC		ADIT 2 to TG		Double dent. FFS assessment and repair if necessary.
213	JP5.A21.27	EXWC		ADIT 2 to TG		Dent, on long seam. FFS assessment and repair if necessary.
214	JP5.A21.28	EXWC		ADIT 2 to TG		Geometric anomaly adjacent to girth weld. FFS assessment and repair if necessary.
215	JP5.A21.29	EXWC		ADIT 2 to TG		Dent, on long seam. FFS assessment and repair if necessary.
216	JP5.A21.30	EXWC		ADIT 2 to TG		Geometric anomaly adjacent to girth weld. FFS assessment and repair if necessary.
217	JP5.A21.31	EXWC		ADIT 2 to TG		Dent, on long seam. FFS assessment and repair if necessary.
218	JP5.A21.32	EXWC		ADIT 2 to TG		Poor Ultrasonic Reading; Crosses Long Seam. Estimated Depths of 25.4% and 27.4%; 4-ft, remove coating and inspect. FFS assessment and repair if necessary.
219	JP5.A21.33	EXWC		ADIT 2 to TG		ILI data reports metal loss of 31.5%. Not able to assess without coating removal. 4-ft, remove coating and inspect. FFS assessment and repair if necessary.
220	JP5.A21.34	EXWC		ADIT 2 to TG		ILI data reports metal loss of 32.0%. Not able to assess without coating removal. 4-ft, remove coating and inspect. FFS assessment and repair if necessary.
221	JP5.A21.35	EXWC		ADIT 2 to TG		Two separate corrosion findings < 6 ft apart. Remaining thickness < the minimum thickness per API 574. 8-ft, FFS assessment and repair if necessary.
222	JP5.A21.36	EXWC		ADIT 2 to TG		Metal loss of 33.0%. Not able to assess without coating removal. 8-ft, remove coating and inspect. FFS assessment and repair if necessary.
223	JP5.A21.37	EXWC		ADIT 2 to TG		Heavy corrosion reported under sleeve from ILI data. Heavy corrosion also on sleeve, ILI data reports metal loss of 45.8%. Sleeve is 4 ft wide. Corrosion extends through long seam on sleeve. Need coating removed to assess. 4-ft, remove coating and inspect. FFS assessment and repair if necessary.
224	JP5.A21.38	EXWC	NDAА JP5.UGPH.002 18-UGPH-2	HT	PS 652 PS 653	Dent/gouge measured 0.130" (0.120" dent + 0.010" gouge). FFS assessment and repair if necessary.
225	JP5.A21.39	EXWC	NDAА JP5.UGPH.007 18-UGPH-7 EXWC JP5.A21.41	HT	PS 667 PS 668	Dent/gouge measured 0.180" (0.160" dent + 0.020" gouge). FFS assessment and repair if necessary.
226	JP5.A21.42	EXWC	NDAА JP5.LRUT.006 18-LRUT-6	HT	PS 672 PS 673	Metal loss of 43%. Not able to assess without coating removal. 4-ft, remove coating and inspect. FFS assessment and repair if necessary.

227	JP5.A21.43	EXWC	NDAА JP5.TG.050 18-TG-50	TG	PS 70 PS 71	Pitting estimated at 0.050". Not able to assess without coating removal. 4-ft, remove coating and inspect. FFS assessment and repair if necessary.
228	JP5.A21.44	EXWC	NDAА JP5.TG.051 18-TG-51	TG	PS 70 PS 71	Pitting estimated at 0.050". Not able to assess without coating removal. 4-ft, remove coating and inspect. FFS assessment and repair if necessary.
229	JP5.A21.46	EXWC		HT	PS 658 PS 659	Dent with depth of 0.165". FFS assessment and repair if necessary.
230	JP5.A21.47	EXWC		HT	PS 659 PS 660	Dent with depth of 0.145". FFS assessment and repair if necessary.
231	EPRC.P.d	EXWC	NDAА F24.009 (73) SGH LAT-47 PSAR.00 (46,47,73,74) NDAА PS.044 (44) 16-TG-3 NDAА PS.047 (47) NDAА PS.048 (48) NDAА PS.079 (79) 16-TG-16 NDAА PS.080 (80) 16-TG-16 NDAА PS.081 (81) 16-TG-16 NDAА PS.082 (82) 16-TG-16 NDAА PS.083 (83) 16-TG-16 NDAА PS.084 (84) 16-TG-16 NDAА F24.TG.004 (46, 47) 16-TG-4 NDAА F24.007 (46,47) NDAА F24.TG.012	TG	PS 15 to 104	For F-24 piping between PS 104 to PS 15: Review conditions to assess for proper contact between the pipe and support. Provide shims to bring the pipe support into contact with the pipe. Provide at Pipe Stand numbers 44, 46, 47, 48, 73, 74, 79, 80, 81, 82, 83, 84 and others without proper contact. Assume 25 shims are required. [LAT-47] [PSAR.00] [16-TG-16] [16-TG-3]
232	EPRC.P.e	EXWC	PSAR.01 (11,13,16) NDAА PS.002 (2) 18-TG-1 NDAА PS.011 (11) 18-TG-12 NDAА PS.012 (12) 18-TG-16 NDAА PS.016 (16) 18-TG-21 NDAА JP5.TG.060 (104) 18-TG-60	TG	PS 1 to 104	For JP-5 piping between PS 104 to PS 1: Review conditions between PS 104 to PS 1 to assess for proper contact between the pipe and support. Provide shims to bring the pipe support into contact with the pipe in accordance with recommendation in Pipeline Stress Analysis and Structural Evaluation Report dated Sep 202. Provide at Pipe Stand numbers 2, 11, 12, 13, 16, 17, 104 and others without proper contact. Assume 25 shims are required. [PSAR.01] [PS.002] [PS.011] [PS.012] [PS.016]
233	EPRC.K.y	EXWC		TG	PS 5	Remove and replace broken grout at PS-5 base plate.
234	EPRC.K.z	EXWC		TG	PS 6	Remove and replace deformed anchor bolt at PS-6.
235	EPRC.K.k	EXWC	NDAА JP5.067 NDAА JP5.TG.002 NDAА JP5.TG.003	TG	PS 4	Replace damaged segment of the mainline at PS4 with 4-lf welded pup replacement.
236	EPRC.K.m	EXWC	NDAА JP5.059 NDAА JP5.TG.025	TG	PS 20	Remove and replace the elevation and alignment change spool piece at PS 20. Spool is flanged and includes two rolled 45 elbows and straight segment. [18-TG-25]
237	EPRC.K.n	EXWC	NDAА JP5.068 NDAА JP5.TG.028	TG	PS 22-23	Remove approximately 38-inch length mainline bell connection segment between PS 22 and PS 23. Provide 5 lf welded pup replacement. [18-TG-28]
238	EPRC.K.o	EXWC	NDAА JP5.066 NDAА JP5.TG.034	TG	PS 38-39	Between PS 38 and PS 39, remove the 12 o'clock NPS ¾ threaded pipe and valve. Replace with welded NPS ¾ Sch 80 pipe, flange, and Class 150 ball valve with threaded cap. [18-TG-34]
239	EPRC.K.p	EXWC	NDAА JP5.002 NDAА JP5.TG.040	TG	Tank 8	Remove nonstandard 1-1/2 inch HPV valve and threaded pipe on the Tank 8 cross-tunnel piping. Replace with Sch 80 pipe and welded fittings and Class 150 carbon steel ball valve. [18-TG-40]
240	EPRC.K.q	EXWC	NDAА JP5.068 NDAА JP5.TG.041	TG	PS 59-60	Remove approximately 46-inch length mainline bell connection segment between PS 59 and PS 60. Provide 6 lf welded pup replacement. [18-TG-41]
241	EPRC.K.r	EXWC	NDAА JP5.TG.044	TG	Tank 5 & 6	Remove the corroded mainline tee at the Tanks 5/6 cross-tunnel junction. Replace mainline as-needed to install a branch connection. Rework cross-tunnel piping as-needed to connect the branch connection. Re-connect mainline to cross-tunnel piping with provision for spectacle blind. [18-TG-44]

242	EPRC.K.s	EXWC	NDAAs JP5.068 NDAAs JP5.TG.046	TG	PS 68-69	Remove approximately mainline bell connection segment between PS 68 and PS 69, on both sides of the bulkhead. Provide 10 lf welded pup replacement in two segments. [18-TG-46]
243	EPRC.K.t	EXWC	NDAAs JP5.TG.053	TG	PS 75	Remove and replace approximately 96-inch length mainline segment at PS 75. Replace 6-ft above to 2-ft below PS 75. [18-TG-53] Replace the corroded pipe saddle with new.
244	EPRC.K.u	EXWC	NDAAs JP5.013 NDAAs JP5.TG.059	TG	PS 103-104	Remove nonstandard 1- inch HPV valve and threaded pipe on the cross-tunnel piping near PS 103 and PS 104. Replace with Sch 80 pipe and welded fittings and Class 150 carbon steel ball valve. [18-TG-59]
245	EPRC.K.v	EXWC	NDAAs JP5.067 NDAAs JP5.TG.002 NDAAs JP5.TG.003	TG	PS 3	Replace damaged segment of the mainline at PS3. [18-TG-2]
246	EPRC.P.b	EXWC	NDAAs JP5.060 NDAAs JP5.061 SGH.LAT.55	TG	Tank 1 to PS 1	For JP-5 piping between the Sectional valves near Tank 1 to PS 1: Various pipe saddles are missing. Provide and install new support saddles consistent with the type currently in service and finished hot dip galvanized. Assume 10 saddles are required.
247	EPRC.K.cc	EXWC		UGPH	UGPH	Provide repairs to execute the DFM Cutover and cross-connect fuel transfer back to F-76 piping in the UGPH.
248	EPRC.P.c	EXWC		TG	Tank 1 to PS 1	For JP-5 piping between the Sectional valves near Tank 1 to PS 1: Some support frames bear the JP-5 piping directly. Install low friction slide pads between the pipe and the frames. Assume 25 slide pads are required.
249	EPRC.OPT.c	EXWC		TG	Sta. 24+89	Remove and replace a 10-foot pup of JP-5 mainline at the concrete bulkhead near Sta 24+89 [18-ILI-EML-15]. Pipe is anchored to the bulkhead. A method using a reduced diameter sleeve is acceptable. Anchor new pup to concrete.
250	PSAR.02	Stress Analysis	SGH.8.2.1 SGH.LAT.03 EPRC.K.ii	TG	Tank 1 & 2	Mitigate overstress at the Tanks 1/2 F24 mainline tee, Provide a new pipe support in accordance with recommendation in Pipeline Stress Analysis and Structural Evaluation Report dated Sep 2022. [PSAR.02]
251	PSAR.08	Stress Analysis	EPRC.K.jj	TG	PS 80, 81, 83, 84, 86, 88, 89, 90, 92	For pipe supports with existing bracing on only one side, augment braces with welded angles to increase strength in accordance with recommendation in Pipeline Stress Analysis and Structural Evaluation Report dated Sep 2022. Provide at PS 80, PS 81, PS 83, PS 84, PS 86, PS 88, PS 89, PS 90 and PS 92. [PSAR.08]
252	PSAR.09	Stress Analysis	EPRC.K.kk SGH.LAT.42	TG	PS 48, 78	For pipe supports unbraced in the longitudinal direction on only one side, construct bracing to reduce the applied load. Add a column to PS 78 under the 32-inch pipe. Install a fixed connection between PS 48 and the gunite wall. Provide in accordance with recommendation in Pipeline Stress Analysis and Structural Evaluation Report dated Sep 2022. Provide at PS 48 and PS 78. [PSAR.09]
253	PSAR.11	Stress Analysis	EPRC.K.mm	TG	PS 46	Mitigate baseplate overload at PS 46 with a new column under the 32-inch pipeline. Provide in accordance with recommendation in Pipeline Stress Analysis and Structural Evaluation Report dated Sep 2022. [PSAR.11]