

PHRT Feb. 7, 2023 Letter to U.S. EPA
Enclosures

DOCUMENTATION OF AMINE REPAIRS

AMINE UNITS ADVISIAN RECOMMENDATIONS TRACKING REPORT

Completed Tasks

Item	Advisian Recommendations	Description	P&ID	Action	Completion Date	Comments
No. 4 Amine Unit						
1	Install missing 1-1/2" plug on Thermowell (325) / Line #4830-011-C-10	Install missing 1-1/2" plug on Thermowell No. 325 /Line No. 4830-011-C-10"	4830-D-0002 Sht. 2 of 5	A new 1-1/2" plug was installed	1/2/2023	This item is complete. Please reference the attached photos.
2	Tightened loose blind flange	Loose drain valve wheel tagged DRN 4-4 Line No. 4830-ME-614- BK1-8"	4830-D-0002 Sht. 1 of 5	Tightened drain valve wheel	1/2/2023	This item is complete. Please reference the attached photos..
No. 5 Amine Unit						
1	Monitor 6" section of piping with wrap / evaluate at the next unit turnaround	6" piping section wrap at the shell-side inlet of E-5831A (Amine Still Reboiler) requires evaluation prior to the next turnaround. Line No. 5830-015-B-IH-6"	5830-D-0002 Sht. 3 of 5	This process line section was taken out of service, isolated (isolated by valves/chain locked closed). The system is isolated and will be inspected prior to the next T/A. The line segment will be closely monitored (via scheduled field verifications) by Operations with status updates documented by log entry.	1/4/2023	This item is considered complete, until next T/A. Please reference the attached photos.
No. 6 Amine Unit						
1	Monitor corrosion on two (1") nozzles / engineer to evaluate at the next unit turnaround (Nozzles are associated with Drains 1-4 and 1-4A near pumps (P-7453A and P-7453B)	Corrosion on two (2) - 1" nozzles associated with drains tagged DRN 1-4 and DRN 1-4A near pumps P-7453A and P-7453B	7450-D-0007	The line segments associated with both 1" nozzles have been removed from service and isolated (isolated by valves/chain locked closed). Continued monitoring of the nozzles is not required.	1/4/2023	This item is considered complete, until next T/A. Please reference the attached photos.
2	Ensure all bolting hardware is in place and tightened	Loose/Missing bolts/Missing blind flanges: Btm drain flange tagged DRN 1-5 , DRN 2-1 , and 6" valve near DRN-2-4 (Bolting Hardware)	7450-D-0008	Replaced missing bolts and tightened loose bolts.	1/11/2023	This item is complete. Please reference the attached photos..
3	Disassemble identified flange connections with crevice corrosion, mechanical clean the flanges, and replace the corroded gaskets	Piping surfaces identified with corrosion Two (2) 6" lines (1)-upstream of ISO 5-2 tag and (1)-downstream of tag CV-5 . Crevice corrosion was identified, (2)-6" flanges and one (1)-3" flange downstream of tag CV-5 .	7450-D-0007 7450-D-0008	Disassembled flange connections with crevice corrosion, mechanically cleaned the flanges, replaced all corroded gaskets and the line systems were isolated.	1/13/2023	This item is complete. Please reference the attached photos.
4	Filter (F-7453) – Monitor corrosion on (3" and 1") nozzles / Evaluate at the next unit turnaround	Corrosion on two (2) nozzles (3" and 1") nozzles located near the Filter F-7453 /evaluate at next unit turnaround (T/A)	7450-D-0009	The line segments associated with these nozzles (1" and 3") have been removed from service and isolated (isolated by valves/chain locked closed). Continued monitoring of the nozzles is not required.	1/4/2023	This item is considered complete, until next T/A. Please reference the attached photos.
No. 7 Amine Unit						
1	Disassemble 4" vent flange at the top of T-7461 tower , mechanically clean and replace corroded gasket	The gasket between the 4" valve and blind flange on the top head of T-7461 vent was degraded.	7460-D-0008	Disassembled 4" flange at the top of Tower T-7461, mechanically cleaned, and replaced the corroded gasket.	1/4/2023	This item is complete. Please reference the attached photos.

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Amine Unit No. 4

Amine Unit No. 4: Item #1 - See attached Amine Units Advisian Recommendations Tracking Report

The pictures shown below (#4-1 & #4-2) illustrate **Before & After** photos corresponding to Item #1 of the No. 4 Amine Unit Advisian Recommendations. The reference P&ID showing the Thermowell No. 325 is 4830-D-0002 Sht. 2 of 5.

-The **Before Photo (#4-1)** shows the missing 1-1/2" plug at the Thermowell No. 325, located at the 10" inlet line of the Amine Coolers E-4833

-The **After Photo (#4-2)** shows a new 1-1/2" plug installed at the same Thermowell to ensure process containment

Before



#4-1

Missing Plug

After



#4-2

Amine Unit No. 4: Item #2 - See attached Amine Units Advisian Recommendations Tracking Report

The pictures shown below (#4-3 & #4-4) illustrate **Before & After** photos corresponding to Item #2 of the No. 4 Amine Unit Advisian Recommendations. The reference P&ID showing the drain tagged DRN-4-4 is 4830-D-0002 Sht.1 of 5.

-The **Before Photo (#4-3)** shows the loose drain valve wheel, located at the drain piping of the Rich Amine Flash Drum D-4831

-The **After Photo (#4-4)** shows the same drain valve wheel tightened and checked by Maintenance for functionality

Before



#4-3

Loose drain flange (4-4)

After



#4-4

loose valve wheel

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Amine Unit No. 5

Amine Unit No. 5: Item #1 - See attached *Amine Units Advisian Recommendations Tracking Report*

The pictures shown below (#5-1 & #5-2) illustrate photos corresponding to Item #1 of the No. 5 Amine Unit Advisian Recommendations. The reference P&ID showing the wrapped section of line and the isolation valves for that line segment is 5830-D-0002 Sht. 3 of 5.

-The photo #5-1 shows the wrapped section of pipe located at the E-5831A (Amine Still Reboiler) shell-side inlet and the drain valve that is closed

-The photo #5-2 shows the 8" valve located at the Amine Still Draw Line To Reboiler Inlet that is isolated and chain locked closed



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Amine Unit No. 6

Amine Unit No. 6: Item #1 - See attached Amine Units Advisian Recommendations Tracking Report

The pictures shown below (#6-1 thru #6-4) illustrate photos corresponding to Item #1 of the No. 6 Amine Unit Advisian Recommendations. The reference P&ID showing the two (2) - (1") nozzles and the Pumps P-7453A & P-7453B isolation valves is 7450-D-0007.

-The photos #6-1 & #6-2 show the discharge and suction lines isolation valves at the P-7453A Pump (isolated and chain locked closed)

-The photos #6-3 & #6-4 show the discharge and suction lines isolation valves at the P-7453B Pump (isolated and chain locked closed)

P-7453 A DISCHARGE



P-7453 A SUCTION



P -7453 B DISCHARGE



P-7453 B SUCTION



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Amine Unit No. 6

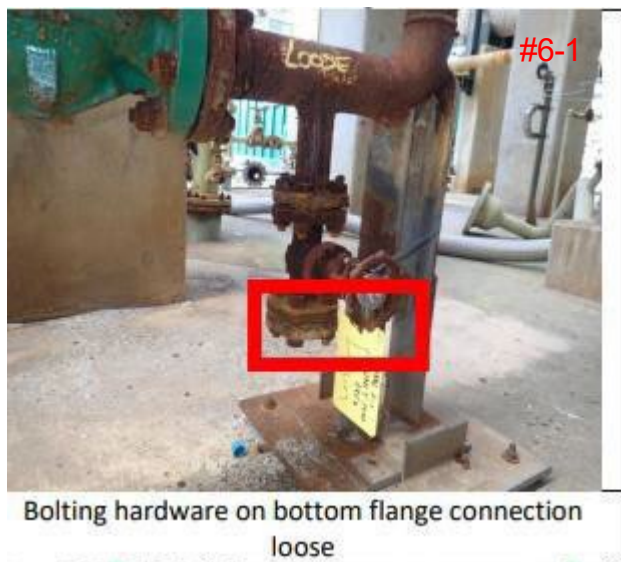
Amine Unit No. 6: Item #2 - See attached Amine Units Advisian Recommendations Tracking Report

The pictures shown below (#6-1 & #6-2) illustrate **Before & After** photos corresponding to Item #2 of the No. 6 Amine Unit Advisian Recommendations. The reference P&ID showing the drain valve and corresponding btm blind flange (tagged DRN-2-1) is 7450-D-0008.

-The Before Photo (#6-1) shows the loose btm blind flange at the drain tagged DRN-2-1, located near LV-5118

-The After Photo (#6-2) shows the same btm drain flange fitted with new bolts, gasket, and tightened

Before



After



Amine Unit No. 6: Item #2 - See attached Amine Units Advisian Recommendations Tracking Report

The pictures shown below (#6-3 & #6-4) illustrate **Before & After** photos corresponding to Item #2 of the No. 6 Amine Unit Advisian Recommendations. The reference P&ID showing the drain valve and corresponding btm blind flange (tagged DRN-1-5) is 7450-D-0008.

-The Before Photo (#6-3) showing the btm drain valve flange not properly installed, located near TV-5046B

-The After Photo (#6-4) showing the btm drain flange properly installed, new bolts, new gasket, and tightened

Before



After



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Amine Unit No. 6

Amine Unit No. 6: Item #2 - See attached Amine Units Advisian Recommendations Tracking Report

The pictures shown below (#6-5 & #6-6) illustrate **Before & After** photos corresponding to Item #2 of the No. 6 Amine Unit Advisian Recommendations. The reference P&ID showing the 6" pipe flange (near tag DRN-2-4) is 7450-D-0008.

-The Before Photo (#6-5) shows loose bolts at the 6" pipe flange located near the Transfer Pump P-7459

-The After Photo (#6-6) shows the bolts tightened (Maintenance personnel also shown hand- checking bolts)

Before



Bolting Hardware Loose

After



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Amine Unit No. 6

Amine Unit No. 6: Item #3 - See attached Amine Units Advisian Recommendations Tracking Report

The pictures shown below (#6-7 thru #6-9) illustrate photos corresponding to Item #3 of the N.o6 Amine Unit Advisian Recommendations. The reference P&IDs showing the 6" pipe flanges are 7450-D-0007 & 7450-D-0008. Before Photo #6-7 below shows flange identified by Advisian as having crevice corrosion.

-After Photo #6-8 & #6-9 shows the flanges with crevice corrosion mechanically cleaned, their gaskets replaced. The line systems were isolated to prevent potential leaking.

BEFORE



AFTER



NEW GASKET



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Amine Unit No. 6

Amine Unit No. 6: Item #4 - See attached Amine Units Advisian Recommendations Tracking Report

The pictures shown below (#6-9 & #6-10) illustrate photos corresponding to Item #4 of the No. 6 Amine Unit Advisian Recommendations. The reference P&ID showing the Filter F-7453 isolation valves is 7450-D-0009.

-The photo #6-9 shows the Filter F-7453 outlet isolation block valve chain locked closed

-The photos #6-10 shows the Filter F-7453 inlet isolation block valve chain locked closed

F-7453 Outlet - #6-10



F-7453 Inlet - #6-11



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Amine Unit No. 7

Amine Unit No. 7: Item #1 - See attached Amine Units Advisian Recommendations Tracking Report

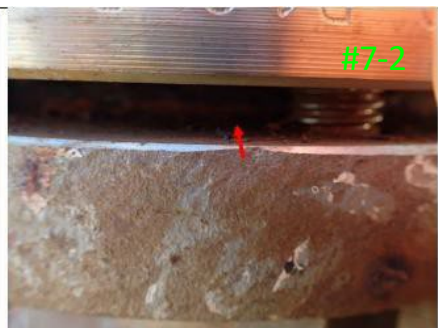
The pictures shown below (#7-1 thru #7-5) illustrate **Before & After** photos corresponding to Item #1 of the No. 7 Amine Unit Advisian Recommendations. The reference P&ID showing the 4" valve and blind flange is 7460-D-0008.

- The **Before Photos show the 4" vent valve, corresponding blind flange on the top the Amine Regenerator Tower T-7461 (#7-1), and its corroded gasket (discarded) (#7-2 & #7-3).**
- The **After Photos show the same vent flange cleaned (#7-4) and a new gasket fitted between the valve and the blind flange for adequate leak protection (#7-5).**

Before



T-7461-4" Vent Overview



T-7461-4" Vent Gasket Close Up



After



AMMONIA REPAIR INFORMATION



Specialized Response Solutions, LP

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“Safe Solutions for Hazardous Situations”

February 6, 2023

Rocco Colabella
Port Hamilton Refining and Transportation, LLLP
1 Estate Hope
Christiansted, VI

Re: U.S. EPA – Administrative Order on Consent (Consent Order), No. CAA-02-2023-1003

Dear Mr. Colabella,

Specialized Response Solutions (SRS), a US Ecology/Republic Services Company will assist Port Hamilton Refining and Transportation (PHRT) with the maintenance activities required to render the ammonia process piping and tank systems secure for deinventory and purging in accordance with the following recommendations. The general time period, SRS /US Ecology should commence repairs within five (5) days of the crew arriving at the refinery. Anticipation of completion should be within seven (7) days depending on availability of required needed supplies.

6 Recommendations

The following are a summary of the recommendations included in the inspection reports included in Appendix A.

1. Remove all caulking between flanges and photograph for our review. Nine (9) flanges with caulking are marked on the attached ISOs in green. (4 of 16) isometric drawings highlighted in green below.
2. Disassemble all flange connections with crevice corrosion, mechanical clean the flanges, and replace the corroded gaskets. All flanges with crevice corrosion and/or corroded gaskets are marked on the attached ISOs in red. (14 of 16) isometric drawings are highlighted in red below.
3. Replace four (4) different sections of piping due to severe corrosion.
 - a. 2" spool downstream of XY-0963. Replace the entire spool from flange to flange, new and in-kind.
 - b. 2"x1" reducer and flange weld downstream of the C-7301B compressor. Replace the 90°, 2"x1" reducer, and the 1" Slip-on flange new and in-kind.
 - c. 1" nipple coming off the side of a pressure gauge spool (PG-709) downstream of C-7301B. Either remove the pressure spool and install a blind flange or replace the corroded 1" nipple.
 - d. 2" Vapor line upstream of the unload arms. Replace the straight run of piping from fitting to fitting.
4. Install blind flange and all associated bolting hardware and gasket.

Should you have any questions, please call me.

Sincerely,
Specialized Response Solutions, a US Ecology Company

Charles D. Day

Senior Emergency Response Project Manager

PROPOSED AMMONIA PROJECT					DATE	1	8	15	22	29	5	12	19	26	5	12	19	26	2	9	16	23	30
					20230207	COMPLETION TIMELINE					JAN					FEB				MAR			
M	TASK		RESPONSIBLE	START	END	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
x	1	Order and purchase material and equipment	PHRT	1/4/2023	2/26/2023																		
x	2	Shipping Equipment Logistics (ISO containers)	PHRT	1/27/2023	3/18/2023																		
x	3	Engineering / planning (includes Management of Change and Process Hazard Review)	PHRT	2/19/2023	3/12/2023																		
x	4	Construction (piping tie-ins, equipment installation, inspections, recommended ammonia repairs)	PHRT/SRS	3/6/2023	4/15/2023																		
x	5	Conduct Pre-Startup Safety Review	PHRT	3/26/2023	4/16/2022																		
x	6	Ammonia transfer and vapor depressurization	PHRT/SRS	4/2/2023	4/16/2023																		
x	7	SRS demobilizes equipment	SRS	4/16/2023	4/22/2023																		

ELECTRICAL AREA CLASSIFICATION REPAIRS INFORMATION

FIELD ELECTRICAL AREA CLASSIFICATION REPAIRS LOG

ID	AREA	DESCRIPTION OF AS FOUND CONDITION	ACTIONS TO BE TAKEN	COMMENTS/ COMPLETION DATE
1	Ammonia Drum	Repair,replace horns on upper level platfom on drum handrail	Replace horns and brackets	complete 1-9/13-23
2	Ammonia Drum	P-7319- A pump no longer in service	Remover wiring and cap conduit	complete12-19/23-22
3	Ammonia Drum	P-7319- B pump no longer in service	Remover wiring and cap conduit	complete12-19/23-22
4	Ammonia Drum	Flow meter located drum bottom west	Remove old wiring and cap conduit	complete12-19/23-22
5	Ammonia Drum	P-7303 BB broken ground strap	Repair ground strap	complete12-19/23-22
6	LPG Electrical Repairs	Secure wires on 1" pipe2.	Secure wires in conduit cap and plug	Complete 12-12/16-22
7	LPG Electrical Repairs	Conduit C fitting needs cover	Install new cover	Complete 12-12/16-22
8	LPG Electrical Repairs	LP-4802 needs cover 1"	Install new cover	Complete 12-12/16-22
9	LPG Electrical Repairs	Compressor building needs covers on the 3/4" &1 1/2 fittings	install new covers	Complete 12-12/16-22
10	LPG Electrical Repairs	P4856-A needs cover on 3/4 fitting	Install new fitting	Complete 12-12/16-22
11	LPG Electrical Repairs	P-4857-A Secure wires and pipe ,Install plugs on 1" & 3/4" pipes	install new wires	Complete 12-12/16-22
12	LPG Electrical Repairs	CD-4850-A north side needs pluggs on two 3/4 " conduits	Plug conduits	Complete 12-12/16-22
13	LPG Electrical Repairs	CD4850-C east side light needs to be repaired	replace light	Complete 12-12/16-22
14	LPG Electrical Repairs	FFD-4851-A needs plug plug on EYD 1 1/2"	install plug	Complete 12-12/16-22
15	number not used			
16	LPG Electrical Repairs	IJB 4800-5 Fitting needs cover above IJB 3/4"	Install new IJB	Complete
17	LPG Electrical Repairs	LV-413 replace broken flex 3/4"	Install new flex	Complete 12-12/16-22
18	LPG Electrical Repairs	LP-4804 Install drain plug on fitting and conduit	install drain plug	Complete 12-12/16-22
19	LPG Electrical Repairs	install Drain plugs on fittings	install drain plugs	Complete1-2/6-23
20	LPG Electrical Repairs	D-4813 install cover on 3/4" conduit above drum	Install conduit cover	Complete1-2/6-23
21	LPG Electrical Repairs	P-4829 Repair start/stop station	Install new station/push buttons	Complete1-2/6-23
22	LPG Electrical Repairs	LP-4801 install sealplug drain and panel bolts	Install new bolts and drain	Complete1-2/6-23
23	LPG Electrical Repairs	D-4815 top west side repair 3/4" conduit	Install new conduit	Complete1-2/6-23
24	LPG Electrical Repairs	P-4812-A repair conduit on ground	Install new ground	Complete1-2/6-23
25	LPG Electrical Repairs	LP-4803 install cover above panel 1"	Install new panel	Complete1-2/6-23
26	LPG Electrical Repairs	Repair cable tray supports	Install new supports	Complete1-2/6-23
27	LPG Electrical Repairs	IJB-4800-2 replace rusted out conduits above box	Replace new box conduits	Complete1-2/6-23
28	LPG Electrical Repairs	T-4822 cap or plug conduits on catwalk	Cap new catwalk conduits	Complete1-2/6-23
29	LPG Electrical Repairs	Column 4811 install cover on welding receptical	Install new receptical on	Complete1-2/6-23
30	LPG Electrical Repairs	Fin Fan Deck Secure conduits and wiring	remove conduit	Complete1-2/6-23

31	LPG Electrical Repairs	Fin Fan 2nd from north on east side Secure wires and conduit	Secure wire and plug conduit	complete 1-9/13-23
32	LPG Electrical Repairs	Fin Fan 3rd from south install cover on fitting and secure wires	Install cover	complete 1-9/13-23
33	number not used			
34	Amine4/5	E-5834 secure flex and wires	Install new wires	complete 1-9/13-23
35	Amine4/5	FV-0343 plug conduit and secure	Install new secure	complete 1-9/13-23
36	Amine4/5	D-5834 fitting needs cover	Install new cover	complete 1-9/13-23
37	Amine4/5	D4832 Plug fitting next to ladder	Install new ladder	complete 1-9/13-23
38	Amine4/5	LP-5930Z Plug pipe	Install new pipe	complete 1-9/13-23
39	Amine4/5	FFD-5822A St /SP station back needs cover	install cover	complete 1-9/13-23
40	Amine4/5	Col 5813 needs plug at base	Install new base	complete 1-9/13-23
41	Amine4/5	FV-503 Secure conduit and wiring	Install new wiring	complete 1-9/13-23
42	Amine4/5	South finfan acc ladder needs plug at base	install plug	complete 1-9/13-23
43	Amine4/5	3rd FF needs conduit plugged and covered	Ff new covered plugged	complete 1-9/14-23
44	Amine4/5	2nd FF from south needs conduit removed	Ff new removed needs	complete 1-9/13-23
45	Amine4/5	FF deck south secure wires and conduit	Deck new conduit wires	complete 1-9/13-23
46	Amine4/5	E-5832A westside exchanger needs conduit cover	Install covers	complete 1-9/13-23
47	Amine4/5	T5830 east side fitting needs a cover 15 'up	install cover	complete 1-9/13-23
48	Amine4/5	TJB-4830-1 needs conduit cover	Install new cover	complete 1-9/13-23
49	Amine 6/7 Electrical list	D7461 needs covers on condit fittings	Install new fittings	complete12-19/23-22
50	Amine 6/7 Electrical list	E-7461B repair regen lights	Install new lights	complete12-19/23-22
51	Amine 6/7 Electrical list	IJB-7600C fitting needs cover	Install new cover	complete12-19/23-22
52	Amine 6/7 Electrical list	7662A Conduit to north west needs to be repaired	Repair conduit and coverfitting	complete12-19/23-22
53	Amine 6/7 Electrical list	P-7603B instrumentation line needs to be repaired	secure wiring and plug conduit	complete12-19/23-22
54	number not used			
55	number not used			
56	Amine 6/7 Electrical list	E7695A splitter reboiler 1 needs to have flex repaired	Replace flex	complete12-19/23-22
57	Amine 6/7 Electrical list	D7604 cap pipe	Install new pipe	complete12-19/23-22
58	Amine 6/7 Electrical list	D-7617 Covers and drain needed under catwalk	install covers	complete12-19/23-22
59	Amine 6/7 Electrical list	D7619A repair outlet	Install new outlet	complete12-19/23-22
60	Amine 6/7 Electrical list	D-7618 repair flex under drum	replace flex	complete12-19/23-22
61	Amine 6/7 Electrical list	TK-7943 secure conduit	Install new conduit	complete12-19/23-22

62	Amine 6/7 Electrical list	7450-fi5237 repair stand	Install new stand	Stand not required
63	Amine 6/7 Electrical list	P7461-A secure wiring for pump	Install new pump	complete12-19/23-22
64	Amine 6/7 Electrical list	LV-5239 install coverson conduit	Install new conduit	complete12-19/23-22
65	Amine 6/7 Electrical list	P-7461B secure wiring for pump	Install new pump	complete12-19/23-22
66	Amine 6/7 Electrical list	P-7602A needs ground	Install new ground	complete12-19/23-22
67	Amine 6/7 Electrical list	P-7602B needs ground	Install new ground	complete12-19/23-22
68	Amine 6/7 Electrical list	T-7601 Repair conduit secure flex plug fittings	Repair new fittings flex	complete12-19/23-22
69	Amine 6/7 Electrical list	P-7453B secure conduit and plug	Install new plug	complete12-19/23-22
70	Amine 6/7 Electrical list	P-7452A/B Secure wiring and conduit	Pull back wiring and remove/plug conduit	complete12-19/23-22
71	Amine 6/7 Electrical list	D-7453 plug conduit for lighting on catwalk	plug conduit	Complete 12-12/16-22
72	Amine 6/7 Electrical list	LP-7600B conduit needs cover	Install new cover	complete12-19/23-23
73	Amine 6/7 Electrical list	Col PS-79-71 conduit needs cover	Install new cover	Complete 12-12/16-22
74	Amine 6/7 Electrical list	CJB-7600 plug conduit above catwalk	Install plug	Complete 12-12/16-22
75	Amine 6/7 Electrical list	AJB-7600-A needs drain plug	Install plug	Complete 12-12/16-22
76	Amine 6/7 Electrical list	P-7452A correct wiring	Remove wiring and install conduit plug	Complete 12-12/16-22
77	Amine 6/7 Electrical list	P-7452B correct wiring	Remove wiring and install conduit plug	Complete 12-12/16-22