

THE ANDHRA PETROCHEMICALS LIMITED
Visakhapatnam

COMPLIANCE REPORT ON RECOMMENDATIONS OF AN EXTERNAL SAFETY AUDIT – 2019

S. No	Recommendation	Compliance status
1	There is no procedure in place for filling checklist during unloading for each road tanker. It is recommended to implement a procedure to fill the checklist during road tanker unloading by the Incharge/responsible personnel.	Checklist is being followed while unloading the tankers. Complied.
2	Checklist available for tanker unloading however there is no display of do's & don'ts or safe instructions for solvent tanker unloading. It is recommended to display do's & don'ts/ safe handling instruction at the tanker unloading bay.	Instructions (do's don'ts) for Naphtha unloading has been displayed. Complied
3	There is no display of required PPE's to ensure before entering tank farm. It is recommended to provide display of required PPE's within the tank farm premises.	Safety Posters (PPE) displayed. Complied.
4	Cable tray (carrying electrical/instrument cables) laying on relatively lower level inside the dyke in tank farm. It is recommended that cable tray routing height or the protection level for cables to be reviewed considering the cables damage due to potential pool fire within the dyke.	Will be rectified
5	It was observed that the tanker engine start key left inside without presence of driver during tanker unloading. It is recommended to prepare and provide safe instructions list or induction training for tanker drivers while entering the plant premises.	Induction training being ensured for new truck drivers. Complied
6	In risk assessment there is no scenario considered for tanker unloading and pump leakages. It is recommended to update the risk assessment (QRA) study considering the inventory release scenario from tankers and solvent transfer pump.	We will update the Quantitative Risk assessment at the earliest.
7	There is no dyke volume displayed at tank farm areas. It is recommended to provide display of dyke volumes in the tank farm area.	Dyke volumes displayed. Complied.
8	There is no inspection detail available for 3639 Fire extinguisher which is provided to tanker driver and there are no details of Tag. No. in fire service certificate to ensure it is the same which was issued by APL. It is recommended to provide inspection tag with details on fire extinguisher and provide tag.no in fire service certificate to ensure it is the same which was issued by APL.	Inspection details with tag No's on the fire extinguishers of truck drivers being ensured. Complied.
9	There is no TREM card available with tanker driver. It is recommended to verify the availability of TREM card with the drivers while entering the plant premises.	TREM cards being issued at the loading area. Complied
10	Jumpers were provided across flanges on pipelines but at some place's jumpers were found to be with painting (potential for loss of earth continuity). It is recommended to ensure the jumpers were not provided with painting to maintain good earth continuity.	Rectified. Complied

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11	During removal of airlock within the pipeline, metal bucket is being used for collecting solvent and this process is not included in checklist or no procedure available for safe handling with buckets and safe measures to be taken (ex. earthing to bucket). It is recommended to update the SOP/checklist with instructions for handling of solvent with metal bucket to avoid static hazards	SOP / Safety checklist was modified and being implemented. Complied
12	No tag numbering and calibration details provided on pressure gauges in tank farm. It is recommended to provide tag numbering and calibration details on pressure gauges in tank farm.	Tag No's provided on pressure gauges. Complied
13	There is no blind flange/dummy provided for drain outlet valve at pump discharge. It is recommended to provide blind flange/ dummy at the drain outlet valve at pump discharge.	Drain dummy was normalized. Complied
14	Chemicals empty cans (scrap) were being stored under the confined space of G-811 storage tank. It is recommended to ensure tank farm and tank bottom confine spaces are free from scrap storage.	Unwanted material in the skirt was removed. Complied
15	There is no drain valve at the outlet of drain pit at G-851 LSHS. It is recommended to provide drain valve at the outlet of drain pit at G-851 LSHS.	Drain valve provided. Complied
16	There is no secondary containment for leakages through pumps at tanker unloading area. It is recommended to provide secondary containment across the pump at tanker unloading area to limit the spread of any accidental leakages.	Will be provided
17	Exposed electrical cables at D- 801A (near stairs) were observed which can lead to potential ignition source. It is recommended to remove the exposed electrical cables from the flammable hazardous areas.	Damaged cables were removed. Complied
18	There is no BLEVE scenario was considered for Propylene spheres in Risk assessment report. It is recommended to update the risk assessment (QRA) report with the BLEVE scenario for sphere to estimate the consequence and risk from the Propylene spheres BLEVE.	We will update the Quantitative Risk assessment at the earliest.
19	Potential accident scenarios outcome (like explosion/jet fire etc.) of propylene release were listed as not applicable in risk assessment report and results were presented for these scenarios. It is recommended to review and update the risk assessment study report.	We will review the potential accident scenarios.
20	Hydrocarbon detectors were not available at some places in 06 Area (ex. Desulphurization area 1st floor). It is recommended to review the adequacy of installation of Hydrocarbon detectors in the 06 Area.	Will be reviewed
21	There is no dedicated location marked for placing fire extinguishers. It is recommended to locate fire extinguishers at defined dedicated location with tag/identification number.	Fire extinguisher were placed at designated places in the plant as per the drawing. Complied
22	Fasteners in Y2-LDB06-01 (Lighting DB) were missing which leads to loss of integrity of the electrical equipment in the hazardous areas. It is recommended to provide fasteners in Y2- LDB06-01 (Lighting DB) to ensure tightness of the equipment in hazardous areas.	Rectified. Complied

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23	Exposed electrical cables were found at few places (ex. Reformer area/SPDB-R41MCC) with insulation tapes which can lead to presence of potential ignition sources. It is recommended to replace or remove exposed electrical cables from the hazardous (plant) areas to avoid potential ignition sources in abnormal conditions.	Damaged electrical cables were replaced. Complied
24	There is no isolation with dummy/fasteners at Cable entry point below the electrical junction boxes (EDJB-602), potential for presence of ignition sources in case of flammable vapors exists. It is recommended to provide isolation dummy/fasteners at Cable entry point below the electrical junction boxes (EDJB-602) to avoid potential ignition sources in abnormal conditions.	Fasteners provided at the cable entry point. Complied
25	There is no guard provided on the rotating shaft above the reactor (Oxo reactor – 1 & 2). It is recommended to provide guard on the rotating shaft above the reactor (Oxo reactor 1 & 2).	Guards provided at the agitators of Oxo reactor 1&2. Complied
26	Carbon Monoxide detectors were not available on Reactor - 1 & 2 and in adequacy of Hydrocarbon detectors at Old and New purification system. It is recommended to review the adequacy of installation of Carbon Monoxide & Hydrocarbon detectors in the Aldehyde Area to ensure provision of adequate Hydrocarbon detectors are in place.	We will review the adequacy of the Carbon Monoxide detectors.
27	There is no display of inspection details for monorail SWL. It is recommended to provide display of inspection details for monorail SWL.	Details of SWL are displayed. Complied
28	Exposed electrical cables were found at few places (ex. MPDB-6/2 at pillar 26) with insulation tapes which can lead to presence of potential ignition sources. It is recommended to replace or remove exposed electrical cables from the hazardous (plant) areas (ex. MPDB-6/2 at pillar 26) to avoid potential ignition sources in abnormal conditions	Damaged electrical cables were removed. Complied
29	There is no ladder cage available at 03 catch pot area beside pillar 26 on ladder. It is recommended to provide ladder cage on ladder at 03 catch pot area beside pillar 26.	Ladder cage was provided. Complied
30	There is potential personnel hazard with Gap between the equipment (columns) and platform. It is recommended to provide an improvised barrier erected across the gap between the equipment (columns) and platform.	Gaps closed with checkered plate. Complied.
31	During loading of product to tanker a driver standing on tanker without wearing harness (safety belt). It is recommended to implement/develop a procedure to fill the checklist during road tanker loading by the Incharge/responsible personnel.	Safety harness with anchoring point has been provided at the loading area. Complied
32	In risk assessment there is no scenario considered for tanker loading and pump leakages. It is recommended to update the risk assessment (QRA) study considering the inventory release scenario from tankers during loading and leakage from transfer pump	We will update the Quantitative risk assessment at the earliest

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33	Earthing clamp wires at tanker loading bay were damaged which is connected to tanker during product loading. It is recommended to replace the damaged earthing wire at tanker loading bay area.	Damaged earthing clamps were Replaced. Complied
34	Iso-Butanol stored in plastic drums (insulative – potential for static charge build-up) and potential for electrostatic hazards during transfer to G-810 mixed butanol tank and there is no safe handling procedure available. It is recommended to store the Iso-butanol in metal container with provision of earthing and grounding clamp connection during filling and emptying.	Safe Handling procedure prepared & being followed. All safety measure has been taken up for preventing the static charges. Complied
35	No drain plug provided on level gauge valve ends on G-810. It is recommended to provide drain plug on level gauge valve ends on G-810 to prevent any leakages of chemical.	Drain plug was provided. Complied
36	No Dyke volumes displayed for product tank farm. It is recommended to provide display of dyke volumes for tank farm dykes.	Dyke volumes displayed. Complied
37	Epoxy flooring inside the caustic storage dyke were damaged. It is recommended to replace the damaged epoxy flooring inside the caustic storage dyke.	Rectified. Complied
38	There is no epoxy coating provided to the basement of pumps (L-855) inside the HCl storage tank dyke. It is recommended to provide epoxy flooring/coating on the basement of pumps (L-855) inside the tanks dyke area.	Epoxy flooring provided at the base of the L-855 pump. Complied
39	HCl tank level gauge flange leak and missing of nut bolt missing on the flanges were observed. It is recommended to provide the missing nut and bolt on the flanges to avoid leakages.	LG leak was rectified. Flanges fixed with nut & bolts fully. Complied
40	There is no dyke volume displayed for HCl and Caustic storages. It is recommended to display dyke volumes on the tank farm dykes.	Dyke volumes has been displayed. Complied
41	There is no display for PPE requirement/usage while entering HCl & Caustic storage areas. It is recommended to provide display of PPE requirement/usage while entering HCl & Caustic storage areas.	Necessary PPE for handling of Acid & Caustic has been displayed. Complied
42	HCl AMT-1 drain valve end not provided with blind flange, potential for leakage. It is recommended to provide blind flange on the HCl AMT-1 drain valve end to avoid leakages.	AMT -1 drain dummy is fixed back. Complied.
43	Fasteners in FLP LCP J104C were missing which leads to loss of integrity of the electrical equipment in the hazardous areas. It is recommended to provide fasteners in FLP LCP J104C to ensure tightness of the equipment in hazardous areas.	Fasteners in FLP LCP normalized. Complied
44	It is observed that at the compressor house there is no caution display of high noise area and display of required PPE's. It is recommended to provide caution display of high noise area and PPE's required at the entrance of compressor area to ensure personnel safety.	Noise level are with in the limit. However, we are provided Soundproof Cabin, ear plugs/muffs and displayed cautionary sings. Complied

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45	There is no display of required PPE's to ensure during handling of chemicals drums at the Open yard. It is recommended to provide display of required PPE's for safe working environment to personnel.	Necessary PPE has been displayed at the open yard for material handling. Complied
46	SOP/ Safe handling instructions/precautions display for drum handling not available at Open yard. It is recommended to provide SOP/safe handling instructions/precautions display for drum handling not available at Open yard.	Safe handling of chemicals / materials was displayed. Complied
47	No thickness/pressure test certificate observed for cylinders from supplier. It is recommended to ensure thickness/pressure test certificate is being received for cylinders from supplier.	Being followed & recorded. Complied.
48	There is no Chemical hazard & emergency instructions label on cylinders from supplier. It is recommended to ensure availability of Chemical hazard & emergency instructions label on cylinders while receiving from supplier.	Hazard symbols & Labels has been provided on the gas cylinder. Complied
49	In LPG storage room damaged electrical cable were found with insulation tape potential for electrical ignition sources. It is recommended to replace damaged electrical cable to avoid potential ignition source at abnormal conditions.	Unused & Damaged electrical cable was removed from the shed. Complied.
50	LPG storage room lower ventilation cut out/openings were obstructed with scrap storage from outside. It is recommended to keep the ventilation openings free of any obstruction on LPG storage room to ensure enough ventilation available for dispersion of accidental gas leakages.	Obstructions at the LPG ventilators were removed. Complied
51	MRSS: Display of first aid trained persons list not provided. It is recommended to provide display of first aid trained persons list and update the person details of availability on every shift change.	First aid person's list has been displayed at the MRSS. Complied
52	There is no color differentiation for general and Emergency lighting. It is recommended to provide different color for emergency lighting for ease of identification.	Entire plant lighting is back with up UPS & 750KV DG set. Therefore, colour code is not required. Complied.
53	There is no tag no. provided for smoke detectors in location. It is recommended to provide tag numbers for smoke detectors on location.	Tag Nos provided on the smoke detectors. Complied
54	MCC- There are no Louvers provided for Ventilation windows, potential for rainwater ingress. It is recommended to provide Louvers for Ventilation windows to avoid rainwater ingress.	Louvers were provided. Complied
55	DG House: No details of chemical name, capacity and NFPA pictorial symbol displayed on diesel tank. It is recommended to provide display of chemical name, capacity and NFPA pictorial symbol displayed on diesel tank.	NFPA hazardous symbol & Capacities were provided on the Diesel day tank. Complied
56	DG House: There is no secondary containment for diesel tank. It is recommended to provide secondary containment for diesel tank in DG set area.	Will be arranged.
57	DG House: Scrap storage observed at diesel storage day tanks area. It is recommended to remove scrap stored at diesel tank area and ensure the area is free of any obstruction for easy escape in case of emergency.	Scrap removed and following good housekeeping. Complied.

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58	General Stores: There is no spill control procedure and spill control kit available for accidental spillages of chemical bottles at storage racks in general stores. It is recommended to develop SOP for chemical spillage cleaning and provide chemical spill control kit in General stores.	SOP developed & being implemented. Spill control kit will be arranged.
59	QC Laboratory: Potential for Hydrogen gas leakages in analytical room and potential for ignition sources with available electrical fitting which are non FLP. It is recommended to provide exhaust ventilation in analytical room and replace electrical fittings with flameproof type within 1.5m radius from the hydrogen supply manifolds.	Replacement work is under progress
60	There is no PPE chart available w.r.t chemical hazards. It is recommended to display PPE chart in the QC laboratory.	PPE Matrix (Chart) provided at QC
61	There is no chemical compatibility chart available. It is recommended to display chemical compatibility chart in the QC laboratory.	Chemical compatibility chart has been displayed. Complied
62	QC Laboratory: Chemicals storage is as per alphabetical order and there is no segregation based on compatibility. It is recommended to store the chemicals as per chemical compatibility.	Chemicals being arranged as per alphabetical order. Complied
63	There is no flammable cabinet for storage of flammable chemical bottles. It is recommended to provide flammable cabinet for storage of flammable chemicals in the QC Laboratory.	Will be provided
64	There is no procedure and spill control kit available for chemical spillage cleaning. It is recommended to develop SOP for chemical spillage cleaning and provide chemical spill control kit in QC laboratory.	Safe procedure has been developed for handling of chemicals and spill control kit was provided. Complied
65	Fall protection not available on the end of four sides of the ETP aeration-2 tanks. It is recommended to provide barricade railing over the wall of the ETP aeration tanks.	Will be arranged
66	Stairs civil structure (West pond North side entrance) were damaged. It is recommended to repair the damaged civil structure to avoid any personnel injury in abnormal conditions.	Rectified. Complied.
67	There is no display of details for types of pumps (Jockey/electric driven/diesel driven) and capacities. It is recommended to provide display types of pumps (Jockey/electric driven/diesel driven) available and their capacities at the Fire pump house.	Displayed the details of fire water pumps. Complied
68	Hazard label not displayed at diesel tank in Fire pump house. It is recommended to provide display of NFPA hazard label on Diesel tank in Fire pump house.	Hazardous labell & NFPA symbol displayed on the diesel tan. Complied
69	It was observed during site visit that list of chemicals available with OHC is not updated. Ensure that OHC has updated list of chemicals along with its hazards & mitigation majors. Also, consider preparing & maintaining the record of all the chemicals in OHC used in QC laboratory with their hazards & mitigation majors.	Chemicals list updated and displayed. Complied

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70	APL intends to segregate hazardous waste of OHC in three different bins, one of those bins i.e. PPC bin should be contained with Hypochlorite + Water, but it was not evident during audit. Ensure that PPC bin in OHC is filled with Hypochlorite + Water all the time to manage bio-waste.	Rectified. Complied
71	OHC has a refrigerator to store some medicines as per their desired storage conditions while the list of those medicines is missing. Consider preparing & displaying the list of chemicals stored in Refrigerator along with its quantity on Refrigerator door or in record & ensure that it is updated as and when required.	Medicines stored in a refrigerator has been displayed on the door and ensuring availability. Complied
72	Consider exploring the possibility of providing fire extinguisher in OHC suitable to identified fire class.	Replaced with clean agent. Complied
73	Safety Briefing: Ensure that brief safety induction is provided to all the visitors those are entering into facility & ensure visitors are aware about hazards, mitigation majors & actions to be taken during any emergency by conducting short evaluation after safety induction	Safety induction for visitors being followed at the visitor's room near the Factory gate. Complied.
74	Consider displaying shift wise no. of personnel (APL employees, Contractors, Visitors etc.) present/entered in facility at/besides the security cabin on order to ensure head count is matching in case of any emergency.	Manpower details being displayed at the time office. Complied
75	It is observed during site visit that First aid box present in Security cabin has been used to stored material other than medicines. Moreover, quantity of the medicines present in box was not matching with that of recorded in the list. Ensure that there is a designated position assigned for first aid box in security which will not be utilized to store other material/s as well as ensure that the quantities recorded in list are matching with actual. Also, consider the possibility of providing unique nos to all the first aid box/es present in APL facility for easy identification.	Rectified. Complied
76	It is recommended to display the overall site evacuation layout of APL plant showing entire site map for easy identification of present location of voyeur and other plant details which may include location of various units, different buildings, Emergency control Centre, assembly points etc.	Emergency evacuation layout was displayed at vulnerable places in the plant. Complied

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MANAGER OF THE Factory