

U.S. Pipelines & Logistics PPE Matrix

Jun-2019

Note: If contradictory instructions exist between this PPE Matrix and any SOP or JSA, then the document specifying the greater degree of protection will prevail.		Additional PPE Requirements (Other than the minimum listed for the work environment) Note: Yellow highlighted cells have been revised from the previous matrix version.							
U.S. Pipelines & Logistics PPE Matrix	Hazard Potential Activity	No Additional PPE Required	Body	Head	Respiratory	Face/Eye	Hearing	Foot	Hand
Workforce (All personnel in the work environment)	Minimum PPE requirements		Fire resistant clothing See exception below.	Hard hat		Safety glasses		Safety shoes	
Workforce			Exception: Employees and contractors working outside of USPL fence lines are not required to wear FRC provided they do not have foreseen exposure to hydrocarbons with potential to produce a flash fire or to electrical hazards requiring USPL PPE Category 0 or higher clothing. See the PPE or Electrical Safety Program policies for more detail. <u>Hard hat, safety glasses and safety shoes are still required to be worn on the Right of Way.</u>					Consider snow and ice traction cleats in winter weather.	

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Carriers	Transport Drivers at Racks		FRC is required to be worn, but is not required to meet the electrical Hazard Risk Category 2 rating.	Hard hat	Not required	Safety glasses		Safety shoes	Nitrile
	A/G onshore liquid piping inspection	X							
	Abrasive Blasting (Sand blasting)		Abrasive Blasting (sand blasting) jacket/ suit		Required Abrasive Blast (Sand blast) hood		Double hearing protection (plug and muff)		Leather gloves / protection of wrist and forearm
	ACT meter skid inspection/cali bration	X							
	Actuator inspection				Not required				Work gloves
	Additive - Fuel biocide		Chemical resistant apron		Organic vapor respirator*	Goggles			
	Additive injection system maintenance at rack				Not required	Goggles			Gloves

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	Aerial Lift		Fall protection must be attached to basket		Not required				
	Aerial patrol	X							
	Air compressor inspection	X							
	Air Knifing					Face shield	Plugs		Leather gloves
	All-Terrain Vehicle (ATV) use on Pipeline ROW			ANSI approved helmet		Face shield or goggles			Leather gloves
	Analyzer PM tasks	X							
	Annual inspection of river crossings		PFD		Not required				
	Annual vehicle inspection	X							
	Back pressure control valve PM				Not required				Work gloves
	Backup PLC program, change battery	X							

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	Barge - disconnecting gasoline loading / unloading		Personal flotation device		Required* Half-face APR with organic vapor cartridge				
	Barge - tying up		Personal flotation device		Not required				Work gloves
	Barge - witness gauging	X							
	Barge loading blanket	NA							
	Batch change (products)	X			Not required				
	Battery (lead acid) maintenance					Face shield			Butyl
	Block and bleed valve inspection				Not required				Nitrile if exposed to product
	Block valve inspection				Not required				Nitrile if exposed to product
	Blower PM tasks				Not required		Plugs/muffs		Work gloves
	Booster motor/pump PM tasks				Not required				Nitrile if changing oil
	Butane truck off-loading					Face shield	Plugs/muffs		Nitrile

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	Cathodic protection inspection	X							
	Centrifugal PM tasks				Not required				Nitrile if changing oil
	Changing oil in product pumps	X							
	Check valve validity test	X							
	Clamp-on flow meter PM tasks				Not required				Work
	Cleaning strainers				Not required	Goggles when first opening			Nitrile
	Colorimeter maintenance				Not required				Nitrile
	Colorimeter PM tasks				Not required				Nitrile
	Cone roof tank PM tasks	X							

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	Confined space entry into spaces previously containing product/residue which do not have a Post-Cleaning Certificate.				Required** For determining unknown concentrations of contaminants, use supplied-air respirators (SCBA or airline with 5-min. escape bottle) and standby person.				
	Control valve PM tasks	X							
	Corrosion survey	X							
	Coupons corrosion inspection				Not required				Nitrile
	Crane and hoist inspection				Not required				Work/leather gloves
	Critical bonds reading	X							
	Crude station inspection	X							
	Data collection survey work for civil and environmental surveys				Not required				

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	Deadweight tester calibration	X							
	Densitometer calibration				Not required	Goggles			
	Diesel engine driven MLPU PM tasks				Not required				Leather gloves for some of the tasks
	Differential pressure transmitter calibration	X							
	Diluents line pressure relief valve repair				1/2 face air purifying respirator with organic cartridges				
	DRA delivery				Not required	Goggles and Face shield			Nitrile
	DRA skid oil change				Not required				Nitrile
	DRA skid PM tasks				Not required				Nitrile
	Electrical work		Use the equipment's NFPA 70E hazard warning label and the Electrical Safety Program policy to						

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		<p>Summary of USPL PPE Categories (Note, refer to the Electrical Safety Program for additional safe work practices that apply to certain types of electrical work and situations): Review the electrical equipment label and/or arc flash risk assessment in DRM to determine arc flash boundaries and USPL PPE Category (0-4) in relation to the type of work to be performed and the worker's relative position to the equipment. <u>USPL PPE Category 0 and 1:</u> Hard hat, Safety glasses, Hearing protection, Leather work shoes, Heavy duty leather gloves, Fire resistant clothing (Cat 2, 8 cal/cm²), Arc-rated face shield. <u>USPL PPE Category 2:</u> Same as USPL PPE Category 0, additionally an arc-rated balaclava. <u>USPL PPE Category 3:</u> Hard hat, Safety glasses, Hearing protection, Leather work shoes, Arc-rated gloves, Arc flash suit (Cat 4, 40 cal/cm² for USPL), Arc flash suit hood. <u>USPL PPE Category 4:</u> Same as USPL PPE Category 3.</p>							
	Electrical medium voltage swgr PM tasks		Flash suit if racking in or out breakers		Not required		Ear plugs or muffs when racking in or out breakers		
	Electrical switchgear PM tasks		Flash suit if racking in or out breakers		Not required		Ear plugs or muffs when racking in or out breakers		Electrical gloves
	Emergency response (Also, see location-specific emergency response plans.)		PFD with over-water operations		Required* Organic vapor respirator where benzene > 1ppm.			Chemical and oil resistant boots if exposed to ethanol	Nitrile gloves

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	Emergency response - gasoline loading rack spill				Required* Half-face APR with organic vapor cartridge required for responding to loading rack gasoline spills greater than 25 gallons			Chemical and oil resistant boots if exposed to ethanol	Nitrile gloves
	ESD station test	X							
	Explosion-proof housing inspection	X							
	Facility inspection				Not required				Leather / nitrile for some of the tasks
	Field pumping unit inspection				Not required				Nitrile
	Filter change (gasoline)		Tyvek		Required* Half-face APR organic vapor	Goggles			Nitrile
	Filter change (jet)	X							
	Filter vessel maintenance on main line with pyrophoric material								Leather

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	Fire system annual inspection	X							
	Fire water pump/motor PM tasks				Not required		Muffs or plugs if pump is running		Leather
	Flare inspection	NA							
	Forklift		Seat belt		Not required				
	Gas Chrom. PM tasks	NA							
	Gas line leak survey	X							
	Gasoline sample testing in quality control room				Not required				Nitrile
	Gear pump PM tasks				Not required				Nitrile
	Geodesic dome work				Not required			May wear rock climbing shoes instead of safety shoes	

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	Grinding - portable				Not required	Face shield, and sealed eyewear, e.g., spoggles or particulate goggles, when grinding overhead.	Muffs or earplugs		Leather
	Grinding - stationary				Not required	Face shield	Muffs or earplugs		Leather
	H/V glove or hot stick inspection	X							
	H2S Monitor PM tasks	X							
	Half-cell corrosion inspection	X							
	Heat exchanger maintenance				Not required	Face shield			Nitrile Gloves
	Heater/AC PM tasks	X							
	Helicopter pipeline patrol	Minimum PPE not	Seat belt				Muffs		
	High tank level switch test	X							
	High volt S.G./protective relay PM tasks		Electrical PPE		Not required	Electrical hood			High voltage

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	Hydro Excavation		Rain suit			Face shield	Plugs		Waterproof gloves
	ILI repairs				Not required		Plugs/muffs		Leather gloves
	Inspect and inventory spill response equipment				Not required				Leather gloves
	Inspect relief valve				Not required				Nitrile
	Inspect slings and chains				Not required				Work
	LACT calibration	X							
	Lawn mower and weed eater				Not required		Muffs or plugs required unless noise exposure survey exempted		
	Leak detection checks	X							
	Line locates				Not required				Work/leather
	Line repair - products				Not required				Chemical resistant gloves
	Loading dye (BK50) to diesel fuel				Not required				Chemical resistant gloves

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	Loading rack - calibration and adjustment				Not required				Chemical resistant gloves
	Loading rack - changing vapor recovery lines				Not required		If work task greater than 30 minutes.		Chemical resistant gloves
	Loading rack - draining vapor lines				Not required		If work task greater than 30 minutes.		Chemical resistant gloves
	Loading rack - reading gauges				Not required		If work task greater than 30 minutes.		
	Low volt S.G. PM tasks				Not required				Electrical gloves if exposing wires
	Mainline pump PM tasks				Not required				Nitrile
	Mainline valve inspection				Not required				Nitrile
	Manifold valve inspection				Not required				Nitrile
	Manual valve PM tasks				Not required				Nitrile
	MCC PM tasks		Electrical		Not required				Electrical gloves
	Meter proving - Loading rack				Not required				Nitrile gloves when handling hoses

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	Meter skid calibration				Not required				Work/nitrile
	MIU functional test	X							
	MLPU inspection				Not required				Nitrile
	Motor reconditioning				Not required				Work / nitrile
	MOV PM tasks				Not required				Work / nitrile
	Multilin PM tasks	X							
	Nav aid and fog horn check	X							
	Navigable river crossings inspection		PFD		Not required				
	NRC wipe test on radioactive sources	X							
	NUSONICS PM tasks				Not required				Work
	Odorant test	X							
	Off-loading ethanol				Not required				Chemical resistant gloves
	OMS facility inspection	X			Not required				
	Optical interface detector maintenance				Not required				Nitrile

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	Orifice plate inspection				Not required				Leather gloves
	Oversee contractors		Same PPE as contractors		Not required				
	PCB potential exposure		Tyvek		Required** SCBA if PCB oil is above boiling point	Safety Glasses			Neoprene gloves
	PD pump PM tasks				Not required				Nitrile
	Pipe to soil potential readings				Not required				Work
	Pipeline surveillance ground				Not required				Work
	Platform checks	X							
	Platform inspection	X							
	PM - FACF-PUPD/PUGR Inspection				Not required				Nitrile
	Portable prover PM tasks				Not required				Work/nitrile
	Pressure switch calibration				Not required				Work
	Pressure switch line flush				Not required				Work

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	Pressure switch/transmitter calibration				Not required				Nitrile/Work
	Pressure transmitter calibration				Not required				Nitrile/Work
	Products station inspection				Not required				Nitrile/Work
	Protective relay testing	X							
	Prover loop inspection				Not required				Work
	Prover water draw test				Not required				Work
	PUBT PM tasks	X							
	Pump PM tasks				Not required				Work/nitrile
	Pycnometer calibration				Not required				Leather gloves
	Radio tower inspection				Not required				
	Rail car loading		Fall protection on top of car		Not required	Goggles when connecting/disconnecting hoses			Gloves when handling hoses
	Rail car unloading		Fall protection on top of car		Not required	Goggles when connecting/disconnecting hoses			Gloves when handling hoses

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	Rectifier inspection - no exposed parts > 50V				Not required				
	Rectifier inspection - exposed live parts > 50V		Use the equipment's NFPA 70E hazard warning label and the Electrical Safety Program policy to determine the proper personal protective equipment required for the task.						
	Relief valve PM tasks	X							
	Road - workforce in public road right-of-ways		High-visibility FRC vest		Not required				
	ROW clearing activities	X			Not required		Plugs/muffs when using power equipment over 85 dBA		Leather gloves when handling materials
	ROW over-the-line data collection surveys	X			Not required				
	RTU readings validation	X							
	Rupture disk testing	X							

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	Sampling - Collecting product, crude or NGL samples from an open pressurized system				Not required	Goggles			Nitrile
	Satellite system PM	X							
	Scraper run				Not required				Work/nitrile
	Seal failure switch functional test	X							Work
	Service UPS	X							
	Shutter check & visual on radiation sources	X							
	Station electrical maintenance				Not required				Electrical gloves if exposing wires
	Station Inspection	X							Work/nitrile
	Station PM tasks	X							Work/nitrile
	Station prover loop inspection	X							Work/nitrile
	Station rework	X			Not required				

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	Stationary prover PM tasks	X							Work/nitrile
	Strainer cleaning PM				Not required				Nitrile
	Sump system PM tasks				Not required				Nitrile
	Survival capsule inspection	X							
	Tank cleaning		Fire resistant Tyvek when cleaning		Air Monitoring results shall determine the level of respiratory protection			Oil / chemical resistant when cleaning	Nitrile for cleaning
	Tank gauge calibration				Not required				Nitrile
	Tank gauging - Crude Oil, Bunker Fuel, Heavy Fuel Oil				Required* Air supplied respirator, except with vented gauge caps. See the Hydrogen Sulfide policy and FAQ.				
	Tank gauging - Gasoline	X			Not required				Nitrile
	Tank level switches test				Not required				Nitrile
	Tank mixer inspection				Not required				Nitrile

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	Tank PM tasks				Not required				Nitrile
	Tank sampling				Not required	Goggles			Nitrile
	Tank system inspection				Not required				Nitrile
	Temperature transmitter calibration				Not required				Nitrile
	Terminal inspection	X							
	Test outlets				Not required				Electrical gloves
	Transformer PM tasks	X							
	Truck unloading facility inspection				Not required				Nitrile
	Turbine meter calibration				Not required				Nitrile
	Unloading Invigorate additive				Not required				Nitrile if handling hose
	Valve repair Terminal				Not required				Nitrile if product exposure
	Vapor detection calibration				Not required				Work
	Vented shorted casing inspection				Not required				Work

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	Vibration readings				Not required		Plugs/muffs		
	VRU maintenance				Not required	Goggles when adding seal fluid	Around vacuum pumps		Nitrile gloves when adding seal fluid
	Wading in rivers where no overhead hazards or potential for falling objects exist		Waders or neoprene wetsuit with PFD, or a dry suit	Brimmed hat or cap for sun protection is recommended. Hard hat is not required in water.	Not required	Safety glasses		Wading boots with durable rubber soles	Kevlar gloves, neoprene gloves, or dry gloves
	Walk-arounds	X							
	Washing Natural Gas Fired Turbines with a caustic liquid		Chemical resistant apron		Required**	Full-face air purifying with a dust/mist filters		Chemical resistant boots	Nitrile
	Water draw - Gasoline tank	X			Not required				
	Water draw preparation tasks				Not required				Work/nitrile

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	Welding		May untuck FRC shirt. Other body protection may be necessary to protect from hot sparks.	Hardhat that accommodates welding face shield	Required May be required in confined spaces or with exotic metals. See Hot Work policy.	Welding face shield			Leather
	Working at heights		Fall protection with any work above 6 feet.		Not required				

Note: A single asterisk after Required in the Respiratory column means industrial hygiene data is available which indicates a need for respiratory protection. Two asterisks after Required means representative industrial hygiene data is not available but respiratory protection must be worn until such data is developed.

Workplace evaluated: This assessment applies to all US Pipeline and Logistics work locations including Pipeline facilities and pipeline right-of-ways, terminals, and transport truck operations.

Performed by: Alejandro Sierra, Safety Team Leader, is the single point of contact for any questions, and certifies the assessments have been accurately performed.

Date of assessment: This assessment is a compilation of assessments performed by Safety Coordinators and Safety Advisors over time. This assessment is current as of June 2019.

Certification: This US Pipelines and Logistics PPE Matrix serves as the certification of the PPE hazard assessments.