

MPC Anacortes Refinery

Greenhouse Gas Assessment of Projects (GAP) for 2003 to 2020 Permitted Projects

Project	Description	Year	Direct GHG (MT) [1]	Indirect GHG (MT) [2]			Notes	Total GHG (MT) [3]	Would it have Triggered GAP? [4]
				Product	Electricity	Transportation			
Clean Products Upgrade Project	The CPU Project to improve the company's capability to deliver cleaner local transportation fuels and global feedstocks primarily for polyester. Project was not completed.	2015	347,644	-	28,087	5,860	GAP triggered through direct emissions.	381,591	Yes
Alky Chiller	Install an Alky Unit cooling system, which consists of a cooling tower , a cooling tower pump, a water-cooled chiller, a chilled water pump, an expansion tank, and a heat exchanger.	2016	6,212	63,320	Unknown (<10,000 mt/year)	Unknown (<10,000 mt/year)	GAP triggered through indirect emissions.	69,532	Yes
Alky Compressor Replacement	Install a new compressor and steam turbine to replace two existing compressors at the Alky Unit.	2016	-	63,320	Unknown (<10,000 mt/year)	Unknown (<10,000 mt/year)	GAP triggered through indirect emissions.	63,320	Yes
Gasoline Benzene Reduction	Install a new UOP Benzene Saturation Unit to comply with EPA Mobile Source Air Toxics Phase 2 gasoline regulations.	2008	49,813	-	Unknown (<10,000 mt/year)	Unknown (negligible)	GAP triggered through direct emissions.	49,813	Yes
Marine Operations Voluntary Emission Control Project	Voluntarily install a new Marine Vapor Emission Control System that utilizes a vapor combustion unit to reduce emissions of volatile organic compounds. The system will control hydrocarbon emissions from marine vessels during loading operations.	2020	34,250	-	Unknown (negligible)	-	GAP triggered through direct emissions.	34,250	Yes
Low Sulfur Gasoline Project	Repurpose existing hardware and employ a number of changes to operations to phase in compliance with the low sulfur regulations. This project is being completed to concentrate and remove sulfur from the process.	2003	30,243	Unknown (<10,000 mt/year)	Unknown (<10,000 mt/year)	Unknown (<10,000 mt/year)	GAP triggered through direct emissions.	30,243	Yes
Selective Hydrogenation Unit	Install a Selective Hydrogenation Unit to process Cat Cracker Gasoline for sulfur removal	2006	16,480	Unknown (potentially >10,000 mt/year)	Unknown (<10,000 mt/year)	Unknown (<10,000 mt/year)	GAP triggered through direct emissions.	16,480	Yes
Rail Unloading Project	Install a new crude oil rail unloading facility consisting of a 4-track unloading platform	2011	-	-	Unknown (<10,000 mt/year)	15,000	GAP triggered through indirect emissions.	15,000	Yes
Diesel Additive Project	Install equipment to facilitate dosing of diesel fuel with additives for lubricity and conductivity.	2019	-	-	Unknown (negligible)	14,081	GAP triggered through indirect emissions.	14,081	Yes
Sulfur Recovery Unit/Amine Unit Project	Install an Sulfur Recovery Unit and Amine Treating Unit.	2005	8,938	-	-	Unknown (<10,000 mt/year)	GAP could be potentially triggered if Transportation emissions exceed 1,100 mt/yr. Nature of transportation impacts is unclear at this time.	8,938	Close
Product Loading Rack Project	Install a new product loading rack at the Refinery.	2013	-	-	873	7,169		8,042	Close

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Crude TA	Replacement of piping, distillation trays, and heat exchanger tubing associated with the Crude Unit, for the purposes of improving reliability and optimizing fractionation for light gas oil and straight-run residue.	2015	5,094	-	-	Unknown (negligible)		5,094	No
Flare Gas Recovery Project	Install a modular Flare Gas Recovery system connected to the flare gas header for the Refinery Flare Gas System, a staged design that includes two flares, Refinery Flare (X-813) and CCU Flare (X-814).	2014	775	-	3,364	-		4,139	No
CCU Feed Import Project	Modify the existing railcar unloading facility, tanks, and associated piping. The objective of the Project is to transfer, store, and continuously process imported feedstocks to the Catalytic Cracking Unit.	2014	1,331	-	269	2,077		3,677	No
Low Sulfur Gasoline (LSG) Phase 2	Modify the Cat Feed Hydrotreater to become a Clean Fuels Hydrotreater, to convert heavy cat gasoline to low sulfur gasoline.	2004	1,896	-	-	-		1,896	No
Ultra Low Sulfur Diesel	Modify the Distillate Hydrotreater Unit to produce 25,000 bpd of Ultra Low Sulfur Diesel containing a maximum of 15 ppm sulfur.	2005	-	-	Unknown (<10,000 mt/year)	21		21	No
Spray Booth Replacement Project	Replace existing spray booth with a new booth. The new booth has improved emission controls.	2020	Unknown (negligible)	-	Unknown (negligible)	-		-	No
CCU Catalyst Multi-Loader	Replace all three existing catalyst adders with a single multi-loader system at the Catalytic Cracking Unit. The new multi-loader will be able to load fresh catalyst, equilibrium catalyst and catalyst additives.	2018	-	-	-	-		-	No
F-101 Burner Replacement	Replace the burner as required under Regulatory Order to reduce NOx.	2014	-	-	-	-		-	No
F-103 Burner Replacement	Replace the burner as required under Regulatory Order to reduce NOx.	2014	-	-	-	-		-	No

[1] Direct emissions account for potential emissions from new sources and increases in actual emissions from existing sources. Direct emissions do not accounted for potential "on-site" emissions associated with transportation (i.e., mobile source emissions and vessel hoteling).

[2] Product based indirect emissions increases were taken from project description. Electricity and transportation indirect emissions were obtained from SEPA checklists. Note that these estimates do not include a full "life-cycle" assessment of indirect emissions and would be much higher if these additional emissions were considered.

[3] Total GHG emissions is the sum of direct and indirect emissions for the given project to be compared against the 10,000 mt/yr threshold of Washington State Greenhouse Gas Assessment of Projects (GAP).

[4] Washington State Greenhouse Gas Assessment of Projects (GAP) is assumed to be 10,000 mt/yr based on preliminary information released by Washington Department of Ecology. The threshold is assumed to include both direct and indirect emissions.