NETL Life Cycle Inventory Data
Process Documentation File

Process Name: Coke to Methanol Plant Installation

Reference Flow: 1 piece of Coke to Methanol Plant Installation

Brief Description: The installation of a coke to methanol plant

Section I: Meta Data

Geographical Coverage: United States **Region:** LA

Year Data Best Represents: 2013

Process Type: Installation Process (IP)

Process Scope: Gate-to-Gate Process (GG)

Allocation Applied: No

Completeness: Individual Relevant Flows Captured

Flows Aggregated in Data Set:

☑ Process	☑ Energy Use	☐ Energy P&D	☐ Material P&D

Relevant Output Flows Included in Data Set:

Releases to Air:	☑ Greenhouse Gases	☑ Criteria Air	☑ Other
Releases to Water:	☐ Inorganic	☐ Organic Emissions	☐ Other
Water Usage:	☐ Water Consumption	☐ Water Demand (throughput)	
Releases to Soil:	☐ Inorganic Releases	☐ Organic Releases	☐ Other

Adjustable Process Parameters:

Tracked Input Flows:

Diesel	*[Technosphere] Diesel used in installation activities. Emissions are included in this process.*

Tracked Output Flows:

Coke to Methanol Plant Installation [Installation]	*Reference flow*
Carbon dioxide [Inorganic emissions to air]	*Emission to air*
Nitrogen oxides [Inorganic emissions to air]	*Emission to air*
Sulphur dioxide [Inorganic emissions to air]	*Emission to air*
Carbon monoxide [Inorganic emissions to air]	*Emission to air*
NMVOC (unspecified) [Group NMVOC to air]	*Emission to air*
Dust (PM10) [Particles to air]	*Emission to air*

Section II: Process Description

Associated Documentation

This unit process is composed of this document and the data sheet (DS) *DS_Stage3_I_Coke_to_Methanol_Installation_2013.01.xlsx*, which provides additional details regarding relevant calculations, data quality, and references.

Goal and Scope

This unit process provides a summary of relevant input and output flows associated with the installation of a coke to methanol facility. The reference flow of this unit process is: 1 piece of Coke to Methanol Plant Installation

Boundary and Description

This unit process describes the fuel use and emissions related to the installation of a coke to methanol facility. Carbon dioxide emissions reported in an Environmental Impact Statement (EIS) were used to calculate diesel fuel consumption in construction equipment (U.S. DOE 2013). Air emissions from construction equipment, worker vehicles, and delivery vehicles were taken directly from the EIS. The process boundaries are shown in **Figure 1**. This unit process utilized the data from the EIS to characterize the installation activities. Those values are available in **Table 1**. The unit process input and output flows are characterized in **Table 2**.

Figure 1: Unit Process Scope and Boundary

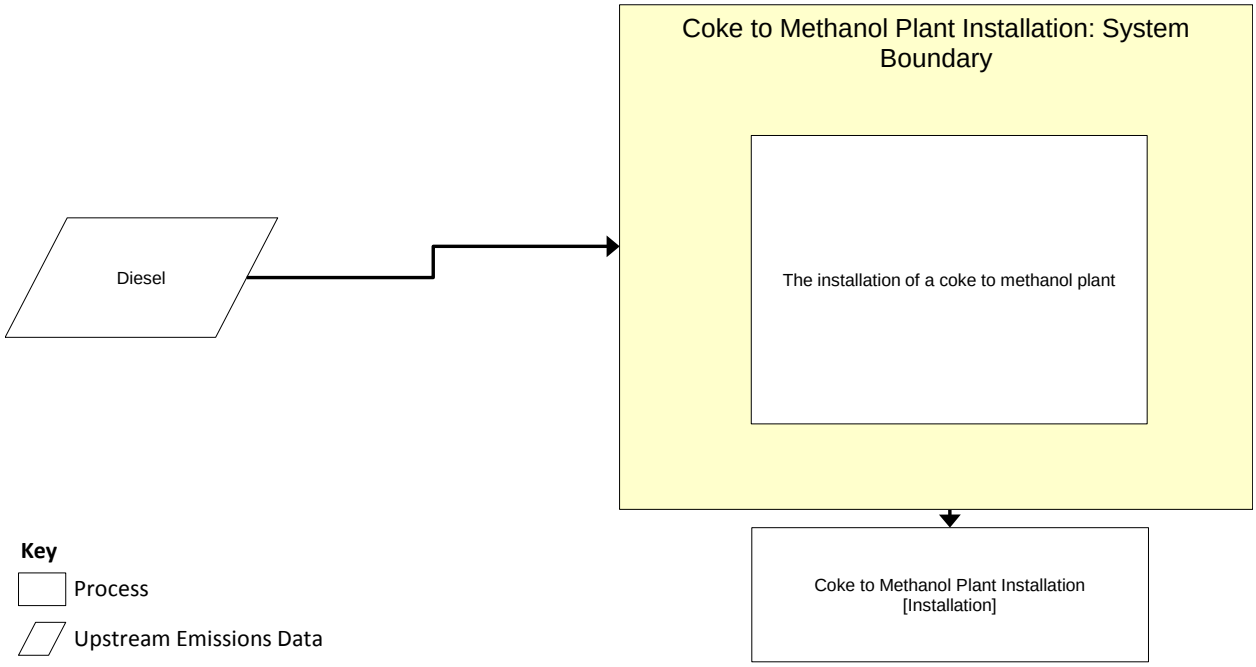

Table 1: Installation Emissions Reported in EIS

Emission Source	Pollutant (tons/year)					
	NO_X	SO_2	CO	VOCs	$PM_{10}/PM_{2.5}$	CO_2
Construction Equipment	351	23	76	29	25	13,112
Worker Vehicles	11	11	138	14	>0.1	NP
Delivery Vehicles	0.6	NP	0.2	>0.1	>0.1	NP
Total	**363**	**23**	**214**	**43**	**25**	**13,112**

Table 2: Unit Process Input and Output Flows

Flow Name	Value	Units (Per Reference Flow)
Inputs		
Diesel	4.14E+07	kg
Outputs		
Coke to Methanol Plant Installation [Installation]	1.00	piece
Carbon dioxide [Inorganic emissions to air]	3.57E+07	kg
Nitrogen oxides [Inorganic emissions to air]	9.88E+05	kg
Sulphur dioxide [Inorganic emissions to air]	6.26E+04	kg
Carbon monoxide [Inorganic emissions to air]	5.82E+05	kg
NMVOC (unspecified) [Group NMVOC to air]	1.17E+05	kg
Dust (PM10) [Particles to air]	6.80E+04	kg

* **Bold face** clarifies that the value shown *does not* include upstream environmental flows.

Embedded Unit Processes

None.

References

U.S. DOE 2013 — U.S. Department of Energy (2013). Lake Charles Carbon Capture and Sequestration Project: Draft Environmental Statement.

OTAQ 2005 — Office of Transportation and Air Quality (2005). Emission Facts: Average Carbon Dioxide Emissions Resulting from Gasoline and Diesel Fuel. Report EPA420-F-05-001. U.S. Environmental Protection Agency. http://www.epa.gov/OMS/climate/420f05001.pdf (Accessed December 16, 2009).

URS Corporation 2004 — URS Corporation (2004). Compendium of Greenhouse Gas Emission Methodologies for the Oil and Gas Industry. Prepared for the American Petroleum Institute. http://www.api.org/ehs/climate/new/upload/2004_COMPENDIUM.pdf (Accessed December 16, 2009).

Section III: Document Control Information

Date Created: December 13, 2013

Point of Contact: Timothy Skone (NETL), Timothy.Skone@NETL.DOE.GOV

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