Appendix C
Process Flow Diagrams
Figure C-2: Ethane Cracker Emission Sources

Notes:
1. The Ethane Crackers’ fuel consists of a mixture of recycled tail gas (hydrogen rich) and natural gas (methane), with a heating value of 523 Btu/scf.
2. Normal operation assumes five furnaces continuous operation and one furnace on hot stand-by or decoking operations.
Figure C-3: Decoking Operations

Notes:
1. Max decoking firing time for all six furnaces is 864 hours per year @ 30% normal load (119 MMBtu/hr)
2. Decoking operations will occur a maximum of 12 events per year per furnace.
Figure C-4B: Polyethylene Plant B Process Flow Diagram

- **COMONOMER**
- **ETHYLENE**
- **INERT HYDROCARBON**
- **HYDROGEN**
- **NITROGEN**

**Equipment**

- **PB-PE-201**
- **PB-PE-202**
- **PB-PE-203**
- **PB-PE-204**
- **PB-PE-301**
- **PB-PE-302**
- **PB-PE-303**
- **PB-PE-304**

**Product Feeds**

**Vent Streams**

**Recycle Feeds**

**Flare Feeds**

**Fuel Burning Equipment**

**PM Pollution Control Devices**

**LOW PRESSURE FLARE**

**PB-FL-105**
Figure C-4C: Polyethylene Plant C Process Flow Diagram

Product Feeds
Vent Streams
Recycle Feeds
Waste Feeds
Oxidizer Feeds
Fuel Burning Equipment
PM Pollution Control Devices

- COMPRESSION PC-PE-201
- POLYMERIZATION PC-PE-202
- SEPARATION PC-PE-203
- EXTRUSION & PELLETIZING PC-PE-204
- PELLET HANDLING PC-PE-205
- DEGASSING & TRANSPORTATION PC-PE-206
- REGENERATIVE THERMAL OXIDIZER PC-TO-102

COMONOMER
LIQUID WASTE
WASTE WAXES

COMONOMER
ETHYLENE

RECYCLED GAS TRANSPORTED TO CRACKER

PC-PE-301
Note:
Each oxidizer has two emission sources associated with normal operation: (1) burner fuel combustion and (2) oxidation waste combustion.

**Figure C-5: Cracker Thermal Oxidizer and RTO Emission Sources**

- **Emission Unit:** Cracker Process Oxidizer Emissions EC-CP-101
  - Emission Controls: Low NOx Burners

- **Emission Unit:** Cracker Thermal Oxidizer EC-TO-101
  - Emission Controls: Low NOx Burners

- **Emission Unit:** Regenerative Thermal Oxidizer PC-TO-102
  - Emission Controls: Low NOx Burners

- **Emission Unit:** PE Process - Oxidizer Emissions PC-TO-103
Notes:
Potential emissions from flares include natural gas pilot combustion and non-emergency pressure relief events.
Figure C-7: Cogeneration Combustion Turbine and HRSG Emission Sources

Notes:
Combustion Turbine model number: GE 7EA
Figure C-8: Auxiliary Boilers and Cooling Tower Emission Sources

Notes:
ULNB – Ultra Low NOx Burners
FGR – Flue Gas Recirculation
PM – Particulate Matter

Emission Unit: Cooling Tower
SU-CT-101
Emission Controls: High-efficiency Drift Eliminator

PM/PM10/PM2.5 and VOC fugitive emissions to atmosphere

Make-up Cooling Water

Emission Unit: Auxiliary Boiler #2
SU-AB-102
Emission Controls: ULNB & FGR

To Atmosphere
Natural gas

Emission Unit: Auxiliary Boiler #1
SU-AB-101
Emission Controls: ULNB & FGR

To Atmosphere
Natural gas

Natural gas
Notes:
CPI – Chemical-Physical Treatment Unit
DAF – Dissolved Air Flotation Unit
MBBR - Membrane Biological Reactor
EQ Tank - Equalization Tank
Figure C-10: Internal Combustion Engine Emission Sources

Notes:
EG – Emergency Generator
FP – Firewater Pump
PE – Polyethylene
WWTP – Wastewater Treatment Plant