The focus of this environmental engineering senior design project is to determine the contaminants of concern in all of the Commonwealth Oil and Refining Company (CORCO) facility and afterwards determine which technology could be implemented to remedy the soil and groundwater. A risk analysis was performed to determine the dose, the hazard risk and cancer risk for each contaminant. Since the CORCO was a petroleum refining company, the majority of the contaminants of concern are petroleum hydrocarbons, volatile organic compounds and some heavy metals. After the contaminants were determined two remedy technologies were selected; Soil Vapor Extraction for the soil and Pump and Treat for groundwater. Additionally as part of the project, a monitoring plan was developed for one of CORCO’s area, the Caribe Isopropane Corporation Tanks. This was developed, to determine the levels of contaminants, is currently no monitoring in the area. As a conclusion to this project, the levels of contamination at CORCO aren’t a risk; therefore future passive projects could be developed in the area, as a photo voltaic farm.

**Background**

The Commonwealth Oil and Refining Company, Inc. (CORCO) facility is located on the south coast of Puerto Rico, on Route 127 in the city of Peñuelas, approximately 7 miles west of the city of Ponce. The facility was formerly a large petroleum refinery and part of a petrochemical manufacturing complex. The northern part of the 800-acre site, which contains most of the facility’s numerous storage tanks, is hilly. The southern part, which borders the Caribbean Sea, consists of filled land that is flat.

The facility is adjacent to a number of mostly non-operating chemical and petroleum refining facilities. During many of the years of its operation as a refinery, CORCO was involved in joint business ventures with a variety of these facilities. Since 1982, CORCO has been inactive as a refinery and now functions as a terminal for the marine transportation and land-based storage of crude oil and petroleum products. This area is currently comprised of highly desolated spaces between abandoned areas and scrap metal.

**Objective**

The objective of this project is to determine the extent of the threat posed by the presence, release or potential releases of site contaminants. This threat is obtained by performing a risk analysis for each contaminant present in the soil and in the groundwater. After knowing the chemicals of concern, the remedial technologies will be determined for the site existing contamination in the groundwater and soil.

**Abstract**

The Commonwealth Oil Refining Company (CORCO) facility and afterwards determine which technology could be implemented to remedy the soil and groundwater. A risk analysis was performed to determine the dose, the hazard risk and cancer risk for each contaminant. Since the CORCO was a petroleum refining company, the majority of the contaminants of concern are petroleum hydrocarbons, volatile organic compounds and some heavy metals. After the contaminants were determined two remedy technologies were selected; Soil Vapor Extraction for the soil and Pump and Treat for groundwater. Additionally as part of the project, a monitoring plan was developed for one of CORCO’s area, the Caribe Isopropane Corporation Tanks. This was developed, to determine the levels of contaminants. As a conclusion to this project, the levels of contamination at CORCO aren’t a risk; therefore future passive projects could be developed in the area, as a photo voltaic farm.

**Background**

The Commonwealth Oil and Refining Company, Inc. (CORCO) facility is located on the south coast of Puerto Rico, on Route 127 in the city of Peñuelas, approximately 7 miles west of the city of Ponce. The facility was formerly a large petroleum refinery and part of a petrochemical manufacturing complex. The northern part of the 800-acre site, which contains most of the facility’s numerous storage tanks, is hilly. The southern part, which borders the Caribbean Sea, consists of filled land that is flat.

The facility is adjacent to a number of mostly non-operating chemical and petroleum refining facilities. During many of the years of its operation as a refinery, CORCO was involved in joint business ventures with a variety of these facilities. Since 1982, CORCO has been inactive as a refinery and now functions as a terminal for the marine transportation and land-based storage of crude oil and petroleum products. This area is currently comprised of highly desolated spaces between abandoned areas and scrap metal.

**Objective**

The objective of this project is to determine the extent of the threat posed by the presence, release or potential releases of site contaminants. This threat is obtained by performing a risk analysis for each contaminant present in the soil and in the groundwater. After knowing the chemicals of concern, the remedial technologies will be determined for the site existing contamination in the groundwater and soil.

**Abstract**

The focus of this environmental engineering senior design project is to determine the contaminants of concern in all of the Commonwealth Oil and Refining Company (CORCO) facility and afterwards determine which technology could be implemented to remedy the soil and groundwater. A risk analysis was performed to determine the dose, the hazard risk and cancer risk for each contaminant. Since the CORCO was a petroleum refining company, the majority of the contaminants of concern are petroleum hydrocarbons, volatile organic compounds and some heavy metals. After the contaminants were determined two remedy technologies were selected; Soil Vapor Extraction for the soil and Pump and Treat for groundwater. Additionally as part of the project, a monitoring plan was developed for one of CORCO’s area, the Caribe Isopropane Corporation Tanks. This was developed, to determine the levels of contaminants, is currently no monitoring in the area. As a conclusion to this project, the levels of contamination at CORCO aren’t a risk; therefore future passive projects could be developed in the area, as a photo voltaic farm.

**Background**

The Commonwealth Oil and Refining Company, Inc. (CORCO) facility is located on the south coast of Puerto Rico, on Route 127 in the city of Peñuelas, approximately 7 miles west of the city of Ponce. The facility was formerly a large petroleum refinery and part of a petrochemical manufacturing complex. The northern part of the 800-acre site, which contains most of the facility’s numerous storage tanks, is hilly. The southern part, which borders the Caribbean Sea, consists of filled land that is flat.

The facility is adjacent to a number of mostly non-operating chemical and petroleum refining facilities. During many of the years of its operation as a refinery, CORCO was involved in joint business ventures with a variety of these facilities. Since 1982, CORCO has been inactive as a refinery and now functions as a terminal for the marine transportation and land-based storage of crude oil and petroleum products. This area is currently comprised of highly desolated spaces between abandoned areas and scrap metal.

**Objective**

The objective of this project is to determine the extent of the threat posed by the presence, release or potential releases of site contaminants. This threat is obtained by performing a risk analysis for each contaminant present in the soil and in the groundwater. After knowing the chemicals of concern, the remedial technologies will be determined for the site existing contamination in the groundwater and soil.

**Abstract**

The focus of this environmental engineering senior design project is to determine the contaminants of concern in all of the Commonwealth Oil and Refining Company (CORCO) facility and afterwards determine which technology could be implemented to remedy the soil and groundwater. A risk analysis was performed to determine the dose, the hazard risk and cancer risk for each contaminant. Since the CORCO was a petroleum refining company, the majority of the contaminants of concern are petroleum hydrocarbons, volatile organic compounds and some heavy metals. After the contaminants were determined two remedy technologies were selected; Soil Vapor Extraction for the soil and Pump and Treat for groundwater. Additionally as part of the project, a monitoring plan was developed for one of CORCO’s area, the Caribe Isopropane Corporation Tanks. This was developed, to determine the levels of contaminants, is currently no monitoring in the area. As a conclusion to this project, the levels of contamination at CORCO aren’t a risk; therefore future passive projects could be developed in the area, as a photo voltaic farm.

**Background**

The Commonwealth Oil and Refining Company, Inc. (CORCO) facility is located on the south coast of Puerto Rico, on Route 127 in the city of Peñuelas, approximately 7 miles west of the city of Ponce. The facility was formerly a large petroleum refinery and part of a petrochemical manufacturing complex. The northern part of the 800-acre site, which contains most of the facility’s numerous storage tanks, is hilly. The southern part, which borders the Caribbean Sea, consists of filled land that is flat.

The facility is adjacent to a number of mostly non-operating chemical and petroleum refining facilities. During many of the years of its operation as a refinery, CORCO was involved in joint business ventures with a variety of these facilities. Since 1982, CORCO has been inactive as a refinery and now functions as a terminal for the marine transportation and land-based storage of crude oil and petroleum products. This area is currently comprised of highly desolated spaces between abandoned areas and scrap metal.

**Objective**

The objective of this project is to determine the extent of the threat posed by the presence, release or potential releases of site contaminants. This threat is obtained by performing a risk analysis for each contaminant present in the soil and in the groundwater. After knowing the chemicals of concern, the remedial technologies will be determined for the site existing contamination in the groundwater and soil.