UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

Date of Inspection: June 15-17, 2010 **EPA ID Number:** TXT490011293

Facility Name:	Formosa Plastics Corporation, Inc.
Physical Location:	201 Formosa Drive Point Comfort, TX 77978
Mailing Address:	P.O. Box 700 Point Comfort, TX 77978
Type of Ownership:	_Federal _State _County _Municipal ✓Private/Commercial
Inspection Participants:	**(name and phone number)**
EPA Inspectors:	Frances Verhalen, 214-665-2172 Initials (3): FAV Nancy Fagan, 214-665-8385 Initials (2): NF Richard McMillin, 281-983-2107 Initials (2): RM
TCEQ Inspector:	Phyllis Cunningham, 361-825-3275
Facility Representative(s):	**(name and phone number)** David Hill, Environmental Manager, 361-987-7944

Facility Description: Formosa Plastics Corporation (FPC) is a 1,600-acre chemical manufacturing facility that produces polyvinyl chloride (PVC) powder from polymerized vinyl chloride monomer (VCM) in a two stage process. The first stage of production generates ethylene dichloride by direct chlorination or by oxychlorination. The second stage of production is the cracking stage when VCM is produced and polymerized to form PVC pellets. The facility also produces other chemicals, such as glycols, ethylene, caustic, chlorine gas, and polyethylene.

FPC is currently conducting corrective actions under a federal Administrative Order on Consent (AOC), issued in 1991, for the area of the facility near the old wastewater treatment plant. FPC has completed the interim measures recovery of contaminated groundwater as required by the AOC.

FPC is also conducting voluntary corrective actions under guidance from the Texas Commission on Environmental Quality (TCEQ) for remediation of contaminated groundwater located beneath the ethylene dichloride plant. Contamination occurred when a tank failed and ruptured, releasing its contents to the ground. These remedial actions are not covered by the 1991 AOC.

Generator Status: ✓ LQG (>1000kg/mo) __ SQG (100kg/mo to 1000kg/mo)
__ CESQG (<100kg/mo) ✓ TSDF

Inspection Type: ✓ EPA Lead ___State Lead ___CSE ___CEI ___ CDI
___Sampling ___Multi-Media ✓ Other: **Corrective Action**

Reason for Evaluation:
__ (01) Follow up
✓ (02) Case Development
__ (03) Sampling
__ (04) Citizen Complaint
__ (07) General
__ (16) CAV
__ (63) US/Mexico
__ (65) CAV-US/Mexico

Summary of Inspection: EPA conducted a corrective action inspection at FPC on June 15 through June 17, 2010 to determine the status of the clean-up activities, observe current processes, and obtain information to integrate the corrective action activities into one authority. During the inspection, EPA observed and inspected the waste management areas and several plants operated by FPC at this location. EPA collected documents that related to the facility operations and corrective actions. Areas of concern are presented at the end of this report.

Checklists Completed: None

Inspected by: Frances Verhalen **Date:** 10-15-2010

Peer Reviewed by: Nancy Fagan **Date:** 10/15/10

FORMOSA PLASTICS CORPORATION
201 Formosa Drive, Point Comfort, TX 77978
(EPA ID Number: TXT490011293)

1. INTRODUCTION

On June 15, 2010, Nancy Fagan and Frances Verhalen, US EPA Region 6 Corrective Action Project Managers and Inspectors, arrived at Formosa Plastics Corporation – Point Comfort, TX at approximately 1:45 pm to conduct an unannounced corrective action inspection. The purposes of the inspection were to evaluate the ongoing corrective action activities, view the known solid waste management units, tour facility areas undergoing voluntary cleanup for identification of potential solid waste management units, and observe the different facility areas to understand the locations of the multiple industrial process units.

2. OPENING MEETING/INITIAL SITE RECONNAISSANCE ON JUNE 15, 2010

The EPA inspection team met with M , environmental manager; Mr. director of environmental and health services; and emergency manager. did not remain during the opening discussion. informed the team that , operations manager, was not available for the inspection.

signed the team in with security. The EPA inspection team received security badges valid for the duration of the inspection (June 15 through June 17, 2010). The security staff provided copies of FPC's general safety rules, concealed handgun notice, limitations on hand-held wireless phones and cordless phones, and process safety information card (see Attachment A). Ms. Verhalen provided with a copy of the *RCRA Section 3007* as defined under 42 CFR 82 (III) §6927, and the *U. S. EPA Small Business Resources Information Sheet.*

discussed an overview of the plant. The EPA inspection team requested a driving tour of the facility for June 15, with walking inspections of specific process areas on June 16 and June 17, as needed explained that FPC's safety protocols required Nomex coveralls, hard hat, safety glasses and goggles, and hearing protection to walk in any of the process areas. In addition, the safety protocol for the facility required an escort from that process department to accompany the inspection team.

a. Laboratories provided the on-site transportation. The inspection began at the front entrance near the laboratories. FPC has a technical laboratory, a process laboratory, and a research and development laboratory. The technical laboratory analyzes all of the QA/QC samples from the process lines, the environmental samples collected for permits and orders, and some water samples. Specialty analyses are

analyzed at off-site laboratories, due to complexity of analysis. The process laboratory analyzes process lines for quality and conducts simple research and development analyses. The research and development laboratory conducts extensive process experimentation.

b. Polyethylene Traffic Area: The inspection team observed the polyethylene traffic area. This area is comprised of the linear low density polyethylene (LLDPE) bagging area, the high density polyethylene (HDPE) bagging area, and the railcar loading area. According to , the LLDPE and HDPE plastic pellet products are put into 50 pound bags and stored on pallets in separate warehouses, or are directly loaded into railcar hoppers in the railcar loading area. We observed what appeared to be product plastic pellets on the ground outside of the LLDPE warehouse and the railcar loading area. Outside the HPDE warehouse, we observed two roll-off containers marked Musser, which contained off-spec LLDEP or HDPE products. The EPA inspection team observed a third roll-off container marked Waste Management, which explained was trash.

c. Chlor-Alkali Area drove to the chlor-alkali area, also known as IEM. According to M , there is a saltwater purification system that removes lime, carbonate, magnesium, and sulfate from the salt water before using the salt (sodium chloride) in chemical production. The salt is used in a membrane system to collect caustic, chlorine and hydrogen gas. These chemicals are used in production areas or collected and sold as product. We observed six (6) roll-off containers of brine wastes in the area.

FPC produces approximately one (1) ton of chlorine gas and one (1) ton of hydrogen gas each day. According to , FPC uses large quantities of carbon to scrub different gases for specific processes. The EPA inspection team observed new construction of what appeared to be concrete pad on the north end of the IEM.

As we drove around, explained that there are numerous satellite accumulation areas around the facility in the different process areas. According to the facility waste management plan, wastes stored in each satellite area are removed from each area in less than three (3) days and transported to a less-than-90-day hazardous or non-hazardous storage area, or to the permitted hazardous waste storage yard. There are multiple less-than-90-day storage areas.

d. Specialty PVC Area drove through the Specialty PVC (SPVC) process area. This process area produces PVC products that are specially formulated or designed to meet specific client needs. These specialty processes include increased quality requirements or color specifications.

According t , FPC is constructing a new SPVC plant on the north side of the facility. The new process area is larger and incorporates improved production

technologies. FPC plans to open the new process area in September 2010.

e. Ethylene Glycol (EG) Area: According to Mr , ethylene and oxygen are mixed with a catalyst to form ethylene glycol and water. During removal of carbon dioxide in the EG process, nitrogen and oxygen are generated. FPC collects these two gases for use in other processes or sale to other customers. The nitrogen gas is stored in a refrigerated tank with approximately 6 foot thick walls of insulation.

f. Olefins Areas: FPC has multiple cracking towers in the Olefins area. The cracking towers break the C2 to C12 carbon chains to produce ethylene, propylene, and butylenes. There are 3- to 4-stage compressors used in this area.

g. Utility Area: The Utility area is located north of the chlor-alkali area. Hydrogen from the chlor-alkali unit and natural gas are burned for energy generation for the facility. According to M , the cooling towers in the Utility area are treated with hydrogen sulfate and dimethyl sulfate to control algal growth in the towers.

The Raw Water Pond located northwest of the Utility area is used as a reserve water supply for Fire Safety and as a source of clean water for industrial water. Water in the pond is drawn from the Lavaca River.

h. Central Maintenance Area: The Central Maintenance is located on the northwest portion of the property. FPC maintains two receiving warehouses: one for supplies and one for chemicals. Supplies received into the Central Warehouse are typically specialty and large items. The chemical warehouse receives bulk chemical supplies that are distributed to the different process areas.

i. Contractors' Row Area: Contractors' Row area is east of the new SPVC area. The Contractors' Row area is used by multiple contractors to store construction and maintenance supplies, provide a location for on-site office staff (for contractors), and park large equipment when not in use.

j. New Wastewater Treatment Plant Area: M drove the team to the new Waste Water Treatment Plant (WWTP), located along the southeast side of the facility. Wastes received at the WWTP are pretreated at each process unit before discharge to the WWTP. Pretreatment is comprised of either steam stripping or centrifugation with steam stripping. FPC monitors internal sampling points and the outfalls for contamination.

Once at the WWTP, wastes with organic constituents are biologically treated by aerobic digestion with microbes followed by aeration and charcoal filtration. Wastes with inorganic constituents are physically treated by clarification, precipitation, and pH adjustment. Steam wastewater (thermal constituent) flows through the cooling towers and recycled back to process areas. Each treatment train is segregated and

managed separately.

According to , FPC samples the WWTP sludge produced from the biological treatment units and disposes the sludge at Altair Landfill as solid waste (Class 2 non-hazardous). During the tour, we observed approximately 20 roll-off containers on a concrete pad at the northeast end of the WWTP. They were covered with tarps and were marked "ETS Evergreen Tank Solutions."

k. Outfalls[1]: FPC has 9 permitted outfalls on the main FPC property. Treated effluent from the WWTP discharges through Outfall 001 into Lavaca Bay. Discharges from Outfalls 002 and 004 through 009 flow into Cox Creek. Discharge from Outfall 003 flows into the Alcoa Red Bed dust suppression storage pond.

Outfall 007 and 008 are located northeast of the WWTP. These outfalls collect rainfall drainage from the railroad tracks and the middle portion of the facility containing the Olefins and High Density Polyethylene (HDPE) plants.

Outfall 009 is located immediately north of the Railcar Repair and Maintenance Area.

Outfall 006 is located near the southeast end of the WWTP. According to FPC had had a release of EDC into Outfall 006. FPC had removed the soils at Outfall 006 and clean closed the area using TCEQ's Risk Reduction Standard 2 rules.

During the tour, the EPA inspection team observed multiple piles of soil near Outfall 006. We observed a long, linear pile of apparently clean soil and several smaller piles of soil that appeared to have black plastic sheeting in it. M indicated that FPC had staged clean dirt near the outfall in the event of another spill. Should a spill occur, FPC would be able to push the soil into the drainage canal and prevent the release from flowing off the property.

drove the team to Outfalls 002, 003, 004, and 005. Outfalls 002 and 003 are located south and southwest of the PVC/VCM plants. Outfalls 004 and 005 are downgradient from the former WWTP.

l. Former WWTP Area: Several units remain in the former WWTP area. According to M FPC is in the process of closing the remaining units as part of the Corrective Action under the 1991 AOC. FPC currently removes accumulated liquids from the former WWTP tanks and impoundments using a vacuum truck, and disposes the liquids in the new WWTP. According to , Pond 1 is a surface impoundment associated with the former WWTP which may be a source area for contamination of groundwater. As part of the final remedy for the former WWTP, FPC will conduct a Treatability Study for treatment of all source areas contributing to

[1] Descriptions of and observations about the outfalls are reported in Section 3c.

contaminated groundwater.

m. PVC and VCM Plant Area: The polyvinyl chloride (PVC) and vinyl chloride monomer (VCM) plant produces PVC. To make PVC, FPC mixes ethylene and chlorine. The PVC is then cracked to generate hydrochloric acid, which is returned to the process. The PVC and VCM process areas share a cooling tower. However, the remaining support facilities (laboratories, equipment yards, warehouse storage) are individual for each process unit. Two storage tanks (VCT1 and VCT2) and the less-than-90-day hazardous waste storage building are located in this process area.

In the parking lot south and west of the PVC/VCM area, we observed numerous one (1) ton supersacks of material, marked with PTC09, PTC06, Rock Scale, S, G, and B. According to M , the markings indicated the source and type of material within the bags. The bags were staged to be sold as products, off-spec products, or floor sweepings.

n. Compound Area: FPC manufactures products for specialty markets in the compound area. The specialty products include adding a color to the PVC for a specific customer. The Compound area has an approximately 4-story tall building, a truck loading area, and a railcar loading area.

The EPA inspection team returned to the Health and Safety building and discussed EPA's request for documents. The EPA inspection team departed FPC at 5:50 pm.

3. INSPECTION/OBSERVATIONS ON JUNE 16 - 17, 2010

June 16, 2010:[2]

On June 16, 2010, the EPA inspection team (Frances Verhalen and Nancy Fagan) and Rick McMillan, USEPA Region 6 laboratory auditor, arrived at FPC at 8:05 am. The team met with and discussed the objectives for the day: to inspect the different process areas and the laboratories in two different groups. explained the safety requirements for inspection at FPC: use of Nomex coveralls or lab coats, safety glasses and goggles, and hearing protection, and an escort from the process area to lead the inspection of the process area.

During the opening meeting for the day, presented several documents that EPA had requested. He asked that we review the document and designate those portions that were to be copied. Ms. Verhalen reviewed the documents and marked the pages.

related that there were approximately 1500 FPC employees with numerous contractors. He was not aware of an exact number of contractors; but said that at the height

[2] Photographs taken on June 16, 2010 are located in Appendix A.

of construction in the late 1990s, there were approximately 5,000 contractors on the facility in addition to the employees.

Mr. McMillan was escorted by to conduct a laboratory audit. The results of the laboratory audit are described below (see Section 4: Laboratory Audit). The EPA inspection team (Ms. Verhalen and Ms. Fagan) comprised the EPA inspection team and were accompanied by

a. LLDPE Bagging Area: At the linear low density polyethylene (LLDPE) bagging area, showed us the bagging area. Employees in the bagging area automatically load LLDPE pellets into 50 pound bags. Any plastic pellets that fall onto the floor are swept into a pile, placed into a Gaylord (small trash receptacle) box, and bagged as 'floor sweep'. The floor sweep is sold as an off-spec product. According to (a FPC employee in that area), the floor sweep is a commodity to the customers.

The LLDPE product bags are moved using a conveyor belt. The product name is printed onto the bag with ink. The ink is stored in 5-gallon containers and marked as flammable. The product bags are then placed on pallets and shrink-wrapped. The pallets are moved to a storage area.

showed the railcar loading area to the EPA team. In the railcar loading area, the LLDPE and HDPE pellets are loaded into hopper cars from an overhead chute. There are two dust collectors on the roof to collect dust as it is generated. The collectors capture dust and fines which area stored in bags and sold to customers as off-specification (off-spec) products.

The railcars are cleaned in this area before additional product is delivered to the railcars. The dry material is vacuumed out of the hoppers, and placed in a separate bin as off-spec product. The off-spec materials are moved to a nearby storage yard. Off-spec PVC is sold for use in products such as toys or furniture.

There were roll-offs located in the railcar loading area: one of 'lumps and chunks.' Lumps and chunks are larger-sized PVC products that do not meet specifications. These are sold as off-spec product.

Outside the bagging area, storm water drainage from the process area flows through channels to internal outfalls prior to flowing to the WWTP. Storm water outside of the process area drains to a gated outfall that flows to Cox Creek. According to Mr. , the outfall gates normally remain in the closed position.

b. PVC/VCM Area: The EPA inspection team arrived at the PVC/VCM area. An FPC employee was washing down the southwest corner of the PVC production area. The water was flowing into a concrete-lined storm drainage ditch. The gate valve was

closed, the water was captured, and, according to a pump was moving the water back into the process area drainage system. The EPA inspection team observed one (1) ton supersacks of PVC powder stored in the Traffic Area, west of the area where the employee was washing down.

The EPA inspection team observed what appeared as a white powder on the ground and street as we walked towards the PVC management office. We also observed what appeared to be a broken sack of white and off-white (appeared to be light orange in color) powder on the ground next to a concrete-lined drainage channel and in the drainage channel. The white powder is PVC resin or PVC dust. An employee was spray-washing the concrete drainage area in front of the PVC management office when we arrived.

The EPA Inspection team met] who escorted us through the PVC/VCM areas. According to the PVC/VCM unit was originally begun in 1983 and is one of the oldest units on the property. The silos and equipment in the PVC/VCM plant appeared to be worn and corroded, possibly from the close proximity to the Alcoa red-beds. (The EPA team also noted that the fence along US Highway 35 that separates the FPC property from the Alcoa property was corroded. When this was discussed with , he indicated that it could be from the high pH winds blowing across the Alcoa redbeds).

explained that the storm water from the PVC/VCM process areas drains into a wastewater stripping column and then to the settling pond (P06). According to the FPC's Final Risk Management Plan[3], the settling pond may be a source area for groundwater contamination. The wastewater from the settling pond is pumped to the new WWTP for recycling.

According to , the only hazardous waste generated at FPC is strainer waste/reboiler scale from the VCM filters. FPC also generates filter scale and powder during the PVC production process. This PVC material is dried and sold as product.

Water is used in the liquid ring compressor system. The water comes into contact with the VCM and may become saturated with VCM. Once saturated, the wastewater flows through in the wastewater stripping column to strip off the VCM. The effluent flows to the settling pond. The VCM is recovered using vacuum blowers and is then returned to the process.

At the time of the inspection, we observed the settling pond overflowing onto the concrete pad and into a wet well/sump. According to , a pump strainer was probably plugged, causing the overflow. Overflowing the settling pond is not a

[3] Tetra-Tech. April 2010. Final Risk Management Plan, prepared for Formosa Plastics Corporation, Project No. 021057.

normal process for FPC at the settling pond. When the pump strainers become plugged, FPC cleans the strainers and collects the fines and sludges for sale as off-specification product. According to at the time of the inspection, a work order had been issued to clean the strainers.

According to wastewater in the wet well/sump is typically pumped to the process storm water drainage system. FPC pumps the bottom sludge into bags to capture PVC solids. The bags are placed on a concrete pad and allowed to drain the water to a water storage tank and then to the new WWTP. The PVC solids are sold as product (probably Product number 999, though could not confirm that product number).

pointed out a small concrete-lined settling pond west of the settling pond. The small pond is used when the main settling pond is closed for cleaning and maintenance. When asked, he did not know how often FPC used the smaller pond during a year.

c. **Outfalls:** Phyllis Cunningham from the TCEQ office in Corpus Christi joined the inspection team. explained the location of the permitted discharge outfalls. Outfall 001 is the main outfall and discharges from the new WWTP into the middle of Lavaca Bay. Outfalls 002, 003, 004, and 005 are non-process stormwater outfalls and discharge drainages from the south and southeast portions of the facility.

Outfall 003 is located immediately east of the PVC warehouse. At the time of the inspection, the EPA inspection team observed water pooled behind the gate but none flowing through the gate. According to non-contact storm water is discharged through Outfall 003.

Outfall 002 is located east of Outfall 003. At the time of the inspection, the EPA inspection team observed water pooled behind the gate but none flowing through the gate. According to non-contact storm water from the areas near the VCM/PVC units is discharged through Outfall 002.

Outfall 004 is located south of the VCM plant and west of Outfall 002. At the time of the inspection, the EPA inspection team observed water pooled behind and in front of the gate. There was no water flowing through the gate. According to Outfall 004 receives non-contact storm water from the area near the old WWTP area.

Outfall 005 is located west of Outfall 004. At the time of the inspection, the EPA inspection team observed water pooled behind and in front of the gate. There was no water flowing through the gate. At the time of the inspection, could not confirm the area of drainage.

Outfall 006 is located south and west of the new WWTP. At the time of the

inspection, the EPA inspection team observed water pooled behind and in front of the gate, and significant amounts of vegetative and plastic debris caught in the screen covering the drainage gate. There was no water flowing through the gate. According to ... Outfall 006 receives non-contact storm water from the area near the EDC, chlor-alkali, and LLDPE units, but does not receive discharges from the railroad areas. During the inspection, we observed plastic pellets on the concrete structures behind and in front of the gate. According to , the gates at Outfall 006 are opened when the storage capacity behind the gate exceeds 90%. We also observed several piles of soil downstream of the outfall. According to the soil is stockpiled in the event of a spill. Should a spill occur according to FPC would be able to prevent the release from flowing offsite.

Outfall 007 is located north of the new WWTP. At the time of the inspection, the EPA inspection team observed water pooled behind the gate and vegetative debris clogging the screen covering the drainage gate. There was no water flowing through the gate. According to the north side of the new WWTP and the south side of the Traffic Area drain into Outfall 007.

Outfall 008 is located north of Outfall 007 and drains the middle portion of the plant, part of the railroad track area, and part of the railcar repair and maintenance area. During the inspection, the EPA inspection team observed water and plastic pellets pooled behind and in front of the gate at Outfall 008. There was no water flowing through the gate. The drainage ditch from Outfall 008 flows easterly towards a chain-link fence. According to , FPC owns the property on the east side of the fence but did not include that portion of the property within the facility's fenced boundary. FPC installed erosion control structures in the drainage on the east side of the fence to reduce the impact of storm drainage.

Outfall 009 is located north of the railcar repair and maintenance area. Outfall 009 receives non-contact storm water from the center of the plant, the SPVC area, Central Maintenance, PE II, Olefins I and II, and Utility. During the inspection, the EPA inspection team observed water pooled behind the gate and in the drainage ditch in front of the gate, and plastic pellets behind and in front of the gate. The EPA inspection team also observed noticeable amounts of vegetative and plastic debris caught in the screen covering the drainage gate. The concrete apron was not wet and there was no water flowing through the gate or in the drainage ditch. There was heavy vegetation in the drainage ditch downstream of Outfall 009.

d. New Central WWTP: The new Central Waste Water Treatment Plant (CWWTP) is operated by the Formosa Venture, LLC. During the inspection, the EPA inspection team observed an ongoing water discharge (the color appeared milky white) on the west side of the tank near the cooling tower. According to the FPC employee, the tank is identified as TTT-44. The tank receives wastewater from the chlor-alkali unit and demineralization unit. The wastewater has high salts, solids, and

carbonates, and is composed of brine and calcium sulfate. The overflow was observed to originate at the cooling tower. CWWTP manager, explained that the high salt/solids wastewater causes pump failure in the cooling tower unit. There are two pumps in the cooling tower unit. According to Mr , the overflow drains to the stormwater collection system at the CWWTP and flows back into tank TTT-44. A high-level controller will operate the pumps. At the time of the inspection, one pump was not operating while the other was operating.

There are roll-off containers that contain non-hazardous bio-sludges and solids. There is a large tank which has numerous rust marks appearing to be weep holes. The tank has 5 rings (typical ring height is 8 feet). Each ring has weep holes.

described the physical treatment of inorganic wastewaters, located primarily on the south end of the CWWTP. The CWWTP receives waste from the chlor-alkali and demineralizer units, and from cooling tower blowdown in those areas. The wastewaters from these areas flow into TTT-26. The wastewater is equalized, has pH adjustment, and flocculated using polymers before being discharged to Outfall 201.

The biological treatment of organic wastewaters occurs primarily along the north end of the CWWTP, and is divided into the A Block for pretreatment, and the B Block for biological treatment. Pretreatment consists of equalization and aeration. Biological treatment consists of activated sludge, bio-reaction, and clarifying.

At the time of the inspection, TTT-08 was being cleaned and repaired. This tank is used for aeration. There were approximately four (4) feet of sludge in the bottom of the tank. FPC was removing the sludge and replacing the aerators to improve and optimize the aeration efficiency.

explained that there are three 'cells' (called Plants) in each biological treatment train. The first cell has the highest biological removal, but the lowest dissolved oxygen, while the third cell has the lowest biological removal and the highest dissolved oxygen. Plant 3 has high solids and low organic concentrations. Plant 3 receives the wastewater from the PVC unit for recycling. Plants 1 and 2 receive organics from other process units.

Tank TTT-09 is a cooling tower used to reduce the temperature of the wastewater prior to discharge of the water into Lavaca Bay. The water is typically above 100 degrees Fahrenheit when it enters the cooling towers and is cooled to less than 85 degrees.

Wastewater from the VCM process contains copper. The wastewater is treated in a two-step process to remove the VCM and copper separately. The VCM is reduced during pre-treatment steam stripping operations at the VCM plant. The copper-laden VCM wastewater from the pretreatment tank in the VCM area flows into tank TTT-

01A. The copper decant sludge drains from TTT-01A into tank TTT-16. The sludge is dewatered and sent offsite as a Class 2 non-hazardous waste. explained that the copper removal system used magnetite (iron oxide) as a flocculant to precipitate the copper. The magnetite blowdown flows to tank TTT-02 and the sludge flows to the sludge pressing area.

According to FPC is currently constructing tank TTT-01B to store VCM-contaminated wastewater. Once construction is completed, tank TTT-01A, along with tank TTT-02, will receive organic wastes from other process units.

After aeration, the wastewaters flow to the dissolved air flotation (DAF) beds. The DAF beds are skimmed and the DAF skimmings are discharged into the CWWTP's storm drains. The storm drains discharge into tanks TTT-01A or TTT-02 for processing.

According to Mr. there are two (2) process waste and two (2) storm water headers in the CWWTP's pretreatment area. All the wastewater flows into the tank TTT-01. The tank is de-gassed and each wastestream flowing into tank TTT-01 is sampled at least once each day.

Contaminated groundwater that is collected from the remediation areas is pretreated in the process areas by steam stripping. The treated groundwater flows directly to the mixing basin and is discharged through Outfall 001. explained that the wastewater from the settling pond in the PVC area is stored in tank C10 in the PVC area and then transferred to the CWWTP for treatment.

During the inspection, we observed numerous roll-off containers on the northeast portion of the concrete-lined containment area at the WWTP. The roll-off containers contained spent sludge, biological sludges, or sand. The roll-off containers were labeled as non-hazardous waste. According to the containers are disposed at Acadia Landfill as non-hazardous wastes. During the inspection, Ms. Cunningham and Ms. Verhalen observed that the roll-off container in the northeast corner was leaking liquids onto the concrete pad. The containers should not contain any liquids.

FPC manages a small package sewage treatment unit for domestic sewage. Sludge produced from the treatment of domestic sewage is processed and sent to the Acadia Landfill for disposal. The wastewater is treated and recycled as cooling waters.

Tanks TTT-22, TTT-29, and TTT-30 are the sludge handling tanks. TTT-29 is used the most. At the time of the inspection, we observed apparent rust marks on the outside of tank TTT-30 on the top ring of the tank. The tank has two rings (typically each ring is eight foot high). According to , the sludge in tank TTT-30 is

very salty.[4]

FPC's sludge press area has the capacity to operate two sludge presses that discharge into roll-off boxes. At the time of the inspection, FPC was operating only one (1) sludge press. Sludge rinsate flows to tank TTT-33 and then back to the bio-processor. The sludge cake discharges to the roll-of boxes.

showed the inspection team the CWWTP's chemical storage building. FPC stores bulk polymers to clarify wastewaters and acids for pH adjustments prior to discharge through Outfall 001. During the inspection, we observed two totes of Spec 675, a polymer used as a flocculant. According to , FPC stores sodium bisulfite for use in the EDC area to control chloroform formation.

During the inspection, the EPA inspection team observed the mixing basin for internal Outfalls 101 and 201. Effluents from the CWWTP processes discharge through Outfall 101. Effluents from the groundwater treatment steam stripper in the VCM area discharge through Outfall 201. Both internal outfalls discharge into the mixing basin on the south side of the WWTP. The mixing basin discharges to Outfall 001 and to Lavaca Bay.[5]

e. PVC Chemical Warehouse: The inspection team toured the PVC chemical warehouse with staff from Central Maintenance. At the time of the inspection, we observed approximately 50 fire extinguishers sitting on the ground outside a trailer office location on the west side of the warehouse. The warehouse stores products for use by process units on the south side of the property. Inside the warehouse, we observed four (4) drums of Patanionic – PC. The drums were stored along the north wall and appeared to have grease stains on the exterior of the drums. The EPA inspection team observed other products stored in the area. According to , the lockable container box in the PVC warehouse storage area was used to store archived paper documents. We did not observe waste storage in the warehouse.

f. Northside Soil Stockpiles: showed the inspection team the soil stockpiles on the north end of the property near the SPVC construction. The piles were observed on an aerial photograph. According to , the stockpiles are soils removed from the new SPVC construction area. During the inspection, the EPA inspection team observed two dump trucks placing soil into the area. We observed what appeared to be stained soil and black plastic liner materials in the stockpiles.

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[4] stated that structures on the southeast corner of the facility corrode more often because of the proximity of Alcoa's red beds. According to emissions from Alcoa's redbeds are corrosive and damage Formosa's structures frequently.

[5] Because the hazardous wastes constituents are in the groundwater and the groundwater is a listed hazardous waste that is treated, the sludge in the mixing basin is a mixed waste and carries the listed hazardous waste identification. The groundwater is treated and released as treated wastewater under the Clean Water Act.

g. Railcar Repair and Maintenance: The railcar repair and maintenance area is north of the WWTP. The EPA inspection team observed new and used railroad ties, round culvert pipe, used machines, metal spikes and parts, and scrap metal stored on the ground north of Outfall 008 in the railcar repair and maintenance area. According to , FPC offered the used railroad ties to employees for personal use. The used railroad ties that the inspection team observed were not claimed by the employees and were considered waste. During the inspection, we observed a container box that was marked "oily rags." The container box was corroded along the top and bottom of the sides, and had a padlock on the door. According to M , manager of the railcar repair and maintenance area, the container box is used to store used and new grease drums away from precipitation.

showed the inspection team the railcar maintenance bay. According to Mr. FPC conducts inspections for and repairs structural damage to rail cars and hoppers. The facility does not paint railcars or clean the interiors of the railcars. These functions are conducted off-site by outside vendors or facilities. The railroad car repair area serves as a civil engineering center for the rail cars and railroad lines and for FPC's roads and major HVAC units across the facility.

At 5:55 pm, Ms. Verhalen and Ms. Fagan departed FPC for the day.

June 17, 2010:[6]

On June 17, 2010 the EPA inspection team (Ms. Verhalen and Ms. Fagan) met at the EHS building at 7:23 am. At the day's opening conference, the team discussed the goals for the day including inspection of the hazardous waste storage building, inspection of the EDC spill area, and review of requested documents. Ms. Verhalen reviewed documents that had provided for that morning and marked the documents to be copied. The EPA inspection team and continued with the facility inspection.

pointed out the location of the less-than-90-day hazardous waste and non-hazardous waste storage yard. We did not enter the area at this time. The hazardous waste yard has a sloped, concrete base that drains to a sump. At the time of the inspection, there were approximately 30 containers of non-hazardous wastes in the storage yard. Six roll-off containers of non-hazardous waste were stored in the hazardous waste area. The non-hazardous waste roll-off containers contained soil and debris, and acidic (non-hazardous) wastes.

h. Hazardous Waste Storage: drove the EPA inspection team to the hazardous waste storage and non-hazardous waste storage yards located near the EDC. The hazardous waste storage area is enclosed within a locked (controlled) warehouse. According to the floors are concrete and completely bordered by an approximately 6-inch-high berm. At the time of the inspection, the concrete

[6] Photographs taken on June 16, 2010 are located in Appendix B

appeared to be in good condition. The vehicle entrance to the building is a sloped ramp, with the slope flowing into the building in the event of a spill. According to Mr. FPC ships out the hazardous waste drums when a shipment (approximately 90 drums) is accumulated or the 90-day[7] accumulation schedule is approaching, whichever occurs first. At the time of the inspection, there were approximately 50 drums on wooden pallets in the warehouse. The drums were segregated by the process area of origin: PVC, EDC, Lab, VCM, PP, Olefins. The drums appeared to be properly labeled and in good condition.

showed us the non-hazardous waste storage area. This area adjoins and is located immediately north of the hazardous waste storage building. The non-hazardous waste storage area is a concrete-lined, fenced area. Tarps cover the side-wall openings and block the rain. There is an approximately 6-inch-high berm bordering the floor. There are cold joints in the concrete flooring that are filled with caulk. FPC stores spill supplies and products within this area. Empty drums are stacked two drums high on pallets near the entrance to the area. Drums containing hazardous wastes were marked as NonHazardous Waste, with the date of origin, type of waste and originating location (process area). The waste drums were stored on pallets. According non-hazardous wastes are typically shipped out every 180 days.

i. Inland Shipping showed the EPA inspection team the Inland Shipping area in the Traffic Processing Area. On June 15, 2010, the inspection team had observed one (1)-ton supersacks marked with Rock Scale, PTC09, PTC06, and S. According to this area manages the shipment of PVC dust products by truck and rail car. As the EPA inspection team walked towards the bagging building, we observed an accumulation of what appeared to be white powder in the drainage ditch across the road from the PVC control room. The white powder is the white PVC resin, also referred to as PVC dust.

PVC resin is bagged and stored in the Inland Shipping area. The resin is placed into one (1)-ton supersacks or 50-pound bags. According to Inland Shipping area manager, that the one (1)-ton bags are filled outside the building and 50-pound bags are filled inside the building. PVC resin accumulates on the floor is and is collected with a floor sweeper, bagged, and sold as off-spec product. The 50-pound bags are checked for proper sealing. If the seal is not secure, the bag is recycled back in to the loading system. explained that FPC does not use "dust collectors" when loading the one-ton supersacks. The PVC resin is captured and recycled before the PVC resin is loaded into the bags. This internal recycling system returns the dust into the product hopper. The EPA inspection team noted that several employees were wearing bandanas tied around their mouth and nose while

[7] According to , FPC is permitted to store hazardous wastes drums longer than 90 days in this area, but prefers to ship more often.

working in the PVC plant in areas where we also noted PVC resin dust accumulations on equipment, stair rails and the floor.

FPC has a tanker truck loading area immediately north of the Inland Shipping building. At the time of the inspection, we observed an employee loading a tanker truck. The EPA inspection team observed excess PVC resin remaining on the top of the truck as the truck was driven from the loading area.

Mr lead us into the Compound warehouse. We observed non-recycled materials from the Compound (NRC) being bagged. These materials are marked NRC and sold as off-spec product. The materials are typically from waste cleanout of the equipment and hoppers.

The EPA inspection team then toured the railcar loading area. There were no rail cars being loaded at the time of the inspection. According to M it takes 2 to 3 hours to load a tanker car. Each rail car has 4 compartments and 2 to 3 hatches per compartment. At the time of the inspection, we observed PVC resin dust on the stairway, ground, and tops of parked rail cars.

FPC is constructing new PVC storage silos and a new rail spur. The older PVC silos will be renovated or abandoned upon completion of the construction project. According to l , the construction is expected to be completed in approximately 6 months. During the inspection, we observed what appeared to be PVC resin dust on the ground covering a large open-hole area located at the new construction site.

j. Chlor-Alkali Plant: The inspection team met with the chlor-alkali area manager. M explained that the crude EDC is composed of chlorine and PVC. Vent gases flow to one of three incinerators and the water flows to an absorber and caustic scrubber system. Hydrochloric acid is collected from the scrubber system and re-injected into the process. Wastewater in the diked area around the process equipment is collected and treated in the steam stripper. The ground water from the extraction wells in the EDC plume management area flows to the steam stripper in the PVC plant. Mr. stated that he thought the contamination found in the groundwater in Aquifers A, B, and C in the EDC area was appropriately bounded. indicated that FPC has implemented a modified pumping system for the groundwater recovery system that appears to be more efficient.

k. Brookings Property: drove the EPA inspection team to the Former Brooking's Property. This property is located east of FPC's property across US Highway 35. At the time of the inspection, the property was fenced and the gates secured. According to Mr. FPC has an 18" brine pipeline inside the fenced area that runs from FPC to the Formosa property south of Alcoa. then showed us Cox Creek at Highway 35 near Outfall 005 and the former State roadside park. Mr.

drove us to Cox Creek at Highway 35 near Outfall 007. The creek is very wide but shallow at this location. This ended the facility tour.

4. LABORATORY AUDIT

The laboratory was audited by Rick McMillin from the EPA Houston Lab on June 16, 2010. The audit lasted from about 9:30 am to 3:00 pm, after being checked in, tour, and briefed by the facility. The focus of the audit was the VOA analysis of waste water samples.

a. Quality Systems Review:

i. Organization

The FPC organization is very large and complex. All staff was courteous and accommodating. The main organizational concern of note for the laboratory was the lack of an independent QA officer. The laboratory manager had collateral duties as the QA officer ([redacted]). This may pose a conflict of interest for productivity over quality and is generally considered not a good practice. Normally this position would be under a separate management chain to grant complete independence in bringing up QA concerns without fear of possible repercussions or reprisals from management, though that may not be a significant concern in this case. It would also most likely allow more focus on QA issues (such as SOP review/management, data review, corrective actions, Quality Assurance Manual review/management, etc.).

ii. Quality Assurance Manual

There was a very large and complex Quality Assurance Manual (Total Quality Management Manual), which covered the entire corporation. When questions were asked about certain aspects of this policy document the answers were very difficult to find in writing, if at all, though the staff seemed to have a good idea what the policies were. It would be good to get an electronic copy of this document (as well as SOPs) in advance for review before any future audits.

iii. Standard Operating Procedures (SOPs)

The SOPs reviewed were very detailed and seemed to cover all areas of concern, though a few typographical errors were discovered on the one reviewed in most detail. The VOA SOP (Doc code: FTTC4501) was 25 pages long and had a header page "Recommendation Report" which showed date of last revision and an explanation of what the changes were. The laboratory has a process in place for performing annual reviews of their SOPs and one of their forms was reviewed which was used for conducting those reviews. This process is supposed to be documented in their Quality manual. Overall they seem to have a good SOP system in place.

iv. QA/QC procedures

The laboratory appeared to be following most good laboratory practices in the utilization of QA/QC procedures. They were utilizing initial calibrations, calibration checks, surrogates, blanks, laboratory control samples (LCS or LFBs), matrix spikes and spike duplicates. They had their acceptance limits readily available. Their daily calibration check was in some cases also being utilized as their LCS.

The main area of concern is the lack of demonstrations of capability data (DOC or IDC) on any staff (addressed in Personnel Qualifications).

Quality control charts were available in the LIMS, but were not being reviewed. Recommend that QA officer/Lab manager, or supervisor review these once per quarter for trends in data. The laboratory was using 3 standard deviations for surrogate limits. It was not clear how often these limits were updated.

v. PT/PE/DMRQA Results
All DMRQA results reviewed passed criteria, with many results close to the assigned values. Based on the limits of this review, it appears the laboratory is generating accurate data.

vi. Corrective Actions Process
The laboratory had something similar to a corrective action process in place for dealing with situations which generate unacceptable data, but may not be quite equivalent. They utilized a process called an abnormal process procedure. We reviewed one for an "Abnormal-Instrument Report". This example was more of an instrument maintenance or repair documentation procedure than implementation of a process change which should be documented in a corrective action report. We would recommend this process be reviewed more thoroughly to see if they indeed have something more closely related to finding, fixing, and documenting quality related problems.

vii. Personnel Qualifications
The bench analyst interviewed for the VOA method only had an associate degree and was considered a technician. He was actually a backup technician for the VOA method and the primary analyst was not available due to his being on leave that day. It is believed that 's primary duties are in the areas of metals and wet chemistries. For GC/MS analysis it would be recommended that a chemist with a BS normally fill this position, though someone with lesser education can fill this position with sufficient training and experience. is reported to have 10 years experience in the lab.

There was an apparent lack of knowledge by this analyst on some of the details of the 8260 VOA method. He could not answer several questions

without assistance. For example, he did not know what parameters were being used for the purge and trap (such as the times for each stage).

The laboratory did not maintain demonstrations of capability (DOC or IDC). They had a fairly extensive training program that was well documented, but did not have a formal DOC on file for staff. It is highly recommend that all staff have a file on record which includes method required DOC data/results and any PT/DMRQA results generated by that person.

Other staff seemed to be well qualified. The general lab manager has a Ph.D. and was very knowledgeable. The lab supervisor was also very knowledgeable and may have had an advanced degree.

viii. Facility / Equipment

The laboratory is in an older building and shows the wear and tear of many years. The equipment seems to be in good condition for the most part, some of which appear to be fairly new.

ix. Data management

The laboratory uses MSC-LIMS for their data management.

Analytical raw data was manually checked against DMR reports for this audit and it appears they matched, though results were adjusted for flow. Time did not allow a thorough check of all calculations for this conversion.

x. Sample Management

Review of several chain-of-custody (COC) documents revealed that in some cases exact collection times did not appear to be recorded. For example, one COC showed a collection time of 1400 for three samples collected at three different locations.

Samples for waste water analysis go straight to the lab for analysis and are logged into the LIMS at their station. Since these are routine and expected, this should be an acceptable practice.

xi. Records Management / Logbooks

The laboratory utilized 3-ring binder type of logbooks for instrument maintenance and analysis instead of the bound and numbered hardback type of logbook that is generally considered good laboratory practice. They appeared to be collecting proper information in their logbooks, but it would be best kept in a bound book with numbered pages to demonstrate continuity, no tampering has occurred, and no pages end up missing.

Temperatures were being checked for excursions at all refrigerators and

freezers that were inspected and records kept in LIMS.

b. Analytical Method Compliance

Tests conducted by Formosa Plastics Corporation for permit include TSS, pH, BOD, CBOD, COD, TOC, Ammonia as N, Oil and Grease, chlorine, trace metals, mercury, hexavalent chromium, fecal coliforms, VOCs, and SVOCs. The focus of this audit was on VOCs by method 8260; however, the semivolatiles and metals areas were briefly observed.

i. Volatiles (8260)

This method was the primary focus of the audit. The primary variance discovered for this method was the utilization of a 2-minute desorption time for the purge & trap. Method 8260 states that 4 minutes should be used, but variances can typically be allowed if recommended by the manufacturer. It wasn't clear if this variance was a recommendation or not during this audit; however, the data generated by this method would tend to support that this variance most likely isn't adversely affecting data quality.

It was not clear during the audit if the laboratory was actually evaluating 50 ng of BFB for their daily tune check. They were utilizing the BFB in the daily method blank, which is at a higher concentration. It is believed that due to the split ratio of the GC inlet used that the actual on-column amount is below 50 ng, which should be acceptable.

As mentioned earlier, there was no demonstration of capability (DOC, also known as initial demonstration of capability or IDC) on file for any of the staff. This is a method requirement and also considered a good laboratory practice for any new analyst performing this test, or when instrument conditions change significantly. Data should already be readily available for documenting this requirement through the daily LCS runs.

A method detection limit had been formally determined for this method.

ii. Semivolatiles (8270)

The semivolatiles method was not reviewed to any extent. The laboratory appeared to have the proper equipment in place to conduct this test. Data were reviewed that showed proper QC was being conducted. It was observed in the extraction lab that the laboratory was utilizing Corning Accelerated One-Step extractors, which are also utilized at the Houston EPA Regional Lab for performing liquid/liquid extractions for semivolatiles and pesticides.

iii. Metals (200.7)

The metals method was also not reviewed to any extent. It was observed that the laboratory had an Inductively Coupled Plasma (ICP) instrument by

SPECTRO CIROS available to conduct this test.

c. Laboratory Health and Safety

The building which housed the laboratory was old, but there were no major health and safety issues with it that were observed. Hoods were being checked for proper air flow and safety equipment was available, such as fire extinguishers, eye wash stations, emergency showers, and even SCBA stations.

The only noteworthy issue was that chemicals were not dated or initialed to indicate when received, opened, or expired. There was also one case of an organic chemical (111-TCE) stored with concentrated acids.

It was also noted that the laboratory recycles their solvents and has medical personnel on the property. The staff was also utilizing proper personal protection such as gloves and eye wear. Both jump suits and lab coats are available to staff, and the majority were observed be wearing jump suits.

5. CLOSING MEETING

The EPA inspection team met with to close out the inspection. Ms. Fagan downloaded photographs from the day's inspection onto a jump drive and gave the copies of the photographs to asked that we identify each photograph with date, time, and process unit. Because of time constraints, Ms. Verhalen told that we would treat all photographs as confidential business information until that time that EPA had completed the photologs and FPC had an opportunity to view the photos and determine which included confidential business information.

The EPA inspection team also discussed the request for documents. provided copies of the documents that had been reviewed and marked for copying. Ms. Verhalen clarified that she was asking for hazardous waste discharge reports (or spill reports) and not copies of each daily monitoring report for five years. He agreed to discuss the requests for the remaining documents during a teleconference the following week.

6. DOCUMENT/SUBMITTAL REVIEW

EPA received the following documents from FPC[8]:

a. Process Description for the Caustic/Chlorine EDC Plant

This document is part of the permit application for a Clean Air Act permit for this plant and describes the different chemical synthesis processes associated with the manufacture of caustic, chlorine, and EDC.

[8] See Attachments B through Z.

b. Process Description for the Ethylene Glycol Plant

This document is part of the permit application for a Clean Air Act permit for this plant and describes the different chemical synthesis processes and describes the different chemical synthesis processes associated with the manufacture of ethylene glycol, including monoethylene glycol, diethylene glycol, triethylene glycol, and polyethyelene glycol.

c. Process Description for the Olefins Plant

This document is part of the permit application for a Clean Air Act permit for this plant and describes the different chemical synthesis processes and describes the different chemical synthesis processes associated with the manufacture of ethylene, reagent grade and purity grade polypropylene, pyrolisis gasoline, pyrolisis fuel oil, and mixed C4 products (butane, butane, and butadiene).

d. Process Description for the Polyethylene Plant

This document is part of the permit application for a Clean Air Act permit for this plant and describes the different chemical synthesis processes and describes the different chemical synthesis processes associated with the manufacture of linear low density polyethylene pellets and high density polyethylene pellets in varying grades of purity.

e. Process Description for the Polypropylene Plant

This document is part of the permit application for a Clean Air Act permit for this plant and describes the different chemical synthesis processes and describes the different chemical synthesis processes associated with the manufacture of polypropylene resin.

f. Process Description for the Polyvinyl Chloride and Vinyl Chloride Monomer Plant

This document is part of the permit application for a Clean Air Act permit for this plant and describes the different chemical synthesis processes and describes the different chemical synthesis processes associated with the manufacture of polyvinyl chloride using a facility-generated vinyl chloride monomer.

g. Process Description for the Traffic Area

This document is part of the permit application for a Clean Air Act permit for this operation that supports receipt and shipment of the different products used or manufactured at FPC. The Traffic area includes loading and unloading operations for railcar, truck, and ship or barge.

h. Process Description for the Utilities and Maintenance Areas

This document is part of the permit application for a Clean Air Act permit for this operation that provides utilities services to the entire facility and includes the Central Wastewater Treatment Plant.

i. TCEQ Exemption from Definition of Solid Waste for the Certain Distillation Bottoms Reused in the Production Process

This document, issued by TCEQ, accepts FPC's submittals that support FPC's assertions that certain waste-like chemicals from the vinyl chloride monomer and polyvinyl chloride production areas can be re-used as feedstock in a perchloroethylene and trichloroethylene manufacturing process at PPG Industries in Lake Charles, Louisiana.

j. TCEQ Determination for Catoxid Recycling

This document, issued by TCEQ, accepts FPC's submittals that support FPC's assertions that certain heavy ends and light ends produced at FPC's Baton Rouge, Louisiana facility are effective substitutes for feed stocks to produce hydrochloric acid at the Point Comfort, TX facility, and that these ends are recycled and not hazardous wastes.

k. TCEQ Variance from Waste Classification for Concrete and Black Beauty

This document, issued by TCEQ, accepts FPC's submittals that support FPC's assertions that certain concrete wastes and black beauty sand wastes are non-hazardous, and may be disposed as Class 3 non-hazardous wastes.

l. General Stormwater Drainage Map

This document is a drainage map that shows the relative direction of flow of stormwater across the facility and into the internal outfalls. Outfalls 003 and 010 discharge to Alcoa's 'Red Beds.' Outfalls 002, 004, 005, 006, 007, 008, 009, and 012 discharge to Cox's Lake. Outfalls 101 and 201 discharge into Outfall 001, which discharges into Port Lavaca Bay. Outfall 011 discharges to Port Lavaca Bay from the marine docks (not part of this inspection).

m. Incident Reports from January 1, 2005 through December 31, 2009

This document includes three incident reports during the specified time period. One incident occurred on October 6, 2005 in the Olefins 2 Plant. One incident occurred on December 5, 2006 in the EDC Plant. One incident occurred on May 7, 2008 associated with the Utilities Area.

n. Standard Contract Language regarding Environmental Requirements for Contractors

This document includes copies of two different contracts with language requiring contractors to abide by appropriate environmental regulations.

o. TCEQ's Notice of Registration (NOR)

This document includes the registration of hazardous and industrial waste generation and management of those wastes.

p. Initial Groundwater Investigation and Corrective Action Plan
This document includes the initial groundwater assessment and investigation to determine the nature and extent of contamination associated with a release of EDC in 1993, and the proposed corrective action, including installation and operation of recovery wells.

q. Annual Report for Groundwater Monitoring Activities from 2004 through 2009
This document includes copies of the annual reports submitted to TCEQ to document the activities associated with the groundwater corrective actions for a 1993 spill of EDC.

r. Investigation into Chemical Contamination of Cox Creek and Cox Bay
This 1990 document includes sampling plans and implementation for collection of multiple samples in Cox Creek and Cox Bay downgradient from FPC. Samples of sediments, water, and organisms were collected and analyzed for metals, volatile hydrocarbons, pesticides, PCBs, and organohalogens.

s. Cox's Creek Remediation Report
This document includes remediation activities to investigate contamination in and remediation of Cox's Creek from discharges of EDC into Outfall 006 in 1998. Remediation included removal of creek sediments and excavation of delta soils.

t. Formosa Utility Venture, LTD TPDES permit WQ0002436000
This document is a copy of the TPDES permit to discharge effluents from FPC to waters of the State of Texas.

u. Paper Closure for Culverts No. 6 and 7
This document summarizes the proposed closure activities for remediation and closure of Culverts No. 6 and 7 after a release of contamination through the culverts and through Outfall 006 in 1998. FPC proposed closure under Texas Risk Reduction Rules Standard No. 2.

v. Paper Closure for Outfall 006 and the Outfall 006 Diversion Ditch
This document summarizes the proposed closure activities for remediation and closure of Outfall 006 and the diversion ditch associated with Outfall 006 in 1998. FPC proposed clean closure under Texas Risk Reduction Rules.

w. Subsurface Assessment Program, Olefins Unit
This document includes information about the planning and implementation for remediation and corrective action for the release of pyrolization gasoline into the

subsurface in 1996. FPC proposed closure under Texas Risk Reduction Rules Standard No. 2.

x. Application for renewal of TPDES permit, with updates
This document includes the application for renewal of the TPDES permit with major amendments and subsequent updates to the application. The renewal was submitted to TCEQ in January 2010.

y. Site Facility Map
This document includes a site facility map originally drawn in 2004 and updated in January 2010 to include the polyvinyl chloride expansion.

EPA also received documents that FPC has claimed as containing confidential business information. These documents include:

z. CFB Drainage Map
This document includes specific engineering details of the underground piping system used at FPC.

7.0 SUMMARY AND AREAS OF CONCERN

The EPA Region 6 conducted an inspection of the Formosa Plastics Corporation Point Comfort, TX, facility on June 15 through 17, 2010. The purpose of the inspection was to determine the status of the clean-up activities, observe current processes, and obtain information to integrate the corrective action activities into one authority. During the inspection, the EPA inspection team noted four concerns: PVC resin dust was observed on the ground and work surfaces in the PVC processing areas; discharges of wastewater and sludge in the CWWTP; stockpiles of dirt and debris in two areas; and discharges of pellets and possibly plastics from the storm drainage outfalls from the facility. These are described below:

a) **PVC PLANT**

The inspection team noted several areas of concern within the PVC[9] plant area. These are:

PVC Resin Dust: The EPA team observed PVC resin dust on sidewalks, drainage areas, handrails, railcars, and on the ground (see June 16, 2010 Photographs 8 – 19). The prevalence of PVC resin was seen in the storm drainage channel (see June 17, 2010 Photograph 32) and inside the PVC bagging areas (see June 17, 2010 Photographs 38 through 41). We observed plant workers with PVC resin dust on work clothes and one employee wearing a bandana over his nose and mouth (see June 17, 2010 Photographs 42 and 43). We observed an employee loading PVC resin into a railcar, wearing a bandana in a similar manner (see June 17, 2010 Photographs 46 and 47). Photograph 58 shows

[9] PVC resin dust is a fine particulate that may pose an inhalation hazard. Vinyl chloride, a component used during production of PVC, is a known carcinogenic.

PVC resin dust on the top of the railcar, and Photographs 59 - 66 shows the PVC resin dust on the plant equipment. Outside the PVC plant, the inspection team noted PVC resin dust along the rail line (Photograph 68) and covering the ground in an excavation/construction area in Photographs 69 and 71. One EPA inspector noted PVC resin dust accumulation on safety glasses (Photograph 74). PVC dust is required to be managed and handled as a solid waste.

PVC Settling Pit: During the inspection, EPA observed that the PVC settling pit was overflowing onto a concrete pad and into the storm water collection system that discharges to the CWWTP (see June 16, 2010 Photograph 20). The wastewater contains PVC fine particulates that settle in the pit. FPC personnel explained that the overflow of the pits into the sump is not part of the process. However, a similar observation was made by EPA during its February 2 through February 14, 2004 investigation.

PVC Bagged Waste: The EPA inspection team observed two areas of bagged waste from the PVC production. Bags of settling pit sludges marked PT C06 were observed immediately south of the sludge pit overflow area (see June 16, 2010 Photographs 20, 21 and 22). Bags marked as PT C09, Rock Scale, "S," and "G" were observed in the Inland Traffic parking lot south of the Compound (see June 17, 2010 Photographs 29, 30, and 31). A gray waste container marked "scale only" was observed in the PVC plant near a sign that warned that the area contained a 'cancer suspect agent' (see June 16, 2010 Photograph 17). FPC reported to the EPA that the gray waste container marked "scale only" contains rock scale. This rock scale material is bagged into one-ton Supersacks and sold as product. PVC powder is bagged into one-ton Supersacks, marked as PT C09, and sold as product. According to , sand and gravel were purchased in 50 pound bags for use as cooling tower filter media. As the unused 50-pound bags deteriorated due to weathering, FPC began placing the contents of the bags in Supersacks and marking the outside of the Supersacks with an "S" for sand and a "G" for gravel.

b) CWWTP

During the inspection at the CWWTP, the inspection team observed a milky white discharge from Tank TTT-44, and associated with wastewater from the cooling tower for wastewater from the chlor-alkali plant (see June 16, 2010 Photographs 27 through 29). The discharge flowed onto the concrete apron in the CWWTP and into the storm drainage system associated with CWWTP, which is routed back into the CWWTP. The wastewaters contain wastes characteristic for corrosivity.

The EPA inspection team observed discharge of sludge onto the concrete apron, and draining into the North storm water drainage system, which discharges into the CWWTP (see June 16, 2010 Photograph 32). According to FPC personnel, the sludge was from the copper sulfate removal system associated with the chlor-alkali Plant. The wastewaters contain wastes characteristic for corrosivity.

During the inspection at the CWWTP, the EPA inspection team and the TCEQ inspector observed drainage from the sludge roll-off boxes onto the concrete pad (see June 16,2010 Photographs 41 and 42). According to , the sludge is disposed as Class 2 non-hazardous

waste at Acadia Landfill. According to , any discharge onto the concrete pad is collected into the storm water drainage system and discharged into the CWWTP. Proper disposal management practices of sludges into a land-based unit, such as a landfill, require that there is no discharge of liquids.

c) SOIL PILES AND CONSTRUCTION DEBRIS

The EPA inspection team observed stockpiles of soil mixed with debris such as concrete, asphalt, plastic lining, and other construction debris in at least two locations. The inspection team observed a large stockpile of soil northeast of the Central Warehouse and Receiving area near the northern-most part of the FPC property (see June 16, 2010 Photographs 97 and 98). According to FPC, most of the soils came from the nearby, new SPVC construction site. The inspection team also observed soil stockpiles staged near Outfall 006 (see June 16, 2010 Photographs 108 and 109).

Near the Railcar Repair and Maintenance facility, the EPA inspection team observed a stockpile of used and new creosote timbers on the ground (see June 16, 2010 Photographs 110 and 113); railroad construction materials stored in metal drums on the ground in the same area (see June 16, 2010 Photograph 111); and scrap metal inside a storage container (see June 16, 2010 Photograph 112). Additionally, the inspection team observed a corroded container used to store oily rags (see June 16, 2010 Photographs 114), and drums of solid asphalt used for road maintenance and repair (see June 16, 2010 Photographs 117) near the same maintenance site.

d) OUTFALLS

The EPA inspection team observed plastic pellets on the downstream side of the outfall gate at the following outfalls: 006, 007, 008, and 009, which discharge into Cox Creek (see June 16, 2010 Photographs 77 through 81, 90 through 96, and 99 through 107). The inspection team also observed plastic pellets of the same size, shape and color at two locations on the shores of Lavaca Bay near Highway 35. EPA has received citizen reports of plastic pellets found near the Lavaca River. In addition, we observed vegetative and plastic debris on the screens covering the drainage gates at Outfalls 006, 007, and 009 (see June 16, 2010 Photographs 93, 96, and 118). The discharge of the plastic pellets and the poor housekeeping associated with the drainage gate screens are indicators of potential solid waste concerns.