REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

STAFF REPORT

TO: Bruce H. Wolfe **FROM:** Rico Duazo

DATE: February 27, 2006

SUBJECT: Tesoro Petroleum Coke Storage and Handling Facility
Pittsburg, Contra Costa County
File No. 2119.1048 (RAD)

Executive Summary
Since the February Board meeting, Board staff have investigated Baykeeper's claims and met with staff from the Bay Area Air Quality Management District, Tesoro, the City of Pittsburg, Baykeeper, and local citizens. Based on these meetings and new evidence, staff's conclusion is that the current BMPs implemented by Tesoro are not effective in preventing coke dust from polluting stormwater runoff in the area adjacent to Tesoro's facility. Therefore, Tesoro is not complying with the State's General Permit and additional stormwater controls are necessary. I recommend that staff write to Tesoro to require it to propose corrective actions with time schedules.

I. Background

A. Description of facility

The Tesoro Pittsburg Terminal is a marine loading terminal and stevedoring facility that accepts petroleum coke via truck and loads the coke onto ocean-going bulk transport ships. The facility covers approximately 13 acres and is located at 595 East 3rd Street in Pittsburg, Contra Costa County, on the southern shore of New York Slough which feeds into Suisun Bay. The facility was originally owned by Tosco Corporation, transferred to Ultramar Inc, and finally to Tesoro, which retains all previous responsibilities for the site.

Tesoro submitted a Notice of Intent to obtain coverage under the State Board's General Permit to Discharge Stormwater from Industrial Activities (General Permit) on April 1, 2002. Discharges under the General Permit must meet all applicable provisions of Section 301 and 402 of the Clean Water Act (CWA). The General Permit requires control of pollutant discharges meeting Best Available Technology economically achievable (BAT) and Best Conventional Pollutant Technology (BCT) to prevent and reduce pollutants, and any more stringent controls necessary to meet water quality standards.

B. Description of petroleum coke

Petroleum coke is a by-product of the oil refining process. It is a light, powdery, black material consisting primarily of carbon and which can also contain trace amounts of metals (primarily nickel and vanadium) and polycyclic aromatic hydrocarbons (PAHs). It is similar to charcoal or coal. Refineries sell this material as a fuel to operators of industrial boilers or power plants.

C. Coke analysis

Previous analyses (by EPA Method 8270) of the coke at the facility did not detect PAHs. However, the analyses (by EPA method 6010) detected minor amounts of metals of concern including 5 mg/kg Barium, 1 to 6 mg/kg Copper, 12 to 42 mg/kg Nickel, 17 to 53 mg/kg Vanadium, and 6 to 11 mg/kg Zinc.

II. CAO No. 99-080

A. Basis for CAO issuance

The Executive Officer issued CAO No. 99-080 to the then-owner of the facility, Diablo Services Corporation, a wholly owned subsidiary of Tosco Corporation, on September 29, 1999, due to discharges of coke to New York Slough. Board staff inspections on August 11, 1998, and May 14, 1999, showed that the practices at that time were not effective in preventing coke from being discharged into storm drains or the slough. The CAO stated that Diablo Services Corporation was not meeting BAT/BCT standards at that time and had caused pollution to waters of the State.

B. CAO requirements

Major requirements of CAO No. 99-080 include the following:

1. A Contaminated Sediment Investigation Workplan and Time Schedule to determine the lateral extent and thickness of coke buildup in the sediment adjacent to the facility in New York Slough.

   Tosco submitted a Sediment Investigation report on April 6, 2000. The report concluded that coke in the sediment is essentially located in the shallow areas behind the wharves and just to the east, near shore. Coke is concentrated around the conveyor belt region and the region near the coke pile.

   Analyses of the slough sediment showed elevated levels of Nickel, Vanadium, and PAHs. The report suggested that PAHs found in sediments could be related to creosote pilings. Bioassay tests of sediments were performed per "Guide for conducting 10-day Static Sediment Toxicity Tests with Marine and Estuarine Amphipods" (ASTM Standard E 1367-99). Bioassay results from various locations showed a mean survival rate of 74% to 98% compared to a mean survival rate of 98% of the control treatment.

The Sediment Investigation report concluded that no remedial activities were warranted because of the following:

- Any removal activities would likely mobilize the coke, transporting it to another, more vulnerable location in the slough.
- Elevated levels of contaminants associated with coke present in the sediment are unlike to adversely affect aquatic biota in New York Slough.
- Because the shoreline adjacent to the facility consists of riprap and debris, any removal of the coke material would be difficult, if not impossible.

The Board has not required further action with respect to removal of coke deposited in New York Slough.

2. A Best Available Technology Investigation and Alternative Analysis to define the options available to abate the discharge of fugitive coke dust from entering waters of the State.

   Tosco submitted a workplan on November 15, 1999, describing a time schedule for the BAT analysis. This workplan also included interim measures to be implemented while the BAT analysis was being conducted. Proposed interim measures included improvements to the fence surrounding the coke pile, permanent berming to prevent stormwater runoff from discharging from the facility to the storm drain and slough, and improvements in the coke ship loading process.

   Tesoro, the facility's new owner, submitted a final BAT report on June 4, 2003. The report identified three categories of potential sources of discharge: stormwater runoff, spillage, and fugitive dust. The report concluded that BATs were in place to address stormwater runoff and spillage due to the improvements implemented since 1999.

   Alternatives considered to address fugitive dust included a removable cover material on the coke storage pile and the construction of an enclosed coke storage facility (e.g., domes, barns, silos, tents, etc). The BAT report claimed that improvements had reduced fugitive dust emissions by 80%. The BAT report also claimed that it would cost an additional $3.5 million to fully enclose the coke pile, making it economically unviable for the facility. The BAT report concluded that the measures for fugitive dust currently in place are BAT.

   Board staff inspected the facility on August 1, 2003, and September 9, 2003, to verify that the measures described in the BAT report were in place. Based on the inspections at that time, staff believed that the current practices were sufficient in controlling fugitive dust from the facility. Board staff issued a letter on October 8, 2003 approving Tesoro's

practices as meeting the BAT standard. Consequences of the October 2003 letter will be discussed later in this memo.

III. Current Practices/Conditions

A. <u>BMPs for handling coke</u>

The facility accepts petroleum coke trucked from the Tesoro Golden Eagle Refinery in Martinez, temporarily stores the coke, and loads it into ocean-going bulk transport ships for shipment overseas. The coke is unloaded from the trucks through a bottom-loading rack that feeds an underground conveyer belt. The coke is conveyed to an aboveground transfer system within the stockpile area. At the transfer point, an oil-mist is sprayed onto the petroleum coke to minimize the potential for dust.

Bottom loading truck depositing coke to underground conveyor

Coke being delivered to the stockyard area.

The stockyard area is fenced on all four sides with a 14-foot fence to minimize the potential for wind-blown dust to be generated. One to two tractors inside the stockpile area move the coke to a uniform height throughout the stockyard area. The stockyard area has an approximately three to four-foot base of coke that is compacted prior to fresh coke being delivered to the area. Coke is only supposed to be stored onsite long enough to have an adequate supply for the current ship's loading requirement.

Coke is sprayed with oil for dust control before being deposited into the stockyard area

Second covered conveyor system transfers coke from stockyard area to ships

During the ship loading operation, tractors position the coke to be transferred to a second covered conveyor system to the loading arm of the ship loading system. The chute on the end of the arm is lowered into the shipment loading bays and the coke is dispersed into all areas of the hull. At both the transfer-point into the loading arm and the dispensing nozzle of the arm, water-mist is sprayed on the petroleum coke to minimize the potential for dust generation. During each portion of the loading operation, the chute is cleaned in the loading bay to minimize the potential for coke spillage. The exposed loading area is covered, to the extent possible, to minimize petroleum coke dust being emitted into the atmosphere.

Covered conveyor leading to loading chute

Loading chute is lowered directly into hold of the ship to reduce dust emissions

Storm water is collected and pumped into a one million-gallon tank and used for dust suppression of the coke in the storage area. In conjunction with the storm water collection improvements, grading and paving was performed adjacent to the crossover belt, main belt, and the dock to prevent runoff onto the dock or into the waterways. A berm on the south side of the facility eliminates storm water from entering the adjacent vacant City property. A second berm around a significant portion of the facility eliminates storm water from discharging into New York Sough. The water used at the truck wash station is collected and reused by the station.

1,000,000-gallon tank used to store stormwater

Wash station used to clean trucks before they leave the facility

B, Recent evidence of dust migration

A local citizen took photos of the facility and the surrounding area on October 27, 2004. The photos show coke was piled higher than the surrounding 14' fence, which rendered the fence ineffective in keeping the coke dust on site.

Level of coke pile is visible above the fence line

Tractor used to sort coke is visible above the fence line

Photos taken on February 5, 2005, show coke dust that has been deposited onto the curb outside the facility. If uncollected, coke deposited in the streets or curbs will eventually be discharged to the slough via stormwater.

Sediment in curb just outside the facility fence

Close-up of coke found in curb

Staff from the Bay Area Air Quality Management District (BAAQMD) responded to a complaint on March 14, 2005. The complainant stated that coke would always blow into his boatyard during a strong northerly wind. The inspector noted that, “large amounts of coke dust were seen leaving the site from an open stockpiled area” and that, “perimeter mounted sprinklers were on but seemed to have no dust control effect.” The inspector noted coke dust leaving the facility and blowing into the nearby boatyard.

Coke dust swirling in street

Coke dust accumulation on boat

The BAAQMD inspector noted that the "real time wind data readout showed winds gusting into the high 30's (MPH)." Data from the nearby NOAA Port Chicago wind station recorded wind gusts above 30 MPH on March 14, 2005. Wind data also showed similar wind gusts occuring between April and November 2005 suggesting that the March 14 event is not uncommon.

IV. Issues

A. Baykeeper lawsuit and settlement agreement

Baykeeper sued Ultramar on February 14, 2001, for failure to comply with CWA Sections 301 (a) and 402(p) and the General Permit. On April 10, 2002, Ultramar and Baykeeper entered into a Consent Degree whereby Ultramar would either cease operations within 18 months, or identify and implement BAT at the facility. Baykeeper believes that total enclosure of the coke pile is BAT for the facility.

B. 2003 letter approving Tesoro BATs

On October 8, 2003, Board staff issued a letter approving the current practices at the facility as meeting the General Permit's BAT standard. The letter was based on the BAT report, review of CAO No. 99-080, and site inspections.

Board staff's impressions during their August 1 and September 9, 2003 inspections were that proposed measures were in place and that it was a clean, well run facility. On-site inspections did not find any evidence of fugitive dust migration. At the time of the inspections, the evidence suggested that fugitive coke dust would be controlled by the facility improvements (e.g., enclosed conveyor belt, improved fence around the coke pile) and by implementing other BMPs (e.g., dust suppression by oil or water mist).

The October 2003 letter had the consequence of allowing Tesoro to continue its operation without having to enclose the coke per the Consent Decree between Baykeeper and Tesoro. Baykeeper has requested that Board staff revisit the findings of the October 2003 letter and revise its position to require enclosure of coke piles at the facility as BAT.

C. Are current practices meeting BATs?

Koch Corporation, immediately next door to Tesoro's facility, also stores, handles, and transports coke. The Koch facility receives coke that is similar in quality, value and marketability as Tesoro's coke. Koch utilizes a series of large, enclosed silos in the shape of half-domes for coke storage and delivery. This system seems very effective in eliminating fugitive coke dust.

Domes used by Koch Corporation

Coke is transferred via a fully enclosed system

The South Coast Air Quality Management District (SCAMD) in southern California adopted Rule 1158 (amended June 11, 1999) to "reduce the emissions of airborne particulate matter from the storage, handling, and transport of coke, coal, and sulfur: and to reduce the potential for the storage, handling and transport of these materials to violate AQMD rules 402 – Public Nuisance and 403 – Fugitive Dust." Rule 1158 states that an operator of a facility that "produces, stores, handles, transports, or uses coke, coal, or sulfur" shall "maintain all piles in enclosed storage."

A pile is defined as, "any amount of coke, coal or sulfur material which attains a height of three feet or more, or a total surface area of 150 square feet or more." Enclosed storage is defined as, "any completely covered roofed and walled structure or building surrounding an entire coke, coal or sulfur pile." Furthermore, Rule 1158 states that, "there shall be no open storage after June 11, 2001." BAAQMD does not have a similar rule for its District, but sometimes one air district will adopt similar regulations that another air district has already passed. Based on discussions with BAAQMD staff, it appears that BAAQMD has not yet considered this issue.

D. Is there a basis for revisiting the conclusions of the 2003 Letter?

The General Permit and CAO No. 99-080 require the facility to meet all applicable provisions of Section 301 and 402 of CWA for BAT/BCT. Although the October 2003 letter concludes that current practices at the facility are BAT, evidence since October 2003 has shown that fugitive coke dust is still being discharged from the facility, and current practices are not effective in preventing the coke dust from being discharged via stormwater. I recommend that Board staff issue Tesoro a letter requiring corrective actions with time schedules to prevent further discharges of coke.

Board staff will also further investigate Tesoro's claim that enclosure of the coke pile is economically unviable for the facility.

V. Recent Actions

A. Coordination with BAAQMD, Tesoro, City, Baykeeper, local citizens

Since the February 8, 2006, Board meeting, staff has met with various interested parties. Discussions with Tesoro and the City included possible requirements for complete coverage of the coke pile at the facility and oversight responsibilities of the regulatory agencies. Discussions with BAAQMD, Baykeeper and local citizens included collection of additional evidence of offsite dust migration and improved coordination in complaint filing and follow-up.

B. Additional inspections

Board staff visited the facility's surroundings on February 22, 2006. A local citizen met with Board staff to point out areas where coke dust outside the facility may have collected. Board staff observed black sediment in the curb adjacent to the facility that may have contained coke dust. The citizen stated that coke is still being discharged during loading operations but was not able to provide photo documentation because loadings have recently been done during nights and on weekends.

Sediment in curb just outside the facility fence

Close-up of sediment found in curb

C. Response to Baykeeper's Public Record Act request

In response to the October 2003 letter, Baykeeper requested copies of various documents pertaining to the facility: all facility stormwater reports through 2005, all monthly monitoring reports prepared by the facility, all documents relating to the facility's compliance and noncompliance with CAO No. 99-080, and all communications between Board staff and the facility regarding BAT. Board staff have concluded the documents search, including emails, and the Tesoro file is complete. Board staff will inform Baykeeper that the files are available for review at their convenience.

VI. Recommendations for Future Actions

A. Letter to Tesoro requiring compliance with the General Permit.
I recommend that Board staff issue Tesoro a letter requiring it to propose corrective actions with time schedules to prevent further discharges of coke to the area around its facility.

B. Issue a new CAO, if necessary
CAO No. 99-080 was originally issued against Tesoro's predecessor and is not enforceable against Tesoro. If Tesoro does not propose adequate corrective actions and time schedule to comply with the General Permit, a new CAO to establish enforceable tasks and time schedules would be appropriate. The Executive Officer is authorized to and may issue such a CAO.

C. Coordination between Board and City staff for oversight of the Tesoro facility
Under Contra Costa County's Municipal Stormwater Permit, the City is also responsible for regulating stormwater discharges from industrial facilities under its jurisdiction. Board and City staff will work together to more clearly define our respective roles and responsibilities, and coordinate efforts to ensure that the facility has proper oversight and that issues raised by any interested party are adequately addressed in a timely manner.

D. Additional inspections
Board and City staff will conduct inspections as needed, either in response to complaints, or as follow-up to ensure that Tesoro complies with the General Permit.

Concur: _____
Shin-Roei Lee, Division Chief
South Bay Watershed Division

Concur: _____
Keith Lichten, Section Leader
South Bay Watershed Division

Aerial View of Facility (11/5/99)