From:	Sejal Choksi
To:	Boschen, Christine@Waterboards
Cc:	Amanda Garcia; Benedict, AnnaKathryn@Waterboards
Subject:	Comments on the Schnitzer Tentative CAO
Date:	Friday, October 19, 2012 4:42:03 PM
Attachments:	Baykeeper Schnitzer TO Comments 10-19-12.pdf BK Attachment A Summary of Terminal Island study.pdf

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Christine,

Please find Baykeeper's comments on the Tentative Cleanup and Abatement Order for Schnitzer attached.

Let me know if you have any questions.

Thanks,
Sejal

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Sejal Choksi-Chugh
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October 19, 2012

Christine Boschen
SF Bay Regional Water Board
1515 Clay St., Suite 1400
Oakland, CA 94612
cboschen@waterboards.ca.gov

Submitted via electronic mail

Re: Tentative Cleanup and Abatement Order for Schnitzer Steel Products Company, 1101 Embarcadero West, Oakland, CA 94607

Dear Ms. Boschen:

Thank you for the opportunity to comment on the Tentative Cleanup and Abatement Order ("Order") for Schnitzer Steel Products facility in Oakland, CA ("Schnitzer"). San Francisco Baykeeper, a 501(c)(3) nonprofit organization founded in 1989 with a mission to protect and enhance the water quality of the San Francisco Bay for the benefit of its ecosystems and surrounding communities, submits the following comments on behalf of our over 2,300 members.

Baykeeper commends the Regional Water Quality Control Board ("Board") for taking agency action to compel Schnitzer to clean up its metal recycling operations in order to prevent additional wastes from being discharged into the Oakland Estuary and Inner Harbor of San Francisco Bay. We appreciate that the Board is mandating Schnitzer to implement Best Management Practices ("BMPs") and to submit technical reports to study the necessary cleanup and prevention measures. Baykeeper is concerned, however, that the Order does not require sufficient controls of the fugitive airborne dust deposited directly or indirectly into surface waters. Nor is the Order specific enough to remedy Schnitzer's stormwater pollution problems. We respectfully request that the Order be strengthened in accordance with the following recommendations:

1. **The Order fails to require controls for fugitive dust that is deposited directly or indirectly into the Oakland Inner Harbor.**

    a. <u>Airborne dust emissions to surface waters constitute non-stormwater discharges and are prohibited.</u>

The Clean Water Act, as amended in 1972, prohibited the discharge of pollutants to waters of the United States from all point sources unless the discharge is in compliance with a National Pollutant Discharge Elimination System ("NPDES") permit. The Act was further amended in subsequent years to require NPDES permits for industrial

stormwater operations that discharge directly or indirectly to surface waters. Authorized states were given the discretion to issue individual or general permits to these dischargers. California adopted a general NPDES permit in 1997 that regulates industrial stormwater activities. The Industrial Stormwater Permit specifically states that, "materials other than storm water ("non-storm water discharges") that discharge either directly or indirectly to waters of the United States are prohibited. Prohibited non-stormwater discharges must be either eliminated or permitted by a separate NPDES permit."[1] Fugitive dust that is deposited directly or indirectly into surface waters therefore constitutes a prohibited non-stormwater discharge under the Industrial Stormwater Permit and the Clean Water Act.

b. Schnitzer's airborne dust reaches the Oakland Inner Harbor thus resulting in prohibited non-stormwater discharges.

In the March 29, 2012 Inspection Report, Board staff found evidence at the Schnitzer facility that fugitive airborne dust directly reaches the surface water:

- "Airborne dust [is] also discharged into estuary waters, as evidenced by accumulation of dust on side railing and adjacent fence."[2]
- "Excessive dust and sediment is discharged from area into estuary waters via wind and stormwater as evidenced by accumulation of dust and sediment throughout the entire conveyance structure, including side railing and adjacent fence."[3]
- "Once airborne, the dust travels across the site and into off-site areas."[4]
- "The areas requiring cleanup [of sediment] include the conveyor loading system and pier crane dock on the Site, surfaces near and/or above the Oakland Estuary and Inner Harbor, including docks…."[5]

The Order also acknowledges that dust and debris is a significant indirect pathway of contaminants to stormwater and surface water:

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[1] State Water Resources Control Board Water Quality Order No. 97-03-DWQ, NPDES General Permit No. CAS000001, page 3, Section A.1.
[2] California Regional Water Quality Control Board, San Francisco Bay Region, Inspection Report for Schnitzer Steel Products Co., March 29, 2012 at row NS-7.
[3] *Id.* at row NS-8.
[4] *Id.* at row NS-11.
[5] California Regional Water Quality Control Board, San Francisco Bay Region, Tentative Cleanup and Abatement Order No. R2-2012-00XX and Rescission of Order No. 88-023 at 2.

- "Dust and sediment is discharged in stormwater to the [B]ay via conduits under the sidewalk which connect the site interior to the [B]ay."[6]

- "Process sediment was…on the riprap and bridge foundation, on the sides of the bridge railing, on lower bridge supports, and on pipes running the length of the bridge…where it probably will be directly discharged."[7]

- "Water Board staff observed process sediment and/or sediment on the wooden dock beyond the containment lip edge, and there were visible gaps between the wood slats in the dock. Stormwater flows would increase the discharges."[8]

Furthermore, on multiple occasions, including on September 7, 2012 and September 28, 2012, Baykeeper staff conducted visual inspections of the Schnitzer facility. During each of the 30-minute inspections, Baykeeper observed approximately twelve to fifteen plumes of brown, opaque dust being released during material piling activities along the southern shoreline of the facility. These fugitive dust emissions near the shoreline likely resulted in direct non-stormwater discharges to the Oakland Inner Harbor.

c. <u>Dust from metal recycling facilities and auto shredders contains toxic pollutants harmful to public health and the environment.</u>

In the summer of 2008 and spring of 2009, the Department of Toxic Substances Control ("DTSC") commissioned a study of coarse airborne particles emitted from the SA Recycling Terminal Island automobile shredder in Wilmington, CA ("Terminal Island facility"). A summary of the report is attached (see Attachment A).[9] The Terminal Island facility conducts similar activities to the Schnitzer facility in its metals collection, recycling, and shredding operations and also has a large annual volume of metal throughput.[10] Among other methodologies, the study conducted wipe tests of impervious surfaces (e.g., a school playground fence) downwind of the shredder near the City of Wilmington, and collected and analyzed aerosols downwind of the facility over a period of five weeks in the summer 2008 and four weeks in the spring 2009 respectively.

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[6] Inspection Report March 29, 2012, *supra* at row NS-6.
[7] SWRCB Water Quality Order No. 97-03-DWQ, *supra* at 3.
[8] *Id.*
[9] The full report is available at http://www.dtsc.ca.gov/HazardousWaste/terminal_island.cfm.
[10] *See* Bay Area Air Quality Management District, Workshop Report, June 2012; and "*Deposition of coarse toxic particles in Wilmington, CA for the Department of Toxic Substances Control (DTSC): Summer, 2008 and Spring 2009*," UC Davis DELTA Group Study, May 6, 2011.

The DTSC study found that the Terminal Island facility is "the major source of stationary source emissions on the island."[11] The analysis identifies one of the pollution emissions sources from the site as "shredder product pile fugitive dust."[12] After the summer study was complete, the Terminal Island facility made upgrades to the facility's shredder, and the 2009 spring study found "sharp reductions" in the very fine particles coming from the shredder reflecting "improvements in the pollution control systems."[13] However, the levels of coarser particles from fugitive dust and the re-suspension of soils were "the same or slightly higher,"[14] because the interim BMPs had not reduced the emissions from materials piles and other onsite dust-producing operations.

Among the pollutants the DTSC study found in the Terminal Island facility's particulate waste emissions were lead, copper, iron, zinc, cadmium, mercury, and arsenic.[15] These types of metals tend to accumulate in fish tissue and other aquatic organisms. [16] "Accumulation of metals in various organs of fish may cause structural lesions and functional disturbances…[and also] cumulative toxic effect…such fish may constitute a potential risk for predatory fishes, birds and mammals feeding on contaminated fish."[17] And in the case of mercury, consumption of contaminated fish can cause neurological, developmental, and immunological harm to people as well.

d. <u>The Oakland Inner Harbor is a 303(d) listed waterbody identified as impaired by multiple pollutants contained in auto shredder dust.</u>

Section 303(d) of the Clean Water Act requires the state to create a list of impaired waters that are not meeting water quality standards and are thus insufficiently supporting beneficial uses such as fishing, swimming, and drinking.[18] The state must use this list to develop a Total Maximum Daily Load ("TMDL") to account for all of the sources of pollutants that are resulting in impairment for each waterway, and then based on the TMDL implementation plan must adjust relevant NPDES permits to be consistent with the plan. According to California's most recent 303(d) list, the Oakland Inner Harbor is contaminated by multiple pollutants including:

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[11] "*Deposition of coarse toxic particles in Wilmington, CA for the Department of Toxic Substances Control (DTSC): Summer, 2008 and Spring 2009*," UC Davis DELTA Group Study, May 6, 2011, at 1 of the Abstract.
[12] *Id.* at 45.
[13] *Id.* at 2 of the Abstract.
[14] *Id.*
[15] *Id.* at 42.
[16] *The Metal Uptake and Accumulation in Fish Living in Polluted Waters,* Jezierska, B. and Witeska, M., Soil and Water Pollution Monitoring, Protection and Remediation NATO Science Series: IV: Earth and Environmental Sciences, 2006, Volume 69, Part 0, 107-114, 107.
[17] *Id.* at 112.
[18] 33 U.S.C §1313(d).

- MERCURY (sediment and water column) from "industrial point sources…unspecified nonpoint source…atmospheric deposition"
- COPPER (sediment) – from "source unknown"
- LEAD (sediment) – from "source unknown"
- ZINC (sediment) – from "source unknown"
- PCBs (sediment and water column) – from "unknown nonpoint source, unspecified, source unknown"
- PAHs (sediment) – from "source unknown"[19]

As analyzed in the DTSC study at the Terminal Island facility, these pollutants are found in dust emissions from metal recycling and shredding operations, such as the Schnitzer facility.[20]

f. <u>The Board must require Schnitzer to eliminate fugitive dust discharges.</u>

Despite the Board staff's numerous observations of fugitive dust emissions depositing in the Oakland Estuary, the Order fails to identify fugitive dust emissions as a prohibited non-stormwater discharge. In light of this omission, the Board should add fugitive dust to the list of pollution sources and require a technical air monitoring and modeling study to determine the frequency and magnitude of contaminant loading, via indirect aerial contamination of stormwater, as well as direct aerial deposition to the Oakland Estuary.

The Board should also require Schnitzer to properly describe and account for its dust emissions in its SWPPP. The Industrial Stormwater Permit requires a facility's SWPPP to enumerate all "industrial activities that generate dust or particulates…their discharge locations, the characteristics of dust and particulate pollutants; the approximate quantity of dust and particulate pollutants" and a description of the primary areas where dust and airborne particles would settle.[21] Schnitzer's 2012 SWPPP fails to meet these requirements by not specifically identifying all of the fugitive dust discharge

[19] State Water Resources Control Board, Region 2 303(d) list (2010) from the "*2010 Integrated Report (Clean Water Act Section 303(d) List/305(b) Report) – Statewide*" http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtm.
[20] *See* DTSC and Delta Group Study, *supra* at 42.
[21] SWRCB Water Quality Order No. 97-03-DWQ, *supra* at 15.

locations, the characteristics of the pollutants in the dust or the approximate quantity of dust released or the onsite and offsite settlement areas.[22]

Furthermore, the BMPs section of the Order should include specific requirements for Schnitzer to implement new BMPs to eliminate fugitive dust emissions. In their 2012 SWPPP, Schnitzer describes water spray as the only significant fugitive dust control method, yet it is unclear how frequently this BMP is utilized[23] and whether this BMP is effective.[24] To prevent further pollution of the Oakland Inner Harbor from aerial deposition of heavy metals and other contaminants, Schnitzer's SWPPP should be further revised to specify the conditions that trigger the use of the water sprayer and to require a thorough assessment of more effective non-structural and/or structural BMPs. An EPA enforcement order against a similar discharger in Redwood City, CA provides an example of the kind of requirement the Order should include to address Schntizer's non-stormwater discharges: "within twelve months of the effective date of this Order, [the Discharger must] eliminate or otherwise address (e.g., obtain permit authorization for) any unauthorized non-stormwater discharges of pollutants from any industrial activities…to Redwood Creek."[25]

Finally, the Interim Corrective Action Plan of the Order identifies the cleanup of *settled* dust as a priority.[26] However, on page 11 of the Order, the Board fails to require a plan to clean up the sediment and water quality along the shoreline that have been impaired by discharges from the facility, including discharges caused by fugitive dust emissions. Schnitzer asserts that sediment has been tested under the pier and crane and the results show that the sediment is less polluted than ambient Bay levels.[27] Limited testing of sediment near the ship loading dock does not obviate the need for remediation of the area immediately adjacent to the shoreline where there is visual evidence of direct dust and debris deposition. Given that the Oakland Inner Harbor is impaired by multiple pollutants including ones that are known to exist in auto shredder discharges and emissions, the uncontroverted evidence of ongoing deposition of Schnitzer's dust and debris directly into the Oakland Inner Harbor warrants a Corrective

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[22] *See* SSI-Oakland SWPPP & MRP, Revised August 13, 2012, page 10.
[23] Baykeeper staff did not witness Schntizer using any dust control devices over a thirty-minute inspection of dust-producing activities. Baykeeper Oakland patrol, 9/7/2012. Baykeeper staff failed to see any controls being used to control fugitive dust during a second thirty-minute inspection. Baykeeper Oakland patrol, 9/28/2012.
[24] *See* SWPPP & MRP, *supra* at 19 ("Scrap pile dust control shall be limited to watering," and BMP effectiveness is "moderate").
[25] Environmental Protection Agency Enforcement Order Sims Metal Management, December 16, 2011, at 9.
[26] *See* Tentative Order at 12. The Board should include provisions to ensure that the required cleanup measures do not result in any additional non-stormwater discharges.
[27] *See* SWPPP & MRP, *supra* at 8.

Action Plan for the sampling and remediation of at least the segment of the shoreline adjacent to the facility, where Schnitzer's pollution-producing operations have had an impact for years.

Recommendation: The Order should require Schnitzer to conduct a technical air monitoring and modeling study for all potential sources of fugitive dust emissions and revise its SWPPP to propose and implement more effective BMPs for each source to prevent aerial deposition on the water or in the path of stormwater. The Order should also require a Corrective Action Plan for sampling and remediation of the shoreline sediment surrounding the facility.

2. The Order does not hold Schnitzer sufficiently accountable for its failure to adequately monitor and prevent unauthorized stormwater runoff from the facility.

California's Industrial Stormwater Permit states "[t]he facility operator must comply with all of the conditions of this General Permit. Any General Permit noncompliance constitutes a violation of the Clean Water Act (CWA) and the Porter-Cologne Water Quality Control Act and is grounds for (a) enforcement action for (b) General Permit termination, revocation and reissuance, or modification or (c) denial of a General Permit renewal application."[28] The Permit goes on to identify the conditions for Sampling and Analysis Reduction:

> A facility operator may reduce the number of sampling events required to be sampled for the remaining term of this General Permit if the facility operator provides certification that the following conditions have been met:
>
> (1) The facility operator has collected and analyzed samples from a minimum of six storm events from all required drainage areas;
> *(2) All prohibited non-storm water discharges have been eliminated or otherwise permitted;*
> (3) The facility operator demonstrates compliance with the terms and conditions of the General Permit for the previous two years (i.e., completed Annual Reports, performed visual observations, implemented appropriate BMPs, etc.);
> *(4) The facility operator demonstrates that the facility's storm water discharges and authorized non-storm water discharges do not contain significant quantities of pollutants; and*
> (5) Conditions (2), (3), and (4) above are expected to remain in effect for a minimum of one year after filing the certification.[29]

[28] SWRCB Water Quality Order No. 97-03-DWQ, *supra* at 46 (C.1 Duty to Comply).
[29] SWRCB Water Quality Order No. 97-03-DWQ, *supra* at 33 b(i) (emphasis added).

Schnitzer does not meet the Sampling and Analysis Reduction conditions above. As described in the first section of this letter, Schnitzer cannot claim that there are no non-stormwater discharges occurring because the facility is depositing fugitive dust containing pollutants directly and indirectly into the Oakland Inner Harbor. Additionally, Schnitzer cannot demonstrate that their discharges "do not contain significant quantities of pollutants" because they have not conducted adequate sampling of the facility's runoff to make that conclusion. In their most recent Annual Report, Schnitzer makes numerous assertions that the facility has no stormwater discharges and contends that that all stormwater is contained onsite and either recycled, reused, or properly disposed of after storage.[30] In fact, every weekly report for the 2011-2012 wet season states that upon visual inspection, including inspections conducted on the day of or during a rain event, "no unauthorized stormwater discharges" occurred.[31] The understanding that Schnitzer was fully containing stormwater onsite was in part the basis for the Regional Board's approval of a sampling and analysis reduction in 1997.[32] And Schnitzer "re-certified its Sampling and Analysis Reduction as part of its Annual Report each year since."[33] During their inspection, however, Board staff identified several locations where stormwater discharges have occurred and will continue to occur unauthorized:

- There are "areas along the perimeter and site egress where stormwater flows off-site."[34]

- "Berms and grading presently employed for containment at property boundaries are insufficient to claim full containment and allow debris and water discharge."[35]

The Board staff also specifically reference an "inefficient and ineffective stormwater collection system"[36] when relaying the pollution problems at the facility. Despite these observations, the Order fails to hold Schnitzer fully accountable for these unrecorded, unmonitored, and unauthorized discharges. The Order should immediately revoke the Sampling and Analysis Reduction certification and specify that during the interim period, until BMPs are improved to the Board staff's satisfaction, stormwater samples must be taken in accordance with the Industrial Stormwater Permit's requirements, if not more frequently, to compensate for years of unmonitored stormwater runoff.

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[30] 2011-2012 Annual Report for Schnitzer Steel Oakland – WDID# 2011003365 at 2, 4, 8, and all attached weekly Non-Stormwater Discharge Reports. Date stamped by the Regional Board on July 9, 2012.
[31] *See* 2011-2012 Annual Report, *supra* attached Weekly Non-Stormwater Discharge Reports.
[32] *See* Tentative Order, *supra* at 5.
[33] *Id.*
[34] Inspection Report March 29, 2012, *supra* at row FR-3.
[35] Tentative Order, *supra* at 12.
[36] Inspection Report March 29, 2012, *supra* at row O-15.

Further, Schnitzer's failure to adequately monitor stormwater discharges from the site for the 2011-2012 wet season, and during wet seasons going back to at least 2006-2007, constitutes multiple violations of the Industrial Stormwater Permit. In fact, the Board determined that Schnitzer is currently violating "Site Cleanup Requirement Order No. 88-023…the Industrial Storm Water General Permit Order 97-03-DWQ…the Water Qaulity Control Plan for the San Francisco Bay Basin…and the federal Water Pollution Control Act."[37] Pursuant to its authority under California Water Code, the Board should consider these violations and impose appropriate civil penalties against Schnitzer.[38]

Recommendation: If it has not already done so, the Board should immediately revoke Schnitzer's Sampling and Analysis Reduction allowance. It should also specifically revise the Order to identify locations where stormwater is discharging off-site and require full compliance with the Industrial Stormwater Permit requirements for monitoring these discharges from the facility and for implementing more effective BMPs. Furthermore, the Board should take Schnitzer's repeated violations of the Industrial Stormwater Permit and prior Order No. 88-023 into account and issue an Administrative Civil Liability for appropriate penalties.

3. The Order fails to provide a specific list of pollutants to monitor, sampling methodologies to use and a sampling schedule.

On page 9 of the Order, pursuant to California Water Code Section 13267,[39] the Board asks Schnitzer to produce a technical report identifying the pollutants that may be present in the process water, soil, groundwater and/or stormwater; this is a critical task that forms the foundation of the Order and forecasts the effectiveness of future pollution controls at the site. The Board should not give Schnitzer the discretion to propose possible pollutants to monitor in a technical report and then the freedom to create an acceptable sampling plan after the Order has been adopted and outside of

[37] Tentative Order, *supra* at 1.

[38] "In determining the amount of civil liability, the regional board, and the state board upon review of any order pursuant to Section 13320, shall take into consideration the nature, circumstance, extent, and gravity of the violation or violations, whether the discharge is susceptible to cleanup or abatement, the degree of toxicity of the discharge, and, with respect to the violator, the ability to pay, the effect on ability to continue in business, any voluntary cleanup efforts undertaken, any prior history of violations, the degree of culpability, economic benefit or savings, if any, resulting from the violation, and other matters as justice may require." Cal. Water Code §13327.

[39] "[T]he regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging...[waste] that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports." Cal Water Code §13276 b(1).

public scrutiny. At a minimum, the Order should explicitly contain sampling requirements for the pollutants known to be associated with metal processing and shredding, including TSS, COD, metals (e.g., lead, iron, copper, zinc, cadmium, chromium, arsenic, mercury), PAHs and PCBs.[40] Within the Order, the Board should also notify Schnitzer of the appropriate sampling methodologies to be used. The following example for stormwater sampling is from the EPA Order against the discharger in Redwood City, CA:

"[Discharger] shall sample storm water at the Facility during the next 24-hour storm event of 0.1 inch or greater at the sampling points identified…using the following specified sampling methods provided at 40 C.F.R. Part 136 for the following pollutants:

a. total suspended solids (TSS), using sampling method CWA 160.2 (or most current) or 2540D from Standard Methods 18th, 19th, or 20th edition;
b. metals (not including mercury) using sampling method CWA 200.7 or 200.8 (or most current);
c. mercury, using sampling method CWA 245.7 (or 1631E);
d. chemical oxygen demand (COD), using sampling method CWA 410.3 or 410.4;
e. polycyclic aromatic hydrocarbons (PAHs), using sampling method CWA 625, 1625B or RCRA 8270D (or most current); and
f. polychlorinated biphenyls (PCBs), using sampling method CWA 625 or SW-846 Method 8082A (PCB Aroclors) or latest revision and CWA Method 1668C (as the sufficiently sensitive method) for PCB congeners."[41]

In addition to providing a list of required pollutant monitoring for each identified pollution source, the Order should delineate the sampling frequency for each of the sources. For example, stormwater monitoring could require Schnitzer to sample "discharges from at least one 24-hour rain event resulting in 0.1 inches or more of rainfall…in each of the months of January, February, March, April, and May…."[42] The sampling frequency should be consistent until the Board staff is assured that the results are sufficiently representative of the annual discharges that may be occurring at the facility. If the Board requests Schnitzer to conduct preliminary monitoring of any of the sources of pollution, it should be to determine whether any *additional* pollutants should be monitored in each of these sources on an ongoing basis.

[40] *See e.g.* DTSC and DELTA Group Study, *supra*; Environmental Protection Agency Enforcement Order Sims Metal Management, December 16, 2011.
[41] Environmental Protection Agency Enforcement Order Sims Metal Management, December 16, 2011 at 8-9.
[42] *Id.* at 9.

Recommendation: For all pollution sources the Order should 1) specify pollutant parameters to be monitored, 2) set forth sampling methodologies, and 3) identify sampling locations and frequencies.

4. The Order fails to require necessary containment upgrades.

The Order asks Schnitzer to analyze the vertical and lateral extent of pollution in the soil and groundwater because "the lateral migration of pollutants through subsurface transport to the Inner Harbor…will degrade water quality or adversely affect its beneficial uses…."[43] The Order also asserts "standing water on the Site that has been in contact with the shredding and recycling processes indicates that the heavy metals and other pollutants have likely leached into the groundwater below."[44] In light of these observations regarding the standing water on the site, the Order should require monitoring and a technical report of the standing water that comes into contact with the shredding processes and is left to infiltrate. If sampling demonstrates that the collected water does in fact contain contaminants, then some of those contaminants may be leaching into the groundwater, and more elaborate groundwater analysis may be warranted. Additionally, it is necessary for the Order to require BMPs to better contain the water and route it to the treatment system so that the water is no longer in contact with truck traffic and metals piles. At a minimum, the Board should require Schnitzer to line the ponds of standing water, thereby creating formal detention areas, to prevent percolation.

Recommendation: The Order should require Schnitzer to take samples of the standing water left to infiltrate into the groundwater and to implement more effective containment BMPs to reduce standing water at the facility and prevent groundwater infiltration.

5. The Order fails to provide clear direction to Schinitzer or a specific cleanup level for the affected waters.

The Board has asserted that applicable state policy "requires attainment of background levels of water quality, or the highest level of water quality which is reasonable if background levels of water quality cannot be restored."[45] However, the Board goes on to declare that "it is unlikely that background levels of water quality can be restored" in

[43] San Francisco Bay Regional Water Quality Control Board, Site Cleanup Requirement Order No. 88-023, February 17, 1988 at 3.
[44] Tentative Order, *supra* at 8.
[45] Tentative Order, *supra* at 7 (citing State Water Board Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California).

this case.[46] Baykeeper would like to know what specific information the Board is relying on to make this conclusion and the particular information the Board expects from Schnitzer's remedial action plan that would confirm or deny this presumption.

If it is accurate that, in fact, water quality cannot be improved to background levels, then the Board is remiss in making this assertion without including in the Order stringent requirements that would ensure cleanup levels that are "consistent with the maximum benefit to the people of the State, [do] not unreasonably affect present and anticipated beneficial uses of such water, and [do] not result in exceedance of applicable water quality objectives."[47] As described throughout this comment letter, the Order currently defers to Schnitzer the responsibilities for identifying pollution sources, generating monitoring plans and creating cleanup plans. This deference, alongside the presumption that higher water quality cannot be achieved onsite has the unintended consequence of transferring the Board's authority to the dischargers. This deficiency can be remedied by either stating a clear cleanup level requirement and requiring Schntizer to develop a plan to achieve it or by providing stringent prescriptive requirements for monitoring and cleanup so that Schntizer is able to meet the Order's goal to improve water quality.

Recommendation: If the Board does not expect Schnitzer to attain background levels of water quality in the surface waters or groundwater onsite, then the Order should specify what cleanup levels will be required to protect beneficial uses, or the Board should strengthen the Order by including the requirements Baykeeper has advocated herein.

Thank you for your consideration of these recommendations. If you have any questions, please contact me at sejal@baykeeper.org or 415-856-0444 x107.

Sincerely,

Sejal Choksi-Chugh
Senior Staff Attorney
San Francisco Baykeeper

[46] Tentative Order, *supra* at 7.
[47] *Id.*

Deposition of car shredder aerosols into water surfaces: The results of the DTSC Terminal Island study, 2008-2009

Thomas A. Cahill, Professor of Physics and Atmospheric Sciences and Head, DELTA Group University of California, Davis

September 22, 2012

The SA Recycling automobile and white metal shredder on Terminal Island, Port of Los Angeles, CA, was studied in summer, 2008, and Spring, 2009. The 2008 study was done before installation of new pollution control equipment, and the Spring 2009 study after this equipment was in operation.

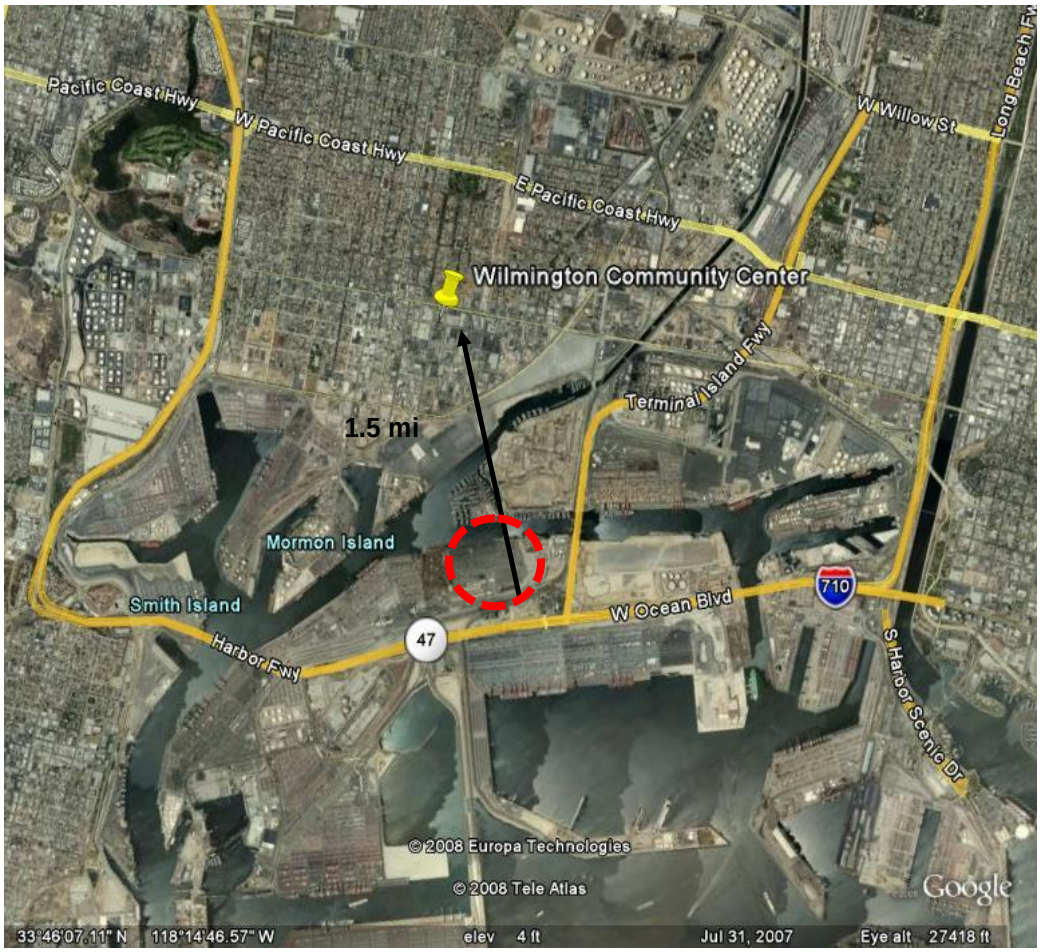


Figure 1 The Terminal Island study area. The SA Recycling plant is located within the dotted circle, and the Fire Station 49 sampling site directly across the water in the NNW direction.

Data on mass and elements are available in 8 size modes every three hours for 5 weeks in both studies at Fire Station 49, directly across the water from the shredder. During most hours, winds blew from the shredder to the sampling site from off the ocean.

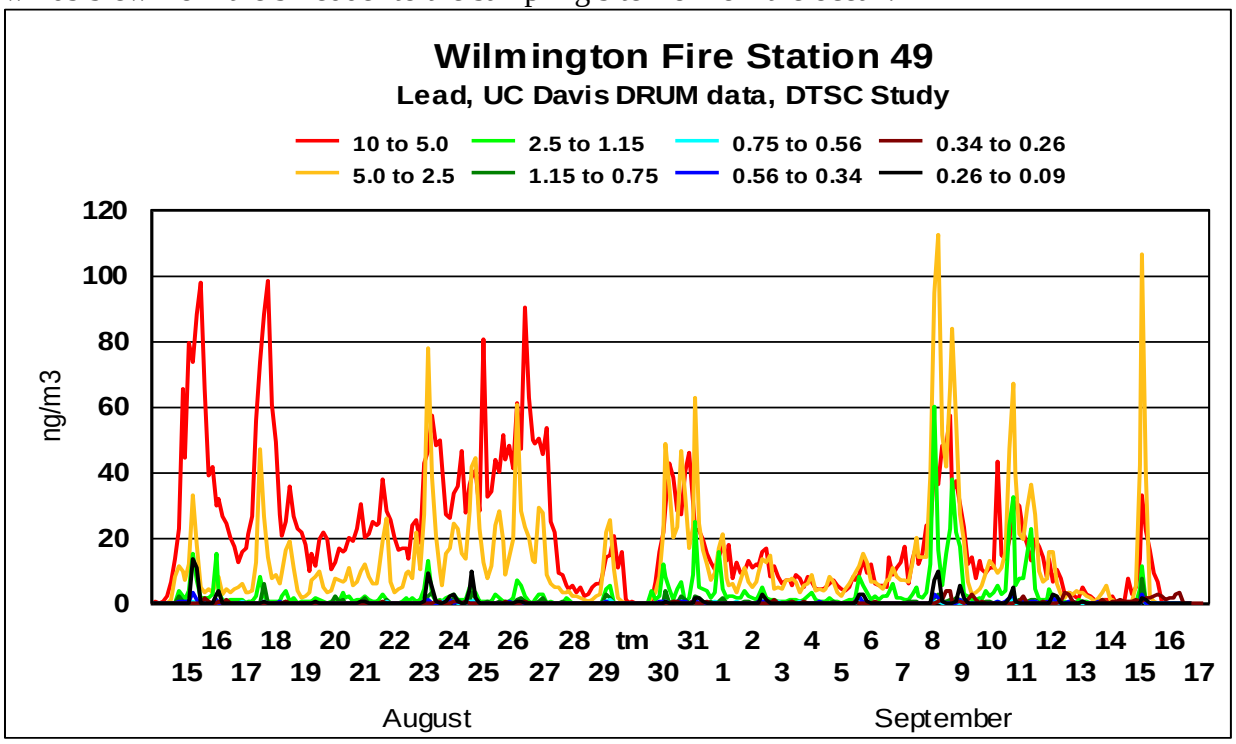


Figure 2 DRUM elemental data – lead, summer, 2008

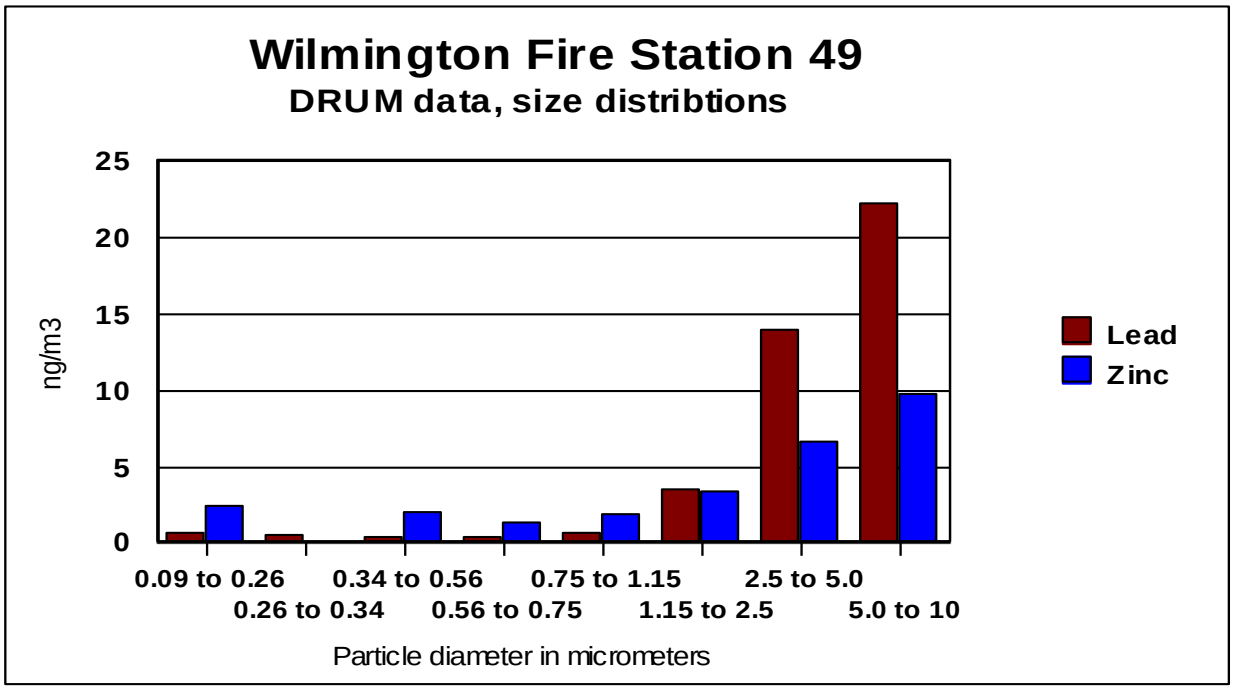


Figure 3 DRUM elemental data – size of lead and zinc, summer, 2008

In Table 1 (below) we present the average concentrations of air borne particles, summer, 2008, almost all of which occurred on winds that came from the Terminal Island; soil, (Al, Si, K, Ca, Ti, Mn, Sr, and about ½ of Fe) derived from SA operations, elemental pollutants (Cr, Cu, ½ of Fe, Zn, and Pb) from SA operations, toxic metals (V, Ni), most of which came from ocean going ships burning bunker oil, sulfur (from ships and diesel engines), and sea salt (Cl, Br). The particles > 1.15 µm have high settling velocities and will impact on water surfaces.

Soil elements	Al ng/m^3	Si ng/m^3	K ng/m^3	Ca ng/m^3	Ti ng/m^3	Mn ng/m^3	Fe ng/m^3	Sr ng/m^3
0.09 to 0.26	15.9	10.0	1.6	1.4	-0.35	0.18	8.6	0.11
0.26 to 0.34	18.2	13.5	2.8	1.4	-7.80	0.16	4.3	-0.01
0.34 to 0.56	47.6	30.6	4.4	3.5	0.14	0.39	5.3	0.15
0.56 to 0.75	31.0	24.9	3.8	6.0	0.72	0.29	4.9	0.09
0.75 to 1.15	32.3	40.5	9.2	18.4	1.44	0.34	12.5	0.12
1.15 to 2.5	61.0	104.3	28.2	61.2	4.71	0.77	37.0	0.35
2.5 to 5.0	166.0	301.1	51.1	128.3	11.67	1.81	83.5	0.43
5.0 to 10	244.4	427.1	54.9	167.9	13.79	2.43	99.1	0.36
Sum > 1.16	471.4	832.5	134.2	357.4	30.17	5.01	219.6	1.14

Pollutants	V ng/m^3	Cr ng/m^3	Mn ng/m^3	Fe ng/m^3	Ni ng/m^3	Cu ng/m^3	Zn ng/m^3	Pb ng/m^3
0.09 to 0.26	5.40	0.01	0.18	8.6	1.47	0.30	2.33	0.67
0.26 to 0.34	1.63	0.00	0.16	4.3	0.94	0.04	0.08	0.41
0.34 to 0.56	2.85	0.00	0.39	5.3	0.89	0.18	2.03	0.40
0.56 to 0.75	0.98	0.00	0.29	4.9	0.29	0.19	1.28	0.32
0.75 to 1.15	0.91	0.02	0.34	12.5	0.27	0.41	1.79	0.55
1.15 to 2.5	1.64	0.04	0.77	37.0	0.39	1.59	3.31	3.45
2.5 to 5.0	1.84	0.10	1.81	83.5	0.26	2.57	6.56	13.92
5.0 to 10	1.24	0.18	2.43	99.1	0.17	2.01	9.69	22.23
Sum > 1.16	4.71	0.32	5.01	219.6	0.82	6.17	19.57	39.60

Other	P ng/m^3	S ng/m^3	Cl ng/m^3	Br ng/m^3
0.09 to 0.26	11.25	290.2	0.0	0.28
0.26 to 0.34	16.27	409.9	0.0	0.01
0.34 to 0.56	31.27	821.9	0.0	0.22
0.56 to 0.75	18.12	476.8	0.0	0.28
0.75 to 1.15	11.33	311.8	3.0	0.17
1.15 to 2.5	7.36	209.1	75.3	0.57
2.5 to 5.0	7.38	196.0	255.9	0.79
5.0 to 10	7.03	140.6	283.1	0.92
Sum > 1.16	21.78	545.7	614.2	2.28

Table 1 Average aerosols elements seen at Fire Station 49, Wilmington, across the water from the Sa Recycling facility of Terminal Island, Port of Los Angeles.

The particles with sizes above 1 μm diameter settle efficiently into the water.

After the installation of enhanced air pollution control equipment, in Spring, 2009, very fine elements were sharply reduced, to 9% of prior values, and lead reduced to 40% of prior values.

Coarse particles, however, were roughly the same or even slightly higher than in 2008. This is interpreted as a successful reduction of prompt shredder very fine emissions, but continuing problems with mechanical mode particles mixed with soil, disturbed land surfaces, exposed piles, shredder operations, etc. This leads to predictions of deposition into the waterways directly downwind of the facility and the site where ships were loaded

Appendix A

Deposition of coarse toxic particles in Wilmington, CA for the Department of Toxic Substances Control (DTSC): Summer, 2008, and Spring, 2009; January 26, 2011,

The UC Davis DELTA Group, Davis, CA 95616, Principal Investigators Tom Cahill, David Barnes, Project Manager, UC Davis DELTA Group, and Kristen Boberg, DTSC

Abstract:

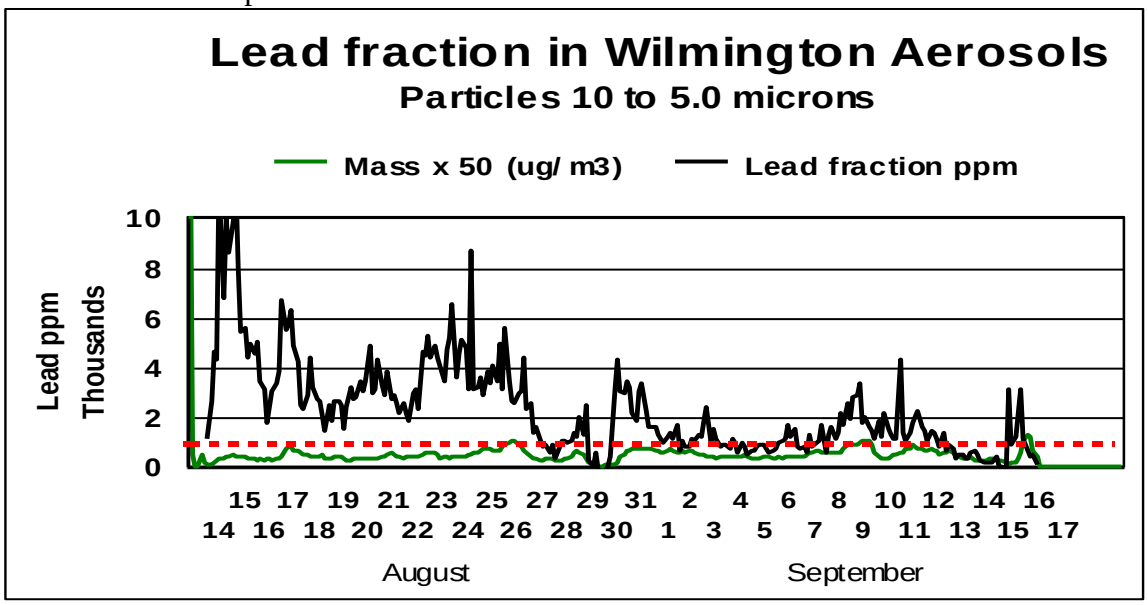
The Terminal Island shredder is the major source of stationary source emissions on the island, with 3.78 tons/year PM_{10}, (Appendix A), which is about ½ the total of all stationary facilities, plus about ½ of the cadmium, lead, mercury, copper and nickel aerosols.

In order to evaluate the impact of these materials downwind in Wilmington, CA, and specifically the deposition of toxic metals onto surfaces and the soil, a study was begun in Summer, 2008 to measure the source materials at the shredder, their transport as aerosols downwind into Wilmington, and their deposition impact onto surfaces including play ground structures. Specifically, the study posed the question of the toxic potential of airborne deposition.

On August 20, 2008 samples were collected from the Terminal Island shredder's pollution reduction system during the execution of a criminal search warrant by DTSC and later analyzed for elemental content by synchrotron-induced x-rat fluorescence (S-XRF) (Appendix C)

Aerosols were collected and analyzed downwind of the Terminal Island car/appliance shredder for mass and elemental content every 3 hrs in 8 size modes (10 to 0.09 μm) over a period of 5 weeks in August and September, 2008, and in 9 size modes (35 to 0.0 μm) over a period of 4 weeks in May and June, 2009. The aerosols measured in 2008, identified as originating from the shredder, contained lead and zinc, with lead averaging 96 ng/m^3 in the 16 major (6 hr duration@) episodes. In addition, an unusual very fine iron aerosol was seen coming from the shredder.

The amount of deposited particles was calculated by introducing the settling velocity (Sehmel, 1981, Seinfeld and Pandis 1997) for the aerosols. DTSC's regulatory thresholds only apply to deposited particles, not aerosols, so the deposition-weighted values are the only relevant ones to compare with DTSC's hazardous waste thresholds. We note that over all hours during the 6 week study the coarse (10 to 2.5 μm) lead values were 2,369 ppm, dominated by the episodes coming from Terminal Island, which averaged 4,446 ppm Pb. The deposited levels of both lead and zinc were in excess of DTSC's hazardous waste threshold limits, 1,000 ppm and 5,000 ppm respectively. Below we show the continuous lead data in aerosols in the size mode that provides 83% of all deposited lead.



Ship activity in the Port of Los Angeles was seen in the sulfur, vanadium, and nickel aerosols from ships in the harbor, with potential health impacts. However, these levels were somewhat less in 2009 than in 2008, perhaps reflecting less ship traffic, less likely due to improvements in emission rates from ocean going ships.

In terms of aerosols tied to the shredder in the 2008 study, measurements in spring, 2009, showed massive reductions in the very fine particles coming from the shredder. Very fine iron was only 9% of the 2008 level, while lead was reduced by 40% from the 2008 values. Further, very fine iron seen in spring, 2009, was usually correlated with activities at the shredder site monitored by video camera, including smoke emissions. Thus, the sharp reductions reflect improvements in the pollution control systems. Coarser aerosols particles were about the same as in 2008 or even slightly higher, likely reflecting resuspension of contaminated soils.

Wipe tests of impervious surfaces were made downwind of the shredder and into the City of Wilmington. These samples were analyzed by S-XRF and showed that the levels of lead and zinc fell off by about a factor of 2 as one moved from near-port sites into downtown Wilmington, (including the fence of a school playground), while still exceeding the lead and zinc DTSC hazardous waste threshold limits.

This report will present each of the periods separately and then perform the comparison study.

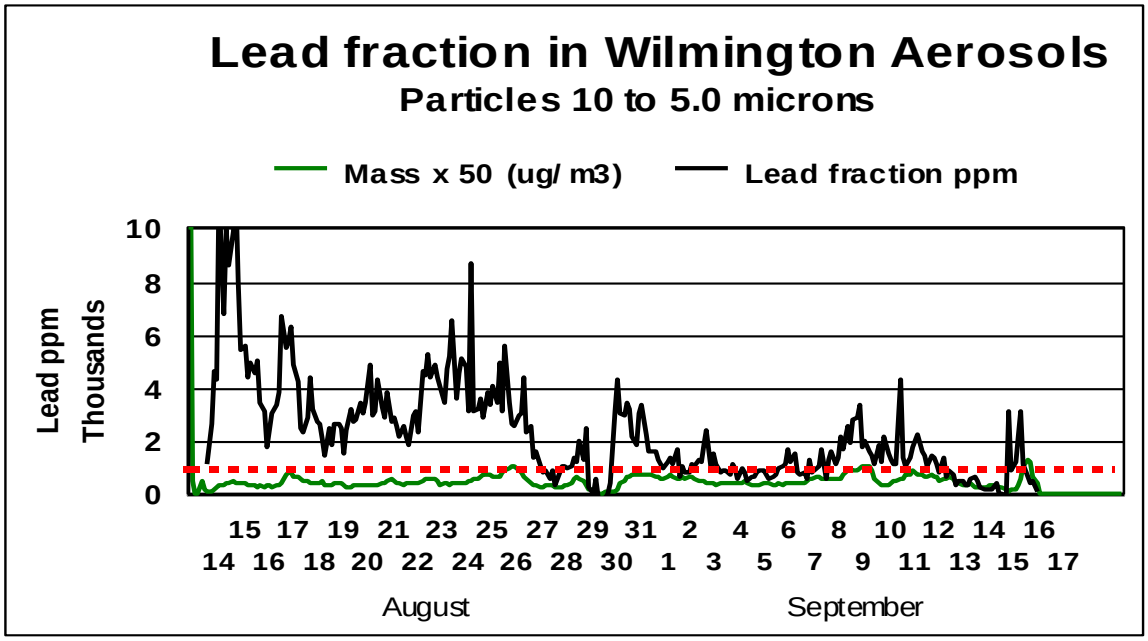
Part 1: Summer, 2008

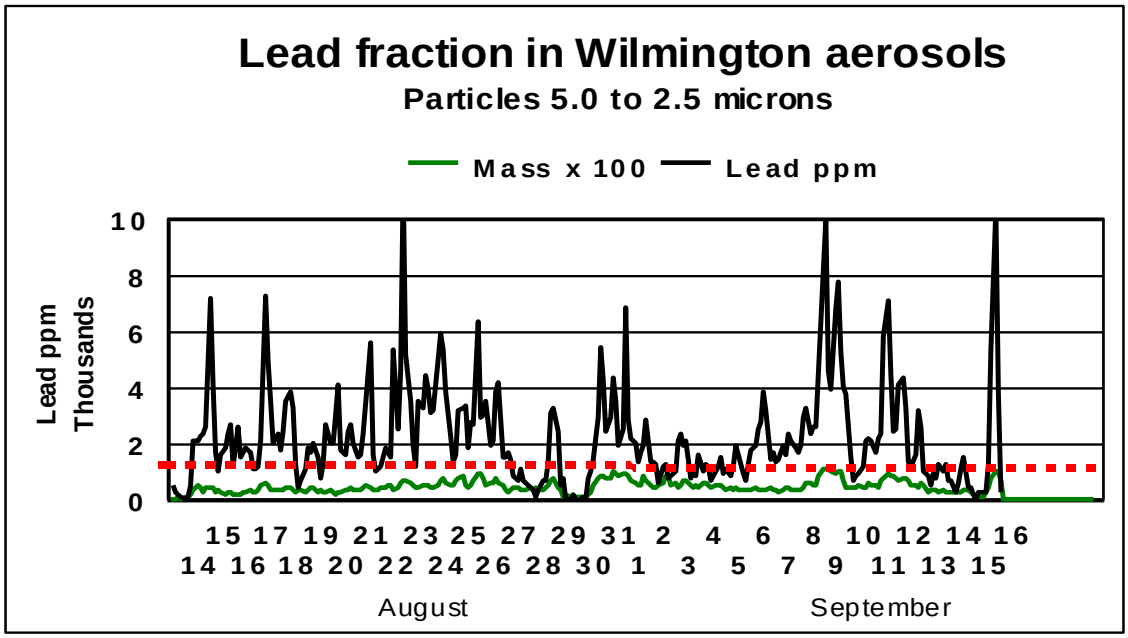
Deposition of coarse toxic particles in Wilmington, CA for the Department of Toxic Substances Control (DTSC)
August – September, 2008

Executive Summary – summer, 2008:

Elemental and mass values from the UC Davis DELTA Group 8 DRUM impactor, with DTSC personnel, support, and execution, have delivered unambiguous tracers of the impact of the Terminal Island auto/appliance shredder on Wilmington. These tracers overlap known hours of shredder operation and transport on south winds, and are confirmed by evidence of upwind aerosols from the harbor, including natural sea salt and the vanadium/nickel/sulfur pollution of ocean going ships using bunker oil as fuel.

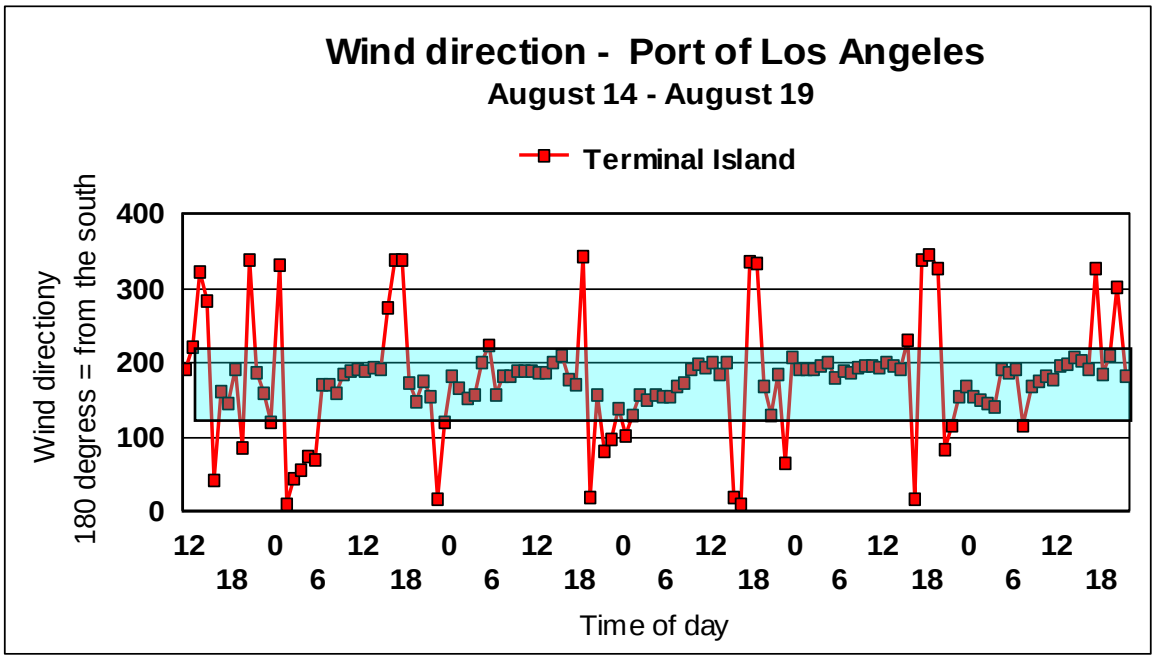
The data indicate the presence of many metals measured at the Wilmington Fire Station 49, including lead, which occur in coarse particles that will readily settle onto the ground. Two examples are shown below, including the 10 to 5.0 μm fraction responsible for 83% of all deposited lead. The DTSC 1,000 ppm lead standard shown below only applies to particles deposited onto surfaces.

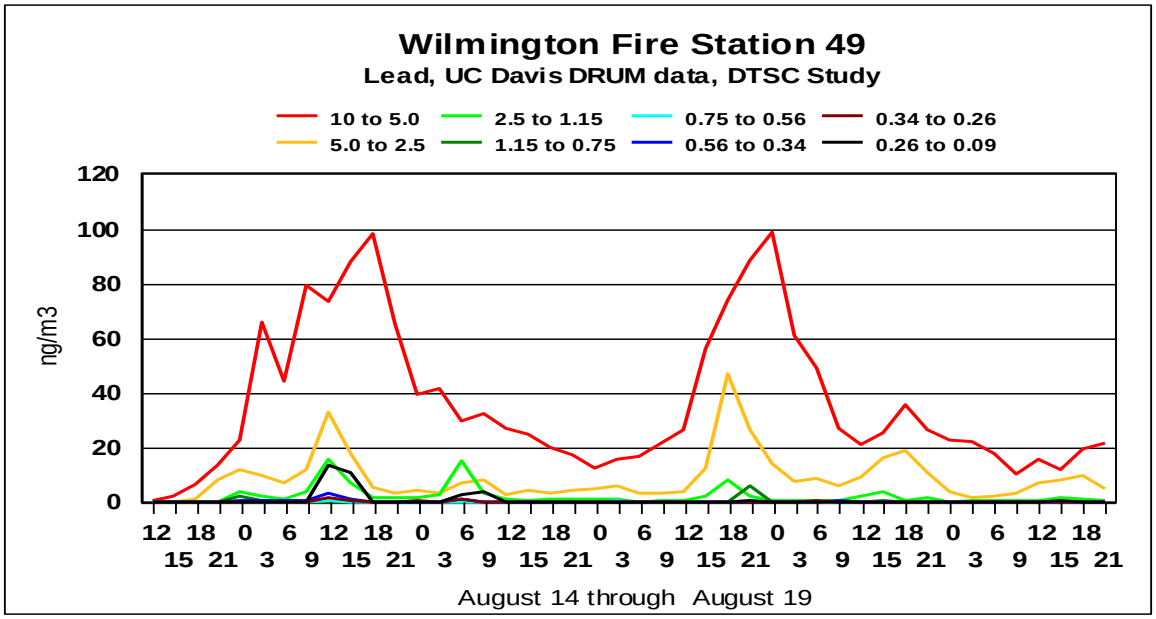




In addition to the coarse toxic elements, the very fine elements from the shredder, especially very fine iron, are themselves in concentrations and particle sizes that are capable of causing health impacts to lungs.

With the availability of local wind data from the LA Port network, it is possible to examine meteorological transport and toxic elements in Wilmington on a 3 hr by 3 hr basis. The daytime wind direction is routinely from the shredder to Fire Station 49, shown below. The aqua range is ± 45 ^{o} around the 160 ^{o} wind trajectory to Wilmington.





The high lead values, as well as iron and other elements, peak when the wind is blowing from the shredder to Wilmington. There also appears to be extensive lead and iron pollution, in the coarsest mode only, of the entire area around the sampling site that may represent prior shredder impacts.

Part 2: Spring, 2009

Deposition of coarse toxic particles in Wilmington, CA for the Department of Toxic Substances Control (DTSC), May – June, 2009, Thomas A. Cahill, Professor of Physics (Recalled), Atmospheric Science and Head, Delta Group, David Barnes, Ph.D., Project Manager, UC Davis DELTA Group, and Kristen Boberg, DTSC

Executive Summary – spring, 2009:

Aerosols were measured in May and June, 2009, at the same site used in the August – September, 2008 study, Fire State # 49 of the City of Wilmington. Guided by the results of the summer, 2008 study, a number of changes were made to reduce uncertainties and better establish rates of deposition of toxic particles:

1) Video monitoring was used to study shredder operations, day and night, with 1 hr time resolution,
2) Aerosol samples were collected from the pollution control system of the shredder to establish potential sources,
3) Aerosol measurements were made at FS#49 with two DRUM samplers.

a. One was identical to the DRUM used in summer, 2008, with 3 hr time resolution and a PM_{10} inlet, and analysis for mass and S-XRF elements, (Mg to Mo, plus Pb, Appendix C),

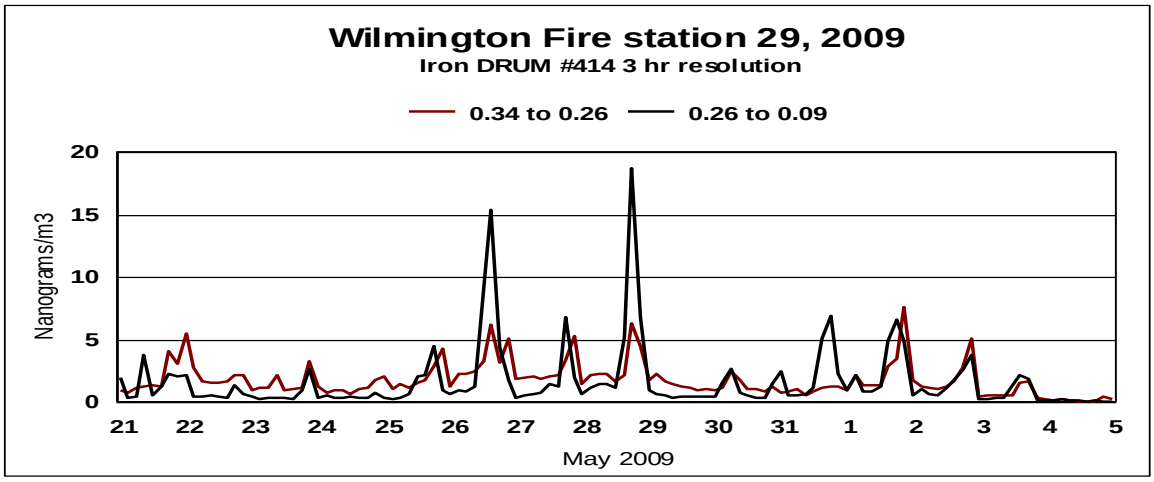
b. The second had a 35 μm inlet and a continuous ultra fine stage, $0.09 > D_p > 0.0$ μm stage, with 3 hr resolution, with mass and S-XRF elements,

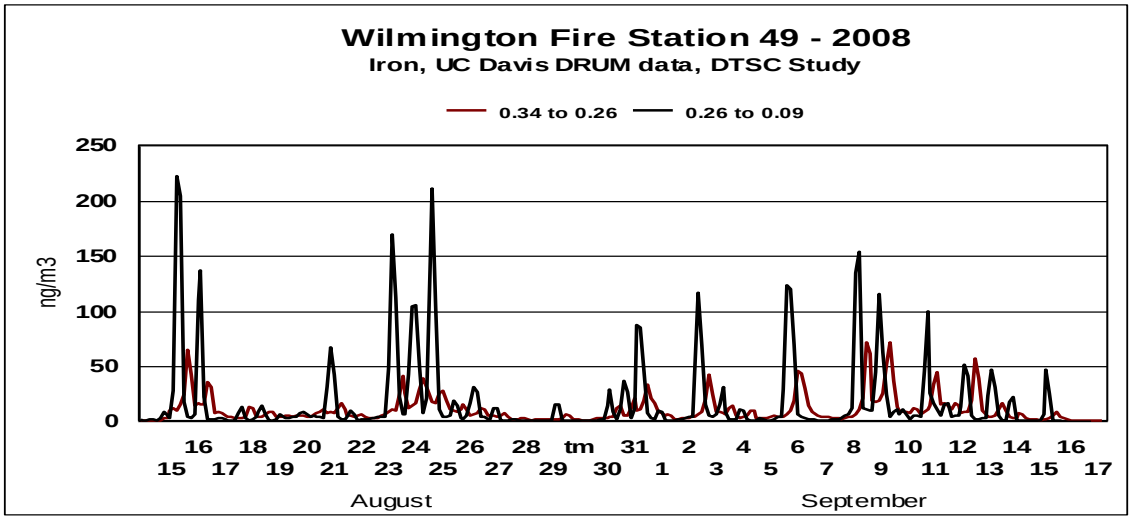
4. A third DRUM sampler was established in downtown Wilmington, with a 35 μm inlet, 3 hr time resolution, mass, and S-XRF elements,
5. Deposition foils were placed from the port to downtown Wilmington to directly measure deposition onto S-XRF analyzable filters,
6. Wipe samples were taken on S-XRF analyzable Teflon filters at sites near the port to downtown Wilmington to examine deposition to impervious surfaces.

Aerosol pollution from ships in the harbor burning bunker oil, traced by vanadium and nickel in the very fine mode, were reduced to 71% of the summer, 2008 values, with possible decreased port operations and/or improved regulations. Very fine sulfur aerosols, with the same ship sources plus diesels, were reduced to only 31% of the 2008 values.

The aerosol results showed that the same aerosols were seen as were observed in summer, 2008, coming from the shredder, confirming the previous association with the shredder but with important differences. The 2009 fine iron and lead were generally associated with smoke observed coming from shredder operations.

Very fine aerosols measured in Spring, 2009, measured much less than in summer, 2008. Specifically, very fine iron was reduced to only 9% of its 2008 value, and lead was reduced to 40% of its 2008 value.





Coarse particles, however, were roughly the same or even slightly higher than in 2008. This is interpreted as a successful reduction of prompt shredder very fine emissions, but continuing problems with mechanical mode particles mixed with soil disturbed land surfaces, exposed piles, shredder operations, etc.

The behavior of the wipe samples shows a progression from high levels for deposited lead and zinc at or near the port, and a fall off by about a factor of 2 as one moves deeper into the community. Other species such as iron show no such variation. All samples were above 1000 ppm for lead and 5,000 ppm for zinc. The E Street School site wipe was taken at the boundary fence of a pre-school play ground.

The deposition samples had a relatively high failure rate, with filters lost to winds, samplers missing, etc, but the method shows promise. The results of the deposition samples show clear input of non-soil iron, plus titanium, vanadium, manganese, and zinc, along with a modest increase in lead.