Exhibit 217

From: Geertsma, Meleah
To: Guy, Jeff; Pressnall, Chris
Subject: [External] Re: Typo in comments submitted yesterday
Date: Tuesday, June 16, 2020 9:31:04 AM
Attachments: image001.png

Great, thanks Jeff.

While you're at it, we also inadvertently left off "community complaints" from the bulleted list on page 21, if you're able to correct that mistake as well. Again the rest of the comments ID specific community complaints that we believe IEPA should take account of in this proceeding and at least one instance where IEPA cited to community complaints in denying a construction permit, so I didn't want this omission from the bulleted list to carry a bigger implication that such complaints shouldn't be considered along with NOVs, etc.

From: Guy, Jeff <Jeff.Guy@Illinois.gov>
Sent: Tuesday, June 16, 2020 9:24 AM
To: Geertsma, Meleah <mgeertsma@nrdc.org>; Pressnall, Chris <Chris.Pressnall@Illinois.gov>
Subject: RE: Typo in comments submitted yesterday

Thanks Meleah. I will take care of this.

Jeffrey J. Guy
Hearing Officer, Illinois Environmental Protection Agency
Office of Community Relations
(217) 785-8724
Jeff.Guy@illinois.gov

From: Geertsma, Meleah <mgeertsma@nrdc.org>
Sent: Tuesday, June 16, 2020 8:40 AM
To: Guy, Jeff <Jeff.Guy@Illinois.gov>; Pressnall, Chris <Chris.Pressnall@Illinois.gov>
Subject: [External] Typo in comments submitted yesterday

Hi Jeff and Chris -

On review, I noticed a typo that got by our proof last night. On pages 29-30 of our comments, the sentence should read "As taken up elsewhere in these comments, PM_{10} modeling (which the applicant and IEPA omitted without explanation) – even without using assumptions that account for some of the Draft Permit's emission estimate and enforceability issues and reflect the industry's and the companies' demonstrated problems with continuously controlling fugitive dust – shows potential violations of the 24-hour PM_{10}

NAAQS from the proposed GIII."

The actual substance of our comment on PM10 modeling later in the comments is clear on this point, so I want to make sure this incorrect sentence doesn't cause any confusion.

Let me know if I should submit an errata copy of the comments for the record.

Thanks,
Meleah

State of Illinois - CONFIDENTIALITY NOTICE: The information contained in this communication is confidential, may be attorney-client privileged or attorney work product, may constitute inside information or internal deliberative staff communication, and is intended only for the use of the addressee. Unauthorized use, disclosure or copying of this communication or any part thereof is strictly prohibited and may be unlawful. If you have received this communication in error, please notify the sender immediately by return e-mail and destroy this communication and all copies thereof, including all attachments. Receipt by an unintended recipient does not waive attorney-client privilege, attorney work product privilege, or any other exemption from disclosure.

Exhibit 217

R 004971

From: Geertsma, Meleah
To: EPA.PublicHearingCom
Cc: Guy, Jeff; Pressnall, Chris; EXT Harley, Keith; Nancy Loeb; Daryl Grable; Kryczka, Heather
Subject: [External] Comment on the Draft Permit for General III, LLC, 11600 S. Burley, Chicago, IL 60617, Application No. 19090021, I.D. No. 031600SFX
Date: Monday, June 15, 2020 6:26:26 PM
Attachments: FINAL GIII comments NRDC with SETF SCCBP 6.15.2020.pdf

Please find attached comments on the Proposed General III Draft Permit, prepared by the Natural Resources Defense Council in collaboration with and supported by the Southeast Environmental Task Force and the Southeast Side Coalition to Ban Petcoke, as noted in the comments.

We are submitting the exhibits for these comments by Dropbox at the following link, as discussed with Jeff Guy last Friday (a pdf of the comments are provided at this link as well):
https://www.dropbox.com/home/NRDC%20et%20al%20Comments%20and%20Exhibits%20GIII%20Draft%20Permit%20June%202020

Please note that the exhibits include modeling files.

With NRDC's support, SETF and the Coalition have submitted additional comments addressing other and related aspects of the Draft Permit.

If you have any questions or comments about this submission, or have any issues accessing the files via the Dropbox link, please reach out to me.

Sincerely,

Meleah Geertsma
Heather Kryczka

MELEAH GEERTSMA
Senior Attorney, Environmental Justice

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Please save paper.
Think before printing.

June 15, 2020

Illinois EPA
Attn: Jeff Guy, Hearing Officer
P.O. Box 19276
1021 North Grand Avenue
Springfield, IL 627-94-9276

Submitted Via Email: epa.publichearingcom@illinois.gov

Re: Public Comments on the Draft Permit for General III, LLC, 11600 S. Burley, Chicago, IL 60617, Application No. 19090021, I.D. No. 031600SFX

To Whom It May Concern:

We write to oppose the permitting of yet another heavy industrial facility – in this case of a notorious polluter relocating from the well-off, White Lincoln Park community that has ejected it – in Chicago's Southeast Side environmental justice community, due to a long list of legal and technical failures in the permitting process and Draft Permit for General III, LLC ("Draft Permit" "GIII"), culminating in the likely violation of air quality standards by the proposed new metal shredding facility. As set forth below, these failures provide ample ground for or compel a permit denial. At a minimum – which in itself is not sufficient to rectify the many shortcomings in this proceeding, including the application shortfalls – the agency must postpone its permit decision and/or substantially revise the Draft Permit to create robust and objective requirements that are enforceable as a practical matter.

These comments are submitted on behalf of the Natural Resources Defense Council and our roughly 3 million members and activists, including approximately 10,000 members and activists in the City of Chicago, a number of whom reside on the Southeast Side in close proximity to 11600 S. Burley, the location for the proposed new metal shredding facility. The Southeast Environmental Task Force ("SETF") and the Southeast Side Coalition to Ban Petcoke support these comments as well. SETF's mission is to ensure a healthy and safe environment for its residents, to preserve regional ecological resources and to achieve a sustainable economy that enhances local communities. The Southeast Side Coalition to Ban Petcoke is a community-based organization dedicated to the health, safety and welfare of the people who live, work and recreate in the Calumet region. Because of the scope of the shortcomings in this proceeding and Draft Permit, and due to the local, state and federal COVID-19 emergency and civil unrest occurring as the comment period went forward, it was not feasible for these aligned organizations to coordinate fully on a single set of comments.[1] Consequently, additional comments that are also

[1] The submission of these comments should not be interpreted by IEPA as indicating there was little to no impact of these dual emergencies on the drafters and their ability to meaningfully participate on behalf of their clients. Instead, the emergencies resulted in reduced work hours and otherwise challenging working conditions for multiple members

supported by NRDC will also be submitted by these organizations focusing on other and related aspects of the permitting process and Draft Permit.

I. Introduction

At its core, the proposed permitting of GIII is yet another failure of the Illinois Environmental Protection Agency ("IEPA") to fulfill its duties to protect the health and welfare of the state's residents, in particular to uphold its responsibilities to environmental justice communities like the Southeast Side. IEPA recognizes that

> 'Environmental Justice' is based on the principle that all people should be protected from environmental pollution and have the right to a clean and healthy environment. Environmental justice is the protection of the health of the people of Illinois and its environment, equity in the administration of the State's environmental programs, and the provision of adequate opportunities for meaningful involvement of all people with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.[2]

The specific goals of IEPA's environmental justice policy are as follows:

- to ensure that communities are not disproportionately impacted by degradation of the environment or receive a less than equitable share of environmental protection and benefits;
- to strengthen the public's involvement in environmental decision-making, including permitting and regulation, and where practicable, enforcement matters;
- to ensure that Illinois EPA personnel use a common approach to addressing EJ issues; and
- to ensure that the Illinois EPA continues to refine its environmental justice strategy to ensure that it continues to protect the health of the citizens of Illinois and its environment, promotes environmental equity in the administration of its programs, and is responsive to the communities it serves.[3]

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of the team, including experts, due to, e.g., child care obligations and other work-from-home hurdles like limited home-office capacity; increased competing obligations as team members supported community clients with needs made even more pressing by the emergencies; and delays in responses requesting relevant information from several agencies and businesses themselves facing reduced capacity due to the emergencies. As a result, the team had to make difficult decisions about where and how to allocate reduced capacity, and whether and how to move forward without some important information, resulting in comments that are not as comprehensive as they would otherwise have been without these two massive emergencies. These limitations compound the insufficiencies of the public process for this environmental justice community, as discussed elsewhere in our collective comments with respect to participation by community members themselves.

[2] Ex. 1, IEPA, "Environmental Justice," Illinois.gov, https://www2.illinois.gov/epa/topics/environmental-justice/Pages/default.aspx (last visited June 13, 2020).

[3] Ex. 2, IEPA, "Environmental Justice Policy," Illinois.gov, https://www2.illinois.gov/epa/topics/environmental-justice/Pages/ej-policy.aspx (last visited June 13, 2020).

Yet here, IEPA has in fact devalued the community's participation and its health and welfare in numerous ways, exercising its discretion over and over in favor of permitting a demonstrated polluter. This is not the just and equitable process or outcome that IEPA purports to uphold.

Instead, IEPA is proposing to approve a synthetic minor source air construction permit for GIII, a new 1,000,000 tpy metals recycling facility on Chicago's Southeast Side. The Southeast Side is a recognized environmental justice community where heavy industry pushes up against dense residential neighborhoods, situating a myriad of hazards next to low-income communities of color, including their homes, parks, and schools. The waterfront of the Calumet River here – with back-to-back industrial sites and their dilapidated metal buildings, open piles of waste and scrap and crumbling artificially built, poorly-maintained banks – is in stark contrast to Chicago's Riverwalk and the greenery and boathouses on the city's Northside.

Over the past several years, advocate-residents of this community have fought long and hard to clean up the many threats to their health and well-being by taking on mountains of petcoke, clouds of neurotoxic manganese dust and a second disposal facility for contaminated sludge and soil contaminated from years of steel company toxic dumping, among the many threats facing this community. Historically the Southeast Side has faced a much longer list of polluters, including the steel mills that left a legacy of contaminated soil and decades of exposure to a range of carcinogenic and neurotoxic pollutants.

It is against this backdrop that the Illinois EPA is proposing to grant a permit to construct yet another large heavy industrial site at 11600 S. Burley. This site is already the home to at least four other recycling operations affiliated under the Reserve Management Group umbrella ("RMG," doing-business-as South Chicago Property Management, "SCPM," hereinafter collectively referred to as RMG or RMG-SCPM), which themselves have been operating illegally without required local and state approvals for years and have been cited and/or found liable by the City for other environmental violations. The site is directly on the Calumet River, a mere 500 feet from the American Zinc Recycling facility and several bulk material handlers. Other significant polluters in the more immediate area where this relocated facility is planned include PVS Chemicals, Watco, Cargill and KCBX to name a few, along with the Shroud Superfund site.

The site is roughly a third of a mile from Washington High School, Washington Elementary School and Rowan Park, along with one of the few shopping plazas still serving this heavily burdened community. Already yet another recycling facility is being proposed by RMG-SCPM immediately to the East of the proposed GIII, bringing this single source even closer to schools and people's homes. Nearly 7,000 people live within one mile of 11600 S. Burley, of whom 72% are of Hispanic origin, 2% are African-American, and 31% are Other/Multi-racial; roughly 40% of the households within one mile make less than $50,000 per year.[4] According to USEPA's

[4] *See* Ex. 3-4, USEPA, "Detailed Facility Report for Napuck Salvage, 11600 S. Burley Ave.," Enforcement and Compliance History Online, https://echo.epa.gov/detailed-facility-report?fid=110046596750#pane3110046596750

EJSCREEN, the site ranks in the 91st to 99.8th percentiles for all Census Block Group EJ Indexes, with most scores above the 97th percentile.

Moreover, this is not just any "new" facility – Illinois EPA's proposed permit would enable the relocation of General Iron, a notorious scrap metal recycler currently located in the city's well-off, predominantly White Lincoln Park community, to this environmental justice community. General Iron has long been the source of community complaints about noxious, burning metallic odors, explosions, auto shredder "fluff" dispersing into the community, other fugitive dust, operating outside of approved hours, and on and on. Until recently, complaints against this politically-connected business went largely unheeded under Mayor Emanuel's time in office. As public pressure mounted in 2016 to 2019 to get General Iron out of Lincoln Park with the proposed Lincoln Yards development and rezoning of the North Branch of the Chicago River, the Mayor's Office behind closed doors facilitated an agreement whereby General Iron would leave the higher income and largely white Northside Lincoln Park neighborhood by 2020 and relocate to the Southeast Side environmental justice community.

While Mayor Lightfoot's election in 2019 did not change the overall trajectory of this agreement, more proactive inspection and enforcement actions of General Iron at its current Lincoln Park site by the Chicago Department of Public Health ("CDPH") beginning in late 2019 has documented almost to a tee the issues of which the Northside community has complained for years, and resulted in numerous notices of violation, the majority of which await hearing due to a halt in administrative hearings during the COVID-19 pandemic. The most recent violation stems from a massive explosion on May 18, apparently originating in the new pollution control equipment installed by General Iron as a result of a U.S. Environmental Protection Agency ("U.S. EPA") enforcement action, that knocked out the controls, flattened buildings, and left the facility currently unable to operate.

GIII would join at least four other co-located facilities at 11600 S. Burley, itself an allegedly-remediated site contaminated by the LTV Steel Company, and other co-located and/or adjacent related facilities. For years, these metals facilities owned and operated by the RMG-SCPM have been flying under the radar without attention from environmental regulators or enforcers despite a number of community complaints and the environmental justice nature of the location. Even with this relatively low profile and lack of agency attention, these RMG facilities have been shown to have violated local and state environmental laws, including admitted failures to obtain proper local and state air approvals and instances of fugitive dust beyond the facility boundaries. Moreover, CDPH's inspections database contains a disturbing narrative documenting a wider range of problems and likely environmental infractions at these sites and potentially others owned and operated by SCPM over the years, many of which appear ongoing today.

(last visited June 13, 2020). Expanding the radius to three miles sees a shift to a greater percentage of African-American residents and lower percentage of residents of Hispanic origin, while increasing the percentage of households making less than $50,000 to nearly 60%.

The problems documented at General Iron and its business partner RMG-SCPM are not new or unique to their recycling facilities. Communities living with metals recycling facilities have long protested their many impacts, yet the industry has flown under the regulatory and enforcement radar. Of late, other cities and states have stepped up and done important work documenting, describing and addressing the air, water and soil impacts of metals recycling facilities.[5] In at least one instance, in neighboring Minnesota, proactive monitoring and enforcement by the state environmental agency resulted in the shut-down of a problematic facility in a Minneapolis community not unlike the Southeast Side, and a better controlled replacement facility built 45 miles outside of the city and away from a densely-populated, low-income community of color threatened by its hazardous emissions.

The Illinois EPA has the opportunity to join these other agencies as a leader in protecting the public health and welfare of Illinois residents, in particular those living in environmental justice communities like the Southeast Side. Instead, IEPA is proposing a permit that ignores the reality of metals recycling facilities and reflects an outdated, unenforceable approach to controlling air pollution, signaling that the agency has learned nothing from our collective experience with petcoke and manganese and yet again is turning a blind eye to environmental justice issues in Illinois.

II. The Draft Permit Should Not Issue As-Written Given the Long Histories of Environmental Noncompliance by Both Companies

Given General Iron and RMG's long and disturbing history of noncompliance with air and other environmental requirements, including repeat offenses related to the shredder and fugitive dust as recently as this spring, IEPA should deny approval of the permit. At minimum based on this record, IEPA should ask Governor Pritzker to postpone the statutory permit decision deadline and declare the permit application incomplete, require the applicant to submit required additional information, and substantially revise the (otherwise deficient, as taken up elsewhere in our collective comments) Draft Permit. Section 39(a) sets forth the following with respect to IEPA's authority to consider noncompliance in its permitting decisions, as well as its general authority to impose conditions as necessary to accomplish the purposes of the Act:

> In making its determinations on permit applications under this Section the Agency may consider prior adjudications of noncompliance with this Act by the applicant that involved a release of a contaminant into the environment. In granting permits,

[5] For a summary of impacts from metals recycling facilities and efforts in California, Houston and Minneapolis, *see* Ex. 5, Comments on Proposed Rules for Large Recycling Facilities, submitted by Southeast Environmental Task Force, the Chicago South East Side Coalition to Ban Petcoke, Little Village Environmental Justice Organization, and the Natural Resources Defense Council, to the Chicago Department of Public Health on June 21, 2019, available at https://www.chicago.gov/content/dam/city/depts/cdph/InspectionsandPermitting/Comment_NRDC_SETF_SSCBP_LVEJO_6-21-19.pdf; *see also* Ex. 6, Attachments to June 21, 2019 comments on Proposed Rules for Large Recycling Facilities.

> the Agency may impose reasonable conditions specifically related to the applicant's past compliance history with this Act as necessary to correct, detect, or prevent noncompliance. The Agency may impose such other conditions as may be necessary to accomplish the purposes of this Act, and as are not inconsistent with the regulations promulgated by the Board hereunder.

415 ILCS 5/39(a). As discussed below, this language consists of three separate sentences recognizing and delineating three areas of IEPA authority and discretion to ensure that the agency's permitting actions uphold the Act's express requirements and purpose. Together, they map out significant authority to take into account an applicant's environmental track record and to otherwise issue permits with stringent requirements. Contrary to IEPA staff public statements during the comment period, IEPA is not limited to considering the permit based solely on the application.[6] Nor is IEPA's ability to take noncompliance into account in permitting limited to the "narrow exceptions" claimed and described by the agency. Instead IEPA has ample authority to consider the applicant's history of noncompliance in this permitting action, as set forth below, and to otherwise require controls and compliance measures beyond the minimum expressed in the Act and implementing regulations. Moreover, IEPA should exercise this discretion in this case to protect the Southeast Side, an already overburdened environmental justice community, from yet another polluting facility that well-off Lincoln Park has ejected.

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[6] *See, e.g.*, Ex. 7, Maxwell Evans, "Explosion, City Shutdown Won't Stop State EPA From Letting General Iron Move to East Side," Block Club Chicago, May 26, 2020, available at https://blockclubchicago.org/2020/05/26/explosion-city-shutdown-wont-stop-state-epa-from-letting-general-iron-move-to-the-east-side/ (quoting IEPA spokesperson Kim Biggs that "[p]ast or ongoing compliance issues *must* be addressed through the [IEPA's] compliance and enforcement programs," not the permit review process; that "[t]his stems from past court rulings holding that permitting is no substitute for enforcement"; and that "[t]he Agency *must not* deny or condition a permit decision based upon allegations that a source is violating, or has violated, applicable requirements.") (emphasis added). *See also* Ex. 8, email from Brad Frost, Manager of Community Relations, IEPA, to Nancy Loeb, Counsel for the Southeast Side Coalition to Ban Petcoke, Keith Harley, Counsel for the Southeast Environmental Task Force and Meleah Geertsma, Counsel for NRDC, June 5, 2020 (asserting that "Agency review *does not* look to past practices or conduct at the source (or the same source at another location) but, rather, considers if the applicant's emission units or equipment that are being constructed or operated will comply with such requirements prospectively *based on information contained within the application* for permit.

An applicant's past or on-going compliance issues *must* instead be addressed through the Agency's compliance and enforcement programs. The distinction stems from past court rulings holding that permitting is no substitute for enforcement, and that the Agency must not deny or condition a permit decision based upon allegations that a source is violating, or has violated, applicable requirements.

Narrow exceptions will exist in the case of an applicant that has been previously adjudicated of violations that relate to either an environmental release or to prior experience in waste management operations, clean construction or demolition debris fill operations, or tire storage site management. These exceptions are found in Sections 39(a) and (i) of the Environmental Protection Act," (emphasis added) (citing *IEPA v. PCB*, 252 Ill. App3d 828 (3rd Dist. 1993), *ESG Watts v. PCB*, 286 Ill. App3d 325 (3rd Dist. 1997); *Grigoleit v. EPA*, PCB No. 89-184 (November 29, 1990), and *Martell v. Mauzy*, 511 F. Supp. 729 (N.D. Ill. 1981).").

A. IEPA Should Deny the Permit Based on Admitted and Adjudicated Violations of Environmental Requirements by General Iron and RMG, Part of These Companies' Long Histories of Noncompliance.

IEPA has the authority to deny an air permit based on past adjudications of noncompliance with the Act and should do so in this case, given a history of admitted, uncontroverted noncompliance with state air approval requirements by RMG-SCPM and adjudicated environmental violations by both companies involved in this venture obtained through the City of Chicago's enforcement actions and administrative hearings process. Under 415 ILCS 5/39 (a), "[i]n making its determinations on permit applications" IEPA "may consider prior adjudications of noncompliance with this Act by the applicant that involved a release of a contaminant into the environment." Thus, IEPA has the discretionary authority to deny a permit application on the basis of prior violations that have been adjudicated against a permit applicant. IEPA should do so in this case given the existence of such prior violations and to produce a just outcome for the Southeast Side environmental justice community.

First, RMG-SCPM, an entity involved in the business venture backing the proposed new facility and that operates significant facilities adjacent to the proposed GIII, has admitted to IEPA its noncompliance with the Act with respect to the failure of several of the current facilities at 11600 S. Burley to obtain proper state air approvals.[7] This admission constitutes an uncontroverted instance of noncompliance with the Illinois Environmental Protection Act, the further adjudication of which in front of a court or administrative judge is not necessary to ensure that the company's due process rights have been met. Furthermore, the failure to obtain proper state air approval is no mere paper violation, but instead has resulted in the company in fact releasing unpermitted amounts of pollution to the environment.[8]

Moreover, the noncompliance by these facilities appears to have been going on for years and was only brought forth by the companies during the GIII permitting because it was inevitable that it would be discovered. It was grossly unfair and contrary to the Act to offer these companies enforcement protections related to these uncontroverted instances of noncompliance, as set forth in our prior letter to IEPA.[9] Likewise, it would be grossly unfair and contrary to the Act to now claim that the company cannot be held accountable in this permitting action for its *self-disclosed*, *uncontroverted* noncompliance. This is especially true where the company did not in fact qualify

[7] *See* Ex.9, Letter from Hal Tolin, South Chicago Property Management, Ltd., to IEPA Bureau of Air, November 1, 2019 (stating that during a meeting between IEPA and SCPM, IEPA staffer Eric Jones recommended that "a voluntary self-disclosure be submitted to the compliance unit to address the discovery of the requirement to obtain a Lifetime Operating Permit for the SCPM entities" and that "[t]his letter constitutes the SCPM Entities self-disclosure under Section 42(i) of the [Act]." The letter goes on to erroneously claim that SCPM meets the nine criteria set forth by the Act for penalty reduction.).

[8] This is in contrast to, e.g., a failure to submit a required report where the report itself demonstrates compliance with pollution limits and control obligations, which may not constitute noncompliance involving a release of a contaminant into the environment for purposes of Section 39(a).

[9] *See* Ex. 10-15, email and attachments from Meleah Geertsma, NRDC, to Bob Bernoteit and Chris Pressnall, IEPA, December 18, 2019.

for a penalty reduction under 415 ILCS 5/42(i) because of existing community complaints and evidence that the facilities also had violated other air requirements in the past several years as a result of its failure to obtain approvals. On this basis alone, the IEPA has the authority to deny a permit for the proposed GIII facility.

Second, both General Iron and RMG have been held liable by the City of Chicago, through its enforcement process including adversarial administrative hearings, for, *inter alia*, the following air quality-related violations: releasing prohibited air pollution, unlawful fugitive dust emissions, violating permit conditions, operating without a permit and nuisance – as well as other violations involving releases of contaminants to the environment. The text of Section 5/39(a), the overall structure of the air regulatory and enforcement scheme set forth in the Illinois Environmental Protection Act, and the federal Clean Air Act, support if not compel recognizing such adjudicated violations stemming from enforcement by a local environmental agency as a basis for IEPA denying a permit.[10] This is especially true where, as here, the local agency in fact has deep experience and expertise in air regulation and enforcement; the local agency in fact holds

[10] In the past, IEPA has taken the position, citing no authority and without further analysis, that it may only deny a permit under 415 ILCS 5/39 (a) if there is an adjudicated liability finding by the Illinois Pollution Control Board or a court. *See* Ex. 16, IEPA, Responsiveness Summary, Issuance of a Construction Permit Sterigenics U.S. LLC – Willowbrook I, September 20, 2019, at pp. 68-69, fnt 6, available at https://www2.illinois.gov/epa/topics/community-relations/sites/ethylene-oxide/Documents/Responsiveness%20Summary%20Final.pdf. There is nothing in the statute or in the case law to support this limited reading of IEPA's authority under Section 39(a). Indeed, such a narrow reading would lead to a self-perpetuating cycle – where IEPA fails to exercise its enforcement discretion, it would also tie its hands in the permitting process. This appears to be exactly what is occurring here: to our knowledge, IEPA has chosen not to conduct inspections or commence enforcement proceedings against General Iron or RMG over the past decade or has at most conducted limited investigations that have failed to remedy the ongoing problems, despite the facilities' long history of explosions and fires, chronic air quality violations, City reports demonstrating problems with equipment and operations at the facilities, decades of citizen complaints, and history of illegally operating without a permit. Further, if IEPA now claims that it is unable to deny the permit based on lack of violations adjudicated by the Pollution Control Board or a court, this is symptomatic of IEPA's choice not to invest its resources in inspecting and enforcing the law against these companies. It would be absurd and a violation of IEPA's responsibility to act equitably in its activities for an environmental justice community to be denied fair application of the law simply because the Agency chooses not to enforce the laws it is charged with enforcing.

Nor is this gap in enforcement unique to these companies, though General Iron presents a particularly egregious case. IEPA has dramatically downsized its staff in recent years, causing reductions in inspection and enforcement activities. *See* Ex. 17, Mark Templeton, Robert Weinstock, Elizabeth Lindberg, Mary Gade, and Doug Scott, Policy Analysis: Protecting the Illinois EPA's Health, so that It Can Protect Ours (Nov. 2019), *available at* https://www.law.uchicago.edu/files/IEPA%20Report%20FINAL%2011.21.19.pdf. IEPA inspections of air-polluting facilities have declined 81 percent since 2003. *Id*. at 2. The number of enforcement cases referred to the Attorney General have also significantly declined in recent years. *Id.* Given the number and intensity of air pollution sources located in environmental justice communities in Chicago and Illinois more generally relative to better-off communities, this burden falls particularly heavily on EJ communities and failure to recognize adjudicated enforcement actions by local government authorities would deny these communities the protections to which they are entitled by the law. Indeed, in the past several years, the community, City and USEPA have been left to police pollution on the Southeast Side, addressing petcoke and manganese and identifying multiple facilities operating without state permits, due to IEPA's absence in its role of primary environmental regulator and enforcer.

an air enforcement delegation agreement with IEPA; the local agency has in fact been acting as the responsible, primary air enforcer in IEPA's absence; the adversarial process in fact provided the alleged violator a number of ways to present its case to an impartial arbiter; and the adjudicated instances of noncompliance are in fact for violations that are in substance virtually identical to parallel provisions of the Act itself and implementing state air regulations, and on subjects directly relevant to the permitting at hand. To hold the contrary would devalue a critical partner in air pollution regulation and enforcement recognized by the Act, while prioritizing polluters over the Act's purpose "to restore, protect and enhance the quality of the environment, and to assure that adverse effects upon the environment are fully considered and borne by those who cause them." *See* 415 ILCS 5/1(b); *see also id.* at 5/1(c) ("The terms and provisions of this Act shall be *liberally construed* so as to effectuate the purposes of this Act as set forth in subsection (b) of this Section," (emphasis added)).

One of the central purposes of the Illinois Environmental Protection Act is to ensure coordination and aggressive control of pollutants across multiple levels of government. The statute provides that IEPA is "to encourage and assist local governments to adopt and implement environmental protection programs consistent with this Act." 415 ILCS 5/2 (a)(iv). Chicago has adopted provisions in its municipal code and agency regulations that regulate air pollution and fugitive dust, along with other environmental issues.[11] Indeed, air quality regulation in the United States *originated* in local Chicago legislation back in 1881, pre-dating the state's scheme by many years.[12] The importance of local government in the regulation of air quality is not only explicitly recognized by the Illinois Environmental Protection Act, but is also set forth in the Congressional findings and declaration of purposes in the federal Clean Air Act: "The Congress finds… that air pollution prevention… and air pollution control at its source is the primary responsibility of State and *local* governments…". *See* 42 U.S.C. § 7401(a)(3) (emphasis added).

Thus, it is entirely consistent with the Act to recognize that IEPA may exercise its discretionary authority to deny permits on the basis of adjudicated noncompliance with local air regulations, because those local air regulations are recognized and encouraged by the Act itself, thus rendering adjudicated local violations "noncompliance with this Act" under Section 39(a).[13]

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[11] *See* Title 11 of the Chicago Municipal Code, available at https://codelibrary.amlegal.com/codes/chicago/latest/chicago_il/0-0-0-2495150; *see also* various environmental rules and regulations available on CDPH's website, available at https://www.chicago.gov/city/en/depts/cdph/supp_info/healthy-communities/doe_ordinances_rulesandregulationsandsupportingdocuments.html.

[12] *See* Ex. 18, Stern, Arthur (1982), History of Air Pollution Legislation in the United States, Journal of the Air Pollution Control Association, 32:1, 44-61, DOI: 10.1080/00022470.1982.10465369, available at https://www.tandfonline.com/doi/pdf/10.1080/00022470.1982.10465369.

[13] This interpretation of Section 39(a) is consistent with the Act's emphasis on local agency implementation of the environmental protection program, as well as the structure of Section 39 and the Act's specific provision in Section 39(i) allowing for consideration of adjudicated violations of local laws in the context of permitting for waste facilities. Sections 39(a) and 39(i) each allow for permits to be denied based on adjudicated noncompliance. Section 39(i) specifically calls out federal, state and local regulations, making clear that the Act does consider noncompliance with local regulations as proper for IEPA's consideration in permitting decisions. Section 39(a), in turn, refers to adjudicated violations of the Act broadly, without specifying the level of government that must

Such an interpretation also is not in conflict with case law (predating the current Section 39(a) language) that adjudicated findings of liability may form the basis of a permit denial, and which do not otherwise discuss local ordinance violations or constrain the venue for providing due process that applicants must receive on the enforcement side. *ESG Watts, Inc. v. Pollution Control Bd.*, 286 Ill.App.3d 325, 335 (3rd Dist. Ill. 1997) (upholding an agency's denial of a permit for adjudicated violations of the law, and where agency did not rely on unadjudicated violations in denying the permit); *Environmental Protection Agency v. Pollution Control Bd.*, 252 Ill.App.3d 828, 830 (3rd Dist. Ill. 1993) (agency improperly used permit denial process in place of enforcement procedure when it denied permits solely on the basis of alleged violations). In contrast, nowhere does the Act expressly state that IEPA cannot consider adjudications of local air ordinances as a basis for denying a permit under Section 39(a), as we understand IEPA has claimed.

Moreover, here IEPA has entered into an air delegation agreement with the City of Chicago, formalizing CDPH's role as an enforcement partner in carrying out the Act. The delegation agreement enumerates CDPH's responsibilities, requiring them to assist IEPA with the state agency's enforcement actions, conduct inspections, note violations of state law (including fugitive dust provisions), respond to citizen complaints, and keep records of inspections and violations.[14] This delegation to local authority is in keeping with the Illinois Environmental Protection Act, which provides that IEPA may enter into written delegation agreements with local governments for administering the Act, delegating all or portions of its inspecting, investigating and enforcement functions, subject to IEPA review. 415 ILCS 5/4 (g), (r). Thus, IEPA has in effect "deputized" CDPH to act in its stead in a number of activities related to

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adjudicate the violation. This broader statutory language should be read to encompass local adjudicated violations of air regulations as well, given the statutory scheme for air regulation set forth in the Act and the Clean Air Act. *See Michigan v. Envt'l Protection Agency*, 135 S.Ct. 2699, (2015) (where the Supreme Court found it was unreasonable for U.S. EPA to conclude that "cost" was irrelevant to its analysis of whether it was "necessary and appropriate" to regulate power plants – even though the statutory language did not include the word "cost," it was found unreasonable for EPA not to consider cost because "appropriate" was broad enough to encompass cost, and cost was enumerated as a factor in other parts of the statute). It would be improper to read limiting language into Section 39(a), because 39(a) is a catchall provision encompassing permitting broadly, including permitting where local government may not play a recognized significant role as regulator and enforcer (in contrast to the Illinois Environmental Protection Act's and the Clean Air Act's schemes for addressing air pollution). Such addition of language that the legislature omitted in this broad provision would also go against the legislature's clear directive to liberally construe the Act to effect its purpose of environmental protection and ensuring that "adverse effects upon the environment are fully considered and borne by those who cause them." *See* 415 ILCS § 5/1(b) and (c).

[14] Ex. 19, Two Year Intergovernmental Agency Agreement Between Illinois Environmental Protection Agency (Agency) and City of Chicago, Department of Public Health (Contractor), Revised Agency Procurement No. FA-19202 (Mar. 20, 2019). We note that while the numbered paragraphs spelling out these enforcement roles fall under Section B in the agreement, where Section B includes language pertaining to three specific source categories, CDPH has weighed in that the intent of the agreement is for CDPH to carry out the numbered activities more generally and not solely with respect to those three categories. In the words of a CDPH attorney, "The numbered paragraphs list source investigations we are obligated to assist IEPA with to support their enforcement actions, whereas the categories in the preceding paragraphs refer to routine inspections." *See* Ex. 20, Email from Jennifer Hesse, Staff Attorney, CDPH, to Meleah Geertsma, NRDC, June 9, 2019.

enforcement, further solidifying the local agency's importance in the Act's statutory scheme for ensuring protection of air quality.

In addition, in all instances where General Iron and RMG were found liable for violations, they had an opportunity to contest these violations at a hearing, with ample due process protections. Chicago's Department of Administrative Hearings provides an opportunity for parties to present their case at a hearing, including presentation of testimony and witnesses, before an impartial administrative law officer that issued findings; in addition, this process affords a right to seek judicial review in response to the liability findings. Chicago Municipal Code, §§ 2-14-010, 2-14-070, 2-14-076. These findings that General Iron and RMG have violated environmental laws come after the companies have had ample opportunity to contest these findings in accordance with due process. *Martell v. Mauzy*, 511 F.Supp. 729, 744 (N.D. Ill. 1981) (due process requires permit applicants be afforded with a hearing before a permit can be denied based on unadjudicated violations, to give an opportunity to contest the alleged violations); *Wells Mftg. Co. v. IL EPA*, 195 Ill.App.3d 593, 597 (1st Dist. Ill. 1990) (permit applicant must be allowed to submit evidence during the application process to contest alleged violations).

In sum, CDPH's enforcement activities are a critical part of the state-local partnership expressed in the Illinois Environmental Protection Act (as well as the local-state-federal partnership expressed in the Clean Air Act), and recognition of this important role warrants treating the violations of local ordinances and rules in this case as constituting "noncompliance with [the Illinois Environmental Protection Act]," consistent with the legislature's clear directive to construe the Act broadly to protect the environment and make polluters bear the cost of their pollution.[15] Given the expertise and experience in environmental regulation and enforcement held by CDPH; CDPH's actions as the primary air regulator and enforcer in Chicago, including under an express delegation agreement with IEPA; and the process afforded to alleged violators by the Chicago Department of Administrative Hearings, liability findings adjudicated through the City's process thus may and should be relied upon by IEPA when it is determining whether to deny a permit under Section 5/39(a).

The nine liability findings adjudicated by the City over the past 18 years demonstrate that General Iron and RMG have a history of failing to comply with the Act. Their permit should be denied on that basis alone. Table 1 below describes RMG and General Iron's past adjudicated noncompliance history according to the City's enforcement database and CDPH inspection reports.[16]

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[15] Further support for this interpretation comes from Section 5/39(a)(v), which recognizes that the task of protecting the environment is a shared one necessitating participation in enforcement by multiple stakeholders, and that such shared responsibility can help alleviate burdens on enforcement agencies (and so by extension any one enforcement agency such as IEPA) ("The General Assembly finds… that in order to alleviate the burden on enforcement agencies, to assure that all interests are given a full hearing, and to increase public participation in the task of protecting the environment, private as well as governmental remedies must be provided…").

[16] Many of the citations where the facilities were found liable involved additional citations that further illustrate the effect of the illegal conduct, but were dropped as "nonsuits" through the City's adjudication process. *See* Exhibit 21,

Table 1. Adjudicated Findings of Liability Against RMG and General Iron.

Date of Violation	Address & Company	Ticket No.	Code Violation	Disposition	Summary of problem based on inspection report notes	Inspection ID
6/27/2019[17]	11600 S Burley - Reserve Marine Terminals	E0000 35474	11-4-2520 Recycling fac permit req'd, permit violation of special condition #32	LIABP LEA	Fugitive dust emissions and failure to control dust	678670
1/26/2012	1909 N Clifton – General Iron	E0000 26603-10	11-4-030 Failure to comply with permit	LIABP LEA	n/a	not included in inspection database[18]

spreadsheet compiled from CDPH's Environmental Enforcement Database, generated by searching for "1909 N Clifton," downloaded on June 12, 2020, database available at https://data.cityofchicago.org/Environment-Sustainable-Development/CDPH-Environmental-Enforcement/yqn4-3th2/data.(hereinafter "City Enforcement Data for 1909 N Clifton Ave"); Exhibit 22, spreadsheet compiled from CDPH's Environmental Enforcement database, generated by searching for "11600 S Burley," downloaded on June 12, 2020, database available at https://data.cityofchicago.org/Environment-Sustainable-Development/CDPH-Environmental-Enforcement/yqn4-3th2/data.(hereinafter "City Enforcement Data for 11600 S Burley Ave"); Exhibit 23, spreadsheet compiled from CDPH's inspection report database, generated by searching for "1909 N Clifton," downloaded on June 12, 2020, database available at https://data.cityofchicago.org/Environment-Sustainable-Development/CDPH-Environmental-Inspections/i9rk-duva/data (hereinafter "CDPH Inspection Reports for 1909 N Clifton Ave"); Exhibit 24, spreadsheet compiled from CDPH's inspection report database, generated by searching for "11600 S Burley," downloaded on June 12, 2020, from https://data.cityofchicago.org/Environment-Sustainable-Development/CDPH-Environmental-Inspections/i9rk-duva/data (hereinafter "CDPH Inspection Reports for 11600 S Burley Ave")..

[17] There is a notable gap in City enforcement against the General Iron facility, coinciding with Mayor Emanuel's time in office. This gap should not be interpreted as seven years during which the facility operated without issues; instead, it should be read in light of the significant shortfalls in even City environmental enforcement during the Emanuel years. A September 2019 audit by the City's Office of Inspector General found deficient City air pollution inspections during a portion of the Emanuel administration. *See* Ex. 25, City of Chicago, Office of Inspector General, Chicago Department of Public Health Air Pollution Enforcement Audit (Sept. 2019), *available at* https://igchicago.org/wp-content/uploads/2019/09/CDPH-Air-Pollution-Enforcement-Audit.pdf. The report found that CDPH fails to ensure that violations identified by inspectors are resolved. *Id*. at 4. It also found that inspections are infrequent, making it likely that undiscovered violations are occurring. *Id. See also* Ex. 26, Brett Chase, "Emanuel Soft on Chicago Polluters Despite Tough Talk, Better Government Association, February 22, 2019, available at https://www.bettergov.org/news/emanuel-soft-on-chicago-polluters-despite-tough-talk/.

With respect to General Iron, a search of the CDPH database for complaints turns up a number of community complaints about odors ("an awful burning smell," "very strong chemical odors"), having to close windows and having trouble breathing due to facility impacts, dust/smoke, loud crashing noises and vibrations that shake homes, operation outside of permitted hours and so on, from roughly 2012 through CDPH's more aggressive enforcement starting in December 2019. *See* Ex. 27, Spreadsheet compiled from CDPH's Environmental Complaints database, generated by searching for "1909 N Clifton" and selecting entries for complaints that occurred between 2012-2019, data last downloaded on June 8, 2020, database available at https://data.cityofchicago.org/Environment-Sustainable-Development/CDPH-Environmental-Complaints/fypr-ksnz/data.

[18] Based on the timing of this liability finding in relation to the enforcement action brought against General Iron by U.S. EPA in 2011-2012, we presume that this finding is related to the uncontrolled shredder emissions and visible emissions beyond the fenceline that were at the core of that action. *See* Ex. 28, *In the Matter of General Iron Industries*, Administrative Order, EPA-5-12-113(d)-IL-04 (June 29, 2012), at par. 19-22.

6/21/2010	1909 N Clifton – General Iron	24036	7-28-080 Nuisance in connection with a business	Liable	Blue smoke escaping from shredder, blowing offsite	DOEINS41711
9/28/2009	1909 N Clifton – General Iron	23915	7-28-080 Nuisance in connection with a business	Liable	Failure to control dust	DOEINS41689
5/27/2009	1909 N Clifton – General Iron	20386	7-28-080 Nuisance in connection with a business	Liable	Shredded material falling into the river	DOEINS41680
4/24/2009	11600 S Burley - Scrap Metal Services	10879	11-4-2520.	Liable	Operating without a permit	DOEINS11638
7/22/2008	1909 N Clifton – General Iron	10950	11-4-030B Failure to comply with permit stipulation #24	Liable	No control measures had been taken to control debris from falling into sewer, as evidenced by manholes over sewer basins caked with mud and other debris	DOEINS41658
10/4/2005	1909 N Clifton – General Iron	7981	11-4-2410B Failure to comply with permit special condition #25	Liable	Failure to repair hole in pavement	DOEINS41587
1/2/2002	1909 N Clifton – General Iron	261	(former code section) 11-4-630 Air Pollution Prohibited	Liable	Open fire released smoke into the atmosphere	DOEINS41514

As laid out above, the Act provides for recognition of adjudicated violations of local air ordinances and regulations in denying permits under Section 5/39(a) generally speaking. That the specific local violations at issue here are directly analogous to substantive provisions in the Illinois Environmental Protection Act lends further support that these are "adjudications of noncompliance with this Act" and thus a basis for IEPA exercising its discretion to deny this permit. Past adjudicated city code violations by both General Iron and RMG correspond to analogous provisions of the Illinois Environmental Protection Act as follows:

General Iron

- 2010 liability finding for violating Chicago Municipal Code section 7-28-080, Nuisance in connection with a business, was due to blue smoke being emitted from the shredder and blowing offsite.[19] The finding corresponds to the IL Environmental Protection Act's prohibition on unauthorized air pollution (415 ILCS 5/9(a)) and visible emissions beyond the fenceline (35 IAC 212.301), as well as potentially the 30% opacity limit.

[19] *See* Ex. 23. Inspection Reports for 1909 N Clifton, Inspection ID DOEINS41711 (June 21, 2010).

- 2009 liability finding for violating Chicago Municipal Code section 7-28-080, Nuisance in connection with a business, was based on fugitive dust and failure to operate dust controls, as well as plumes of blue smoke coming from the shredder creating a haze in the yard and migrating off-site.[20] These violations again correspond to the Illinois Environmental Protection Act's prohibition on unauthorized air pollution (415 ILCS 5/9(a)) and the prohibition on visible emissions beyond the fenceline of the facility (35 IAC 212.301), as well as potentially the 30% opacity limit.
- Liability finding for failure to comply with permit condition #24 for May 2009 incident where shredded material was falling in the river from barge loading, again corresponding to the prohibition on visible emissions beyond the fenceline. This local violation also aligns with prohibitions on unpermitted discharges to water and on open dumping.
- 2008 liability finding for failure to comply with permit condition #24 re material in sewer. This violation potentially corresponds to the Part 212 Visible and Particulate Matter Emissions to the extent that the accumulated material deposited in the sewer from the air and/or was the result of deposited air emissions washing into the sewer via facility water use or stormwater.
- 2005 liability finding for failure to comply with permit condition #25 re pavement issue. This violation corresponds to the Part 212 Visible and Particulate Matter Emissions requirements, given that maintenance of paved roads is a control measure for fugitive dust.
- 2002 liability finding for air pollution prohibited under former Chicago Municipal Code section 11-4-630 corresponds to the IL Act's prohibition on unauthorized air pollution (415 ILCS 5/9(a)) and possibly on visible emissions beyond the fenceline (35 IAC 212.301). There, the inspection report indicated release of smoke into the atmosphere from an open fire.[21]

RMG

- In 2019, RMG's Reserve Marine Terminals ("RMT") facility was found liable under Chicago Municipal Code section 11-4-2520 for violating its permit condition #32.[22] That permit condition states that RMT "shall control and suppress dust and other air-borne materials created by Facility activities so that the off-site migration of these materials does not occur."[23] The condition further provides that dust control measures may include, but are not limited to, water suppression, sheltering dust-creating activities from the wind or suspending such activities during high wind periods, and enclosing/containerizing

[20] *See id.*, Inspection ID DOEINS41689 (Sept. 28, 2009).
[21] *Id.*, Inspection ID DOEINS41514 (Jan. 2, 2002).
[22] Ex. 22, City enforcement data for 11600 S Burley, violation dated June 27, 2019.
[23] Ex. 29, City of Chicago Department of Administrative Hearings, City of Chicago v. Reserve Ftl, LLLC, Findings, Decisions & Order, Docket #19DE000186 (September 6, 2019), attachment consisting of City of Chicago Class II-B Recycling Facility Permit (ENVREC102879) for Reserve Marine Terminals, dated June 7, 2016, at page 7 of 10, Cond. 32.

materials that are susceptible to becoming windborne. A June 2019 inspection revealed fugitive dust *migrating off the site* from the barge loading operations, and additional windborne particulate matter from a pile of metal scrap.[24] During the inspection, dust control measures were not being utilized. The fugitive dust emissions and failure to utilize dust control correspond to violations of the Illinois Environmental Protection Act's prohibition on unauthorized air pollution, as well as the prohibition on visible emissions beyond the fenceline and potentially the 30% opacity limit.

- The Scrap Metal Services facility, which appears to have been an owner of operations at 11600 S. Burley prior to RMG (and whose liability finding we cite to the extent it indicates RMG took on operations of an unpermitted facility), was found liable for operating without a permit in 2009. This failure is analogous to a failure to obtain proper air approvals under the Act, 415 ILCS 5/9, an infraction which was in fact the basis for RMG-SCPM's admission of noncompliance and an IEPA Notice of Violation ("NOV") issued to RMG as part of the South Chicago Property Management facilities at 11600 S. Burley a decade later in December 2019.[25]

IEPA should deny the GIII permit application based on these adjudications of noncompliance finding that General Iron and RMG have previously been responsible for numerous prohibited releases of air pollution and other environmental infractions over a pro-longed period, demonstrating an inability and/or unwillingness to comply with laws intended to protect communities from environmental harms.

B. Given the COVID-19 Federal, State and Local Emergency, IEPA Should Postpone Making Its Determination on the Permit Until the 33+ Violations Alleged by CDPH in the Last 6 Months Have Gone Through the Administrative Hearings Process.

Even if IEPA declines to recognize the above long list of adjudicated violations as a basis for denying the current permit application, IEPA should work with the Governor's office to postpone a permit decision until the 33+ violations alleged by CDPH in the last six months have gone through the City's administrative hearing process, given delays in those hearings due to COVID-19. CDPH has issued a slew of Notices of Violation to General Iron in recent months, covering unauthorized emissions, smoke, explosions, fugitive dust from material handling and the shredder, and auto fluff escaping from the bounds of the facility and entering neighboring communities. CDPH cited General Iron with at least 33 municipal code violations between December 2019 and March 2020.

[24] Ex. 24, Inspection Reports for 11600 S Burley, Inspection ID 678670.

[25] *See* Ex. 30, IEPA Violation Notice A-2019-00200, issued to South Chicago Property Management regarding sources at 11600 S. Burley Avenue, December 20, 2019. We note that IEPA appears to have been poised to provide enforcement protections to RMT prior to our flagging that such leniency was inappropriate under the Act. *See* Ex. 10-15, email of Meleah Geertsma, NRDC, to Bob Bernoteit, IEPA, December 18, 2010, and attachments (including explanation of why the Section 42(i) factors for granting enforcement protection were not met).

Given the standard timeline for a Chicago administrative hearing, but for the COVID-19 Emergency, the vast majority of these NOVs likely would have gone through the hearing process to a decision by now. However, enforcement procedures for these alleged violations have been on hold due to COVID-19 since March, resulting in rescheduling of the hearing dates for these NOVs from this spring to future dates to be determined as Chicago's Department of Administrative Hearings reopens.[26] Given the magnitude, repeated nature and severity of the recent citations against General Iron, and their direct relationship to past infractions and the sources, emissions and controls at issue in this permitting, IEPA should delay permitting of General III until liability findings are resolved for alleged violations. Table 2 below illustrates the numerous recent citations against General Iron, which generally align with the state prohibitions on air pollution and on visible emissions beyond the fenceline, as well as other environmental infractions, as described regarding the older violations. Moreover, the NOVs pertain to emission sources that the applicant is proposing to operate in largely the same fashion at the new facility, down to the regenerative thermal oxidizer ("RTO") that it intended to move directly to the new site.[27]

Table 2. Notices of Violation Issued Against General II since December 2019.

Date of Violation	Ticket No.	Code Violation	Disposition	Summary of problem based on inspection report notes	Inspection report ID
3/19/2020	E000034390	11-4-730[28] Air Pollution Prohibited	Unresolved	Untreated emissions escaping the shredder, black smoke escaping the shredder. Auto fluff observed offsite. Odors.	11124169
3/19/2020	E000034390	11-4-760(a) Handling of material susceptible to becoming windborne	Unresolved	Auto fluff observed offsite.	11124169

[26] Several of the NOVs listed 3/26/2020 as a hearing date, one listed 4/30/2020, and several list 7/9/2020 as a hearing date. *See also* Ex. 31, Emails among Meleah Geertsma and David Graham, CDPH Deputy Commissioner, and Jennifer Hesse, CDPH Staff Attorney, April 40 to May 12, 2020 (noting that administrative hearing dates have been postponed to be responsive to COVID-19 and that hearing officer decisions typically issue "immediately" after the hearing).

[27] With respect to the RTO, as discussed elsewhere in our comments and in addition to the uncontrolled emissions described in the late 2019 and early 2020 CDPH NOVs, General Iron on May 18 experienced a massive explosion originating from the RTO that rendered the control equipment and other portions of the facility inoperable. Also as set forth elsewhere in our comments, that explosion renders the current permit application incomplete. In addition, to the extent that the City's enforcement proceedings related to the May explosion are also delayed due to COVID-19, IEPA should again postpone a permit decision to allow for completion of these proceedings.

[28] Note that the City's enforcement database lists violations of Municipal Code section 11-4-730 as "Surfacing of lofs and roadways," whereas the CDPH inspection reports cite "Air pollution prohibited." Municipal Code section 11-4-730 states: "It shall be unlawful within the City of Chicago for any person to cause, suffer or allow the emission of air pollution; provided, however, emissions in compliance with state or federal law or regulations shall not constitute air pollution." In summarizing cited violations in this comment letter, we've described violations of Municipal Code section 11-4-730 as "Air pollution prohibited" in contrast to the enforcement database's description that mischaracterizes these violations as related to surfacing.

3/19/2020	E000034391	11-4-030(b) Violating any condition imposed by the permit, special condition 46 which requires the permittee to control and suppress dust and other materials to prevent off-site migration	Unresolved	Misting cannons were not in operation.	11124169
3/19/2020	E000034391	7-28-080 Nuisance in connection with a business	Unresolved	Odors & emissions, see above	11124169
3/9/2020	E000034395	11-4-730 Air Pollution Prohibited	Unresolved	Untreated emissions escaping the top of shredder. Odors.	11152408
3/12/2020	E00003438	11-4-030(b) Violating any condition imposed by the permit, special condition 46 which requires the permittee to control and suppress dust and other materials to prevent off-site migration	Unresolved	Strong odors. Particulates in the air. Auto fluff observed offsite. Misting cannons not in operation.	11208389
3/12/2020	E000034397	11-4-730 Air Pollution Prohibited	Unresolved	See above.	11208389
3/12/2020	E000034397	7-28-080 Nuisance in connection with a business	Unresolved	See above.	11208389
3/12/2020	E00003438	11-4-760 Handling of windborne material	Unresolved	See above.	11208389
3/9/2020	E000034395	7-28-080 Nuisance in connection with a business	Unresolved	Emissions & odors, see above	11152408
2/10/2020	E000034400	11-4-730 Air Pollution Prohibited	Unresolved	Explosion in shredder. Untreated emissions escaping top and side of shredder, and smoke from shredder. Odors. Auto fluff observed offsite. Fugitive dust observed onsite when workers disturbed material piles and moved materials to and from truck trailers.	10929879
2/10/2020	E000034400	11-4-760(a) Handling of material susceptible to becoming windborne	Unresolved	Auto fluff observed offsite. Fugitive dust observed onsite when workers disturbed material piles and moved materials to and from truck trailers.	10929879

2/10/2020	E000034577	11-4-030(b) Violating any condition imposed by the permit, special condition 46 which requires the permittee to control and suppress dust and other materials to prevent off-site migration	Unresolved	See above. Misting cannons were not being operated.	10929879
2/10/2020	E000034577	7-28-080 Nuisance in connection with a business	Unresolved	Odors & emissions, see above	10929879
1/27/2020	n/a	11-4-030 Violation Penalty	Unresolved	No corresponding inspection report	
1/27/2020	n/a	7-28-080 Nuisance connect w/ business	Unresolved	No corresponding inspection report	
1/27/2020	n/a	11-4-760 Handling of windborne material	Unresolved	No corresponding inspection report	
1/27/2020	n/a	11-4-730 Air Pollution Prohibited	Unresolved	No corresponding inspection report	
1/23/2020	E000035590	7-28-080 Nuisance in connection with a business	Unresolved	Untreated emissions escaping top and side of shredder. Odors.	10881195
1/23/2020	E000035590	11-4-730 Air Pollution Prohibited	Unresolved	Untreated emissions escaping top and side of shredder. Odors.	10881195
1/13/2020	E000035587	11-4-730 Air Pollution Prohibited	Unresolved	Untreated emissions escaping top and side of shredder. Odors.	10836335
12/23/2019	E000035577	11-4-760(a) Handling of material susceptible to becoming windborne	Unresolved	Auto fluff observed offsite. Fugitive dust observed onsite when workers disturbed material piles and moved materials to and from truck trailers.	10767158
12/23/2019	E000035577	11-4-730 Air Pollution Prohibited	Unresolved	Untreated emissions escaping top and side of shredder and migrating offsite. Odors. Also see above.	10767158
12/23/2019	E000035578	11-4-030(b) Violating any condition imposed by the permit, special condition 46 which requires the permittee to control and suppress dust and other materials to prevent off-site migration	Unresolved	See above. Misting cannons were not being operated.	10767158

12/18/2019	E000034125	11-4-760(a) Handling of material susceptible to becoming windborne	Unresolved	Auto fluff observed offsite. Fugitive dust observed onsite when workers disturbed material piles and moved materials to and from truck trailers, and dust observed on vehicles parked offsite.	1494955
12/18/2019	E000034125	11-4-730 Air Pollution Prohibited	Unresolved	Untreated emissions escaping top and side of shredder. Also see above.	1494955
12/18/2019	E000035576	11-4-030(b) Violating any condition imposed by the permit, special condition 46 which requires the permittee to control and suppress dust and other materials to prevent off-site migration	Unresolved	See above. Misting cannons were not being operated, leading inspector to believe reasonable measures to control dust from blowing offsite were not being taken	1494955
12/16/2019	E000034122	11-4-760(a) Handling of material susceptible to becoming windborne	Unresolved	Auto fluff observed offsite. Fugitive dust observed onsite when workers disturbed material piles and moved materials to and from truck trailers.	10716916
12/16/2019	E000034123	11-4-030(b) Violating any condition imposed by the permit, special condition 46 which requires the permittee to control and suppress dust and other materials to prevent off-site migration	Unresolved	See above. Misting cannons were not being operated, leading inspector to believe reasonable measures to control dust from blowing offsite were not being taken	10716916
12/16/2019	E000034122	11-4-730 Air Pollution Prohibited	Unresolved	Untreated emissions escaping top and side of shredder. Also see above.	10716916
12/10/2019[29]	E000034116	11-4-760(a) Handling of material susceptible to becoming windborne	Unresolved	Untreated emissions escaping top and side of shredder and migrating offsite. Odors.	10708652
12/10/2019	E000034116	11-4-730 Air Pollution Prohibited	Unresolved	Dust observed onsite and migrating offsite when workers disturbed material piles and moved materials to and from truck trailers	10708652

[29] Chicago's Enforcement Database lists 3 violations occurring on December 10, 2019. However, the CDPH Inspection Report database lists 6 violations occurring. If all 6 violations are accounted for, the number of violations cited by CDPH between December 2019 and March 2020 would total 36.

12/10/2019	E000034117	11-4-030(b)(2) Violating any condition imposed by the permit, special condition 46 which requires the permittee to control and suppress dust and other materials to prevent off-site migration	Unresolved	Misting cannons were not in operation.	10708652
12/10/2019	E000034120	11-4-730 Air Pollution Prohibited	Unresolved	Untreated emissions escaping top and side of shredder and migrating offsite. Odors.	10706274
12/10/2019	E000034120	11-4-760(a) Handling of material susceptible to becoming windborne	Unresolved	Dust observed onsite and migrating offsite when workers disturbed material piles and moved materials to and from truck trailers	10706274
12/10/2019	E000034121	11-4-030(b)(2) Violating any condition imposed by the permit, special condition 46 which requires the permittee to control and suppress dust and other materials to prevent off-site migration	Unresolved	See above. Misting cannons were not being operated, leading inspector to believe reasonable measures to control dust from blowing offsite were not being taken	10706274

If adjudicated against the facility, these violations would demonstrate an even stronger basis for IEPA to deny the GIII permit. Because the hearings on them have been delayed by the COVID-19 emergency, IEPA should delay its permitting decision until CDPH resolves the pending citations against General Iron, and to the extent it has not already done so, initiate a state investigation of all these instances.

C. If IEPA Fails to Deny the Permit or Postpone Its Decision, It Must Substantially Revise and Strengthen the Draft Permit to Ensure Compliance with the Act in Light of the Companies' History of Noncompliance.

If IEPA refuses to exercise its discretion to deny the permit based on admitted environmental violations and those adjudicated by the City of Chicago or postpone its decision until the pending CDPH NOVs have been resolved, it should at the very least substantially strengthen the permit based on the City actions and additional evidence establishing the companies' history of noncompliance with the Act, as set forth below and elsewhere in these and partners' comments. IEPA has broad authority and indeed a duty to impose permit conditions related to General Iron's and RMG's past compliance history to prevent noncompliance at the GIII facility. As noted above, in granting permits, IEPA "may impose reasonable conditions specifically related to the applicant's past compliance history with this Act as necessary to correct, detect, or prevent noncompliance." 415 ILCS 5/39 (a). The plain language of this portion of Section 5/39(a) clearly

states the authority of IEPA to consider past violations in imposing permit conditions without reference to "adjudication" of the past violations.[30] Again, IEPA should not read limitations into this broad language that the legislature deemed not to include. Thus, IEPA may consider evidence of noncompliance short of adjudicated violations in *granting* a permit.[31] Such strengthening of the permit is "necessary to… prevent noncompliance" here, given the long history of both companies' noncompliance consisting of numerous NOVs, settlement agreements, inspection reports and other evidence of noncompliance, including potentially ongoing violations, and the environmental justice implications of the facility's relocation to Chicago's Southeast Side from Lincoln Park.

Specifically, should it proceed with granting the permit, IEPA should deem the following history of noncompliance grounds for substantially strengthening the Draft Permit:

- RMG-SCPM's admission of noncompliance for failing to obtain required air approvals;
- The City liability findings against General Iron and RMG described above;
- The 33+ NOVs issued by CDPH against General Iron in the last 6 months, as discussed above;
- CDPH's inspection reports;
- U.S. EPA's multiple enforcement actions against General Iron dating back to at least 2006 and resulting in several consent decrees/orders, including those related to knowingly disposing of appliances containing Class I and Class II refrigerant substances, uncontrolled shredder emissions that traveled beyond the fenceline, and VOC and PM emissions from the shredder[32];
- U.S. EPA's enforcement action against Chicago Rail and Port (located just North of 11600 S. Burley at 106th St. and the Calumet River) for fugitive dust violations resulting in exceedances of the PM_{10} NAAQS, to the extent that Chicago Rail and Port is also an

[30] Indeed, in denying the KCBX Terminals construction permit several years ago, IEPA relied on observations made by field staff and citizen pollution complaints in determining that the permit application did not show compliance with Illinois fugitive particulate matter requirements. Ex. 32, Ill. Envtl. Protection Agency, Permit Denial for Application No. 07050082, KCBX Terminals Company (Jan. 17, 2014). Evidence of noncompliance short of adjudicated violations is similarly relevant in this permitting context.

[31] This is consistent with, for example, the Title V permitting context, where the 7th Circuit has recognized the discretion of IEPA to consider unadjudicated noncompliance when determining permit conditions. *See Citizens Against Ruining the Environment v. Envt'l Protection Agency*, 535 F.3d 670, 679 (7th Cir. 2008). As such, IEPA can and should consider evidence of noncompliance in various forms in formulating additional permit conditions to prevent future noncompliance.

[32] *See, e.g.*, Ex. 34, *United States v. General Iron Industries, Inc*., Consent Decree, No. 04 C 6820 (N.D. Ill. July 24, 2006), available at https://assets.documentcloud.org/documents/4329917/General-Iron-2006-CD.pdf; Ex. 35, U.S. EPA, *In the Matter of General Iron Industries, Inc*., Administrative Order, EPA-5-12-113(a)-IL-04, June 28, 2012, available at https://assets.documentcloud.org/documents/4329919/General-Iron-2012-AO.pdf; Ex. 36, U.S. EPA, *In the Matter of General Iron Industries, Inc.*, Administrative Order, EPA-5-19-113(a)-IL-08, August 20, 2019, available at https://www.epa.gov/sites/production/files/2019-08/documents/general_iron_industries_inc_aco.pdf.

SCPM company.[33] We note that U.S. EPA's NOV is based on fugitive dust events in December 2017 that occurred while Chicago Rail and Port was supposedly complying with a fugitive particulate operating program dated August 2017, an FPOP that is in many ways more robust and enforceable than the one proposed here (as discussed elsewhere in these comments[34];

- Any instances of noncompliance being investigated by IEPA itself; and
- Any other evidence of noncompliance available to agencies but not identified here or otherwise made available to the general public.

With respect to CDPH's inspection reports, Exhibit 33 provides a description of noncompliance noted by CDPH inspectors over the years, categorized by type of equipment. We include here excerpts from the deeply concerning operations of the General Iron and RMG facilities, highlighting a few of the more recent inspection reports organized in reverse chronological order[35]:

General Iron

- ". . . odors were observed on Throop St and Wabansia Ave. It is a pungent and unpleasant odor of burning, sweet metal with waves of an unfamiliar odor similar to men's cologne. The same odors were observed onsite at GII LLC. Smoke and untreated emissions were observed escaping the shredder. Two misting cannons (West side of the shredder and East side of the shredder) were deployed during this inspection but with the wind direction, it did not seem to completely control windborne particulate and the untreated emissions that migrated offsite. An enforcement action is already pending for these issues."[36] (April 28, 2020, post-RTO installation) (MDW temperature high 75 and ave. 64.2; wind speed max. 18 mph and ave. 9.9 mph)
- "While canvassing the area surrounding GII, LLC on March 12, 2020, strong odors were observed at the following intersections: Kingsbury St, Cortland St and Clybourn Ave, Racine Ave, Cortland St. It is a pungent odor of sweet, burning metal. When observing GII LLC from Kingsbury St [and] Cortland St, the odors were very strong and particulate was blowing directly at me since the wind was coming from the Southeast. I could not

[33] *See* Ex. 37, U.S. EPA, *In the Matter of Chicago Rail and Port , LLC*, Notice of Violation, EPA-5-18-IL-10, April 20, 2018, available at https://www.epa.gov/sites/production/files/2018-06/documents/chicago_rail_and_port_llc_nov.pdf.

[34] *See* Ex. 38, Chicago Port and Rail, LLC, Operating Program for Fugitive Particulate Matter Control, August 2017 (see enforceability section for further discussion of this FPOP). The FPOP lists "South Chicago Property Development" as the owner/operator of this facility, and we raise the issue here due to the similarity in name to South Chicago Property Management. We were not able to otherwise verify whether Chicago Port and Rail is in fact part of South Chicago Property Management, an issue which we are asking IEPA to resolve. Regardless of ownership, Chicago Rail and Port's experience with failure to control fugitive dust and NAAQS exceedances while under a fugitive particulate operating program should be considered as general engineering information on the effectiveness of control measures proposed in this permitting, as discussed below.

[35] Temperatures and wind speeds provided in this section were obtained from Weather Underground, wunderground.com, for Midway Airport.

[36] Ex. 23, Inspection Report for 1909 N Clifton, Inspection ID 11491696.

fully inhale nor could I keep my eyes open at this location. When leaving the area after the inspection, I could feel my nose throbbing and chest discomfort. Auto fluff/auto shredder residue was also observed in the public way . . . . Misting cannons were observed to not be in operation at the time of the inspection."[37] (March 12, 2020, post-RTO installation) (MDW temperature high 56 and ave. 46.8; wind speed max. 21 mph and ave. 11.2 mph)

- "While canvassing the area surrounding GII, LLC on March 19, 2020, odors were observed on Cortland St between Elston Ave [and] Clybourn Ave. It is a pungent odor of sweet, burning metal that burns my nostrils and makes it uncomfortable for me breathe in. When observing the shredder from across the North Branch Chicago River on Throop St and the Home Depot parking lot (1232 W North Ave), untreated emissions were observed escaping the shredder. Black smoke was also observed periodically escaping the shredder. Auto fluff/auto shredder residue was observed at the intersection of Clifton Ave and Marcey St, on both the PAWS Chicago training center property (1933 N Marcey St) and the Lock Up Self Storage property (1930 North Clybourn Ave)."[38] (March 19, 2020, post-RTO installation)
- "Untreated emissions were observed escaping the top and the sides of the shredder. I also observed smoke leaving the shredder and traveling through the property across from the North Branch Chicago River. Auto fluff/auto shredder residue was observed on the property directly Southwest and across the North Branch Chicago River . . . Fugitive dust was also observed onsite when workers disturbed material piles and moved materials to and from truck trailers. Misting cannons were observed to not be in operation to control airborne particles at the time of the inspection." [39] (February 10, 2020, post-RTO installation) (MDW temperature high 36, ave. 30.65 and low 27; wind speed max. 14 mph and ave. 7.8 mph)
- "During the entire time of my inspection, untreated emissions were observed escaping the top and side of the shredder"[40] (January 23, 2020, post-RTO installation)
- "Untreated emissions were observed escaping the top and side of the shredder. It looked like smoke was leaving the shredder too. The shredder is not an enclosed piece of equipment. It does contain a hood to capture the emissions and process them through a regenerative thermal oxidizer (RTO) and a wet scrubber to remove volatile organic compounds (VOCs), hazardous air pollutants (HAPs), and other airborne solvents. Being able to observe emissions escaping the shredder leads me to believe that the equipment capturing the emissions is insufficient. Consequently, this does not allow the recently installed air pollution control equipment to remove the emissions since they are escaping at the shredder before the treatment process." [41] (January 13, 2020, post-RTO installation)

[37] *Id.*, Inspection ID 11208389.
[38] *Id.*, Inspection ID 11124169.
[39] *Id.*, Inspection ID 10929879 (NOVs issued).
[40] *Id.*, Inspection ID 10881195 (NOV issued).
[41] *Id.*, Inspection ID 10836335.

- “Observing auto fluff in the public way and fugitive dust without operating misting cannons leads me to believe that reasonable measurements were not and are not being taken to ensure dust, debris, and dirt won't migrate off site and into the public way.”[42] (December 23, 2019) (MDW temperature high 53 and low 36; wind speed max. 15 mph)
- "Fugitive dust without operating misting cannons leads me to believe that reasonable measurements are not being taken to ensure dust, debris, and dirt won't migrate off site and into the public way."[43] (December 10, 2019) (MDW temperature high 24 and low 16; wind speed max. 17 mph and ave. 14 mph)
- "Dust was also observed on the vehicles parked on the Southeast side of Clifton Ave between Marcey St Kingsbury St, which is diagonally across from GII, LLC. Misting cannons were observed to not be in operation to control airborne particles at the time of the inspection. Observing auto fluff in the public way and dust on the vehicles diagonally across from GII LLC without operating misting cannons leads me to believe that reasonable measurements were not and are not being taken to ensure dust, debris, and dirt won't migrate off site and into the public way."[44] (December 18, 2019) (MDW temperature high 27 and low 14; wind speed max. 17 mph and ave. 9.8 mph)
- "Fugitive dust observed onsite when disturbing material piles . . . Misting cannons were observed to not be operated at the time of inspection nor was a water truck wetting the streets. Dust was observed on Kingsbury and Wisconsin being kicked up from the trucks from General Iron."[45] (October 8, 2019) (MDW temperature high 71 and low 50; wind speed max. 9 mph) "I spoke to the facility manager at the PAWS facility directly across the General Iron at the intersection at Clifton Marcey. He informed me that they have to change the HVAC filters weekly since the debris caused by General Iron's shredder and material piles. Misting cannons were observed to not be operated at the time of inspection nor was a water truck wetting the streets."[46] (September 25, 2019) (MDW temperature high 79 and ave. 66; wind speed max. 17 mph and ave. 13.2 mph)
- “I spoke to Jim and he informed me that there was an explosion in the shredder during the morning hours between 7:30 AM [and] 7:40 AM. He said this is a common occurrence.”[47] (February 10, 2020)
- “Odors of a sweet smelling chemicals and metals were observed. It burned and inflamed my nostrils to the point of throbbing inside my nostrils.”[48] (July 30, 2019, pre-RTO installation)
- "The inspectors met with General Iron safety manager Jeff Jones, and a discussion was held concerning airborne emissions and health and safety surrounding the plant. Jones

[42] *Id*., Inspection ID 10746578.
[43] *Id.*, Inspection ID 10706274 (NOV issued).
[44] *Id*., Inspection ID 1494955 (NOV issued).
[45] *Id.*, Inspection ID 10208629.
[46] *Id*., Inspection ID 10039135.
[47] *Id*., Inspection ID 10929879.
[48] *Id*., Inspection ID 9495131.

stated that air monitoring, wetting, sweeping and all of the safety and cleanliness actions for the plant are in use. The facility operates almost continuously and some debris will migrate despite best efforts, according to Jones."[49] (June 26, 2019)

- "While there, a truck arrived and was still parked on the street when smoke began to come from some of the scrap on the truck and continued as it entered the site gate . . . General Iron personnel unloaded the smoking scrap and used extinguishers to put out the fire. Their yard manager rejected the truck and did not allow them to leave any scrap."[50] (April 1, 2019)
- Inspector observed exhaust emissions "due to the constant in/out truck traffic."[51] (February 10, 2017)
- Inspector "met JK to follow up due to an explosion incident on the previous day. he stated that they did have an explosion while feeding materials into the shredder. The operator cannot see that part of the shredder because it is covered by a hood so does not know what exploded. the operator heard and saw the explosion and responded by hitting the switch that dumps 90+ gallons of water under the hood."[52] (September 13, 2017)

RMG

- "The pavements are in need of attention, potholes and pooled water are evident."[53] South Shore Recycling (March 13, 2020)
- "The pavement in the outdoor storage area needed improvement due to potholes and standing water."[54] Regency Technologies (March 13, 2020)
- "Fugitive dust was observed when personnel would drive motor vehicles on the dry roadways and open areas, and when material piles were disturbed. Fugitive dust created was not above opacity limitations and it did not leave the site. It was concluded that they will repair the roadways since they were completely covered in dirt/debris and they will need to spray material piles to control fugitive dust when they are moving the material piles."[55] Southshore Recycling (October 23, 2019) (MDW temperature ave. 50.3; wind speed max 15 mph and ave. 9.2 mph)
- Inspector observed "plume of windborne particulate matter from barge loading, across the Calumet River." When inspector arrived at Reserve Marine Terminals, "I observed plume of windborne particulate matter from barge loading operations of metal scrap, with heavy duty loading machine. There was no dust control and suppression measure observed; for dust and air-borne materials, during this loading operation . . . I observed the plume of windborne particulate matter from the barge loading operations of metal

[49] *Id*., Inspection ID 9203598.
[50] *Id.*, Inspection ID 8429665.
[51] *Id*., Inspection ID 2380409.
[52] *Id*., Inspection ID 1140048.
[53] Ex. 24, Inspection Reports for 11600 S. Burley, Inspection ID 1480496.
[54] *Id.*, Regency Technologies, Inspection ID 1481242.
[55] *Id.*, Southshore Recycling, Inspection ID 1348397.

scrap migrating off-site . . . I observed plume of windborne particulate matter from pile of metal scrap processing"[56] Reserve Marine Terminals (June 27, 2019) (MDW temperature high 90, ave. 77.9; wind speed ave. 9 mph and max. 21 mph)

- "There were 2 drums of oil stored in the open air with no secondary containment . . . There was a trailer with oil in it and the ground outside the trailer was oil-stained . . . There was a generator in use that apparently was leaking because there was absorbent material on the ground around it."[57] Reserve Marine Terminals (April 11, 2019)
- "The main issue is the potholes that span the length of the road through the middle of the site."[58] Reserve Marine Terminals (February 11, 2019)
- "The exterior portion was full of materials and previous[l]y-noted waste (piles of dirt with metal intermingled, wood) remained and weeds were still growing among the scrap. JH was to have addressed these by reinspection but improvement had not gotten to a very noticeable point."[59] South Shore Recycling (September 17, 2018)
- "They had a fire a few months ago in the plastics bay. RT said that the cause of the fire had not been determined but that it had probably been from a battery that was supposed to have been removed inside of the building."[60] Regency Technologies (July 12, 2018)
- "In the interior, batteries were stored without the protective layer as required in special permit condition #17. The cardboard used was not long enough to cover the edge of one layer of batteries . . . The exterior portion was full of materials but also waste. A pile of CD debris (dirt, broken concrete) was among the metal scrap . . . The material storage/processing areas needed to be cleaned up, with metal removed from the ground and pavement leveled."[61] Regency Technologies (May 11, 2018)
- "OEMC first notified CDPH via SMS at 12:01 about the fire in Regency Technologies . . . At 15:30 CDPH engineer arrived to the scene, where CFD was still ceasing the fire of recyclable plastic material . . . stored outside . . . . HCN was 30 ppm, VOC was 40 ppm, CO was 17-25, O2 was 20.7 . . . Fire was completely secured around 16:45."[62] Regency Technologies (May 7, 2018)
- "Some of the materials? Piles are confined by concrete blocks but some not. Some of the pavement is more dirt than anything else, caused by continuous traffic by trucks and the machines used onsite for processing."[63] Reserve Marine Terminals (August 18, 2017)

[56] *Id.*, RMT, Inspection ID 678670. We also note that in late June of 2019, between June 26 and 28, David Graham, CDPH Deputy Commissioner, called Meleah Geertsma to discuss high intensity torch cutting occurring at 11600 S. Burley. Deputy Commissioner Graham described large stationary torches being used to disassemble rail cars, resulting in large plumes of black smoke.
[57] *Id.*, RMT, Inspection ID 1356396.
[58] *Id.*, RMT, Inspection ID 1323300.
[59] *Id.*, South Shore Recycling, Inspection ID 1273325.
[60] *Id.*, Regency Technologies, Inspection ID 1247508.
[61] *Id.*, Regency Technologies, Inspection ID 1228033.
[62] *Id.*, Regency Technologies, Inspection ID 5647187.
[63] *Id.*, Reserve Marine Terminals, Inspection ID 1111122.

- "Upon arrival, I noted the damaged asphalt at the gate was even more damaged than previously noted, with a huge pool of water collected that must be inches deep at the center . . . . There were potholes evident along the interior haul road. ?RT was supposed to have written a pavement repair/maintenance plan but had not."[64] Reserve Marine Terminals (May 1, 2017)
- "Upon arrival, I noted that the entry road had been partially wet (for dust control) but the center was dry and the wetting did not extend close to the street where trucks exited. At the entry gate, I noted very large potholes holding water . . . . He stated that they had recently gotten bids from pavement contractors to replace the damaged asphalt at the gate with asphalt. he will have a plan to either repair or replace the pavements by next inspection . . . . There were potholes evident along the interior haul road . . . ."[65] Reserve Marine Terminals (March 22, 2017) (MDW temperature high 45 and ave. 39; wind speed ave. 11.7 mph and max. 21 mph)
- "The pavement stills shows potholes and ponding throughout the site. RT showed me a large pile of asphalt grindings, told me that they were using it to make repairs to the road every day because their activity (shearing, breaking, hammering) combined with the truck traffic causes damage to all pavements – maintenance is a never-ending cycle."[66] Reserve Marine Terminals (July 28, 2016)
- "There is no clear separation between the road and the materials storage/processing area. RT has yet to provide a pavement plan, this is also detailed in the permit. There is standing water in large pools along the road and among the piles, prevention of this is also detailed in the permit."[67] Reserve Marine Terminals (March 11, 2016)
- "Defect notice[s] w[ere] issued for equipment without air pollution control permits" at Napuck Salvage, Reserve Marine Terminals, Regency Technologies, and South Shore Recycling.[68] (August 25, 2014)
- "On 12/20/12, Regency experienced a fire that damaged the roof. A part of the building had to be demolished and how has been completed. The facility is involved in cleanup and re-building and intends to re-open next week."[69] Regency Technologies (February 6, 2013)
- "Inspector Lipman responded to a complaint regarding the non-permitted recycling facility located at 11600 S Burley. Upon arrival workers on the site were observed dismantling semi trailers using propane torches and saws . . . Corcoran stated that SMS planned on temporarily using the site for approximately 90 days for the purpose of dismantling the trailers and shipping different components to various recyclers. I

[64] *Id*., Reserve Marine Terminals, Inspection ID 1065865.
[65] *Id.*, Reserve Marine Terminals, Inspection ID 1042897.
[66] *Id.*, RMT, Inspection ID 884332.
[67] *Id*., RMT, Inspection ID 819289.
[68] *Id.*, Inspection ID 678745, 678669, 678675, 678673.
[69] *Id*., Inspection ID 484287.

informed Corcoran that without a permit all processing operations would have to cease until proper permitting was attained.[70] Scrap Metal Services (April 24, 2009)

IEPA should craft permit conditions to prevent these types of violations from occurring or continuing at the S. Burley site, as set forth throughout these and our partners' comments.

Because many of General Iron's operations, pieces of equipment, and personnel will stay virtually the same when it moves over to the GIII site, it is imperative that IEPA impose new permit conditions to control emissions and address General Iron's long history of noncompliance. Likewise, as RMG is the named entity responsible for GIII, and given the evidence that RMG staff associated with poor operations in Chicago and in other states like Ohio will have significant responsibilities at GIII[71], IEPA must impose new and stronger permit conditions to ensure compliance with the Act.

We note that, as laid out in our following comments on enforceability issues with the Draft Permit, the lack of practical enforceability on its own warrants significant revision and strengthening of the Draft Permit. Similarly, our comments lay out additional and independent bases for strengthening the Draft Permit in numerous ways, based on experience with other metals facilities as well as the experience here as evidence of general issues with metals facility operations that should be addressed in revised and improved permit provisions.

[70] *Id.,* Inspection ID DOEINS11638. Scrap Metal Services appears to be a prior business operating at the same address as the current RMG facilities. It is unclear to us whether any RMG agents were also involved in SMS; we are providing this report to the extent that it is indicative of operations that RMG later assumed from Scrap Metal Services at 11600 S. Burley.

[71] Dennis Stropko's name appears on permit application materials for RMG-SCPM. According to CDPH's database, Mr. Stropko has a management role in at least Reserve Marine Terminals, which as described above was found liable by the City for dust infractions and to which IEPA has issued an NOV for failure to obtain required permits, and Regency Technologies, which CDPH inspection reports identify as having experienced a significant fire. *See, e.g.,* Ex. 24, CDPH Inspection Reports for 11600 S. Burley: Inspection ID 1228473 (May 11, 2018) (Reserve Marine Terminals); ID 1227642 (May 11, 2018) (Regency Technologies). Mr. Stropko was also called out by the plaintiffs in an Ohio workplace injury lawsuit involving an explosion at an RMG recycling facility that left a worker permanently disfigured, where Mr. Stropko served as safety manager. *See* Brief of Plaintiff-Appellants, Darrell and Pam Hornyak, *Hornyak v. Reserve Alloys, LLC*, 2016 WL 7626325 (Ohio App. 8 Dist.) (no. CV–14–829052), 2016 WL 6206637 (describing multiple failures to post and train workers in safety protocols related to shredder operation; citing to Mr. Stropko's deposition in stating "Despite their purported investigation, no one at Reserve Alloys was able to explain why the shredder had exploded leaving a worker permanently scarred and disfigured" and finding that "Seemingly unconcerned with their inability to identify the cause of the catastrophe, the machine was promptly returned to operation without any meaningful changes"; and relying on expert testimony setting forth that "Defendant Reserve Alloys was aware of the shredding machine's propensity for explosions, and has identified a warning attached to the machine that the plant was routinely violating… [the expert] has concluded that the companies knew to a substantial certainty within the meaning of [relevant state law] that an injury would 'occur sooner or later.' … He has explained that: 'This specific intent is established based upon numerous prior fires and incidents related to the operation of the equipment, knowledge of the likelihood of another fire and/or explosion, knowledge of the extreme danger posed to Mr. Hornyak and other employees, and instructions by management to Mr. Hornyak and other employees to directly violate the written warnings and instructions contained both on the equipment and in the manual.'")

III. The Draft Permit Cannot Issue As-Written Because Numerous Provisions Are Practicably Unenforceable.

The Draft Permit cannot issue as proposed because numerous terms and conditions are not practicably enforceable due to vagueness, inadequate testing/monitoring to ensure continuous compliance, and other related shortcomings. We focus here in particular on the Draft Permit's many shortcomings in ensuring continuous compliance with the Part 201.141 prohibition on air pollution and the Part 212 requirements for Visible and Particulate Matter Emissions. Additional enforceability issues are taken up in the following section on needed permit revisions.

More specifically:

- the fugitive dust provisions that the Draft Permit does include are insufficient in scope and unenforceably vague and lacking in sufficient monitoring, recordkeeping and reporting requirements to ensure continuous compliance;
- the Draft Permit relies heavily on a fugitive particulate operating program for which it establishes no objective standards of sufficiency, and also provides for the automatic updating of such operating program without public review, as well as the post-hoc submission of the required Contingency Plan, the contents of which are intended to become federally enforceable permit conditions; and
- the March 2020 fugitive particulate operating program that was made available for public comment, and so is presumably the current program for purposes of the Draft Permit based on the problematic automatic-update provision (despite the Draft Permit's reference to a December 2019 operating program that is not in the record made available to the public), is also insufficient in scope and unenforceably vague and lacking in sufficient monitoring, recordkeeping and reporting requirements to ensure continuous compliance.

To the extent that the Applicant has failed to provide IEPA with sufficient information to amend these shortcomings, IEPA must declare the application incomplete. Otherwise, IEPA must cure these issues before making a final permit decision as well as include the currently lacking requirements and specificity in any final permit.

The inadequacies of the Draft Permit's fugitive dust provisions that we lay out here stand on their own, warranting a substantial revision of the Draft Permit. However, we also call attention to the companies' records of noncompliance in controlling visible and particulate emissions as set forth above, which provide grounds for denying the permit on the basis that the companies have demonstrated that they cannot and will not sufficiently control their fugitive dust, including metallic fines and potentially hazardous auto shredder residue.[72] As taken up elsewhere in these

[72] See discussion of noncompliance above. The General Iron facility faces 33+ NOVs from CDPH over emissions from the very sources that are at issue in this permitting. The CDPH inspection record demonstrates that these problems – including failures to use spray systems for dust suppression at piles and vehicle loading, to sweep roadways, and to maintain paved conditions, among others, the very sources and controls proposed here – have been ongoing for years and appear to be unresolved at this time. At minimum, the companies' records of noncompliance provide additional grounds for greatly enhancing the stringency and enforceability of the Draft Permit's fugitive dust terms.

comments, PM_{10} modeling (which the applicant and IEPA omitted without explanation) – using assumptions that account for some of the Draft Permit's emission estimate and enforceability issues and reflect the industry's and the companies' demonstrated problems with continuously controlling fugitive dust – shows potential violations of the 24-hour PM_{10} NAAQS from the proposed GIII.

A. A Permit Must be Practicably Enforceable – the Draft Permit is Not.

U.S. EPA has long been clear that practical enforceability is a critical requirement of control strategies under the Clean Air Act, including those implemented via State Implementation Plans. As it set forth back in 1992,

> [t]he fundamental principles for SIPs/Control Strategy include: (1) baseline emissions from the source and the control measures must be quantified (specific amount of reductions can be ascribed to measures) (2) *measures must be enforceable (specify clear, unambiguous, and measurable requirements)* (3) source-specific limits must be permanent and reflect assumptions used in SIP demonstrations and contain means to track emission changes at sources and provide for corrective action.

57 F.R. 13498, 13567-13568 (April 16, 1992) (emphasis added). To be "federally enforceable," the Draft Permit must "provide for limits that are enforceable as a practical matter."[73] U.S. EPA has further explained that "Practicable enforceability" means that a permit's provisions must specify:

> A technically-accurate limitation and the source subject to the limitation; (2) the time period for the limitation (hourly, daily, monthly, and annual limits such as rolling annual limits); and (3) the method to determine compliance including appropriate monitoring, recordkeeping, and reporting.

73 Fed. Reg. 1570, 1573 (Jan. 9, 2008). Further, courts have held that to be practicably enforceable, a permit condition must: (1) provide a clear explanation of how the actual limitation or requirement applies to the facility; and (2) make it possible for the Cabinet, the U.S. EPA, *and citizens* to determine whether the facility is complying with the condition. *See, e.g., Sierra Club v. Ga. Power Co*., 365 F. Supp. 2d 1297, 1308 (D. Ga. 2004) (citing *Sierra Club v. Public Serv. Co.*, 894 F. Supp. 1455, 1460 (D. Colo. 1995). Consistent with these requirements, U.S. EPA has further explained that, "In addition to implementing appropriate compliance methods, the monitoring, recordkeeping, and reporting requirements must be *written in sufficient detail to*

[73] *See* Ex. 39, Memorandum from John Seitz, U.S. EPA, Dir. of Air Quality Planning and Standards, and Robert Ven Heuvelen, Office of Regulatory Enforcement, "Options for Limiting the Potential to Emit (PTE) of a Stationary Source Under Section 112 and Title V of the Clean Air Act," January 25, 1995, at p3, available at https://www.epa.gov/sites/production/files/documents/limit-pte-rpt.pdf. We note that the fact that the primary pollutant of concern with the unenforceable fugitive provisions – particulate matter – is not the same pollutant as the one otherwise exceeding the federal major source thresholds absent federally enforceable limits on PTE (VOCs) is immaterial with regards to the need to ensure that all provisions of the Draft Permit are practicably enforceable, given the Clean Air Act's in-for-one-in-for-all approach to applicability.

allow no room for interpretation or ambiguity in meaning. Requirements that are imprecise or unclear make compliance assurance impossible."[74] Terms that are ambiguous on their face include "if necessary."[75] Along these lines, U.S. EPA has made clear that simply citing to use of "reasonable precautions" for control of fugitive dust is insufficient.[76] Finally, as these authorities lay out, a permit limit without sufficient monitoring, recordkeeping and reporting to ensure continuous compliance with that limit is also practicably unenforceable.

As set forth below, the Draft Permit falls far short of establishing practicably enforceable limits in numerous ways.

B. Summary of the Draft Permit's Inadequate Treatment of Fugitive Sources of Emissions.

The Draft Permit describes the Hammermill Shredder System, Ferrous Material Separate System, and Non-Ferrous Material Separation Systems as subject to 35 IAC Part 212 Subpart B for Visible Emissions. More specifically, the Draft Permit lists the following as applicable SIP requirements:

- 30% opacity limit under Section 212.123(a), with an exception for opacity of greater than 30 percent but less than 60% for a period or periods aggregating 8 minutes in any 60-minute period under Section 212.123(b); and
- a prohibition on visible emissions beyond the fenceline from any process, including material handling or storage activity, under Section 212.301[77], except when wind speed is greater than 25 mph pursuant to Section 212.314[78].

The Draft Permit also indicates that the source is subject to 35 IAC Part 212 Subpart U for Additional Control Measures. Also, while not explicitly stated in the Draft Permit or permitting materials, IEPA functionally applied the prohibition on air pollution contained in the Act and IEPA's regulations to the facility through the air quality modeling analysis, the results of which are a stated basis for issuance of the Draft Permit.[79] IEPA should make explicit in the Draft Permit that the prohibition on air pollution applies to this facility, that the air quality modeling demonstration is the analysis that IEPA undertook to assess compliance with this provision, and

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[74] Ex. 40, Attachment to Letter from Bharat Mathur, U.S. EPA Region 5, to Robert F. Hodanbosi, Ohio EPA, dated November 21, 2001 (emphasis added), available at https://books.google.com/books?id=UCZIx8GagzwC&pg=PA19&lpg=PA19&dq=Mathur+Hodanbosi+letter+November+21,+2001+Ohio+Title+V&source=bl&ots=hqoKoMIbVp&sig=ACfU3U18m5tNWeKvDQ3mGzQYbD8ayah9fA&hl=en&sa=X&ved=2ahUKEwiiwaDtveXpAhWQm-AKHS3DDXwQ6AEwAHoECAoQAg#v=onepage&q=Mathur%20Hodanbosi%20letter%20November%2021%2C%202001%20Ohio%20Title%20V&f=false (pdf exhibit also provided).

[75] *See Id.*

[76] Ex. 41, *In re Scherer Steam-Electric Generating Plant, et al.*, Order on Petition Nos. IV-2012-1–IV-2012-5 (April 14, 2014), at pp. 18-19, available at https://www.epa.gov/sites/production/files/2015-08/documents/ga_power_plants_response2012.pdf.

[77] *See* Draft Permit at 3, Cond. 3(b) and (c).

[78] *See* Draft Permit at 7, Cond. 8(a).

[79] *See* Draft Permit at 2, Cond. 1(e).

as set forth below revise the Draft Permit to include objectively enforceable specific terms that ensure the level of control claimed in the modeling analysis.

The Draft Permit describes the source's systems as including multiple material handling or transfer steps that have the potential to generate fugitive dust, as follows:

- Hammermill Shredder: two conveyors (at least part of which appear to be located outside of the shredder enclosure from the renderings submitted by GIII in the City's zoning process, referenced elsewhere in these comments)
- Ferrous Material Separation System: 70 conveyor transfer points; ASR stacking conveyor; and barge, rail car, and truckloading;
- Non-Ferrous Material Separation System: 99 material transfer points.[80]

We note at the outset that the descriptions of the Ferrous and Non-Ferrous Material Separation Systems on page 1 of the Draft Permit are inconsistent with the emission limits for these Systems contained on pages 14-16, Conditions 12(d) and 12(e).[81] IEPA must correct all descriptions and ensure that all emissions estimates, modeling based on those estimates, and proposed limits and monitoring, recordkeeping and reporting requirements encompass all proposed emission sources/units associated with their respective Systems.

In terms of proposed conditions to control fugitive emissions, the Draft Permit is exceedingly thin and vague, largely consisting of general restatements of regulatory provisions rather than case-by-case, objectively enforceable permit condition for the proposed GIII. The Draft Permit also relies in large part on a "fugitive particulate operating plan" to provide the specificity that the Draft Permit itself does not include, yet the fugitive particulate operating plan perpetuates the same vague and unenforceable approach, while creating confusion and conflict with (and so within, due to the operating program's incorporation into the Draft Permit) the Draft Permit.

More specifically, fugitive emission conditions are limited to the following:

- In **Condition 9**, boilerplate restatements of Section 212.701(a)'s requirement to prepare and submit "contingency measure plans reflecting the PM10 emission reductions set forth in [Section 212.703]" at a future date and restatement of the process set forth in 212.704 pertaining to exceedances of the NAAQS for PM10;
- In **Condition 10**, vague, general control obligations for storage piles, roadways, vehicle loading and unloading, and other transfer points that simply list available control

[80] *See* Draft Permit at 1, description of emission sources and/or air pollution control equipment.

[81] More specifically, both System descriptions on page 1 omit stockpiles, though the Condition 12 emission limits list stockpiles associated with these Systems (7 and 13 stockpiles for the Ferrous Separation and Non-Ferrous Separation Systems, respectively). The description of the Ferrous System on page 1 includes barge, rail car and truck loading, consistent with the application (*see* Section 2.2 describing the Ferrous System), but the Condition 12 limits on pages 14-15 list only truck and barge loading, not rail car. The page 1 description of the Non-Ferrous System omits vehicle loading all together, though the Condition 12 limits on pages 15-16 includes truck loading. We also note here that these descriptions omit torch cutting, an omission that we address elsewhere in these comments.

measures in the alternative and state that control shall be done "in accordance with" a required operating program, for which Condition 10 lays out minimum requirements, along with incorporation by reference of a December 2019 fugitive particulate operating program and a provision for updating the operating program and incorporating it into the permit;

- In **Condition 11**, a vague requirement to take "appropriate and necessary" reactive steps to address odor nuisances that do occur, without any monitoring/reporting to help prevent/detect odors prior to reaching nuisance levels or ensure that any mitigation taken is in fact working;
- In **Condition 12**, hours of operation limits and monthly/annual tonnage limits based on throughput and emission factor calculations that apply to various fugitive emission sources at the Ferrous Material Separation Process and Non-Ferrous Material Separation Process, including conveyor transfer points, vehicle loading (but not unloading) and stockpiles;
- In **Condition 13**, a restatement of Section 201.282 that confusingly includes a directive that sources "shall" conduct testing, followed by a permissive clause that IEPA "may" require an owner or operator to conduct testing and a clause that IEPA "shall have the right" to conduct tests at IEPA's request;
- In **Condition 14**, cross references to the methods for conducting monitoring and testing of various emissions sources set out in Sections 212.107 to 212.110, including methods for visible emissions and opacity;
- In **Condition 16**, a requirement that the source measure the PM, PM10, PM2.5, lead and manganese emissions from the Non-Ferrous Material Separation System within 60-days after the Hammermill Shredder first processes raw material; required methods for such testing, including use of Method 9 for opacity and Method 22 for visible emissions; requirements to submit a testing plan and written notification of testing; a clause discussing delay of testing; a requirement to submit a final testing report within 60 days of completing the testing; and a statement that satisfactory completion of the testing so as to demonstrate compliance is a prerequisite to issuance of an operating permit.
- In **Condition 19**, restatements of general recordkeeping requirements for Visible and Particulate Matter Emissions pursuant to Section 212.110(e) that a source retain testing records onsite for "at least three (3) years after the date a test is performed."
- In **Condition 21**, additional recordkeeping requirements, including keeping a copy of the fugitive particulate operating program and "a record of activities completed according to" that program, along with a requirement that all such records by "retained at a readily accessible location at the source or at least five (5) years from the date of entry" and shall be made available upon request by IEPA or U.S. EPA; and
- In **Condition 22**, a general requirement to give notice of testing for PM to demonstrate compliance and a requirement for submission of a report regarding periods during which

any process emission unit was in operation when air pollution control equipment was not in operation or was not operating properly upon request by IEPA.[82]

- In **Condition 25**, a requirement to submit a report to IEPA "[i]f there is an exceedance of or deviation from the requirements of this permit as determined by the records required by this permit or otherwise."

The shortcomings in these provisions are as follows.

C. The Draft Permit Excludes Objective, Practicably Enforceable Control Measures, Monitoring and Reporting Necessary to Ensure Continuous Compliance with Applicable Requirements.

The Draft Permit recognizes that the source is subject to the prohibition on visible emissions beyond the fenceline, the 30% opacity limit, and the mass balance emissions limits contained in Condition 12, and should recognize that the source is subject to the prohibition on air pollution as well. However, the Draft Permit fails to ensure that these requirements will be met, and its broad provisions that lack the requisite specificity are grossly insufficient to protect the public and the environment from air pollutants as required by Federal and State law. In sum, the Draft Permit is utterly lacking in any control requirements and monitoring, recordkeeping and reporting requirements sufficient to ensure compliance with these limits by various "fugitive" sources on an ongoing, continuous basis.

a. Failure to ensure compliance with the prohibition on air pollution.

The general prohibition on air pollution is applicable to this proposed new source, and so IEPA must both acknowledge its applicability in the Draft Permit and include objective terms to ensure ongoing compliance with this requirement. As noted above, IEPA functionally applied the limit to the proposed GIII through its evaluation of air quality modeling impacts. Yet nowhere in the Draft Permit does IEPA recognize that the air quality modeling was conducted pursuant to the prohibition on air quality. Nor does the Draft Permit include any terms and conditions sufficient to demonstrate ongoing compliance with the prohibition, such as a requirement to comply with the assumptions in the air quality modeling (as noted throughout our comments, the Draft Permit's terms and conditions do not accurately reflect or otherwise ensure the emissions estimates and level of control used in the air quality modeling) or ground-based continuous monitoring of PM and HAPs.

b. Failure to ensure compliance with the 30% opacity limit.

The Draft Permit functionally excludes fugitive sources of emissions from the Section 212.123 opacity-based limit, despite the applicability of this provision to fugitive as well as process

[82] It is unclear why Condition 22 is written only to require notice of testing for PM to demonstrate compliance (and subsequent reporting only if requested by EPA) during periods when *process* units are operating but air pollution control equipment is not. This requirement to do testing of emissions during outage of control equipment should apply across the board to all sources of PM covered by various limits, including fugitive sources. Also, reporting of the results should be mandatory, not only on IEPA request.

emission units. Section 212.123 on its face applies to "All Other Emission Units" that are not otherwise subject to limits contained in Section 212.122 (which sets forth limits for certain fuel combustion units). *See* 35 IAC 212.123(a). The Act and State Implementation Plan, in turn, broadly define "emission unit" as follows: "any part or activity of a stationary source that emits or has the potential to emit any air pollutant," 415 ILCS 5/39.5, 35 IAC 211.1950, consistent with federal law. Nevertheless, the permitting materials collectively fail to apply and ensure compliance with the Section 212.123 opacity limit as applied to fugitive sources.

The Draft Permit generally states that the three Systems, and so by extension the material handling/fugitive sources associated with them, are subject to the 30% opacity limit and exceptions to it.[83] Yet the Draft Permit nowhere explicitly acknowledges the applicability of the 30% opacity limit specifically to emission units that are sources of fugitive emissions. Nor does the Draft Permit include any express requirement to do opacity testing of fugitive sources (or other process sources for that matter) to ensure compliance with this applicable limit. As discussed below, the fugitive particulate operating program that the Draft Permit incorporates by reference itself omits fugitive sources from the 30% opacity requirement.

c. Subjective control requirements.

With regard to control requirements, the Draft Permit states multiple control options in the alternative – without any basis for determining which control must be used, or which control will ensure compliance with which of the several applicable limits. The Draft Permit furthermore employs vague language to describe the frequency with which the controls must be used and the operating and other conditions under which a control or controls must be used. Overall the Draft Permit defers all specificity of fugitive emission control obligations to the fugitive particulate operating program.

For example:

- Condition 10(a) provides that "[a]ll storage piles of materials which are located within the source's property shall be sprayed with a surfactant *or* water, *or* treated by *an equivalent method*, in accordance with the operating program required by Condition 10(e)." (emphasis added).
- Similarly, Condition 10(b) states that "[a]ll normal traffic pattern access areas surrounding storage piles and all normal traffic pattern roads and parking facilities which are located on the source's property shall be paved *or* unpaved areas [sic][84] shall be treated with water, oils *or* chemical dust suppressants in accordance with the operating program required by Condition 10(e). All paved areas shall be cleaned *as needed* in accordance with the operating program required by Condition 10(e). All areas treated

[83] *See* Cond. 3.a and 3.b.

[84] We note that there appears to be a grammatical error in Cond. 10(b) – it may be that the provision omits an "and" between "unpaved areas" and "shall be treated."

with water, oils, *or* chemical dust suppressants shall have the treatment applied, *as needed*, in accordance with the operating program required by Condition 10(e)."

Conditions 10(c) (unloading and transport of materials collected by pollution control equipment) and 10(d) (various processes and material transfer points) follow this same format, listing controls in the alternative and leaving further explication, including choice among the controls and frequency of use and under what conditions, to the fugitive particulate operating program.

Nor does the Draft Permit create any substantive, objective standards by which Illinois EPA will judge whether the submitted fugitive particulate operating plan is in fact "designed to limit fugitive particulate matter emissions to ensure compliance with applicable limits and standards," as provided in Condition 10(e), including the prohibition on air pollution, the prohibition on visible emissions beyond the fenceline, and the 30% opacity limit. Again, rather than imposing objectively enforceable requirements, the Draft Permit simply and circularly restates the general regulatory requirement that the fugitive particulate operating program ensure compliance.

d. Virtually non-existent testing and monitoring requirements.

Furthermore, the only testing required by the Draft Permit to demonstrate compliance with the visible and particulate emissions limits for fugitives is a one-time, initial test supposedly conducted within 60 days of the Hammermill Shredder start-up, pursuant to Condition 16. "Supposedly" because Condition 16(e) discusses allowed delays of testing, with no factors that must be met to justify a delay, no requirement that IEPA consider those factors and approve or deny the delay, and no outer limit on how long the testing delay can last.[85] Condition 13, in turn, contains general and conflicting language that functions only as an assertion of IEPA's authority to require or itself conduct testing, rather than an actual, objectively enforceable requirement to in fact *do* any testing, beyond what's called for in Condition 16. Conspicuously missing from the Draft Permit is any requirement to conduct ongoing, periodic testing or monitoring of any sort to ensure continuous compliance over time and a variety of real-world conditions, and particularly with respect to fugitive dust sources, with the prohibition on air pollution, the prohibition on visible emissions beyond the fenceline, or the opacity limits.

e. Virtually non-existent recordkeeping and reporting requirements.

Nor does the Draft Permit contain sufficient recordkeeping and reporting requirements to ensure that IEPA can determine compliance, let alone so that members of the public can enforce the permit as a practical matter, a critical component of a practicably enforceable permit. The insufficiencies in control obligations and monitoring and testing in both the Draft Permit, as set out above, and the fugitive particulate operating program, as set forth below, carry through to

[85] Cond. 16(g) includes a statement that satisfactory completion of the initial test is a prerequisite to issuance of an operating permit, which in theory could set an outer boundary on delays. However, given IEPA's practice of sitting on permit applications for extended periods of time while it allows sources to continue operating, such as is the case with General Iron whose operating permit application has been in front of IEPA since 2005, we have concerns that testing may be delayed indefinitely.

render the recordkeeping requirements insufficient to create practicably enforceable permit terms. In addition, outside of the initial test report to IEPA, the Draft Permit requires no mandatory reporting whatsoever, such as a monthly or annual report certifying as to any exceedances or other irregularities or the lack thereof, other than (uncertified) event-related deviation reporting, leaving identification of exceedances or deviations entirely up to the applicant. Instead, the source need only hold various records in the event that IEPA or USEPA requests those records.

Nor are even the recordkeeping obligations practicably enforceable. Both Condition 19 and Condition 21 require that records be kept for "at least" a period of time, itself rendering the time period unenforceable at the upper end (is destruction of records after eight years a violation? Six years? Ten?). Moreover, these two conditions contain inconsistent lower bounds – three years and five years – with respect to specific records, including the fugitive particulate operating plan and records of activities conducted pursuant to it, again rendering the retention provisions unenforceable.

f. Improper automatic approval of the Fugitive Particulate Operating Program and post-hoc submission and approval of a Contingency Plan.

Finally, with respect to the fugitive particulate operating program, the Draft Permit contains an automatic-updating provision that both carries through the lack of objective standards from Condition 10(e) discussed above and further undermines the public review purpose behind the environmental justice process being undertaken by IEPA. Condition 10(i) provides as follows:

> The Fugitive Particulate Operating Program shall be amended from time to time by the Permittee so that the operating program is current. Such amendments shall be consistent with Condition No. 10(e) and (f) and shall be submitted to the Illinois EPA within thirty (30) days of such amendment. Any future revision to the Fugitive Particulate Operating Program made by the Permittee during the permit term is automatically incorporated by reference. In the event that the Illinois EPA notifies the Permittee that further information regarding the revision to the Fugitive Particulate Operating Program is needed, the Permittee shall respond to the notice within thirty (30) days of receipt of notification.

Not only does this provision again include no objective standards by which the (amended) fugitive particulate operating program will be evaluated, the public will have no opportunity to review and weigh-in on such amended programs. *See* Waterkeeper *Alliance, Inc. v. U.S. E.P.A.*, 399 F.3d 486, 498-504 (2d Cir 2005) (holding that EPA violated the Clean Water Act in adopting a rule that "effectively shield[ed]" site-specific permit conditions set out in nutrient management plans "from public scrutiny and comment…" and criticizing the agency for failing to provide for public participation in the development and enforcement of nutrient management plans because those plans "embody all the relevant 'site specific nutrient management practices,' [and thus] are a *sine qua non* of the 'regulation, standard, plan, or program' …established to regulate land application discharges"); see also *Sierra Club Mackinac Chapter v. Dep't of Envtl.*

Quality, 277 Mich. App. 531, 533-34 (Mich. Ct. App. 2008). This omission renders the Draft Permit unenforceable as a general matter, and also undermines IEPA's environmental justice policy by insulating subsequent fugitive particulate operating programs from public scrutiny.

Similarly, the Draft Permit improperly allows for the post-approval submission of the Contingency Plan required under Subpart U.

D. The March 2020 Fugitive Particulate Operating Program Fails to Acknowledge Applicable Legal Requirements, Creates Conflicts with the Draft Permit into Which it is Incorporated, and is Otherwise Unenforceable as a Practical Matter.

While the March 2020 Fugitive Particulate Operating Program ("FPOP") includes slightly more detail than the Draft Permit itself, it outright excludes applicable legal requirements and hence measures for ensuring compliance with them, and itself suffers from significant enforceability problems. As the Draft Permit relies on the fugitive particulate operating program to correct its own insufficiencies, these shortcomings again render the Draft Permit unenforceable as a practical matter and otherwise insufficient to ensure compliance with all applicable requirements. Specific shortcomings include, but are not limited to, the following:

a. *Exclusion of fugitive emission units from the 30% opacity limit contained in Section 212.123*. The application mischaracterizes Section 212.123 as follows: "Section 212.123(a) prohibits the emission of smoke or other particulate matter from any *process* source to exceed 30% opacity."[86] The FPOP repeats this misstatement of Section 212.123 by recognizing only the applicability of the prohibition on visible emissions beyond the fenceline contained in Section 212.301 to fugitive sources.[87] Nor does the FPOP include any mention of opacity limits as applicable to fugitive sources, let alone actual monitoring of opacity using Method 22 at each source of fugitive emissions to ensure compliance with this applicable provision.[88] Indeed, the word "opacity" is only used three times in the operating program, in each case to explain that certain point sources that do have opacity limits are not in fact fugitive sources.[89] This omission/mischaracterization creates a conflict with the Draft Permit, which as discussed above appears to recognize the applicability of 212.123 to fugitive emission units.
b. *Failure to recognize the applicability of the prohibition on air pollution contained in 415 ILCS 5/9(a).* Similarly, the FPOP nowhere recognizes the applicability of the prohibition on air pollution set forth in 415 ILCS 5/9(a), either to the facility as a whole or to fugitive emissions in particular. To the contrary, the FPOP characterizes itself as a "voluntary" program because the source is not otherwise covered by the express requirement to

[86] September 2019 Application at 39 (emphasis added).
[87] FPOP at Section 1.2, "Illinois Environmental Protection Agency – Fugitive Emission Regulatory Requirements."
[88] *See, e.g.*, FPOP at Section 3.1(A)(i), describing visual observations of the raw material unloading and handling areas for the presence of Visible Emissions and excluding any opacity monitoring.
[89] *See* FPOP at Section 1.3, "Definition of Visible Emissions"; Section 4.5.2, "Shredder Emission Control System"; and Section 4.5.3, "Non-Ferrous Processing Building Baghouse."

prepare such a plan contained in Section 212.302. As a result, the FPOP creates a conflict with the Draft Permit with respect to the applicable legal requirements and on this basis alone must be amended. Moreover, even assuming that the FPOP contained practicably enforceable limits on fugitive emissions, which it does not, nowhere does the FPOP attempt to demonstrate how the proposed measures in fact will ensure that fugitive sources will not cause levels of air contaminants that are injurious to human, plant, or animal life. The program solely focuses on the prohibition of visible emissions beyond the fenceline, which is at best a very rough proxy for PM or air toxics particles in the air. Experience at other nearby facilities like KCBX and S.H. Bell (as discussed elsewhere in these comments) demonstrate that continuous ambient air monitoring is necessary to ensure that facilities are not causing or contributing to levels of PM and/or air toxics that exceed the NAAQS or other health-based thresholds, in particular with respect to fugitive emissions.

c. *Mischaracterization of certain emission sources within the shredder enclosure as "fugitive" sources*. The FPOP mysteriously claims that the three conveyors *located within the shredder enclosure* and *uncaptured emissions from the shredder itself* constitute "potential sources of fugitive emissions,"[90] in contrast to shredder emissions within the enclosure that in fact end up captured by the hood setup. This claim ignores that such conveyor emissions and shredder emissions could "reasonably pass through a stack, chimney, vent, or other functionally equivalent opening," *see* 40 C.F.R. 52.21(b)(20), such as if GIII had selected a fully enclosed shredder like the METSO design discussed elsewhere in these comments. Indeed, the "[t]he existence of collection technology in use by other sources in a source category creates a presumption that collection is reasonable."[91]
d. *Repeated use of "as needed" without further articulation of objective conditions that must be considered in determining when use of a particular control is required*. *See, e.g.*, FPOP at p7 describing identification and control of Visible Emissions from raw material unloading and handling.
e. *Failure to specify which specific sources/areas will be subject to which described controls*. *See, e.g.*, FPOP at p8, stating that for Material Transfer Points, Dust Boss water atomizers "will be positioned to mist the facility areas with the highest potential for fugitive particulate," without further defining which areas these are, and that "[s]elect conveyors that transfer streams containing significant amounts of light material that could

[90] *See* FPOP at Section 3.2, "Shredder Enclosure."
[91] *See* Ex. 42, EPA, Memorandum from John S. Seitz, Classification of Emissions from Landfills for NSR Applicability Purposes (Oct. 21, 1994), available at: https://www.epa.gov/sites/production/files/2015-08/documents/emsnldfl.pdf; *see also* Ex. 43, EPA, Memorandum from Thomas C. Curran to Judith M. Katz, Interpretation of the Definition of Fugitive Emissions in Parts 70 and 71 (Feb. 10, 1999) (interpreting the same definition of fugitive emissions in the context of Title V rather than NSR in order to find that emissions from certain printing industry and paint manufacturers could reasonably be collected and are therefore not fugitive), available at https://www.epa.gov/sites/production/files/2015-07/documents/fug-def.pdf.

easily become windblown will be equipped with covers," without identifying which of the many conveyors at the three systems these are.

f. *Failure to include available best management practices for fugitive dust minimization*. *See, e.g.*, FPOP at p9, stating that "with the exception of the … ASR stockpile, all stockpiles identified in facility emission estimates will have solid partitions on three sides." We are extremely concerned that the applicant appears to be proposing to hold ASR of all sorts in entirely open piles, including piles within a very short distance of the Calumet River. Such open storage ignores that enclosure of such piles, including full enclosure as well as less protective covered enclosures designed to prevent material from becoming windborne[92], is an available control option. Omission of these controls is disturbing considering both the relatively high toxicity of ASR and ASR's propensity to become windborne due to its low density, and especially so given the track record of reported ASR dispersal into the community from the current General Iron site. As set forth elsewhere in these comments, such failures with respect to ASR render the Draft Permit insufficient to ensure compliance with all applicable laws and regulations. See also FPOP at p10, stating that "[t]he majority of the facility is paved with concrete *or* asphalt" (emphasis added), without acknowledging that the use of concrete for paved roadways is itself an important dust control measure as compared to using simply asphalt for paving, as discussed elsewhere in these comments.

g. *Failure to include objective measures of frequency, timing, intensity and other measures of control use by which the actual use of a control will be evaluated*. *See, e.g.*, FPOP at p8, describing simply that Dust Bosses will be positioned in various areas and that "[t]he water applied by the Dust Boss will increase the moisture content of the material being transferred to minimize the potential for Visible Emissions," without describing the various moisture contents that need to be achieved for control of dust from various materials, or the duration and intensity of Dust Boss use to achieve such moisture levels. *See also* FPOP at p9, noting that Dust Boss will "mist stockpiles if Visible Emissions are observed," which fails to require preemptive wetting by Dust Bosses or other wetting apparatus to prevent visible emissions in the first instance (such preemptive wetting is

[92] CDPH's June 2020 large recycling facility regulations require substantial control of ASR, in contrast to IEPA's lax approach, *see* Ex. 44, CDPH Large Recycling Facility Rules at Section 4.4.2, available at https://www.chicago.gov/content/dam/city/depts/cdph/InspectionsandPermitting/CDPH%20Rules%20for%20Large%20Recycling%20Facilities_Issued%20June%205,%202020.pdf. IEPA should treat CDPH's regulations as the floor for what must be required at GIII in this specific permit, consistent with CDPH's statements in adopting the Rules that it retains the authority to impose more stringent controls in individual cases as needed to ensure protection of the environmental and public health. CDPH's general fugitive dust regulations, in turn, require full enclosure of petcoke and manganese piles; rules adopted by the South Coast Air Quality Management District ("SCAQMD") similarly require full enclosure of petcoke piles. *See* Ex. 45, CDPH Rules for Control of Emissions from Handling and Storing Bulk Materials at Sections 4.0 and 5.0, available at https://www.chicago.gov/content/dam/city/depts/cdph/InspectionsandPermitting/Control_EmissionsfromHandling&StoringBulkMaterials_January2019.pdf, and Ex. 46, SCAQMD Rule 1158 at Section (d)(2), available at http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1158.pdf. That ASR can reasonably be stored in a full enclosure also renders emissions from ASR piles point source emissions, not fugitive emissions.

particularly critical for compliance in areas like the barge loading/riverfront area, where dust would be created essentially at the property boundary with the River and where, as discussed in these comments, RMT has already shown it cannot control fugitive emissions). *See also* FPOP at Section 4.3, page 15, vaguely stating that "[t]he deployment of Dust Bosses will be modified as may be required based on Facility operating experience." *See also* FPOP at p3, noting that "the *vast majority* of the Facility is paved with concrete *or* asphalt pavement. The *limited* area that is not paved is covered with compacted asphalt grindings *or* similar materials" (emphasis added) and failing to provide any diagram of which paving materials are used in which specific areas. *See also* FPOP Section 4.4, page 15, described that paved and unpaved areas are "*routinely* treated using water application and sweeping unless observed pavement conditions indicate it is unnecessary, such as following a precipitation event" and that "application of water will be limited by *near* freezing temperatures," (emphasis added). *See also* Section 4.4.1, page 15, stating that a water truck "will be used to *periodically* apply water" and Section 4.4.2, using similarly vague language to describe sweeping of paved areas. We note that the instances of vague language such as "routinely," "periodically," "on a regular basis," etc., in the operating program are too numerous to list here.

h. *Failure to require enforceable testing and/or monitoring to ensure that the facility in fact employs controls for fugitive emissions as necessary to comply with applicable limits*. Similar to the failure to provide objective standards by which to gauge proper use of a control, the FPOP fails to objectively describe the specific conditions under which the limited visible emissions testing will occur. *See e.g*., FPOP at p8, stating that visual observations will be conducted "three times per day," without specifying when, under what operating and weather/atmospheric conditions, and for what duration such observations will occur. Without such specificity, the operator could conduct three back-to-back observations at locations relatively far from the fenceline during non-operational times at low wind speeds and claim compliance with the express terms of this supposed monitoring requirement. The fugitive particulate operating program also contains a puzzling provision that describes additional visible emissions identification by "other employees" who are "trained to identify Visible Emissions," but whose observations will NOT be recorded in the same format as the visible emissions monitoring by "designated trained personnel." *See* FPOP at Section 4.1.1. Also as discussed above, the fugitive particulate operating program ignores the applicability of both the 30% opacity limit and the prohibition on air pollution, and so omits any testing and/or monitoring to ensure compliance with these limits.

i. *Failure to require sufficient recordkeeping and reporting*. Similar to the control, testing and monitoring requirements, the recordkeeping and reporting requirements in the operating program are insufficient to ensure compliance with the applicable limits on air pollution, visible emissions, and opacity. Unsurprisingly given the vagueness of the monitoring requirements themselves, none of the logs require description of the operating

conditions or atmospheric/weather conditions at the time of observation so as to gauge whether deployment of the controls was in fact done during conditions that are likely to generate fugitive dust. Nor does the operating program require any additional reporting beyond the virtually non-existent reporting required by the Draft Permit.

In sum, neither the Draft Permit nor the fugitive particulate operating program nor the yet-to-be-submitted Contingency Plan contain any practicably enforceable limits on fugitive emissions. Drafting objectively enforceable fugitive dust permit requirements (not to mention objectively enforceable fugitive dust regulations) that demonstrate compliance with the prohibitions on air pollution and visible emissions beyond the fenceline, as well as the 30% opacity limit, is entirely feasible, as demonstrated by the efforts of CDPH and SCAQMD.[93] Nor need or can the applicant and IEPA wait until the facility is actually operating to cure these many shortcomings: the vast majority of the vague and subjective conditions in the Draft Permit and operating program can and should be addressed now in order to render the Draft Permit practicably enforceable. (We also restate our concern that IEPA's track record of substantially delaying issuance of operating permits – such as the 15 years that it has sat on General Iron's operating permit – render a commitment to address issues in the operating permit meaningless).

For example, and as discussed in more detail elsewhere in these comments, the reporting requirements can be increased to regular, certified reports that are made publicly available. Monitoring and testing can be made continuous, ongoing obligations accompanied by additional specificity as to the operating conditions and atmospheric/weather conditions under which they must take place. The applicant can include specificity on the operations that are expected to generate more fugitive emissions, and specificity on the controls to be deployed to these areas and specifics on how they will be deployed. And as taken up below, control can be built into the front end design instead of relying on subjective work practice standards that fail in fact to be employed or to otherwise ensure control and compliance with limits over a range of real-world conditions. We note that a number of the enforceability issues in the Draft Permit – such as the lack of ongoing testing and monitoring requirements, and the virtually nonexistent reporting obligation – extend to process sources as well. For these reasons, the Draft Permit cannot issue as written.

IV. IEPA Cannot Issue the Draft Permit Without Substantial Revision to Create Objective Control and Compliance Obligations that In Fact Result in Robust, Enforceable and Continuous Control of Facility Emissions.

Throughout these comments, we have provided numerous reasons why the Draft Permit cannot be issued as written, including the companies' long and ongoing history of noncompliance with the Act with respect to numerous relevant sources/operations, including but not limited to the

[93] *See* CDPH and SCAQMD rules cited above; see also Ex. 47, S.H. Bell, Fugitive Dust Plan, November 2017, available at https://www.chicago.gov/content/dam/city/depts/cdph/environmental_health_and_food/SH_BellFugitiveDustPlan_Nov2017.pdf.

shredder itself, roads, piles, transfer points, and vehicle loading[94]; deficient and unenforceable control obligations; and insufficient testing and monitoring, in turn further weakened by poor recordkeeping and reporting, compounding enforceability issues. Each of these justifications stands on its own requiring denial, postponement, and/or significant revision of the Draft Permit. Collectively, they showcase how far IEPA has to go to ensure it is protecting the health and wellbeing of Illinois residents in this environmental justice community. As stated at the public hearing, this is petcoke all over again.

In this section, we provide additional comment on the various sources and issues in the Draft Permit that need to be addressed before IEPA approves any construction permit for GIII, as well ways that IEPA must revise the Draft Permit to address them.[95] In addition to the prior discussion of IEPA's authority under Section 5/39(a), we reiterate here that IEPA has broad authority under that provision to "impose such other conditions as may be necessary to accomplish the purposes of this Act" that are not inconsistent with the regulations promulgated by the Illinois Pollution Control Board. IEPA should embrace this authority to produce a more just outcome consistent with its commitment to environmental justice and its environmental justice policy. We also note that to the extent the application failed to provide information needed for this additional review and revision, IEPA must declare the application incomplete.

A. IEPA Must Revise the Estimated Emissions for the Hammermill Shredder and Strengthen Control Requirements, Testing, Monitoring and Recordkeeping and Reporting Obligations for It, and Modify Air Quality Modeling Accordingly.

The Draft Permit cannot issue as proposed because the applicant's and IEPA's emissions estimates for the proposed hammermill shredder, hood and controls significantly underestimate the likely actual emissions from this configuration, due to their failure to account for substantial uncontrolled emissions that will exit the partially enclosed shredder and escape the hood prior to the pollution controls. This underestimation of actual shredder emissions also renders unsupported the air toxics modeling on which the Draft Permit is based, as the modeling relies on the artificially high level of control claimed by the applicant. It also provides further grounds for requiring PM_{10} modeling to ensure protection of the NAAQS.

The high levels of control claimed by the applicant might be supportable if GIII were employing a fully enclosed design with a metal bonnet for ensuring shredder emissions route to the control

[94] In this section, we rely on the history of control at General Iron and the RMG facilities from two distinct viewpoints: (1) as this history pertains to their specific noncompliance, and (2) as general data on experience in the industry with the use and effectiveness of the proposed controls. With respect to this second viewpoint, such field experience with controls is routinely relied upon by permitting officials in gauging which controls to require, their expected effectiveness in fact, and what limits to include in a permit, for instance in the Best Available Control Technology analysis. This information similarly is relevant to IEPA's permitting decision here, regardless of whether IEPA determines to adhere to its exceedingly narrow interpretation of the agency's authority to consider past/ongoing noncompliance in the permitting context.

[95] Expert engineering analysis for these comments was provided by Dr. Ranajit Sahu. *See* Ex. 48, Resume of Dr. Ranajit Sahu, PH.D, QEP, CEM, January 2020.

device, such as the METSO Landsmann ZZ design being deployed in Europe.[96] However, the application describes the shredder as being located within a "partial enclosure with… a vented metal roof," outfitted with a "capture hood" for routing shredder emissions to the RTO and scrubber (with the RTO itself being transferred from the General Iron site, noting that such direct transfer is now impossible due to the RTO explosion).[97] While the applicant has claimed Trade Secret protections for the design renderings of the shredder – a claim that is in conflict with U.S. EPA's policy for treating "emission data" as subject to public disclosure notwithstanding trade secret claims[98]— resulting in IEPA's redaction of the design information from the application, GIII did submit a rendering of the shredder in the Chicago zoning process that confirms the roof will have a significant grate at the top and multiple openings along the bottom[99].

Given these openings and the proposal to use a flexible hood to route emissions to the controls, it is incorrect to assume, as the applicant and IEPA do, that all of the PM and VOM that will be generated due to the violent shredding operations will be contained and directed to the particulate control equipment and RTO. Some portion of the pollutants generated will escape the enclosure and capture setup as emissions from the shredding operation as a whole, in spite of the water spray that is typically used within the shredder enclosure.

The capture efficiency of the rubber-lined conceptual enclosure (in combination with wet suppression for PM) is unlikely to exceed 50% as an engineering judgement. It could be even lower given the high degree of wear of this type of enclosure over time, which makes the

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[96] *See, e.g.*, Ex. 49, R&R Beth, "Seattle & Iron shredder dedusting system – pressure at bonnet and airflow references," at p2 (rendering of a METSO car shredder in Gotzis, Germany). The METSO Lindemann ZZ series is described by METSO as "state-of-the-art," *see* Ex. 50, METSO website page for Lindemann ZZ, available at https://www.metso.com/products/shredders/metal-shredders/lindemann-zz-shredders/. We present this information not as a full endorsement of the METSO design, but to illustrate that significantly more protective shredder designs employing full enclosure are in fact available for this new facility. To the extent that such shredders require a cleaner, more specific feedstock on the front end than the design proposed by the applicant, IEPA should require enforceable feedstock sorting and cleaning as needed to enable use of better controlled shredder designs.

[97] Application at Section 2.1.

[98] The Clean Air Act provides that "emission data" "shall" be disclosed, regardless of whether it would otherwise be granted trade secret protection. *See* 42 U.S.C. § 7414(c). Federal regulations broadly define "emission data" as any "[i]nformation necessary to determine the identity, amount, frequency, concentration, or other characteristics . . . of any emission which has been emitted," or information necessary to determine the characteristics of any emissions which "under an applicable standard or limitation" a source may emit, or even "[a] general description of the location and/or nature of the source." 40 C.F.R. § 2.301(a)(2)(i). "Emission data" is to be interpreted comprehensively, to fulfill the public purposes of the Act and regulations. In the context of a federally-enforceable synthetic minor permit, IEPA should ensure that its interpretation of trade secret protections comports with this longstanding federal interpretation of emission data. Here, the shredder design – in particular the location and extent of openings in the enclosure – is important information for accurately assessing shredder emissions and should be disclosed to the public. The failure to disclose renders the record on which the Draft Permit is based incomplete and the shredder emissions estimates further unsupported.

[99] *See* Ex. 51, excerpts from Exhibit C to GIII's application to the City of Chicago Zoning Board of Appeals for a Special Use Permit, obtained through a Freedom of Information Act Request to the Chicago Department of Planning and Development (application stamped as received March 5, 2019) (full document available upon request). While we obviously do not know the design and level of detail in the shredder and other systems renderings provided by the applicant to IEPA, we note that the provision of these renderings to the Department of Planning and Development apparently without trade secret claims, and the Department's subsequent dissemination of the renderings in response to a FOIA request, appear to further undermine the trade secret claims in this permit proceeding.

effectiveness over the long-term even more questionable, and the potential for irregular use of wet suppression (see below with respect to General Iron's and RMG's track record with wet suppression). Moreover, this relatively low capture efficiency of the hood calls into question the applicant's assertion that the VOM 81% control requirement in 35 IAC 218 Subpart TT does not apply, and similarly if the requirement does apply, whether the control scheme proposed in fact achieves at least the required 81% control.

Adding to this engineering assessment, significant field evidence exists that the "capture" hood does not in fact achieve the high level of capture and thus control claimed by the applicant and assumed by the Draft Permit. The hood structure at the current General Iron location has been reported as allowing significant emissions to escape before they enter the control devices. CDPH inspectors have observed "untreated emissions" and sometimes smoke escaping the top and sides of the shredder on numerous occasions.[100] Indeed, CDPH inspectors have noted that the emission controls do not appear to be working because of the flawed design of the shredder, and that the shredder has a hood but is not fully enclosed[101], causing emissions to escape the shredder before the treatment process and rendering the RTO and scrubber ineffective for those escaped emissions.[102] As one inspector stated in January 2020, "[b]eing able to observe emissions escaping the shredder leads me to believe that the equipment capturing the emissions is insufficient."[103] In addition, inspectors have noted emissions from the RTO[104] and excessive emissions from the scrubber stack.[105]

In order to ensure achievement of the very low level of emissions claimed by the applicant and assumed/relied upon in the Draft Permit, IEPA must require GIII to employ a fully enclosed shredder design with no openings, such as the METSO design described above and being deployed in Germany and Belgium. While add-on controls to a shredder enclosure with significant openings may have been appropriate for an existing shredder like the General Iron facility (though as noted above, such a design likely is causing violations with several state and local air requirements at that facility), there is no justification for employing such a design at an entirely new facility to be located in an already-overburdened environmental justice community.

If the applicant and IEPA determine such a fully enclosed design is infeasible, they must fully explain this determination on the record and provide further measures to continuously and

[100] *See* Ex. 23, CDPH Inspection Reports for 1909 N. Clifton: Inspection ID 11152408 (Mar. 26, 2020); ID 11124169 (Mar. 20, 2020); ID 10929879 (Feb. 11, 2020); ID 10881195 (Jan. 31, 2020); ID 10836335 (Jan. 23, 2020); ID 10767158 (Jan. 10, 2020); ID 10746578 (Jan. 7, 2020); ID 10716916 (Dec. 31, 2019); ID 10708652 (Dec. 29, 2019); ID 10706274 (Dec. 27, 2019); ID 1494955 (Dec. 18, 2019); ID 10639264 (Dec. 11, 2019); ID 10573289 (Dec. 2, 2019); ID 10462386 (Nov. 15, 2019); ID 10292164 (Oct. 28, 2019); ID 10208629 (Oct. 18, 2019); ID 10461347 (Nov. 15, 2019); ID 1010782 (Oct. 7, 2019); ID 10039135 (Oct. 1, 2019); ID 10047093 (Oct. 1, 2019); ID 9802564 (Sept. 5, 2019); ID 9495131 (Aug. 1, 2019); ID 493751 (Apr. 29, 2013); ID 457763 (Oct. 31, 2012).
[101] *See id.,* Inspection Reports: Inspection ID 10836335 (Jan. 23, 2020); ID 10767158 (Jan. 1, 2020); ID 10708652 (Dec. 29, 2019); ID 10461347 (Nov. 15, 2019); ID 10047093 (Oct. 1, 2019).
[102] *See id.,* Inspection Reports: Inspection ID 10746578 (Jan. 7, 2020); ID 10716916 (Dec. 31, 2019); ID 10706274 (Dec. 27, 2019); ID 1494955 (Dec. 18, 2019).
[103] *See id*., Inspection Report Inspection ID 10836335 (Jan. 23, 2020).
[104] *See id.,* Inspection Reports: Inspection ID 11001377 (Feb. 26, 2020); ID 1501827 (Jan. 30, 2020); ID 1469863 (Jan. 16, 2020); ID 1451164 (Nov. 5, 2019); ID 9895600 (Sept. 16, 2019).
[105] *See id*., Inspection Report ID 9935298 (Sept. 19, 2019).

stringently control the emissions that will escape the shredder, the enclosure, and the hood capture setup as proposed. In particular, additional VOM measures may be needed in order to meet Subpart TT's 81% control requirement (additional feedstock cleaning measures are one additional front end VOM control that may significantly reduce VOM from the shredder and so that should be considered). Such measures must be accompanied by robust recordkeeping and mandated reporting obligations to ensure the continuous and proper use of any "work practice" measures required for emissions that will escape the enclosure and capture/control setup.

Monitoring of uncontrolled emissions must be included along with this design as well to ensure actual use of such measures and compliance with the applicable requirements, including the prohibition on air pollution. Such monitoring should consist of ground-based continuous VOM monitoring, such as with the AERARAE monitors previously deployed by CDPH to gauge VOM levels at the General Iron facility, and ground-based continuous PM monitoring (similar to the fenceline monitoring required by CDPH under its local rules for fugitive emissions from material handling and for large recycling facilities,[106] positioned specifically to gauge uncontrolled PM from the shredder), as well as FLIR monitoring as discussed elsewhere in our collective comments. The Draft Permit should require at least monthly, and preferably real-time, reporting of this monitoring data to be made public on IEPA's website, for overall enforceability, as well as due to both the poor performance of the hood at the General Iron facility and the proposed location of the proposed new facility in an environmental justice community. In addition, the Draft Permit should require upfront provision of "stack" testing protocols for the Hammermill Shredder, and mandatory repeat testing on a quarterly, with requirements to do regular feedstock characterization testing and conduct emissions testing with significant changes in the feedstock. Such mandatory repeat testing is also needed given the likely deterioration of the hood over time.

As noted above, it is not clear whether the proposed less protective partially-enclosed-shredder-and-hood design comports with VOC requirements as a threshold matter. If the applicant and IEPA determine that it does and persist with the proposed less protective design without additional PM controls, the applicant and IEPA must revise the emissions calculations for the shredder and all aspects of the permit materials that rely on them, including the air quality modeling demonstration. With respect to estimating PM emissions for purposes of PTE and air quality modeling, little test data is available on PM emissions from uncontrolled autobody shredders. The only data available date back to the late 1990s, contained in an industry report (Institute of Scrap Recycling Industries, ISRI) not publicly available. However, using that industry data, the Ohio EPA has estimated that uncontrolled PM emissions from a car shredder would be 39.06 tons/year for a shredder, Omnisource, with a throughput of 720,000 tons/year of auto bodies.[107] In the present instance, scaling to 1,000,000 tons/year of operation expected at GIII at its new location, the uncontrolled PM emissions are expected to be 54.25 tons/year, rounded to 54 tons/year. Speciation of this into PM10 and PM2.5 could be attempted but with no

[106] *See* CDPH's regulations discussed and cited above.
[107] *See* Ex. 52, Ohio EPA, Draft Air Pollution Permit-to-Install and Operate, Permit Number P0103630, July 31, 2008 ("Omnisource Permit").

real test data or other support. For now, we assume that all these uncontrolled PM emissions are total PM as well as PM10 and PM2.5.

Based on the above, our engineering assessment supports a value of 27 tons/year as uncontrolled PM/PM10/PM2.5 emissions for the shredding operation. The balance of the emissions – *i.e.*, 27 tons/year – are assumed to pass through the PM pollution control device as well as the RTO. A control efficiency of 90% of the emissions that in fact are captured and routed to the RTO and scrubber would be appropriate based on prior engineering experience, especially assuming typical maintenance of the PM control device and some additional PM generation in the RTO. Overall, the PM emissions from the shredder are calculated to be roughly 29.7 tpy for purposes of PTE and air quality modeling.

In addition to revision of the emission estimates, controls and compliance measures for the shredder discussed above, the Draft Permit must be revised to include monitoring to ensure compliance with the operational hours limit on the shredder. Condition 12(a)(i) contains hours of operation limits for the various systems/sources, including the hammermill shredder. However, the Draft Permit lacks monitoring and recordkeeping/reporting requirements to ensure compliance with and enable enforcement of these limits on the hours of operation. With respect to the shredder, noise monitoring can and should be used to track shredder operations on a continuous basis for purposes of determining compliance with the limit on hours of operations. Conversely, without such monitoring, the limit on hours of operation are unenforceable, further rendering the emissions calculations and air quality modeling unsupported.

Such monitoring is further warranted given the numerous complaints by residents of Lincoln Park that General Iron began operations early in the morning before its permitted start time.[108]

B. IEPA Must Impose Conditions to Prevent Auto Fluff from Migrating Offsite.

IEPA has a duty to ensure that the proposed facility will not cause or threaten air pollution, which encompasses airborne pollutants like auto shredder residue. Also as described elsewhere in our collective comments to IEPA and in our rulemaking comments to CDPH, auto shredder residue ("ASR" or "auto fluff") is a potential hazardous material, is highly prone to becoming windborne, has been documented escaping numerous metals recycling facilities across the country, and has been identified as the source of soil contamination in communities surrounding metals recycling facilities.[109] In its airborne state, ASR poses a number of health risks to people,

[108] Ex. 27, CDPH Complaints for 1909 N Clifton: Complaint ID 600794213 (Mar. 9, 2020); ID 600793596 (Mar. 6, 2020); ID 600792608 (Mar. 4, 2020); ID 600792219 (Mar. 3, 2020) ("Loud crushing noise awakened at 2:45 AM and continue until 4 AM very disturbing also horrible gassy odors that make us choke and cause a headache"); ID 600789502 (Feb. 24, 2020) ("They are crushing cars at 4 AM creating loud noise and waking up the neighbors" and "emitting a toxic gas odors that overwhelms in my house"); ID 600760890 (Dec. 2, 2019); ID 600747372 (Nov. 4, 2019); ID 600738064 (Oct. 21, 2019); ID 600665670 (June 26, 2019); *see also* Ex. 23 CDPH Inspection Reports for 1909 N Clifton: Inspection ID 11154818 (Mar. 26, 2020); ID 11154697 (Mar. 26, 2020); ID 11154566 (Mar. 26, 2020); ID 11152408 (Mar. 26, 2020); ID 11154864 (Mar. 26, 2020); ID 11001377 (Feb. 26, 2020); 10461347 (Nov. 15, 2019); 7134833 (Oct. 11, 2018); 1204508 (Jan. 25, 2018); 3247181 (June 20, 2017); ID 3180215 (June 12, 2017); ID 7743 (Oct. 16, 2013).

[109] *See* Ex. 5, NGO Large Recycling Rule Comments, at pp. 4, 16 (footnote 46), and 19-21; *see also* Ex. 53, Supplemental Comments on Proposed Rules for Large Recycling Facilities, submitted by Southeast Environmental

including eye irritation, allergic reaction, and cancer.[110] Again this record alone warrants IEPA including more stringent measures for controlling air releases of auto fluff into the environment, which in this case includes the Calumet River to the West (roughly 500 feet from the proposed ASR open storage area based on facility diagrams in the application) as well as the neighboring residential community.

Here in Chicago, we again see General Iron's poor track record, which provides further support for requiring stringent control of ASR. CDPH has observed ASR on nearby properties and across the river from General Iron, including several recent instances in 2020, and as far back as 2012.[111] In 2020, fugitive auto fluff from the facility led CDPH to issue several Notices of Violation. Lincoln Park residents have reported finding auto fluff a significant distance from the General Iron facility.

Despite this record, as noted here and elsewhere in our collective comments, the Draft Permit and fugitive particulate operating program are shockingly silent on controls for ASR, and appear to allow open piles of ASR within a short distance of the Calumet River and roughly a half mile from Rowan Park and Washington High School. IEPA should instead require full enclosure of all ASR handling, including conveyors, transfer points, and piles. Regular (at least monthly) testing of ASR should also be required to characterize the content of the material, which may vary significantly with feedstock. If full enclosure of ASR storage and handling is determined infeasible, IEPA must at minimum require significant enclosure of these operations (such as with roofed and sided enclosures), robust and objective dust suppression measures, stringent recordkeeping and reporting for any such suppression measures, and regular moisture content testing and recordkeeping for ASR of sufficient frequency to demonstrate continuous compliance over a range of ASR content and handling conditions. While our primary concern in this proceeding is with ASR in its airborne state, we note that robust enclosure of ASR can also prevent or minimize water contamination and soil contamination from ASR, providing further justification for requiring such control measures here.[112]

Task Force, the Chicago South East Side Coalition to Ban Petcoke, Little Village Environmental Justice Organization, and the Natural Resources Defense Council, to the Chicago Department of Public Health on Dec. 19, 2019 and exhibits 6 to 10 to these comments; Ex. 54, Comments on Amended Rules for Large Recycling Facilities, submitted by Natural Resources Defense Council on May 22, 2020, pp. 5-6, available at https://www.chicago.gov/content/dam/city/depts/cdph/InspectionsandPermitting/Additional%20Comments%20from%20NRDC%20(witth%20attachment%20but%20without%20Excel%20exhibits)%205-22-20.pdf.

[110] *See, e.g.*, Ex. 55, Gerdau, Material Safety Data Sheet, Material Name: ASR, available at https://www2.gerdau.com/sites/default/files/downloadable_files/Automobile%20Shredder%20Residue%20_ASR_%20MSDS%20_NA_%202-15-12.pdf.

[111] Ex. 23, CDPH Inspection Reports for 1909 N. Clifton: Inspection ID 11124169 (Mar. 20, 2020); ID 10929879 (Feb. 11, 2020); ID 10767158 (Jan. 10, 2020); ID 10716916 (Dec. 31, 2019); ID 1494955 (Dec. 18, 2019); ID 9495131 (Aug. 1, 2019); ID 450164 (Aug. 9, 2012); ID 416450 (Jan. 26, 2012).

[112] We strongly urge IEPA to require stringent controls of ASR via its waste and stormwater authorities, and to consider all modes of ASR release and so impacts in its evaluations.

C. IEPA Must Impose Objective, Stringent Measures to Control Fugitive Dust from Other Sources Such as Piles, Transfer Points, Vehicle Loading/Unloading, and Roadways.

Metals facilities, like other material handling facilities, have issues with controlling fugitive dust from general material handling, including from piles when worked by construction vehicles, from vehicle loading and unloading, from conveyor drop points, and so on.[113] There is anecdotal understanding in the material handling industry that workers do not like using misting cannons and water spray trucks, given that they can be soaked in the process as well. In other instances, lack of sufficient mobile wetting or other dust suppression equipment to address all dust-generating activities at a facility results in a degree of control at one source while another source goes uncontrolled in another area of the facility. Or mobile dust suppression equipment is not used at all, due to the delays its limited availability can create for facility operations. These factors lead to general underuse of wetting and other dust suppression methods, compounded by inadequate monitoring, recordkeeping and reporting requirements that fail to ensure that dust suppression controls are in fact used to prevent and otherwise control fugitive dust.[114] Nor are wet or other suppression systems particularly effective at dust control under a full range of conditions. In addition to the temperature limitations of some such controls, wind conditions including wind direction can significantly undermine their effectiveness, including at levels below the regulatory 25 mph wind threshold.[115] Similar problems with regular maintenance and dust control arise with roadways in particular in this industry, a general engineering issue due to the intensity of heavy vehicle use on plant roads and the stress put on paving surfaces.

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[113] *See* Ex. 5, NGO comments to CDPH on Rules for Large Recycling Rules, at 13 (describing photos of brown dust from vehicle working of piles at metals facilities in Houston). *See also* Ex. 56, Scott McGlothlin, Clearing the Air, Recycling Today, February 2, 2011, available at https://www.recyclingtoday.com/article/january-scrap-metal-supplement-clearing-the-air/ (describing various material handling operations at metals recycling facilities and their potential to create dust).

[114] *See, e.g.,* Ex. 57, Comments of NRDC, SETC, and the Coalition to Ban Petcoke to CDPH, Watco Transloading, LLC, Variance Request, October 16, 2017, at pp. 21-22 (describing CDPH inspection reports of the precursor Kinder Morgan facility, where inspectors logged numerous failures such as lack of road watering, poor logging of water application, and creation of dust by truck wheels, including track-out), available at https://www.chicago.gov/content/dam/city/depts/cdph/environmental_health_and_food/PubCom_NRDC_SETF_SSCBP_ComWatcoVarReq_10162017.pdf; Ex. 58, Comments of the Coalition to Ban Petcoke, SETF, and NRDC to CDPH, Watco Terminal and Port Services April 24, 2019 Variance Request, at pp3-4 (describing ongoing failures to control dust at the Watco facility, including particularly egregious dust issues and failures to use control equipment at one loading building), available at https://www.chicago.gov/content/dam/city/depts/cdph/InspectionsandPermitting/PublicCom_NGOCom_Watco_VarReq_6282019.pdf; Ex. 59, CDPH Inspection Reports for the Kinder Morgan and Watco facility at issue in these variance proceedings. *See also* Ex. 37, USEPA, In the Matter of Chicago Rail and Port, LLC, Notice of Violation EPA-5-18-10, April 20, 2018, available at https://www.epa.gov/sites/production/files/2018-06/documents/chicago_rail_and_port_llc_nov.pdf; Ex. 60, USEPA, In the Matter of KCBX Terminals Company, Notice of Violation EPA-5-15-08, April 28, 2015, available at https://www.epa.gov/sites/production/files/2015-04/documents/kcbx-nov-20150428.pdf.

[115] *See, e.g.*, Ex. 23, CDPH Inspection Reports for 1909 N Clifton, Inspection ID 11491696 ("Two misting cannons (West side of the shredder and East side of the shredder) were deployed during this inspection but with the wind direction, it did not seem to completely control windborne particulate and the untreated emissions that migrated offsite.")

Once again, General Iron's and RMG's histories of noncompliance – specifically with failing to employ basic measures like wetting to a range of sources and to properly apply such methods where used, as well as failing to maintain roads in paved, clean condition – are in keeping with these generally recognized issues, bolster concerns with fugitive dust from multiple sources at the proposed new facility, and highlight inadequacies in the Draft Permit and fugitive particulate operating program as well as the air quality modeling demonstration. In many instances at the two sites, fugitive dust has been observed visibly escaping from dry material piles and when materials are moved around the site, including during periods when suppression methods are not being employed. As mentioned above, failure to suppress fugitive dust and creation of visible emissions beyond the fenceline has been the basis of several recent NOVs issued by CDPH. A more in-depth accounting of such issues, and necessary measures for addressing them, follows.

Failure to deploy wetting and similar dust controls. We incorporate prior discussion of CDPH inspection reports evidencing fugitive dust issues here and provide this additional summary/characterization. There have been a number of occasions where CDPH inspectors noted fugitive dust and/or dry conditions onsite at General Iron, and yet misting cannons were observed to not be in operation.[116] Likewise, during some inspections the water truck was not in operation where dry conditions were present.[117] Moreover, failing to use adequate wetting methods has been documented for *over a decade* at General Iron, despite repeated warnings to employ suppression methods. In a September 2009 inspection, the CDPH inspector noted as follows: "When I arrived I found that the water they were supposed to be using on the pile was not on. This is something that I and other inspectors have warned them about in the past. Their permit states that they need to use the water on an as needed basis and from what I observed it was needed."[118] A decade later during two October 2019 inspections, reports state "[f]ugitive dust observed onsite when disturbing material piles . . . Misting cannons were observed to not be operated at the time of inspection nor was a water truck wetting the streets. Dust was observed on Kingsbury and Wisconsin being kicked up from the trucks from General Iron."[119] These observations were repeated yet again several months later in January 2020 on a day with temperatures ranging from 41 to 55 degrees, when a CDPH inspector reported "[o]bserving auto fluff in the public way and fugitive dust without operating misting cannons leads me to believe that reasonable measurements were not and are not being taken to ensure dust, debris, and dirt won't migrate off site and into the public way."[120]

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[116] *Id.* CDPH Inspection Reports: ID 11152408 (Mar. 26, 2020); ID 11124169 (Mar. 20, 2020); ID 10929879 (Feb. 11, 2020); ID 10767158 (Jan. 10, 2020); ID 10746578 (Jan. 7, 2020); ID 10716916 (Dec. 31, 2019); ID 10708652 (Dec. 29, 2019); ID 10706274 (Dec. 27, 2019); ID 1494955 (Dec. 18, 2019); ID 10639264 (Dec. 11, 2019); ID 10573289 (Dec. 19, 2019); ID 10578242 (Dec. 2, 2019); ID 10462386 (Nov. 15, 2019); ID 10292164 (Oct. 28, 2019); ID 10208629 (Oct. 18, 2019); 10039135 (Oct. 1, 2019); ID 10022352 (Sept. 30, 2019); ID 9935298 (Sept. 19, 2019); ID 1235829 (Apr. 25, 2018); ID 842777 (Apr. 25, 2016).

[117] *See id.,* CDPH Inspection Reports: ID 10639264 (Dec. 11, 2019); ID 10039135 (Oct. 1, 2019); ID 9495131 (Aug. 1, 2019); ID 1411656 (June 21, 2019); ID 1391614 (June 14, 2019).

[118] *Id*., Inspection ID DOEINS41689 (Sept. 28, 2009).

[119] *Id.*, Inspection Reports: Inspection ID 10039135; ID10208629.

[120] *Id.,* Inspection ID 10746578 (Jan. 7, 2020) (emphasis added).

Similarly, during the June 27, 2019 inspection that led to a CDPH NOV and adjudicated liability finding against Reserve Marine Terminals, the inspector reported a failure to employ wetting controls and fugitive dust at the barge loading operations on the facility's border on the Calumet River:

> I observed plume of windborne particulate matter from barge loading operations of metal scrap, with heavy duty loading machine. *There was no dust control and suppression measure observed; for dust and air-borne materials, during this loading operation* . . . I observed the plume of windborne particulate matter from the barge loading operations of metal scrap migrating off-site . . . I observed plume of windborne particulate matter from pile of metal scrap processing.[121]

Such failure to employ wetting measures (and otherwise control fugitive dust) at General Iron and the RMG-SCPM facilities has been noted by CDPH inspectors across a range of temperature and wind conditions, including those well above freezing and well below the state's high wind threshold, at a range of sources from roads to piles.[122] Past inspection reports demonstrate that misting cannons are also not operated at near freezing temperatures, as personnel wait to utilize water misters until it is warmer than 34 degrees.[123] Nor are fugitive emissions otherwise being controlled at such near-freezing temperatures, with methods that can be deployed at or below such temperatures, though such measures appear to be needed given visible emissions on days when temperatures dropped below freezing as described in these comments.

In other instances, CDPH inspectors have observed windborne material and lack of barriers to prevent the material from blowing off the facility grounds.[124] CDPH has also documented dust escaping from General Iron's dumpster for the wire shred line, and holes and defects in the dumpster.[125] And, CDPH has documented defects in the plastic flaps along General Iron's conveyor, leading material to bounce out and enter the river or become airborne.[126]

Despite these engineering and overall practical realities and history at the two companies' sites, as well as the enforceability issues with limits on fugitive sources taken up in the section of these comments on unenforceability, the Draft Permit is based on assumption of robust and aggressive

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[121] *Id.,* Inspection ID 678670.
[122] *See* CDPH inspection report quotes from General Iron and RMG inspections elsewhere in these comments.
[123] *See* Ex. 23, CDPH Inspection Reports for 1909 N. Clifton, Inspection ID 1231335 (Apr. 17, 2018) ("the water truck is in use but at the site the water misters were not. . . . I met Jeff (manager) he told me that they would wait until it is warmer than the current 34 degree temperatures to begin watering the pile"); *see also id.,* Inspection Report, ID 7183644 (Oct. 17, 2018) ("I called the facility, found that the water used for dust suppression was operational. They had failed to use it during early yesterday hours when temperatures were near freezing.").
[124] *See id*., Inspection Reports: Inspection ID 1432160 (Aug. 1, 2019); ID 9495131 (Aug. 1, 2019); ID 1313012 (Nov. 1, 2018); ID 1223308 (Feb. 8, 2018); ID 1208846 (Feb. 8, 2018); ID 1207398 (Jan. 31, 2018); ID 1174349 (Dec. 7, 2017); ID 1137460 (Oct. 30, 2017); ID 830775 (Mar. 31, 2016).
[125] *See id*., Inspection Reports: Inspection ID 1528963 (Aug. 1, 2019); ID 1372015 (May 4, 2019); ID 1332401 (Mar. 22, 2019); ID 1246527 (June 28, 2018); ID 1229400 (May 9, 2018); ID 1214005 (Mar. 14, 2018); ID 1187038 (Jan. 31, 2018); ID 1081440 (June 20, 2017); ID 829790 (Mar. 31, 2016); ID 715706 (Dec. 7, 2015); ID 712767 (Nov. 3, 2015).
[126] *See id*., Inspection Reports: Inspection ID 830775 (Mar. 31, 2016); ID 804947 (Dec. 7, 2015); ID 712835 (Nov. 3, 2015); ID 533176 (Nov. 4, 2014); ID 520589 (Apr. 24, 2014).

use of wetting methods to control a range of fugitive dust sources, including those associated with the Ferrous and Non-Ferrous Material Separation Systems. In order to claim such aggressive control and low emissions, as well as to ensure compliance with the prohibition on air pollution and visible emissions beyond the fenceline, as well as the opacity limit, IEPA must revise the Draft Permit to include robust, specific and objectively enforceable control requirements, monitoring and recordkeeping/reporting requirements for fugitive sources of dust like piles, conveyors, and transfer points.

The most obvious available control that ensures continuous minimization of fugitive emissions from a number of sources over a range of conditions is full enclosure.[127] Enclosure is an effective control for fugitive dust during high wind periods and low temperatures, when regulations and IEPA practice give facilities a pass from the prohibition on visible emissions beyond the fenceline and spraying, *see, e.g.*, 35 IAC 212.304. Enclosure thus is critical for ensuring compliance with the prohibition on air pollution that is not subject to such exceptions, as is evidenced by Chicago Rail and Port's PM_{10} emissions in December 2017 on high wind days, as discussed above. IEPA should require evaluation and deployment of full enclosure for conveyors[128], vehicle loading/unloading[129], piles, and other transfer points associated with all three Systems, given that General Iron and RMG have demonstrated they are not capable of or are unwilling to consistently control such sources using wetting and other work practice measures.

To the extent that IEPA determines that full enclosure is not feasible for certain sources, determinations that it must support in the record, it must enhance wetting and other work practice requirements in the Draft Permit to ensure that these measures in fact happen in a manner that minimizes dust and otherwise ensures compliance with the prohibition on air pollution and visible emissions, as well as the opacity limit. First, the Draft Permit (or the FPOP, if IEPA continues to rely on this deficient approach) must specify where specifically the Dust Bosses will be deployed and under what operating and weather conditions, rather than the exceedingly vague description in the FPOP narrative and "anticipated" Dust Boss locations provided in Figure 4-1. For instance, IEPA should require that Dust Bosses "shall" be used at all times during active working of piles and vehicle loading, as opposed to allowing for use of this equipment "as

[127] We note, as discussed with respect to conveyors within the shredder enclosure, that sources that can in fact be enclosed are not properly considered sources of fugitive emissions and their emissions count towards the major source thresholds for facilities like GIII.

[128] *See, e.g.*, Ex. 61, California DTSC, "Evaluation and Analysis of Metal Shredding Facilities and Metal Shredder Wastes," (Draft) January 2018, at 36-37 (describing enclosure of conveyor systems at Sims Metal Management in the Bay Area, to address fugitive PM and light fibrous material emissions), available at https://dtsc.ca.gov/wp-content/uploads/sites/31/2017/01/Metal-Shredder-Analysis-DRAFT.pdf (as included in exhibits to NGO Comments on CDPH's Large Recycling Rules). As explained in the enforceability section of these comments, the FPOP is exceedingly vague and unenforceable regarding which conveyors will be enclosed at the facility and with what kind of enclosures. The applicant and IEPA must require full enclosure for the conveyors that will carry material with the potential to generate dust and specify exactly which conveyors these are and where they are located.

[129] CDPH's Bulk Material Rules require truck and railcar loading/unloading of coke and coal to be conducted in full enclosures, *see* Section 3.0(12) and (13).

needed" or only after the fact if visible emissions are identified.[130] This approach eliminates any vagueness or uncertainty around whether wetting and similar methods must be used in a given case based on subjective operator judgment or vague, inadequate visible emissions testing. It also better ensures that the facility will in fact have sufficient wetting equipment available for all dust-generating sources and activities. IEPA also should require use of dry fogging systems at low temperatures when regular wetting procedures cannot be deployed effectively, again to ensure compliance with the prohibition on air pollution that contains no exceptions for temperature.[131] Robust logging and at least monthly reporting of control measure use must also be required, with such reports made publicly available on IEPA's website given the location of the facility in an environmental justice community and the deplorable company history on use of wetting and other work practice controls.[132]

In addition, IEPA must clarify that the opacity limit contained in Section 212.123 applies to all sources of fugitive emissions, and require ongoing, regular and at least monthly opacity monitoring at each fugitive emission source and reporting of such opacity monitoring to ensure compliance with this limit. At least monthly opacity monitoring is warranted given the significant variability in wind directions and intensity from month to month in this area, as discussed below with respect to roadway emissions. Such opacity monitoring should include methods for assessing opacity during nighttime hours, given that the opacity limit contains no exceptions for hours of the day; the facility's operating hours under the Draft Permit include hours during which the facility will be operating during non-daylight hours; and it is feasible to develop a nighttime opacity monitoring protocol, as demonstrated by the Evraz Rocky Mountain Steel facility in Pueblo, Colorado (also known as the CF&I Steel facility). The visible emissions monitoring proposed in the fugitive particulate operating program similarly needs significant modification to include specificity in the sources/areas where such testing/monitoring will be conducted, as well as the operational and atmospheric/weather conditions under which it will occur, to ensure monitoring of those sources with the potential to cause a violation of the prohibition on visible emissions beyond the fenceline.

Finally, IEPA must require fenceline continuous monitoring of PM and metals to ensure compliance with the prohibition on air pollution over all conditions and considering the aggregate impact of multiple fugitive and point sources at GIII and the co-located facilities, as well as the history of noncompliance of these sources and the proposed location in an environmental justice community which already experiences the highest levels of several airborne heavy metals in the state including those associated with metals facilities, according to

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[130] *See* FPOP at Section 3.1(B)(i), Section 3.4(B)(i).

[131] *See, e.g.*, Ex. 47, S.H. Bell, Fugitive Dust Plan, November 2017, at 6 ("Use of dry fogging unit to control fugitive dust, appropriate for use in freezing temperatures; dry foggers have a special air-atomizing nozzle that produces a dry fog consisting of ultra-fine water droplets which wet the dust particles and increase the weight to allow settling,"), available at https://www.chicago.gov/content/dam/city/depts/cdph/environmental_health_and_food/SH_BellFugitiveDustPlan_Nov2017.pdf.

[132] Notably, the FPOP for the Chicago Rail and Port facility requires monthly as well as annual reporting, *see* Ex. 38.

IEPA's own air quality monitoring reports. As noted above, fenceline monitoring data at the Chicago Rail and Port facility demonstrated that the facility caused or contributed to PM_{10} NAAQS violations, even where the facility was supposedly operating in compliance with its fugitive particulate operating program. The same is true for KCBX and S.H. Bell., the latter with regards to neurotoxic manganese. Such continuous monitoring therefore is critical to ensuring not only that a facility is in fact complying with its permit and enforceable fugitive particulate operating program, including the prohibition on air pollution. The data from the continuous monitors again should be made publicly available on a timely basis, at least monthly.

As noted in the section on enforceability, there is no justification for delaying such analysis and specificity until a later date, after construction. Indeed, such decisions go to the heart of the design that will be constructed, and deferral renders the current permit unenforceable and thus legally insufficient.

In addition, we again raise concern that segmenting of the permitting for this single source may be resulting in a failure to account for the vehicle loading and unloading emissions that will occur at 11600 S. Burley as a result of the addition of GIII. The GIII application is exceedingly vague as to vehicle loading and unloading, with a few scattered references to these activities, including a statement that "[m]aterial from the ferrous stockpiles are loaded into barges, rail cars or trucks for off-site shipment to customers,"[133] and visible emissions monitoring of the barge loading area[134]. Yet there is little to no discussion of controls to be used for rail or barge loading, or even confirmation that rail and/or barge loading occurs on the GIII property as opposed to at its RMG neighbors or Calumet Transload Railroad (or even Calumet River Terminals to the North, which we understand IEPA has looked into as a possible single source with Calumet Transload Railroad). The materials are even silent to a large extent on truck loading. The applicant and IEPA should provide clarification of where such vehicle loading and unloading of GIII-related materials will occur and how such operations will be controlled (as noted above, loading of at least trucks and railcars should occur in enclosures), and include objective, enforceable requirements for continuous control and monitoring of emissions from vehicle loading/unloading of GIII materials wherever such activity occurs on the 11600 S. Burley campus or adjacent site as part of a true "single source" analysis and permitting.

Failure to maintain intact paved roads. Chronic and severe issues with maintaining paved surfaces have also been documented at both General Iron and more prominently the RMG facilities. In 2015 to 2017, General Iron had significant paving issues that took years to remedy, despite many inspections and discussions of how to fix these issues.[135] The paving record at the RMG S. Burley facilities is even more extreme, with facility managers recognizing that

[133] Application at 14.
[134] FPOP at Section 3.9.
[135] Ex. 23, CDPH Inspection Reports for 1909 N. Clifton: Inspection ID 1432160 (Aug. 1, 2019); ID 1061585 (June 20, 2017); ID 1011476 (Jan .11, 2017); ID 1001811 (Oct. 31, 2016); ID 882010 (July 27, 2016); ID 830775 (Mar. 31, 2016); ID 711215 (Sept. 30, 2015); ID 708237 (Aug. 27, 2015); ID 700925 (July 16, 2015); ID 499636 (May 21, 2013).

maintaining intact pavement is a virtually impossible task.[136] These issues apparently arise in large part due to use of solely asphalt for roadways, instead of more robust concrete or other available materials like rubber and plastic liners. They are compounded by chronic failures to timely repair the damaged pavement, in many cases with damage going for years before repair (only for the repaired areas to deteriorate once again).

The issues with maintaining paved surfaces in intact and clean condition at RMG are as follows,[137] further supporting that the Draft Permit is based on unrealistic assumptions about emissions from paved roads, must be revised to strengthen control and compliance provisions, as well as air quality modeling, and should be revised to take into account the full impact of the RMG-SCPM and other appropriate facilities as part of the "single source" of which the proposed GIII would be a part.

Reserve Marine Terminals

Beginning in 2014, City inspections note materials intermingling with dirt at the Reserve Marine Terminals site. In 2015, inspectors continued to note piles of dirt containing metal and muddy standing water, and commented that the facility must address pavement issues in a pavement plan. In 2019, city inspectors were still telling staff at the facility that they should have a written pavement plan.

The heavy machinery and truck traffic at the Reserve Marine Terminals site has been observed to cause chronic damage to all pavements at the site. City inspectors have noted in several inspections that "maintenance is a never-ending cycle."[138] Indeed, despite weekly application of asphalt, pavement issues have persisted over the years, including many observations of potholes and large pools of water throughout the property. On June 28, 2017, an inspector noted that "some of the pavement is more dirt than anything else, caused by continuous traffic by trucks and the machines used onsite for processing."[139] The pavement problems have contributed to dust issues at the property, including observations of fugitive dust during an October 2019 inspection when vehicles were driven on the main roadways and open areas. The site also appears to pose danger of contamination in the river, with one instance where large potholes holding several gallons of water were observed near the river.

[136] The issues with paving at the RMG-SCPM facilities in the CDPH inspection record are accompanied by reference to significant piles of metallic fines and metallic fines mixing in with dirt. Given this history and the broader history of the LTV contamination at the site, we are very concerned with assumptions regarding soil/silt content that rely on composite averages from onsite sampling. The applicant should disclose the full onsite sampling results, including the results for each sample and the range of values obtained, for further analysis of the impact of varying soil content on air emissions.
[137] Information in tables from Ex. 24, CDPH Inspection Reports for 11600 S. Burley and Ex. 62 , CDPH Inspection Reports for 11610 S. Ave. O.
[138] Ex. 24, CDPH Inspection Reports for 11600 S. Burley, RMT, Inspection ID 884332.
[139] *Id.*, RMT, Inspection ID 1111122.

Date of inspection	Inspection notes re pavement issues at Reserve Marine Terminals
10/14/2014	Photo A: material piles extend all the way back to the treeline and materials intermingle with the dirt.
5/6/2015	Findings: site being cleaned up. Piles of dirt that also contain metallic are scattered throughout
11/19/2015	Photo A) one of several mixed materials (dirt, metal fragments) piles scraped from the ground that must be processed (segregated metal from dirt). Photo B) muddy ground with standing water []also an issue that must [be] addressed in a pavement plan
1/28/2016	Photo A) Area where the berm has been removed to place a charging station for the machines[.] The area needs to be scraped and the ground cleared of materials that are impregnating it . . . Photo B) pile of mixed materials (metals, dirt) that needs to be screened to remove metals[.] This is the largest of a few piles in this section of facility
3/11/2016	There is no clear separation between the road and the materials storage/processing area. RT has yet to provide a pavement plan, this is also detailed in the permit. There is standing water in large pools along the road and among the piles, prevention of this is also detailed in the permit.
4/8/2016	The pavement shows ponding throughout the site. RT states that types of activity (crushing, breaking hammering []all with machines) combined with the heavy machinery in use causes the damage to the roadway, they are constantly adding asphalt to maintain pavements but it's a never-ending cycle
5/11/2016	The pavement still shows ponding throughout the site. RT states that they are generating a pavement plan and schedule. The activity (crushing, breaking, hammering[.] All with machines) combined with the truck traffic causes damage to all pavements, maintenance is a never-ending cycle.
6/28/2016	As we toured the site, we discussed options to meet requirements for proper paving, dust control, and trackout . . . [tour w/ management]
7/28/2016	The pavement still shows potholes and ponding throughout the site. RT showed me a large pile of asphalt grindings, told me that they were using it to make repairs to the road every day because their activity (shearing, breaking, hammering) combined with the truck traffic causes damage to all pavements - maintenance is a never-ending cycle.
9/23/2016	The pavement still shows potholes and throughout the site several huge piles of asphalt grindings are onsite to use for continual repair to site pavements. On the southern boundary, materials are being processed in an area which is uneven and more dirt than asphalt.
11/18/2016	Previous findings: pavement potholes throughout the site. Current findings: pavement potholes remain throughout the site but they are filled with available asphalt on a weekly basis. There are large potholes near the river holding several gallons of water
1/23/2017	Previous findings: pavement potholes throughout the site. Current findings: pavement potholes remain throughout the site but they are filled with available asphalt on a weekly basis. There are large potholes near the river holding several gallons of water

3/22/2017	Upon arrival, I noted that the entry road had been partially wet (for dust control) but the center was dry and the wetting did not extend close to the street where trucks exited. At the entry gate, I noted very large potholes holding water . . . . He stated that they had recently gotten bids from pavement contractors to replace the damaged asphalt at the gate with asphalt. he will have a plan to either repair or replace the pavements by next inspection . . . . There were potholes evident along the interior haul road . . . .
5/1/2017	Upon arrival, I noted the damaged asphalt at the gate was even more damaged than previously noted, with a huge pool of water collected that must be inches deep at the center . . . . There were potholes evident along the interior haul road. []RT was supposed to have written a pavement repair/maintenance plan but had not. He will have that down by reinspection.
6/28/2017	There were large potholes evident along the river wall
8/18/2017	Some of the materials piles are confined by concrete blocks but some not. Some of the pavement is more dirt than anything else, caused by continuous traffic by trucks and the machines used onsite for processing. Pavements are supposed to be maintained on a rotating basis by the addition of asphalt grindings.
9/25/2017	There were large potholes evident in the haul road and the auxiliary roads branching off of it. RT stated that they filled potholes on [‘]as needed[’] Basis but that method did not appear to be effective. I asked that he set up a schedule for maintenance of these and he agreed to.
2/6/2018	I spoke to RT about the pavement plan/schedule that they should have in place[.] He told me that their safety representative had quit but they had just hired another and this one would be responsible for it
3/28/2018	There were potholes and standing water evident along the interior road.
5/11/2018	There were potholes throughout the site[.] DS committed to a paving plan that would maintain pavements on a scheduled basis. There is a dirt berm used to separate the terminal materials that also has waste (plastic, wood) in or on top of it
11/6/2018	The main issue is the potholes that span the length of the road through the middle of the site.
2/11/2019	The main issue is the potholes that span the length of the road through the middle of the site . . . I told Trivosonno that they should 1) have a written pavement maintenance plan and 2) a written plan showing the watering of the roads.
10/23/2019	Fugitive dust was observed when personnel would drive motor vehicles on the dry roadways and open areas, and when material piles were disturbed . . . It was concluded that they will repair the roadways since they were completely covered in dirt/debris and they will need to spray piles to control fugitive dust when they are moving the material piles.

South Shore Recycling

Beginning in 2015, City inspections noted soil contamination including metals mixed into the soil at the South Shore Recycling facility, requiring pavement to be added to the site. Paving progressed slowly, with inspections revealing standing pools of water at the site in 2016 and 2017, and limited progress on paving, particularly in the Northern portion of the site and the area East of the main door. In 2018, an inspector noted that the pavement is “in great need of repair,”

with potholes and standing water present. Additional inspections noted the presence of weeds and piles of dirt mixed with metal and other debris. In 2019, inspectors noted the need to level and compact the asphalt.

Recently, in October 2019, CDPH inspectors noted that there was dirt and debris all over the roadway leading to fugitive dust leaving the site. The most recent inspection in March 2020 revealed standing water and potholes, and a crack in the drainage grate.

Date of Inspection	Inspection notes re pavement issues at South Shore Recycling
7/23/2015	Photo A: scrap pile where the ground is covered with steel plate. Photo B: scrap area where pavement is cement. Photo C: area (which is dirt) will be scraped to remove contaminants . . . Outdoor storage area to be upgraded, proper pavement added
11/19/2015	Photo A: area of cement and dirt/mud. This area will be paved but not soon since their pavement plan starts on the western side and this is the eastern end. Photo B: pile of mixed materials (metal, dirt) that will be processed to remove contaminants and reclaim metal.
1/28/2016	Photo A: metal materials frozen in the dirt[.] This to be cleaned up at the spring thaw and materials must be stored in proper, dedicated areas. Photo B: Device for evacuating refrigerants[.] Staining on the ground is evidence of leaks. This activity will be moved to impermeable pavement.
3/11/2016	The area JH had committed to cleaning and pavement has been cleared of most of the materials but steel turnings have been deposited here instead of the turningspad on the other side of the road. Apparently this had been done by workers at the neighboring RMT facility, possibly due to the delineation between the 2 sites being unclear. This will be addressed immediately. The materials storage area has not been improved noticeably since the last inspection. in addition to materials, the ground also has singles on it that were apparently blown off the roof
4/8/2016	Previous findings: metal materials (turnings) deposited here instead of the turnings pile. Dirt area with scrap and roof debris on the ground . . . Metal materials (turnings) had been removed. The dirt area with scrap and roof debris had been cleaned up, gravel laid. The outdoor western storage area had been cleared of material and they will continue moving east, cleaning and laying asphalt.
5/11/2016	The presence of pooled water shows that paving had not progressed as much as JH had committed to[.] He stated that the machine they use to move materials actually also damages the pavement. He will look into an alternate method/machine and will pay more attention to maintaining the existing pavement by leveling it, on a schedule
6/8/2016	The paving improvement in the Northern portion has not progressed as much as expected . . . There is still uneven ground with standing water present
7/28/2016	Previous findings: standing water in areas showed poor drainage. Current findings: The paving improvement in the northern portion has progressed but not as much as expected … uuneven ground with standing water present. []JH committed to address a specific portion of this area by 1st removing magnetic materials then using a screener to remove other contaminants from the dirt. Then he will level and pave the area with asphalt.

9/23/2016	Previous findings: The paving improvement in the Northern portion had progressed but not as much as expected. []JH was to increase his efforts to pave this area. Uuneven ground with standing water present. []JH had committed to address a specific portion of this area by 1st removing magnetic materials then using a screener to remove other contaminants from the dirt. Then he will level and pave the area with asphalt . . . Current findings: The paving improvements in the Northern portion had progressed, there is added aphalt and the standing water is no longer evident. The next area to address is the adjacent area, where the gathered metals will be processed and the ground cleaned with the magnet. Asphalt will then be added and compacted.
11/18/2016	Previous findings: The paving improvements in the northern portion had, with added asphalt. The next area to address is the adjacent area, where the gathered metals will be processed and the ground cleaned with the magnet. Asphalt will then be added and compacted. Current findings: The paving improvements in the Northern portion had not progressed, but efforts had been redirected to the inbound scrap dropoff, where metal plates had been added as a ground cover. They will return to the pavement improvements. There is a wastepile (from scraping the pavement) of dirt with metal intermingled
1/23/2017	No improvement was noted in the outdoor area, cleanup efforts being hampered by the snow and cold
3/22/2017	The exterior needed a lot of improvement. Material piles were on the ground which is mostly dirt with some asphalt in places, some cement in others. Because of the mud and dirt, I've asked JH to begin cleaning, levelling, and paving. He will start in the portion east of the main door and proceed to the first set of blocks. He will focus in this area and only move to the next adjacent (east) area once completed. . . . The cleaning and pavement improvement is needed throughout the site.
5/1/2017	The exterior shows improvement but still need a lot more. Material piles had been moved from about half of the portion east of the main door in preparation for pavement improvement. Some asphalt grindings had been put down but they have not been compacted and the other metal must be relocated in order to do this completely. JH will focus in this area. On the other side (west) of the main door is material storage where metal plates are use as pavement and it is flooded because the ground underneath needs to be levelled. I told JH that he might have to remove these if they are judged inappropriate for pavement.
6/28/2017	The exterior portion east of the main door shows improvement but that apparently stopped before completing the pavement to the point agreed on (to the blocks). The area on the other side of the interior road is uneven ground with potholes and standing water. There are asphalt grindings but they are not being used.
8/18/2017	The addition of pavement in the exterior portion east of the main door has continued but has not reached the point agreed on (to the blocks). There are now trailers parked on the area where asphalt has been recently added. There remains an area needing pavement in between these trailers and the cement boundary blocks to the east.
9/25/2017	The area needing to be cleaned had been completed. The much cleaner area still needs the pavement levelled and that will be done after the last materials have been processed. The next area to be addressed is about halfway done[.] There remained trailers and other materials to be processed, then the pavement can be levelled.
3/28/2018	The pavement is in great need of repair, with potholes and standing water evident

5/11/2018	The exterior portion was full of materials but also waste. A pile of CD debris (dirt, broken concrete) was among the metal scrap . . . . The material storage/processing areas needed to be cleaned up, with metal removed from the ground and the pavement levelled.
7/12/2018	The exterior portion was full of materials but also waste (piles of dirt with metal intermingled, wood) and weeds are growing among the scrap
9/17/2018	The exterior portion was full of materials and previous[l]-noted waste (piles of dirt with metal intermingled, wood) remained and weeds were still growing among the scrap[.] JH was to have addressed these by reinspection but improvement had not gotten to a very noticeable point.
11/6/2018	The road pavements were full of potholes . . . . I recommended that they address the uneven pavements before placing new materials here.
7/26/2019	In the exterior, they had added separation to the unload area between individual peddlers. The asphalt pavement needed to be levelled and compacted.
9/10/2019	the asphalt pavement still needed to be levelled and compacted
10/23/2019	Fugitive dust was observed when personnel would drive motor vehicles on the dry roadways and open areas, and when material piles were disturbed . . . It was concluded that they will repair the roadways since they were completely covered in dirt/debris and they will need to spray piles to control fugitive dust when they are moving the material piles.
3/13/2020	In the exterior, the onsite drain does have a proper filter in place but the grate has a large crack in it. []JH will replace it. The pavement needs attention, potholes and pooled water are evident

Regency Technologies

City inspections have identified chronic pavement issues at Regency Technologies since at least 2017. City inspectors have consistently noted damaged pavement, potholes, standing water, and flooding due to uneven pavement. The most recent inspection in March 2020 illustrates that the pavement insufficiencies remain ongoing.

Date of inspection	**Inspection notes re pavement issues at Regency Technologies**
1/23/2017	The outdoor area pavement is in need of repair, as shown by pooled water
5/1/2017	The area around the outdoor bays . . . Is flooded. They have put down steel plates as a form of pavement. I told RT that this is not acceptable and they must choose another (i.e. stone, asphalt)
6/28/2017	The area around the outdoor bays . . . That was flooded and had steel plates down as a form of pavement was no longer flooded and gravel had been used to fill the potholes.
3/28/2018	The pavement is damaged, in need of repair
5/11/2018	The pavement is damaged, in need of repair
7/12/2018	The pavement that had previously been damaged is in better condition, having asphalt added to the low spots.

4/11/2019	The outdoor storage area includes 3 bays . . . And all bays had been overfull but they were now not. The pavements were damaged and potholes had collected water
6/13/2019	The outdoor storage bays . . . Were flooded with water ?RT had said that this would be addressed by reinspection. Today he told me that 1) he had added asphalt but this is a low spot in this area, and 2) recent heavy rains had flooded the area again.
7/26/2019	The outdoor storage bays . . . Had damaged pavement. This was similar to the last inspection and RT had said that this would be addressed. Today he told me that he had added asphalt but this was a high traffic area and he would continue maintaining the ground.
3/13/2020	The pavement in the outdoor storage needed improvement due to potholes and standing water

Napuck Salvage of Waupaca

At the Napuck facility, City inspections have noted damaged pavement and potholes. In numerous instances, City inspections have noted wastes, dirt piles, and materials being stored on the ground instead of on proper pavement.

Date of inspection	**Inspection notes re pavement issues at Napuck**
2/28/2005	paving could use an upgrade, too much mud.
7/23/2015	Photo A) materials stored on ground which is dirt not cement, asphalt, gravel etc. Photo B) materials stored on ground, building conditions (walls) deteriorating. Photo C) materials pile not confined/controlled.
10/15/2015	Photo A) Outdoor storage has only partial containment, materials spreading to grass/dirt area.
3/11/2016	Right outside the West building, a metal pipe containing some sort of oil was protruding from the ground. The pipe is connected to something underground (possibly a UST), but RT is unaware of what . . . On the Eastern boundary, materials (engines) are normal stored on cement but today some are on the ground, which is dirt - not acceptable pavement.
4/8/2016	The pipe has been exposed and found to be a part of now-defunct railroad mechanisms that have been covered over with asphalt.
6/28/2016	The abundance of materials have been removed and processed, except for some dirtpiles that must be processed. Then the area will be magneted and screened to remove metals, and graded.
7/28/2016	In the Northern area, the ground has large depressions holding water and weeds are excessive. RT has one pile of asphalt ready, says he will need 5-6 more loads to make repairs.

11/18/2016	The large area after the ramp (from where materials are stored) has potholes that need addressed.
1/23/2017	Previous findings: The large area after the ramp (from where materials are stored) had potholes that need addressed . . . . Current findings: The area remains unchanged.
5/1/2017	The Western area is flooded because of the damaged pavement . . . There is an area of dirt pavement where metal fragments are being stored.

Given the recognized engineering issues with maintenance of paved surfaces with such high intensity heavy vehicle use; the vagueness of GIII's application regarding which paving materials will be used in what areas and for what percentage of paved surfaces; and the extensive evidence that General Iron and RMG-SCPM are not in fact maintaining paved surfaces, it is entirely unreasonable to assume intact pavement and the high levels of control used in the paved roads emission calculations for GIII. The applicant and IEPA thus must revise the emission estimates and control, testing/monitoring and recordkeeping/reporting requirements.

It is possible to conduct complex emissions estimates, as a function of wind speeds, based on currently used approaches – however, doing so requires making significant additional assumptions regarding so-called silt loading, efficacy of watering or other dust control measures, frequency of maintenance, and other factors for which the application and IEPA do not provide information. In light of this gap, the approach used by applicant and IEPA is inappropriate. Instead, the emissions estimates should use a simplified fugitive dust estimate employing AP-42 Section 13.2.3 for Heavy Construction Operations. In the aggregate, operations at a typical shredding and recycling facility are not dissimilar, in terms of the ability to generate dust from exposed sources, including unpaved and partially paved/deteriorated surfaces. The emission factor recommended is 1.2 tons/acre/month. Annual emissions can be estimated using estimates of potentially erodible acreage. To allow for a portion of the area which might be paved with more robust materials like concrete, we recommend that this emission factor be applied to the rest of the total GIII acreage at the rate of 1.2 tons/acre/month.

Conversely, in order to claim the high levels of control for roadways that is the basis for the Draft Permit, including the air quality modeling, IEPA must substantially revise the Draft Permit (and fugitive particulate operating program) to require that all paved roads use robust, long-lasting and relatively low-maintenance materials such as concrete; to employ objective requirements for maintenance of those roads, such as time period within which any deterioration will be correct; to include objective, practicably enforceable requirements for sweeping and wetting, including recordkeeping and mandated at least monthly reporting; and to address the points raised above regarding control and compliance measures for other fugitive sources that equally apply to roadways. Regarding enforceable requirements for sweeping and wetting, again the SCAQMD and CDPH rules both require sweeping at least every 4 hours or 100 trucks, but not less than once daily.[140] These rules also employ additional measures for surface maintenance

[140] *See* Ex. 44, CDPH Rules for Large Recycling Facilities, at Section 4.14; Ex. 46, SCAQMD Rule 1158 at Section (d)(7)(B).

and cleaning, including a prohibition on accumulation of material, removal of any material spills of more than a certain amount within one hour, material moisture content requirements, and silt limits.[141] In addition, the CDPH rules recognize the applicability of an opacity limit to roadways and require at least quarterly opacity testing to ensure compliance with this limit.[142] The Draft Permit should do at least the same in this individual permitting, again based on the poor track record of these companies and the proposed location in an already-overburdened environmental justice community.

We also note here heightened concern over the combined impact of multiple co-located facilities, again emphasizing the need to in-fact consider the facilities as a single source in permitting. Due to the proximity of the facilities, fugitive dust from inadequate paving and contaminated soil at one facility is likely to create issues at the others. Thus, even IF the proposed GIII employs concrete roads throughout its new facility and in fact aggressively controls dust on paved roads, dust related to the documented poor paving at the other -SCPM facilities is likely to end up on GIII's roadways, impacting emissions from the GIII roadways.

The GIII site would be located between existing facilities at the 11600 S. Burley Avenue site, directly south of the Reserve Marine Terminal scrap processing and material storage site and north of South Shore Recycling and Regency Technologies (see Figure 1 and Figure 2 below).[143] The FESOP application materials for the RMG-SCPM facilities identify roadway emissions as the primary source of emissions from these facilities, noting that, as discussed above, the emissions estimates from RMG-SCPM are significant underestimations given the abysmal paving conditions and failed paving maintenance at these sites.

[141] *See* Ex. 46, SCAQMD Rule 1158 at Section (d)(7).
[142] *See* Ex.44, CDPH Rules for Large Recycling Facilities, at Sections 4.7.4 and 4.7.5.
[143] Ex. 63, Lifetime Operating Permit Application, Supplemental Document, S. Chicago Property Mgmt. Ltd., 11600 S. Burley Ave., Chicago, IL 60617 (Nov. 26, 2019) ("RMG FESOP Application"), at p. 16, Figure 1; RK & Associates, Inc., General III, LLC, Fugitive Particulate Operating Program (Mar. 20, 2020), Figure 2-2.

Figure 1. Map of Existing RMG-SCPM Facilities at 11600 S. Burley.

Figure 1: General Location Map

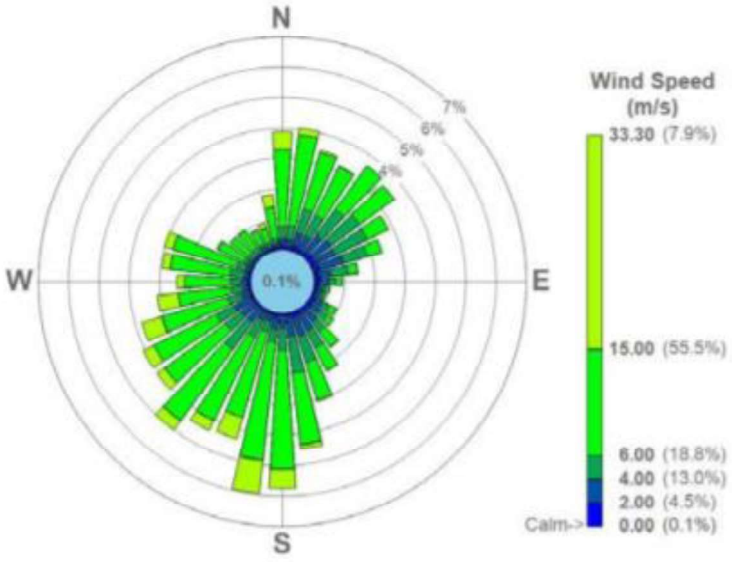
Figure 2. Proposed General Iron III Facility Location.

Because all the facilities are in close proximity to each other running North-to-South, fugitive roadway emissions are likely to be redistributed between the facilities by the wind. The predominant wind direction is from the South and Southwest.[144] Strong winds also blow from the

[144] Ex. 64, Iowa Environmental Mesonet, Iowa State University, Wind Roses for Midway Airport, Jan. 1, 1970 to Dec. 2, 2019, *available at* http://mesonet.agron.iastate.edu/sites/windrose.phtml?station=MDW&network=IL_ASOS.

North and Northeast.[145] Data collected from a nearby facility located at 10730 Burley Avenue demonstrates this pattern on an annual basis (Figure 3).[146]

Figure 3 - Combined 2015-2016 Windrose Derived from Meteorological Data collected at KCBX South Terminal (10730 Burley Ave.)



As shown in Figures 1 and 2, South Shore Recycling, Regency Technologies, and a portion of the RMT facility lie directly South of the proposed GIII facility, and thus fugitive dust from those facilities would blow toward the GIII site when the wind is coming from the South. Likewise, dust generated by the GIII facility would usually blow into the RMT scrap yard directly north of the site, which given the poor conditions at RMT would then likely be reentrained and deposited on the neighborhood around Rowan Park and Washington High School.

When the wind is blowing from the North, the fugitive emissions from RMT scrap yard would blow into the GIII site. Dust generated by GIII, in turn, would blow into properties located south of the GIII site, where it may again blow into the Calumet River and onto adjacent facilities to the South, given the chronic paving issues with the existing RMG-SCPM facilities.

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[145] Ex. 64, Iowa Environmental Mesonet, Iowa State University, Wind Roses for Midway Airport, Jan. 1, 1970 to Dec. 2, 2019, *available at* http://mesonet.agron.iastate.edu/sites/windrose.phtml?statio=MDW&network=IL_ASOS; Ex. 65, Xact Metals Study: Southeast Chicago, report prepared by Motria Caudill, field monitoring data from Dec. 12, 2014 to July 23, 2015, Appendix D to 2017 Watco Variance Request, *available at* https://www.chicago.gov/content/dam/city/depts/cdph/environmental_health_and_food/ExhibitsA_EtoWatcoVarianceRequest.pdf.

[146] Ex. 66, Watco Variance Request, (July 31, 2017), at 28, Figure 3, *available at* https://www.chicago.gov/content/dam/city/depts/cdph/environmental_health_and_food/VarReqfromWatcoTransloadingLLC_2926E126thSt.pdf.

We also note here that the Westerly winds evident from wind roses provide concern for roadway-related fugitive dust from all of the facilities blowing into the shopping and residential area to the East of 11600 S. Burley.

D. IEPA Must Account for, and Include Stringent Limits on, Torch Cutting.

The Draft Permit cannot issue as proposed because it does not properly estimate emissions from torch cutting associated with the proposed GIII and fails entirely to include any requirements to control air pollution from this dangerous process, which is associated with substantial emissions of heavy metals and which has been identified as the source of increased cancer risk at some metals facilities based on ambient monitoring. Again, we raise concerns that the failure to in-fact consider the multiple facilities at 11600 S. Burley obscures the true impact of these co-located, interconnected operations.

Torch cutting is used in the recycling process to break apart large metal pieces, to reduce larger sized scrap to smaller sizes suitable for shredding. Torch cutting typically uses gas, but torches may also use plasma or powder.[147] Torch cutting vaporizes metal, resulting in airborne toxic metals - as well as dust and opacity - and, depending on the type of torch used, may create large amounts of smoke and noise.[148] Torch cutting is especially concerning because it generates fine particulate matter air pollution (PM 2.5).[149] Even short term exposure to particulate matter air pollution is associated with morbidity and mortality, especially with respect to fine particulate matter (PM 2.5).[150] Moreover, airborne metals generated by torch cutting include nickel, cadmium, hexavalent chromium, and copper, all of which are carcinogenic.[151] In a study based on monitoring at five recycling facilities in Houston, researchers concluded that the increased cancer risk from ambient air concentrations of these metals generated at the recycling facilities ranged from 1 case in 1 million to 8 cases in 10,000.[152] Torch cutting also generates hazardous lead dust.[153]

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[147] Ex. 67, OSHA, Guidance for the Identification and Control of Safety and Health Hazards in Metal Scrap Recycling at 9-10 ("OSHA Guidance"), available at https://www.osha.gov/Publications/OSHA3348-metal-scrap-recycling.pdf.

[148] Ex. 67, OSHA Guidance, at p11; *see also* Ex. 68, Michigan Department of Environmental Quality, Violation Notice to RJ Industrial Recycling (May 25, 2016), available at https://www.deq.state.mi.us/aps/downloads/SRN/N7885/N7885_VN_20160525.pdf.

[149] Ex. 69, L. Raun, K. Pepple, D. Holyt, D. Richner, A.Blanco, and J. LI, *Unanticipated potential cancer risk near metal recycling facilities*, Environmental Impact Assessment Review 41 at 71 (2013) ("Raun, et. al.").

[150] *Id.* at 71; *see also, e.g.,* Ex. 70, World Health Organization, "Health Effects of Particulate Matter Policy implications for countries in eastern Europe, Caucuses, and central Asia" at 6 (2013), available at http://www.euro.who.int/__data/assets/pdf_file/0006/189051/Health-effects-of-particulate-matter-final-Eng.pdf ("The health effects of inhalable PM are well documented. They are due to exposure over both the short term (hours, days) and long term (months, years) and include: • respiratory and cardiovascular morbidity, such as aggravation of asthma, respiratory symptoms and an increase in hospital admissions; • mortality from cardiovascular and respiratory diseases and from lung cancer.").

[151] Ex. 69, Raun et. al, at 73.

[152] *Id*. at 75.

[153] Ex. 71, New York State Dept. of Health, *Metal Recycling Industry Project*, available at

Again, experience with RMG-SCPM indicates that torch cutting activities at the facilities are generating significant air pollution and have been occurring in violation of local and likely state requirements. As described elsewhere in these comments, in late June 2019, CDPH Deputy Commissioner Dave Graham described to Meleah Geertsma an inspection during which he observed the use of large stationary torches at Reserve Marine Terminal to disassemble railcars in the yard, resulting in large black plumes of smoke. At the time, these torches were not registered with the City, nor did RMT have a state air permit or other approval for its operations as a whole, nor was it employing an pollution controls for the open-air torch cutting.

Despite these well-known hazards of torch cutting, and the likelihood that GIII will depend on torch cutting conducted somewhere at 11600 S. Burley or an adjacent property to process its 1,000,000 tons of scrap, nowhere does the GIII application or Draft Permit include torch cutting. Instead, the application simply notes in a vague and suspect way that "[t]he following activities, potentially associated with the operation of metal recycling facilities, are not included in this permit application: Torch Cutting…".[154] At the same time, the RMG FESOP application for the 11600 S. Burley RMG-SCPM facilities that do and will conduct torch cutting (a) omits any discussion of increased torch cutting expected as a result of the GIII, and (b) asserts that torch cutting is an "exempt activity" pursuant to 35 IAC 201.146(aa).[155] RMG did include torch cutting in its estimate of PTE, but even those estimates were faulty.[156] RMG considered only emissions from burning of fuel for the torch, and did not consider the volatilization of metals from the torching itself, which as described above poses the greatest health hazard to the nearby community as demonstrated by field monitoring studies.[157]

Moving forward, IEPA must address in this permitting action whether GIII's operation will require additional torch cutting to be conducted by facilities encompassed in the single source at 11600 S. Burley. In addition, the applicant and IEPA must properly estimate emissions from torch cutting at the single source taking account of the impacts of volatilization of metals and not simply gas combustion.

Limited data is available on the more complete emissions from torch cutting. One available emission factor is 0.06 lb/hr for cutting clean steel, based on ISRI data, which has been employed by the Ohio EPA in permitting a metals recycling facility.[158] The Draft Permit again omits torch cutting entirely, and so from the hours of operation limits in Condition 12(a). Without any formal limits on when torch cutting is allowed to occur, we made an assumption that torch cutting/sizing operations will in fact occur 25% of the time, *i.e.*, for 2,190 hours per year. Again because the Draft Permit is silent on torch cutting and given evidence that torch cutting at the RMG facilities occurs outside, we also assume that all torch cutting occurs outdoors – *i.e.*, not indoors, subject to some type of "control" efficiency. Using this calculation,

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https://www.health.ny.gov/environmental/workplace/metal_recycling/metal_recycling_report.htm.

[154] September GIII Application at p 19, Section 2.7, "Excluded Activities."

[155] *See* Ex. 63, RMG FESOP Application, at 5.

[156] *See id.*, at Appendix A, Section A5.

[157] *Id.*

[158] *See* Ex. 52, Omnisource Permit.

the estimate of PM emissions for torch cutting associated with the proposed GIII facility (assumed to be PM10 and PM2.5) is 131.4 lb/year or 0.066 tons/year, substantially higher than the amount provided in the RMG FESOP application. At the same time, it is possible that, with multiple torch cutting stations or operations, the actual hours per year of torch cutting at GIII may be considerably greater than the 2,190 hours/year assumed above, and thus PM and metals emissions from torch cutting may be substantially higher as well.

After having properly estimated emissions from torch cutting, the applicant and IEPA must include in the Draft Permit control and compliance measures for torch cutting that will occur at the single source as a result of GIII. Contrary to RMG's assertion, torch cutting should not be treated as exempt under 35 IAC 201.146(aa). Torch cutting is distinct from simple "cutting," which is potentially exempt under Section 201.146(aa) (if additional conditions are met) and considered a presumptively "insignificant" activity under Section 201.210. Unlike other forms of cutting, torch cutting of metals results in significant emissions of hazardous air pollutants. On this basis alone, Illinois regulations recognize that the activity is significant. *See* Section 201.210(a)(2) and (3), listing as potentially insignificant emission units that emit below certain lbs/hr and tpy thresholds "*and* that do not emit any air pollutant listed as hazardous" (emphasis added). Furthermore, the regulatory history of Section 201.210 points to insignificant activities being minor sources of air pollution that do not contribute significantly to the health and environmental goals underlying Title V of the Clean Air Act. *See* 415 ILCS Section 5/39.5(5)(w).[159] In contrast, as detailed above, torch cutting at recycling facilities contributes significant hazardous air pollution in communities located nearby, and research indicates that increased fine size particulate matter generated by torch cutting increases cancer risk in those communities. Further, testimony during the IPCB Rulemaking by an Illinois EPA representative strongly suggested that even presumptively insignificant activities that in fact have a significant environmental impact may and should be controlled as part of IEPA permitting.[160]

Nor again can IEPA defer addressing torch cutting to some later post-construction date, as steps for minimizing torch cutting implicate the overall design of the facility.[161] One control measure for torch cutting is to prohibit onsite torch cutting at the single source given its location within a dense residential and environmental justice community, which would require outsourcing of cutting to a facility that is located further from residential areas and/or that itself has indoor facilities or otherwise more robustly controlled facilities for such cutting.[162] Other specific

[159] *See also* Illinois Pollution Control Board Rulemaking R94-14 (June 1994) ("IPCB Rulemaking") available at https://pcb.illinois.gov/Cases/GetCaseDetailsByID?caseID=4982.
[160] *Id.*, Ex. 72 Testimony of Christopher Romaine *during* IPCB Rulemaking at 8-9 (June 1994) ("Based on the list of insignificant activities submitted in a CAAPP application, the Agency or USEPA may find during the course of permitting that an activity should not qualify as insignificant.")
[161] *See, e.g.*, Ex. 73, Metal Air Pollution Partnership Study, 2018 MAPPS Report for South Park near Allied Alloys, at 7 (discussing voluntary steps to reduce torch cutting from facility identified as posing an elevated cancer risk to the community, including adding additional processing equipment to reduce torch cutting and outsourcing majority of torch cutting while evaluating other technology to further reduce metal emissions), available at https://sph.uth.edu/research/centers/swcoeh/mapps/MAPPS_Layreport_AA_F103118.pdf.
[162] *See id*.

controls that must be considered are a requirement to conduct torch cutting indoors onsite, except in exceptional, pre-defined, circumstances; a requirement that the structures in which torch cutting is conducted be fully enclosed, well-ventilated, and fitted with robust air pollution controls[163]; requirements related to fire prevention and control[164]; and reporting and monitoring requirements, including continuous ambient monitoring of PM and HAPs in the vicinity of torch cutting activities to ensure compliance with the prohibition on air pollution and mandated, at least monthly public reporting of such monitoring.

E. IEPA Must Impose Additional Permit Conditions to Prevent Fires and Explosions.

As set forth in our comments on CDPH's proposed rules for Large Recycling Facilities, which we incorporate in full in these comments to IEPA, metals facilities in general are prone to fires and explosions, which in turn can have profound negative impacts on air quality immediately surrounding these facilities and at even greater distances, in addition to posing other safety hazards.[165] This industry-wide problem stands on its own as reason for IEPA to include additional terms in the Draft Permit to address risk of fire and explosion and their impacts on air quality.

The need for additional measures for preventing and minimizing the impacts of fires and explosions is bolstered by General Iron's and RMG's history of such events. On May 18, 2020, a major explosion and fire occurred at General Iron.[166] This is not the first explosion or fire at General Iron. Just a few months ago in February 2020, there was an explosion in the shredder, leading to a citation of unauthorized air pollution.[167] When CDPH responded to the scene, they were told by General Iron Environmental Manager Jim Kallas that such explosions are "a common occurrence."[168] In 2015, there was an incident involving loud explosions and a fire, sending huge plumes of smoke into neighboring communities.[169] According to CDPH, the fire

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[163] Of note, the Ohio EPA has issued a permit-to-install to Reserve FTL for a torch cutting area at one of its other facilities, consisting of a three-walled enclosure equipped with baghouse. *See* Ex. 74, Ohio EPA, Final Permit to Install issued to Reserve FTL, LLC, DBA Reserve Iron Ohio, issued May 7, 2012 (naming Dennis Stropko, also associated with the 11600 S. Burley facilities), available at http://web.epa.state.oh.us/dapc/permits_issued/589801.pdf. We present this permit not as a full endorsement of its terms (as noted above, other facilities have outsourced torch cutting almost entirely where they were located in a dense residential EJ community), but to show that permit control requirements and limits can be applied to torch cutting operations like those that are occurring and will occur at 11600 S. Burley.

[164] *See id*. At 1(b)(2)(d)(ii) (requiring good operating practices to minimize accidental fires, which "shall" include (but are not limited to) "cutting metal that is clean of any oils(s) [sic] or other combustible fluids, the minimization of flame impingement with the ground, and the use of appropriately sized cutting torches.")

[165] See Ex. 5, NGO Large Recycling Rule Comments, at p4-5 https://www.chicago.gov/content/dam/city/depts/cdph/InspectionsandPermitting/Comment_NRDC_SETF_SSCBP_LVEJO_6-21-19.pdf

[166] Ex. 75, Hannah Alani, Colin Boyle, "Major Explosion at General Iron Scrap Plant Rocks Neighborhood, Company Suggests 'Potential Sabotage,'" Block Club Chicago (May 18, 2020, 9:33 A.M.), https://blockclubchicago.org/2020/05/18/major-explosion-and-fire-at-general-iron-scrap-plant-rocks-neighborhood/.

[167] Ex. 23, CDPH Inspection Reports for 1909 N. Clifton, Inspection ID 10929879 (Feb. 11, 2020).

[168] *Id*., Inspection Report, Inspection ID 10929879 (Feb. 11, 2020).

[169] Ex. 76, Alex Nitkin and Alisa Hauser, "After Explosions at Extra-Alarm Scrap Yard Fire, Ald. Calls for Its Closure," dna info Chicago (Dec. 6, 2015, updated 6:49 P.M.), https://www.dnainfo.com/chicago/20151206/lincoln-park/lincoln-park-fire-causes-explosions-dark-plumes-of-smoke-sunday-morning.

was caused by a spontaneous combustion of a materials pile[170]; as described in our rulemaking comments to CDPH, such fires can have profound negative impacts on short-term air quality. And in 2002, an open fire released smoke at the General II site, leading to a liability finding that the facility had unlawfully released air pollution.[171]

In 2019, a truck caught fire as it entered the site gate.[172] Another 2015 incident involved a fire in a trailer.[173] CDPH inspectors have also documented unsafe storage conditions at the General Iron site and issued numerous warnings.[174] In 2010 inspections, an inspector noted dangerous storage of fuel, explosive material, propane tanks, exposed batteries, etc. General Iron has also had several warnings about how to properly store pressure vessels and has repeatedly done this incorrectly.[175]

The Draft Permit is decidedly lacking in any terms to address these very real threats to air quality from fires and explosions. Additional measures should include a mandate to employ infrared cameras that can sense hot spots in material piles and other operations before fires occur, to aid in fire prevention. The Draft Permit should also require detailed and objective requirements with respect to sorting of incoming material and storage of pressure vessels. Given the recent explosion that knocked out the RTO, destroyed buildings and equipment and ignited fires at the site, the Draft Permit should also require incorporation of the manufacturers' specifications and safety protocols for operating the RTO, accompanied by enforceable conditions mandating compliance with these specifications and protocols. This information furthermore should be reported at least monthly to IEPA and IEPA should commit to creating online, timely access to the data (*i.e.*, post all reports within 2 weeks of receipt). Air quality modeling should also reflect the short-term impacts on air quality from fires at metals facilities, particularly with respect to daily- and sub-daily time periods.

F. IEPA Must Impose Conditions that Prevent Odors.

The Draft Permit cannot issue as written due to its failure to ensure compliance with the prohibition on air pollution, which, as set forth elsewhere in our collective comments, specifically encompasses odors. Odors are one of the regularly occurring complaints of neighbors of metals recycling facilities. To quote one resident, "… people around here know the scent of shredded metal. Anyone who lives with it on a daily basis knows it's a heavy, putrid smell."[176]

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[170] Ex. 23, CDPH Inspection Reports for 1909 N. Clifton, Inspection ID 804947 (Dec. 7, 2015); ID 802128 (Dec. 6, 2015).
[171] Ex. 21, City Enforcement Data for 1909 N. Clifton, violation dated 1/2/2002.
[172] Ex. 23, CDPH Inspection Reports for 1909 N. Clifton, Inspection ID 8429665 (Apr. 1, 2019).
[173] *Id*., Inspection Report, Inspection ID 805587 (Dec. 11, 2015).
[174] *Id*., Inspection Reports: Inspection ID 842777 (Apr. 25, 2016); ID DOEINS41724 (Dec. 21, 2010); ID DOEINS41696 (Jan. 19, 2010).
[175] *Id.*, Inspection Reports: Inspection ID 1479398 (Jan. 9, 2020); ID 1268331 (June 28, 2018); ID 1239682 (May 9, 2018); ID 830775 (Mar. 31, 2016).
[176] Ex. 77, Marissa Evans, *North Minneapolis residents welcome shutdown of metal shredder*, Minneapolis Star Tribune, September 30, 2019, available at https://www.startribune.com/north-minneapolis-residents-welcome-shutdown-of-metal-shredder/561642752/.

General Iron is no exception to these odor issues. The facility has generated strong metallic odors in the community on many occasions, often leading residents and CDPH inspectors alike to complain that the odors are so strong they impair breathing. On many occasions, including *after* installation of air pollution controls required by the U.S. EPA enforcement action, CDPH has observed strong odors on site at the General Iron facility and in the surrounding neighborhoods.[177] Many times, these odors are so strong that they cause discomfort and difficulty breathing.[178] CDPH's recurring description of the odor is "a pungent odor of sweet metal that burns my nostrils" and on several occasions the inspector has noted that the odor "makes it uncomfortable and difficult for me to fully inhale,"[179] or "uncomfortable to breathe in."[180] On one occasion, an inspector noted that the odor "burned and inflamed my nostrils to the point of throbbing inside my nostrils."[181] CDPH inspectors have continued to cite uncomfortable odors during some of their most recent inspections in May 2020, as described earlier in these comments. General Iron has generated countless complaints from nearby residents about strong odors emanating from the facility. This record demonstrates that such odors meet the definition of air pollution, in that they are injurious to human health and unreasonably interfere with the enjoyment of life or property.

Given the general issues with odors associated with metal shredding facilities, and the history of odor issues at General Iron, IEPA must impose additional permit conditions to ensure that Southeast Side neighbors, including those that use the Calumet River, are not subjected to odors that impact their health and wellbeing. Full enclosure of facility operations as set forth above, including the shredder and various handling processes (functionally creating prohibitions on conducting various operations outdoors) will likely address sources of odors to some degree as well.[182] In addition, IEPA should include specific odor management provisions in the Draft Permit, including use of available odor monitoring systems.

Failure to control odors from the proposed GIII as air contaminants also undermines the Clean Water Act's "national goal" to achieve, "wherever attainable," water quality which provides "for

[177] Ex. 23, CDPH Inspection Reports for 1909 N Clifton: Inspection ID 11152408 (Mar. 26, 2020); ID 11124169 (Mar. 20, 2020); ID 10929879 (Feb. 11, 2020); ID 10881195 (Jan. 31, 2020); ID 10836335 (Jan. 23, 2020); ID 10767158 (Jan. 10, 2020); ID 10759746 (Jan. 9, 2020); ID 10746578 (Jan. 7, 2020); ID 10716916 (Dec. 31, 2019); ID 10708652 (Dec. 29, 2019); ID 10706274 (Dec. 27, 209); ID 1494955 (Dec. 18, 2019); ID 10639264 (Dec. 11, 2019); ID 10573289 (Dec. 2, 2019); ID 10578242 (Dec. 2, 2019); ID 10462386 (Nov. 15, 2019); ID 10287548 (Oct. 28, 2019); ID 10208629 (Oct. 18, 2019); ID 10103209 (Oct. 7, 2019); ID 10103782 (Oct. 7, 2019); ID 10039135 (Oct. 1, 2019); ID 10047093 (Oct. 1, 2019); ID 10022352 (Sept. 30, 2019); ID 9935709 (Sept. 19, 2019); ID 9935298 (Sept. 19, 2019); ID 9901819 (Sept. 17, 2019); ID 9839788 (Sept. 10, 2019); ID 9839718 (Sept. 10, 2019); ID 9807607 (Sept. 6, 2019); ID 9808727 (Sept. 6, 2019); ID 9802564 (Sept. 5, 2019); ID 9747470 (Aug. 29, 2019); ID 9495131 (Aug. 1, 2019).
[178] *See id.*
[179] *Id*., Inspection Report, Inspection ID 11142508 (Mar. 26, 2020).
[180] *See, e.g., id.,* Inspection Reports: Inspection ID 10881195 (Jan. 31, 2020); ID 11124169 (Mar. 20, 2020).
[181] *Id*., Inspection Report, Inspection ID 9495131 (Aug. 1, 2019).
[182] *See, e.g*., Ex. 78, Rebecca Plevin, *Air district takes action against smelly Paramount metal plant*, Southern California Public Radio KPCC, June 14, 2017 (describing steps taken to address odors, including stopping outdoor grinding and sealing the grinding building), available at https://www.scpr.org/news/2017/06/14/72900/air-district-takes-action-against-smelly-paramount/.

recreation in and on the water." *See* 33 U.S.C. § 1251(a) and (c).[183] The odors from metals recycling facilities like the proposed GIII that are located on the waterfront directly impact air quality over and around waterways, acting as a deterrent of recreational water users.[184] The Calumet River in fact is used for recreational purposes, such as boating, despite the heavy industrial use of the River. It is highly likely that recreational users of the Calumet River – which is already negatively affected by waterfront odors – will be even more severely limited by the additional uncontrolled odors from the GIII facility and related operations. Conversely, recreational use of the Calumet River would be substantially higher if odors from industrial uses on the waterfront were reduced, which in turn would drive improvements in water quality under the Clean Water Act and yet more recreational use. Ensuring equitable recreational use of the Calumet River is also an environmental justice issue, given that ejection of industrial users along the North Branch of the Chicago River is enabling more recreational use on that other part of the Chicago Area Waterways System, creating further disparities in achievement of the Clean Water Act's goals.

V. IEPA Cannot Issue the Draft Permit Because the Applicant's and Agency's Own Air Quality Modeling Demonstrates the Proposed GIII Will Violate the Prohibition on Air Pollution – Even Without Correcting for Numerous Deficiencies in the Modeling and Health Assessments.

IEPA cannot issue the Draft Permit because, using the applicant's and IEPA's own air quality modeling on which the permit relies to model omitted PM_{10} and short-term manganese impacts, the proposed GIII will result in unacceptable impacts to air quality in violation of the prohibition on air pollution.[185] Moreover, the air quality modeling analysis fails to reflect the enforceability and other shortcomings described above and in this section – instead assuming exceedingly high levels of control and so low emissions that are neither in keeping with practical reality nor required by the Draft Permit in practicably enforceable terms – and contains unsupported and/or inappropriate assumptions as discussed below, further rendering the Draft Permit unsupported. These issues are taken up in reverse order in the following comment. In addition, there are numerous shortcomings in the overall assessment of health risks from the proposed GIII above and beyond this modeling critique that further render the Draft Permit unsupported.

[183] This same undermining of the Clean Water Act also occurs due to PM and metals air pollution over the River more broadly, especially with regards to short-term exposures that can have significant impacts on health.
[184] For example, in early May 2018, Meleah Geertsma of NRDC experienced putrid odors from metal scrap handling by a facility or facilities located at 106th St. and the Calumet River. The smell was a mix of strong metallic odors and other chemical smells. A representative of Senator Durbin's office was on the boat as well, along with a community resident and an NRDC colleague of Meleah's. *See* Ex. 79-82, Photographs of metal scrap loading along the Calumet River, taken by Meleah Geertsma, May 2, 2018.
[185] Air quality modeling expert analysis for these comments was provided by Todd Cloud, *see* Ex. 83, Resume of Todd Cloud, March 2019.

A. Emissions Estimates Used by the Applicant and IEPA in the Air Quality Modeling Demonstration are Unsupported and Otherwise Inappropriate.

Shredder fugitive emissions. As discussed elsewhere in these comments, the proposed hammermill shredder will not be a completely enclosed operation. Therefore, the applicant's assumption that 100% of the particulate matter generated will be captured and controlled is not correct.[186] As described above, a significant portion of the particulate matter generated will escape the openings in the shredder enclosure and capture hood. Our revised engineering estimate of shredder emissions that should be used in revised air quality modeling is (at least) 27 tpy of unaccounted for particulate matter emissions. *Unless and until the shredder fugitive emissions are quantified and included in the metals and particulate matter modeling, the application materials before the agency cannot be relied upon for permit issuance.*

Conveyor emission factors. The applicant provided detailed particulate matter emission calculations regarding the ferrous material processing emissions.[187] These particulate matter emission calculations largely rely upon AP-42, Section 11.19.2 Crushed Stone Processing and Pulverized Mineral Processing. The emission factor tables in AP-42, Section 11.19.2 provide two factors (controlled and uncontrolled) with controlled factors applicable to operations utilizing wet suppression. The controlled factors reflect an approximate 95% reduction in emissions due to wet suppression. The applicant (in a series of footnotes to Table A-2) assumes that a natural moisture content above 1.5% allows the use of the controlled factors without wet suppression equipment in operation. The reviewer does not concur with this approach. There is nothing magical about a 1.5% moisture content that immediately affords 95% reduction in fugitive dust emission generating potential equivalent to wet suppression. Depending on the material involved, significant fugitive dust emission generating potential can exist at moisture contents significantly in excess of 1.5%. *Unless and until the conveyor emission calculations are corrected and the revised estimates included in the metals and particulate matter modeling, the application materials before the agency cannot be relied upon for permit issuance.*

DC01 grain loading. The non-ferrous material processing system includes a fines processing system controlled by four dust collectors. Three of the dust collectors vent indoors with the fourth venting to atmosphere. The applicant estimates particulate matter emissions from the fourth dust collector (DC-01) utilizing the potential airflow and an assumed exit loading of 0.005 grains per cubic foot (gr/cf).[188] A more appropriate grain loading to estimate particulate matter emissions from DC-01 is in the range of 0.04 gr/cf, nearly 8 times higher than the applicant proposes. The applicant's proposed 0.005 gr/cf factor is simply not tenable given the type of collection systems in use at these types of operations nationwide. The applicant's proposed 0.005 gr/cf factor represents the pinnacle of particulate control from a state of the art, brand new baghouse equipped with polyester filter bags and reverse jet pulse cleaning. Absent substantial justification and documentation, the usual and customary factor of 0.04 gr/cf should

[186] *See* Revised Air Dispersion Modeling Report, February 12, 2020, at Table A-2.
[187] *See id.*
[188] *See id*. at Table B-4a.

be utilized. *Unless and until the DC-01 emission calculations are corrected and the revised estimates included in the metals and particulate matter modeling, the application materials before the agency cannot be relied upon for permit issuance.*

Vehicle traffic emissions. In most (if not all) particulate matter modeling demonstrations involving vehicle traffic, satisfactory results depend almost entirely upon the manner in which wind driven particulate matter emissions emanating from erodible surfaces are (a) calculated and (b) modeled. The original modeling report describes in general terms the manner in which vehicle traffic emissions were calculated. See Section 2.4, Air Dispersion Modeling Report (January 24, 2020). The revised modeling report describes in general terms the manner in which the vehicle traffic emissions were modeled. See Section 3.9.2, Revised Air Dispersion Modeling Report (February 12, 2020). The actual emission calculations themselves are found in Section 3.5 of the September 2019 application (Table 3-5A).

First, it is not appropriate here to distinguish among paved roads, unpaved roads, and other erodible surfaces. As discussed above, due to their inherent nature, including movement of heavy duty vehicles, it is very difficult to maintain intact (i.e., paved) surfaces at shredder operations unless they are all concrete or similarly lined. Compacted earth and asphalt paving cannot usually withstand the constant wear and tear without significant and ongoing maintenance, further exacerbated by weather such as at the Chicago location. As a result, even paved areas can deteriorate and become sources of fugitive dust, especially under increasing wind conditions.

Second, vehicle traffic emission factors are complex and involve multiple assumptions and caveats regarding wind speeds, silt loading, efficacy of watering or other dust control measures, frequency of maintenance, etc. A more robust and appropriate approach given general engineering knowledge/experience, the history of failed paving at General Iron and the RMG-SCPM facilities and the vagueness of pavement-related requirements in the Draft Permit and FPOP is to use a simplified fugitive dust estimate, taken from AP-42 Section 13.2.3 Heavy Construction Operations. In the aggregate, operations at a typical shredder are not dissimilar, in terms of the ability to generate dust from exposed sources, including unpaved and partially paved/deteriorated surfaces. The recommended emission factor is 1.2 tons/acre/month. Annual emissions can be therefore estimated using estimates of potentially erodible acreage. To allow for a portion of the area which might be paved (assumed to be 20%), we suggest that this emission factor be applied to the rest (i.e., 80%) of the total GII acreage at the rate of 1.2 tons/acre/month. *Unless and until the vehicle traffic emission calculations are provided for review and comment, the application materials before the agency cannot be relied upon for permit issuance.*

B. Modeling Inputs/Assumptions Used by the Applicant and IEPA are Unsupported and Otherwise Inappropriate.

Meteorological datasets. Two National Weather Service (NWS) meteorological datasets were used in the modeling demonstration. Surface data was taken from the Midway Airport (Station ID 14819) in conjunction with coincident air sounding data from Davenport, Iowa (Station ID

94982) for the years 2012 through 2016. In general, use of one year of onsite meteorological data is the preferred approach in U.S. EPA modeling guidance. Use of five years of "off-site" meteorological datasets may be used *unless* (1) specific terrain, coastal proximity, or other unique geographical issues make such data unsuitable and/or (2) "on-site" meteorological datasets are available. In this case, given the proximity of the site to Lake Michigan and the Calumet River (and all of the unique wind patterns that result therefrom) and the availability of surface data from three meteorological stations in close proximity to the site (KCBX[189], S.H. Bell[190], and Watco Terminal[191]), use of the surface data from the Midway Airport (Station ID 14819) cannot be supported. *Unless and until the modeling is revised to include the surface data from the local meteorological stations, the application materials before the agency cannot be relied upon for permit issuance.*

Volume source representations. With the exception of the regenerative thermal oxidizer (RTO) and DC-01, all of the proposed emission generating activities are treated as a volume sources.[192] Volume source representation for air dispersion modeling purposes is a complex combination of location, release height, initial lateral dimensions, and initial vertical dimensions. However, because the applicant redacted the process flow diagrams from the original modeling submittal, this reviewer cannot vet the volume source representations so made. The applicant based its process flow diagram redactions on trade secret grounds, which as discussed above is in conflict with federal Clean Air Act policy on treatment of "emission data," even assuming the validity of the trade secret claim (which is dubious). And while the applicant does provide some information about the location of the haul roads, the depiction is spartan at best.[193] *Unless and until all volume source representations can be fully vetted, the application materials before the agency cannot be relied upon for permit issuance.*

Co-located sources. In a letter report dated March 13, 2020, emissions were identified and quantified for no less than four (4) operations co-located with the applicant's proposed operations. Collectively referred to as the South Chicago Property Management (SCPM) operations, the March 13, 2020 letter report identifies and quantifies over 15 tpy of additional particulate matter emissions not modeled for the proposed GIII, the vast majority of which are vehicle traffic emissions. Given the fact that it is the wind driven particulate matter emissions emanating from erodible surfaces that are largely driving the modeled NAAQS violations (described below), the deplorable condition of the roads at these facilities as evidenced in CDPH's inspections database and as reflected in the revised modeling presented here, and

[189] *See* Ex. 84, USEPA, KCBX Fenceline Air Monitoring Data, available at https://www.epa.gov/petroleum-coke-chicago/kcbx-fenceline-air-monitoring-data#meteo.
[190] *See* Ex. 85, USEPA, S.H. Bell Chicago Air Monitoring Data, available at https://www.epa.gov/il/sh-bell-chicago-air-monitoring-data.
[191] *See* Ex. 86, USEPA, Watco Terminal and Port Services, available at https://www.epa.gov/il/watco-terminal-and-port-services#data.
[192] *See* Revised Air Dispersion Modeling Report, February 12, 2020, at Section 3.9.1.
[193] *See* Air Dispersion Modeling Report, January 24, 2020, at Appendix C-1.

furthermore that IEPA should have considered these SCPM facilities and possibly others together with the proposed GIII as a "single source" as set forth elsewhere in these comments, the failure to include these emission along with the proposed GIII's emissions cannot go unresolved. *Unless and until all particulate matter emissions from the co-located operations are included in the modeling, the application materials before the agency cannot be relied upon for permit issuance.*

C. Based on the Applicant's Own Emissions Estimates and Modeling, the Proposed GIII Will Result in Exceedances of the PM_{10} NAAQS and Unacceptable Short-Term Manganese Impacts, Even Without Correcting for the Above Deficiencies.[194]

Manganese. Based on the applicant's own emission calculations and modeling approach, and setting aside all of the above-enumerated necessary revisions, impacts of manganese (Mn) exceed the 8-hour Reference Exposure Level (REL) of 0.17 micrograms per cubic meter (ug/m3) established by the California Office of Environmental Health Hazard Assessment (OEHHA).[195] **See Figure 1.**[196] *Unless and until Mn impacts (including regional sources such as the significant known sources of fugitive manganese along the Calumet River that are not reflected in IEPA's inventory) can be shown to reside below 0.17 ug/m3 (8-hour average), the application materials before the agency cannot be relied upon for permit issuance. This is especially true given the long history of manganese issues in this environmental justice community.*

24-hour PM_{10} NAAQS. The applicant and IEPA completely omitted PM air quality modeling without explanation, despite the prohibition on air pollution, which encompasses causing or tending to cause air pollution in violation of the National Ambient Air Quality Standards. Based on the applicant's own emission calculations and modeling approach, and setting aside all of the above-enumerated necessary revisions, impacts of particulate matter less than 10 microns in aerodynamic diameter (PM_{10}) (added to background) exceed the 24-hour National Ambient Air Quality Standard (NAAQS) of 150 ug/m3. **See Figure 2.**[197] *Unless and until PM10 impacts (including background) can be shown to reside below 150 ug/mg (24-hour average), the application materials before the agency cannot be relied upon for permit issuance.*

Other air toxics. The applicant proposes to control emissions from the hammermill shredder with a combination roll-media particulate filter and regenerative thermal oxidizer (RTO) followed by a packed tower scrubber. The presence of the RTO indicates high levels of volatile organic compounds (VOC), organic hazardous air pollutants (HAP), and other air toxics not

[194] For modeling files supporting this analysis, *see* Ex. 87 for PM_{10} and Ex. 88 for manganese.
[195] *See* Ex. 89, California Office of Environmental Health Hazard Assessment, TSD for noncancer RELs, Appendix D. Individual Acute, 8-hour, and Chronic Reference Exposure Level Summaries, December 2008 (updated July 2014) ("OEHHA REL for Manganese"), at p429, available at https://oehha.ca.gov/media/downloads/crnr/appendixd1final.pdf.
[196] Ex. 90, Figure 1, Mn Impact Contour Plot, 8-hour average of 0.17 ug/m3.
[197] Ex. 91, Figure 2, PM_{10} Contour Plot, 24-hour average of 150 ug/m3.

considered in the modeling demonstration on file. The HAP and air toxics emissions emanate from the paints and solvents and other organic material on the metals fed to the shredder. *Unless and until all reasonably identified HAP and air toxics are identified, quantified, and modeled, the application materials before the agency cannot be relied upon for permit issuance.*

D. **Additional Deficiencies in the Health Assessment Undertaken by the Applicant and IEPA Render the Assessment Unsupported and Otherwise Insufficient to Ensure Protection of Air Quality**.

In addition to such deficiencies in the air quality modeling presented above, we provide these comments on the use of the modeling data to assess risks to health and well-being posed by the proposed GIII. We support IEPA's investigation into the air toxics impacts of this facility on air quality and health, which we believe is solidly grounded in, and indeed generally necessary to fulfill, the agency's duty to ensure that the proposed facility will not result in air pollution in violation of 415 ILCS 5/9(a). However, in addition to omitting PM_{10} modeling without explanation, nowhere does the applicant or IEPA explain the rationale for selecting Wisconsin's air toxics approach among the many state air toxics programs available, including those that are more current, comprehensive/robust, and protective of public health. Nor does IEPA take account of multiple other aspects of risks to health and welfare that are needed to assess impacts from the proposed GIII in this particular setting.

A full analysis of the approach taken by the applicant and IEPA and available alternatives was not feasible within the allotted comment period, especially in light of the dual COVID-19 and civil rights emergencies. We provide the following short list of high-level issues identified in the health analysis:

- As discussed above, failure to assess PM_{10}
- Failure to fully justify use of the Wisconsin approach for air toxics, versus other available approaches for assessing air toxics in states such as Michigan, Minnesota, Ohio, California, and Texas
- Failure to assess the combined impacts of multiple metals and other hazardous air pollutants ("HAPs") from the proposed GIII, with respect to the facility itself and in the context of the overburdened Southeast Side[198]
- Failure to take into account non-cancer impacts of HAPs
- Failure to assess the impacts of VOCs along with metallic HAPs
- Failure to account for the toxicity of hexavalent chromium
- As discussed above, failure to evaluate available short-term health thresholds for certain HAPs, such as the 8-hour manganese threshold of 0.17 ug/m^3 discussed above[199]

[198] *See, e.g.*, Ex. 92, Michigan Department of Environmental Quality, 48217 Community Air Monitoring Project, April 27, 2018 (discussing an additive approach for assessing combined impacts of HAPs), available at https://www.michigan.gov/documents/deq/deq-aqd-amu-48217_air_monitoring_report_621859_7.pdf.
[199] *See* Ex. 89, OEHHA REL for Manganese.

- Failure to accurately account for fugitive emissions from nearby facilities, given shortcomings in the state's emissions inventory for such sources
- Failure to take into account the mobile source-related emissions from the many trucks, trains and barges that will accompany the proposed GIII and related sources
- Failure to evaluate other proposed and/or in-construction nearby sources of air pollution, such as a proposed new SCPM recycling facility immediately to the East of GIII[200] and large warehousing facilities by developer NorthPoint that are slated to substantially increase heavy duty diesel truck emissions in the vicinity[201]
- Failure to take into account the multiple pollutant exposures via air, water and soil; historic and existing health burdens; and sociodemographic characteristics of the impacted population, as they pertain to the overall cumulative vulnerability to impacts from air pollution that would be emitted from the proposed GIII[202]

IEPA must address at least these shortcomings in a revised assessment of whether the proposed GIII will run afoul of the prohibition on air pollution.

VI. Conclusion.

In sum, based on the above comments and others being submitted on behalf of SETF, the Coalition to Ban Petcoke and NRDC as well as other environmental and public health groups, the Draft Permit for the proposed massive new metal shredding facility in this already-overburdened environmental justice community cannot issue.[203] IEPA owes a duty of care to all Illinois residents to ensure each person's constitutional right to a healthful environment. It also has duties to uphold civil rights and equal protection of the law that require the agency to do more for overly burdened communities to ensure equitable enjoyment of that right. As set forth above, IEPA has ample authority to proactively protect the Southeast Side and must do so in this case in order to fulfill its many obligations under the Illinois Environmental Protection Act and other state and federal laws.

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[200] *See* Ex. 93, City of Chicago Department of Buildings, Chicago of Chicago DOB New Applications for Ward 10, March 11, 2020 (describing application for construction of a new $9,000,000 Class IV-A recycling facility at 11554 S. Ave. O, proposed by Hal Tolin of SCPM).

[201] *See* Ex. 94, Alby Gallun, *Why this industrial developer is making a big – and risky – bet on the city*, Crain's Chicago Business, March 22, 2019 (describing and providing map of new industrial park between 116th and 126th streets and Avenue O and the Calumet River), available at https://www.chicagobusiness.com/commercial-real-estate/why-industrial-developer-making-big-and-risky-bet-city.

[202] *See* Ex. 95, Rachel Morello-Frosch, et.al., Understanding the Cumulative Impacts of Inequalities in Environmental Health: Implications for Policy, Health Affairs 30, No. 5 (2011): 879-887, available at https://www.healthaffairs.org/doi/pdf/10.1377/hlthaff.2011.0153.

[203] In addition to the above comments and cited sources, we are submitting additional correspondence with IEPA relevant to this permitting action to ensure a more complete record. *See* Ex. 96, various emails and attachments between IEPA and NRDC, SETF, and/or Coalition representatives.

Sincerely,

/s/ Meleah Geertsma

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View up to date information on how Illinois is handling the Coronavirus Disease 2019 (COVID-19) from the State of Illinois Coronavirus Response Site

Environmental Justice (EJ)

Léalo en Español

The Illinois Environmental Protection Agency (Illinois EPA or Agency) is committed to protecting the health of the citizens of Illinois and its environment, and to promoting environmental equity in the administration of its programs to the extent it may do so legally and practicably. The Illinois EPA supports the objectives of achieving environmental equity for all of the citizens of Illinois.

"Environmental Justice" is based on the principle that all people should be protected from environmental pollution and have the right to a clean and healthy environment. Environmental justice is the protection of the health of the people of Illinois and its environment, equity in the administration of the State's environmental programs, and the provision of adequate opportunities for meaningful involvement of all people with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

The assumption of this policy is that it is evolutionary. Environmental Justice policies and activities will continue to develop, as appropriate, through the normal course of the Agency's regulatory and programmatic duties. In addition to the normal evolution of the policy, the Agency is planning outreach activities to gather comments and public input for this spring. The Illinois EPA recognizes that this policy alone will not achieve environmental equity in all instances. Moreover, public and private commitment to the implementation of this policy is needed to achieve the goals of this policy and to promote environmental equity in this State.

View up to date information on how Illinois is handling the Coronavirus Disease 2019 (COVID-19) from the State of Illinois Coronavirus Response Site

Environmental Justice (EJ) Policy

Léalo en Español

Introduction

The Illinois Environmental Protection Agency (Illinois EPA) is committed to protecting the health of the citizens of Illinois and its environment, and to promoting environmental equity in the administration of its programs to the extent it may do so legally and practicably. The Illinois EPA supports the objectives of achieving environmental equity for all of the citizens of Illinois.

This document carries out that belief in written policy and provides specific parameters for the Illinois EPA's bureaus, divisions and offices to implement the policy to reduce environmental inequities, and to prevent and reduce pollution overall.

The assumption of this policy is that it is evolutionary. Environmental Justice or EJ (also known as Environmental Equity or EE) policies and activities will continue to develop, as appropriate, through the normal course of the Illinois EPA's regulatory and programmatic duties. Illinois EPA recognizes that this policy will not alone achieve environmental equity in all instances. Moreover, public and private commitment to the implementation of this policy is needed to achieve the goals of this policy and to promote environmental equity in this State.

Key goals of this policy are as follows:

- to ensure that communities are not disproportionately impacted by degradation of the environment or receive a less than equitable share of environmental protection and benefits;
- to strengthen the public's involvement in environmental decision-making, including permitting and regulation, and where practicable, enforcement matters;
- to ensure that Illinois EPA personnel use a common approach to addressing EJ issues; and

- to ensure that the Illinois EPA continues to refine its environmental justice strategy to ensure that it continues to protect the health of the citizens of Illinois and its environment, promotes environmental equity in the administration of its programs, and is responsive to the communities it serves.

Definition

The Illinois EPA defines the term "environmental justice " as follows:

> "Environmental Justice" is based on the principle that all people should be protected from environmental pollution and have the right to a clean and healthy environment. Environmental justice is the protection of the health of the people of Illinois and its environment, equity in the administration of the State's environmental programs, and the provision of adequate opportunities for meaningful involvement of all people with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

Elements Of The Policy

1. Defining Responsible Persons

The Illinois EPA will identify the persons responsible for coordinating various EJ activities, including an Illinois EPA EJ Officer responsible for coordinating all of the EJ activities for the Illinois EPA, and a work group including a representative from each of the Bureaus of Air (BOA), Water (BOW) and Land (BOL), the Division of Legal Counsel and the Office of Community Relations (collectively, IEPA EJ Work Group).

The EJ Officer shall have primary responsibility for coordinating all EJ efforts on the behalf of the Illinois EPA, acting as the spokesperson for the Illinois EPA on EJ, remaining current on all national developments on EJ, and coordinating, reviewing and signing off on responses to EJ complaints involving the Illinois EPA. The EJ Officer may review proposed permits, plans, and policies for consistency with this policy.

The EJ Officer is also the contact person for citizens and communities who believe their health or surrounding environment is at a significant risk. The EJ Officer will serve as a liaison between the citizen or community and the relevant Illinois EPA personnel to seek resolution of the action.

The EJ Officer will also facilitate and coordinate the continued development of the Illinois EPA's approach to EJ, addressing the areas of public notice and hearing process with respect to bilingual notice or any form of "special" notice or hearing, complaint response, permitting response, and planning and analysis. This approach should be developed based on separate analyses and recommendations developed by the BOA, BOW and BOL (collectively, the Bureaus), the Division of Legal Counsel, and the Office of Community Relations for these areas. The approach will include an analysis by the Illinois EPA of the tools it possesses to address EJ in these areas, and a list of employees who could be assigned to handle various tasks identified in its recommendations.

2. Defining EJ Activities

The EJ Officer will coordinate the following EJ activities on behalf of the Illinois EPA, with the advice of the IEPA EJ Work Group:

- Arrangements for bilingual publication of notice, where appropriate, on proposed Illinois EPA permitting actions or informational hearings, or any form of "special" public notice;
- Arrangements for bilingual or multi-lingual hearings, where appropriate, on proposed Illinois EPA permitting actions or informational hearings, or any form of "special" public hearings or meetings;
- Response to public comments received on proposed permitting actions raising EJ concerns, including the preparation of environmental justice assessments as needed to support responses;
- Response to EJ complaints challenging the Illinois EPA's permitting actions;
- Response to EJ concerns raised about the Illinois EPA's enforcement program or a specific enforcement matter;
- Response to EJ concerns raised in implementation of emissions trading programs (e.g., the BOA's Emission Reduction Market System or ERMS program;
- Public participation to address or mitigate, if possible, EJ concerns, and
- Response to general inquiries concerning EJ.

3. Preparing for Avenues of Entry for EJ Concerns or Inquiries

When an EJ issue or concern is raised or inquiry is made anywhere within the Illinois EPA, the EJ Officer will be promptly advised by e-mail and voice mail and will meet with the appropriate IEPA EJ Work Group member(s) to formulate the Illinois EPA's actions and responses.

EJ Policy

Once a response or action plan has been developed to address a specific inquiry or activity, the EJ Officer will assemble the IEPA EJ Work Group to review and comment on the proposed action plan. The EJ Officer will then revise the Action Plan as he/she deems appropriate and take the Action Plan to the Director or his or her designee for approval.

Approaches/Strategies To Address And Coordinate EJ Activities

1. Public Notice and Hearing and Receipt of Public Comments

Community Outreach

The Illinois EPA has developed and implemented a public participation strategy for permits, programs and actions in areas of EJ concern [1]. The Illinois EPA's Office of Community Relations (Community Relations) works with host communities to identify and address environmental concerns regarding proposed facilities and projects of significant interest and to identify environmental issues affecting communities in Illinois prior to the permitting or action stage. After identifying environmental matters and any Illinois EPA actions of concern to communities, Community Relations holds regional meetings in and around the potentially affected communities. The number and scope of these meetings has varied from year to year depending on site activities and the level of community interest.

[1] An area of EJ concern is a community with a low-income and/or minority population greater than twice the statewide average.

Community Relations is charged with the following tasks:

- Preparing and Issuing Public Hearing Notices
- Identifying Community Questions and Concerns
- Preparing and Distributing Fact Sheets
- Responding to Questions from the Public and the News Media
- Establishing Local Repositories
- Conducting Small Group Meetings
- Assisting Illinois EPA Staff in preparing answers before public hearings
- Assisting with Public Hearings

- Preparing Responsiveness Summaries

The Illinois EPA has found that where it conducts a dialogue with interested and potentially affected citizens, the permit application process tends to function more smoothly for the applicant, the Illinois EPA, and the public. Many of the questions from the public seek information within the following categories: the permit process, the nature and operation of the facility, technical aspects of pollution control, legal requirements, and public input. Risks to public health and the environment, monitoring the facility's operation, and opposition to a proposed facility are issues that often involve the coordinated participation of other organizations in developing a response.

Community Relations has also developed "Mailing Lists of Interested and Potentially Affected Citizens." Individuals may request to be added to these lists or, based on prior contact, the Illinois EPA may add these individuals or groups to a list. These individuals or groups receive notices of hearings on regulations, permit applications, or any other significant Agency action likely to impact the community in which the individual lives, or in which the group has expressed an interest.

Small Group Meetings

For any permit action requiring public notice and for which the Illinois EPA receives a request for public hearing, Community Relations often holds "small group" or "living room" meetings in the affected community. Community Relations maintains a list of all "smaller" environmental groups (i.e., grass root organizations formed to address local environmental issues), and contacts the affected group(s) to participate in the small group meetings. (Note: This list generally contains between 120 and 180 organizations.) A smaller, more intimate forum is generally selected to hold these meetings, such as the mayor's office or the public library. This type of forum is selected because it encourages greater participation and candid dialogue, and more time can be spent addressing the issues of concern. Through these efforts, the Illinois EPA attempts to encourage public participation and awareness of environmental concerns and of Illinois EPA actions affecting local communities.

Informational Hearings

In addition, the State of Illinois has regulations that allow for public participation in the permitting process, beyond those hearings otherwise required by law or regulation. (See: 35 Ill. Adm. Code 166.) That category of hearings is termed "informational hearings"; i.e., a hearing that is not required by law to be held, but which is held for the purpose of informing the public of a proposed Illinois EPA action or when the Illinois EPA wishes to gather information or comments from the public prior to making a final decision on a matter. (See: 35 Ill. Adm. Code 166.120(b).) Under Illinois law, the Director of the Illinois EPA may determine whether the construction of an

emission unit (or the revision to a permit for such a unit) is of public interest, and allow for public participation in the permitting process where such participation is not otherwise required. (See: 35 Ill. Adm. Code 252.102(a)(6) & (a)(8)). The criteria that the Director may consider in determining whether an emission unit is of public interest include:

- The type of permit for which the application is made;
- The nature and amount of pollutants that will be emitted by the source;
- Possible effects of the emissions on health and the environment;
- The location of the source;
- The interest in the source exhibited by the public, based on comments and inquiries received by the Illinois EPA;
- Other factors that are distinctive to the source; and
- The proposed action by the Illinois EPA.

The public participation process includes: providing the public with notice of its intent to issue a permit; providing the public with a copy of the proposed permit and supporting documentation for comment; electing to hold a public hearing on the proposed permitting action without waiting for a request to do so in matters where a hearing is not statutorily required and providing for a written comment period following the hearing; and preparing a detailed responsiveness summary addressing all significant public comments on the proposed permitting action. (See: 35 Ill. Adm. Code 166)

Local Siting Approval

The State of Illinois is somewhat unique compared to many other states in that there is also a local siting approval process under the Illinois Environmental Protection Act (Act) (415 ILCS 5/1 et seq.) for "Pollution Control Facilities" or "PCFs." PCFs include landfills, commercial incineration facilities, wastewater treatment plants, and similar waste treatment, storage or disposal facilities.

The local siting approval process requires that the developer of a new PCF demonstrate to the satisfaction of the governing body of a municipality or the county board of a county in which the proposed PCF is to be located that the project will meet nine specific criteria set forth in the statute. In addition, the application is subject to a public participation process that requires providing written notice of the application to certain adjacent property owners and members of Illinois' General Assembly from the legislative district in which the facility is to be located, and notice to the general public by newspaper publication. At least one public hearing must be held and any person may comment on the proposed facility. The decision of the governing body must be in writing, must state its bases and may be appealed to the Pollution Control Board. The Illinois EPA is not a participant in this process, other than to ensure that a project that is a new PCF has the requisite siting approval prior to the issuance of a construction or development permit. (See: 415 ILCS 5/39.2).

These efforts ensure that there is an appropriate level and quality of outreach for all significant new and existing Illinois EPA programs, regulations, permitting actions and community listening sessions.

Bi- and Multi-Lingual Efforts

As part of the Illinois EPA's EJ Policy, the EJ Officer will determine when public notices should be bi- or multi-lingual, where these notices should be published, and when translators should attend hearings. The EJ Officer will also review and approve the proposed response to EJ comments raised at hearing or in written comments, and coordinate this response among the Bureaus, Division of Legal Counsel and the Office of Community Relations.

Exploring New Avenues for Public Participation

Increased and alternative approaches to public participation are the areas in which most states are focusing their EJ efforts. The EJ Officer and the EJ Advisory Work Group will explore better opportunities for increased public participation in sensitive rulemakings and permitting actions. The EJ Officer and EJ Advisory Work Group will also explore opportunities for public participation in the resolution of enforcement actions.

2. Receipt of EJ Complaint

The Illinois EPA has developed, implemented and published an EJ Grievance Procedure. The EJ Grievance Procedure defines the procedural and substantive standards utilized by the Illinois EPA to evaluate EJ complaints. Specifically, the EJ Grievance Procedure provides a process for filing a timely complaint to the Illinois EPA and describes the process that is used to investigate and resolve the complaint. However, the procedures described therein do not apply to administrative actions that are being pursued in another forum (e.g., a permit appeal or a civil rights complaint filed with the United States Environmental Protection Agency Office of Civil Rights).

3. Permitting Actions

When concern is expressed or identified regarding potential environmental impacts in an environmental justice area, the Illinois EPA will look at the information provided and other available information to assess whether there are potential significant adverse environmental impacts. If there are any such potential adverse impacts, the Illinois EPA will either request an assessment or assess

these impacts using the information and tools reasonably available, and within the time constraints allowed by applicable state and federal law. The Illinois EPA will make such assessments available to the public and other affected persons or entities. An appropriate response will be made based on these assessments.

However, these assessments raise feasibility and resource issues. The Illinois EPA notes that the task of addressing EJ is exacerbated by the absence of a consensus on the validity of cumulative risk assessment tools and clear direction at the federal level. There are significant uncertainties regarding the availability and effectiveness of cumulative risk assessment tools, the availability of emissions data and emissions inventories, and these uncertainties increase as the scope of cumulative impact analysis increases. The availability of resources to make such assessments is also a major concern. However, the Illinois EPA will continue to commit appropriate staff time and other resources to become familiar with developments in risk assessment models and methodologies.

4. Training / Policy Handbook

The EJ Advisory Work Group will develop internal procedures for addressing EJ complaints, including specific concerns about permitting actions. The EJ Advisory Workgroup will also develop a policy handbook for distribution among Illinois EPA personnel to keep them apprised of developments in the Illinois EPA's EJ Policy.

ECHO
Enforcement and Compliance History Online

Detailed Facility Report

Facility Summary

NAPUCK SALVAGE OF WAUPACA LLC
11600 S BURLEY AVE, CHICAGO, IL 60617

FRS (Facility Registry Service) ID: 110046596750
EPA Region: 05
Latitude: 41.6849
Longitude: -87.54529
Locational Data Source: FRS
Industry:
Indian Country: N

Enforcement and Compliance Summary

Statute	Insp (5 Years)	Date of Last Inspection	Compliance Status	Qtrs with NC (Noncompliance) (of 12)	Qtrs with Significant Violation	Informal Enforcement Actions (5 years)	Formal Enforcement Actions (5 years)	Penalties from Formal Enforcement Actions (5 years)	EPA Cases (5 years)	Penalties from EPA Cases (5 years)
CAA	--	--	**Violation w/in 1 Year**	1	0	1	--	--	--	--

Regulatory Information

Clean Air Act (CAA): Operating Minor (IL000031600GYI)
Clean Water Act (CWA): No Information
Resource Conservation and Recovery Act (RCRA): No Information
Safe Drinking Water Act (SDWA): No Information

Other Regulatory Reports

Air Emissions Inventory (EIS): 16567711
Greenhouse Gas Emissions (eGGRT): No Information
Toxic Releases (TRI): No Information
Compliance and Emissions Data Reporting Interface (CEDRI): No Information

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Known Data Problems

Facility/System Characteristics

Facility/System Characteristics

System	Statute	Identifier	Universe	Status	Areas	Permit Expiration Date	Indian Country	Latitude	Longitude
FRS		110046596750					N	41.6849	-87.54529
ICIS-Air	CAA	IL000031600GYI	Minor Emissions	Operating	CAASIP		N	41.684993	-87.545461
EIS	CAA	16567711		OPERATING			N	41.684993	-87.545461

Facility Address

System	Statute	Identifier	Facility Name	Facility Address
FRS		110046596750	NAPUCK SALVAGE OF WAUPACA LLC	11600 S BURLEY AVE, CHICAGO, IL 60617
ICIS-Air	CAA	IL000031600GYI	SOUTH CHICAGO PROPERTY MGMT LTD	11600 S BURLEY AVE, CHICAGO, IL 60617-7201
EIS	CAA	16567711	NAPUCK SALVAGE OF WAUPACA LLC	11600 S BURLEY AVE, CHICAGO, IL 60617

Facility SIC (Standard Industrial Classification) Codes

System	Identifier	SIC Code	SIC Description
ICIS-Air	IL000031600GYI	5093	Scrap And Waste Materials

Facility NAICS (North American Industry Classification System) Codes

System	Identifier	NAICS Code	NAICS Description
EIS	16567711	423930	Recyclable Material Merchant Wholesalers
ICIS-Air	IL000031600GYI	423930	Recyclable Material Merchant Wholesalers

Facility Tribe Information

Reservation Name	Tribe Name	EPA Tribal ID	Distance to Tribe (miles)
No data records returned			

Enforcement and Compliance

Compliance Monitoring History (5 years)

Statute	Source ID	System	Activity Type	Compliance Monitoring Type	Lead Agency	Date	Finding (if applicable)

Statute	Source ID	System	Activity Type	Compliance Monitoring Type	Lead Agency	Date	Finding (if applicable)
CAA	*IL000031600GYI*	*ICIS-Air*	*Inspection/Evaluation*	*PCE On-Site*	*EPA*	*06/27/2019*	

Entries in italics are not counted in EPA compliance monitoring strategies or annual results.

Compliance Summary Data

Statute	Source ID	Current SNC (Significant Noncompliance)/HPV (High Priority Violation)	Current As Of	Qtrs with NC (Noncompliance) (of 12)	Data Last Refreshed
CAA	IL000031600GYI	No	06/06/2020	1	06/05/2020

Three-Year Compliance History by Quarter

Statute	Program/Pollutant/Violation Type				QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12+
CAA (Source ID: IL000031600GYI)					07/01-09/30/17	10/01-12/31/17	01/01-03/31/18	04/01-06/30/18	07/01-09/30/18	10/01-12/31/18	01/01-03/31/19	04/01-06/30/19	07/01-09/30/19	10/01-12/31/19	01/01-03/31/20	04/01-06/30/20
	Facility-Level Status				**No Violation Identified**	**No Violation Identified**	**No Violation Identified**	**No Violation Identified**	**No Violation Identified**	**No Violation Identified**	**No Violation Identified**	**No Violation Identified**	**No Violation Identified**	**Violation Identified**	**No Violation Identified**	**No Violation Identified**
	HPV History															
	Violation Type	**Agency**	**Programs**	**Pollutants**												
CAA	FRV	IL	CAASIP	FACIL										12/15/2019		

Informal Enforcement Actions (5 Years)

Statute	System	Source ID	Type of Action	Lead Agency	Date
CAA	ICIS-Air	IL000031600GYI	Notice of Violation	State	12/20/2019

Entries in italics are not counted as "informal enforcement actions" in EPA policies pertaining to enforcement response tools.

Formal Enforcement Actions (5 Years)

Statute	System	Law/Section	Source ID	Action Type	Case No.	Lead Agency	Case Name	Issued/Filed Date	Settlements/Actions	Settlement/Action Date	Federal Penalty	State/Local Penalty	SEP Cost	Comp Action Cost
No data records returned														

Environmental Conditions

Water Quality

Permit ID	Combined Sewer System?	Number of CSO (Combined Sewer Overflow) Outfalls	12-Digit WBD (Watershed Boundary Dataset) HUC (RAD (Reach Address Database))	WBD (Watershed Boundary Dataset) Subwatershed Name (RAD (Reach Address Database))	State Water Body Name (ICIS (Integrated Compliance Information System))	Impaired Waters	Impaired Class	Causes of Impairment(s) by Group(s)	Watershed with ESA (Endangered Species Act)-listed Aquatic Species?
No data records returned									

Water Body Designated Uses

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Reach Code	Water Body Name	Exceptional Use	Recreational Use	Aquatic Life Use	Shellfish Use	Beach Closure Within Last Year	Beach Closure Within Last Two Years

Reach Code	Water Body Name	Exceptional Use	Recreational Use	Aquatic Life Use	Shellfish Use	Beach Closure Within Last Year	Beach Closure Within Last Two Years
No data records returned							

Air Quality

Nonattainment Area?	Pollutant(s)	Applicable Nonattainment Standard(s)
Yes	Ozone	8-Hour Ozone (1997), 8-Hour Ozone (2008), 8-Hour Ozone (2015)
No	Lead	
Yes	Particulate Matter	PM-10 (1987), PM-2.5 (1997)
No	Carbon Monoxide	
No	Nitrogen Dioxide	
No	Sulfur Dioxide	

Pollutants

Toxics Release Inventory History of Reported Chemicals Released in Pounds per Year at Site

TRI Facility ID	Year	Total Air Emissions	Surface Water Discharges	Off-Site Transfers to POTWs (Publicly Owned Treatment Works)	Underground Injections	Releases to Land	Total On-site Releases	Total Off-site Transfers
No data records returned								

Toxics Release Inventory Total Releases and Transfers in Pounds by Chemical and Year

Chemical Name
No data records returned

Demographic Profile

EJSCREEN EJ Indexes

Eleven primary environmental justice (EJ) indexes of EJSCREEN, EPA's screening tool for EJ concerns. EPA uses these indexes to identify geographic areas that may warrant further consideration or analysis for potential EJ concerns. The index values below are for the Census block group in which the facility is located. Note that use of these indexes does not designate an area as an "EJ community" or "EJ facility." EJSCREEN provides screening level indicators, not a determination of the existence or absence of EJ concerns. For more information, see the EJSCREEN home page.

Census Block Group EJ Indexes (percentile)	
Particulate Matter (PM 2.5)	98.1
Ozone NATA Diesel PM	98
NATA Air Toxics Cancer Risk	97

Number of EJ Indexes Above 80th Percentile
11

View EJSCREEN Report

Census Block Group EJ Indexes (percentile)	
NATA Respiratory Hazard Index (HI)	97.1
Traffic Proximity	91
Lead Paint Indicator	99.8
Superfund Proximity	98.9
Risk Management Plan (RMP) Proximity	99.3
Hazardous Waste Proximity	96.5
Wastewater Discharge Proximity	92.4

Demographic Profile of Surrounding Area (1 Mile)

This section provides demographic information regarding the community surrounding the facility. ECHO compliance data alone are not sufficient to determine whether violations at a particular facility had negative impacts on public health or the environment. Statistics are based upon the 2010 U.S. Census and 2006-2010 American Community Survey 5-Year Summary and are accurate to the extent that the facility latitude and longitude listed below are correct. EPA's spatial processing methodology considers the overlap between the selected radii and the census blocks (for U.S. Census demographics) and census block groups (for ACS demographics) in determining the demographics surrounding the facility. For more detail about this methodology, see the DFR Data Dictionary.

General Statistics	
Total Persons	6,815
Population Density	2,316/sq.mi.
Percent Minority	74%
Households in Area	2,163
Housing Units in Area	2,259
Households on Public Assistance	29
Persons Below Poverty Level	2,536

Geography	
Radius of Selected Area	1 mi.
Center Latitude	41.68501
Center Longitude	-87.54544
Land Area	94%
Water Area	6%

Income Breakdown - Households (%)	
Less than $15,000	150 (6.58%)
$15,000 - $25,000	280 (12.29%)
$25,000 - $50,000	471 (20.68%)
$50,000 - $75,000	514 (22.56%)
Greater than $75,000	863 (37.88%)

Age Breakdown - Persons (%)	
Children 5 years and younger	485 (7%)
Minors 17 years and younger	1,873 (27%)
Adults 18 years and older	4,943 (73%)
Seniors 65 years and older	861 (13%)

Race Breakdown - Persons (%)	
White	4,413 (65%)
African-American	151 (2%)
Hispanic-Origin	4,815 (71%)
Asian/Pacific Islander	49 (1%)
American Indian	64 (1%)
Other/Multiracial	2,139 (31%)

Education Level (Persons 25 & older) - Persons (%)	
Less than 9th Grade	780 (17.04%)
9th through 12th Grade	489 (10.68%)
High School Diploma	1,459 (31.88%)
Some College/2-year	1,133 (24.75%)
B.S./B.A. (Bachelor of Science/Bachelor of Arts) or More	716 (15.64%)

ECHO Enforcement and Compliance History Online

Detailed Facility Report

Facility Summary

NAPUCK SALVAGE OF WAUPACA LLC
11600 S BURLEY AVE, CHICAGO, IL 60617

FRS (Facility Registry Service) ID: 110046596750
EPA Region: 05
Latitude: 41.6849
Longitude: -87.54529
Locational Data Source: FRS
Industry:
Indian Country: N

Enforcement and Compliance Summary

Statute	Insp (5 Years)	Date of Last Inspection	Compliance Status	Qtrs with NC (Noncompliance) (of 12)	Qtrs with Significant Violation	Informal Enforcement Actions (5 years)	Formal Enforcement Actions (5 years)	Penalties from Formal Enforcement Actions (5 years)	EPA Cases (5 years)	Penalties from EPA Cases (5 years)
CAA	--	--	**Violation w/in 1 Year**	1	0	1	--	--	--	--

Regulatory Information

Clean Air Act (CAA): Operating Minor (IL000031600GYI)
Clean Water Act (CWA): No Information
Resource Conservation and Recovery Act (RCRA): No Information
Safe Drinking Water Act (SDWA): No Information

Other Regulatory Reports

Air Emissions Inventory (EIS): 16567711
Greenhouse Gas Emissions (eGGRT): No Information
Toxic Releases (TRI): No Information
Compliance and Emissions Data Reporting Interface (CEDRI): No Information

Known Data Problems

Facility/System Characteristics

Facility/System Characteristics

System	Statute	Identifier	Universe	Status	Areas	Permit Expiration Date	Indian Country	Latitude	Longitude
FRS		110046596750					N	41.6849	-87.54529
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Facility SIC (Standard Industrial Classification) Codes

System	Identifier	SIC Code	SIC Description
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System	Identifier	NAICS Code	NAICS Description
EIS	16567711	423930	Recyclable Material Merchant Wholesalers
ICIS-Air	IL000031600GYI	423930	Recyclable Material Merchant Wholesalers

Facility Tribe Information

Reservation Name	Tribe Name	EPA Tribal ID	Distance to Tribe (miles)
No data records returned			

Enforcement and Compliance

Compliance Monitoring History (5 years)

Statute	Source ID	System	Activity Type	Compliance Monitoring Type	Lead Agency	Date	Finding (if applicable)

Statute	Source ID	System	Activity Type	Compliance Monitoring Type	Lead Agency	Date	Finding (if applicable)
CAA	*IL000031600GYI*	*ICIS-Air*	*Inspection/Evaluation*	*PCE On-Site*	*EPA*	*06/27/2019*	

Entries in italics are not counted in EPA compliance monitoring strategies or annual results.

Compliance Summary Data

Statute	Source ID	Current SNC (Significant Noncompliance)/HPV (High Priority Violation)	Current As Of	Qtrs with NC (Noncompliance) (of 12)	Data Last Refreshed
CAA	IL000031600GYI	No	06/13/2020	1	06/12/2020

Three-Year Compliance History by Quarter

Statute	Program/Pollutant/Violation Type				QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12+
CAA (Source ID: IL000031600GYI)					07/01-09/30/17	10/01-12/31/17	01/01-03/31/18	04/01-06/30/18	07/01-09/30/18	10/01-12/31/18	01/01-03/31/19	04/01-06/30/19	07/01-09/30/19	10/01-12/31/19	01/01-03/31/20	04/01-06/30/20
	Facility-Level Status				**No Violation Identified**	**No Violation Identified**	**No Violation Identified**	**No Violation Identified**	**No Violation Identified**	**No Violation Identified**	**No Violation Identified**	**No Violation Identified**	**No Violation Identified**	**Violation Identified**	**No Violation Identified**	**No Violation Identified**
	HPV History															
	Violation Type	**Agency**	**Programs**	**Pollutants**												
CAA	FRV	IL	CAASIP	FACIL										12/15/2019		

Informal Enforcement Actions (5 Years)

Statute	System	Source ID	Type of Action	Lead Agency	Date
CAA	ICIS-Air	IL000031600GYI	Notice of Violation	State	12/20/2019

Entries in italics are not counted as "informal enforcement actions" in EPA policies pertaining to enforcement response tools.

Formal Enforcement Actions (5 Years)

Statute	System	Law/Section	Source ID	Action Type	Case No.	Lead Agency	Case Name	Issued/Filed Date	Settlements/Actions	Settlement/Action Date	Federal Penalty	State/Local Penalty	SEP Cost	Comp Action Cost
No data records returned														

Environmental Conditions

Water Quality

Permit ID	Combined Sewer System?	Number of CSO (Combined Sewer Overflow) Outfalls	12-Digit WBD (Watershed Boundary Dataset) HUC (RAD (Reach Address Database))	WBD (Watershed Boundary Dataset) Subwatershed Name (RAD (Reach Address Database))	State Water Body Name (ICIS (Integrated Compliance Information System))	Impaired Waters	Impaired Class	Causes of Impairment(s) by Group(s)	Watershed with ESA (Endangered Species Act)-listed Aquatic Species?
No data records returned									

Water Body Designated Uses

Reach Code	Water Body Name	Exceptional Use	Recreational Use	Aquatic Life Use	Shellfish Use	Beach Closure Within Last Year	Beach Closure Within Last Two Years

Reach Code	Water Body Name	Exceptional Use	Recreational Use	Aquatic Life Use	Shellfish Use	Beach Closure Within Last Year	Beach Closure Within Last Two Years
No data records returned							

Air Quality

Nonattainment Area?	Pollutant(s)	Applicable Nonattainment Standard(s)
Yes	Ozone	8-Hour Ozone (1997), 8-Hour Ozone (2008), 8-Hour Ozone (2015)
No	Lead	
Yes	Particulate Matter	PM-10 (1987), PM-2.5 (1997)
No	Carbon Monoxide	
No	Nitrogen Dioxide	
No	Sulfur Dioxide	

Pollutants

Toxics Release Inventory History of Reported Chemicals Released in Pounds per Year at Site

TRI Facility ID	Year	Total Air Emissions	Surface Water Discharges	Off-Site Transfers to POTWs (Publicly Owned Treatment Works)	Underground Injections	Releases to Land	Total On-site Releases	Total Off-site Transfers
No data records returned								

Toxics Release Inventory Total Releases and Transfers in Pounds by Chemical and Year

Chemical Name
No data records returned

Demographic Profile

EJSCREEN EJ Indexes

Eleven primary environmental justice (EJ) indexes of EJSCREEN, EPA's screening tool for EJ concerns. EPA uses these indexes to identify geographic areas that may warrant further consideration or analysis for potential EJ concerns. The index values below are for the Census block group in which the facility is located. Note that use of these indexes does not designate an area as an "EJ community" or "EJ facility." EJSCREEN provides screening level indicators, not a determination of the existence or absence of EJ concerns. For more information, see the EJSCREEN home page.

Census Block Group EJ Indexes (percentile)	
Particulate Matter (PM 2.5)	98.1
Ozone NATA Diesel PM	98
NATA Air Toxics Cancer Risk	97

Number of EJ Indexes Above 80th Percentile
11

View EJSCREEN Report

Census Block Group EJ Indexes (percentile)	
NATA Respiratory Hazard Index (HI)	97.1
Traffic Proximity	91
Lead Paint Indicator	99.8
Superfund Proximity	98.9
Risk Management Plan (RMP) Proximity	99.3
Hazardous Waste Proximity	96.5
Wastewater Discharge Proximity	92.4

Demographic Profile of Surrounding Area (3 Miles)

This section provides demographic information regarding the community surrounding the facility. ECHO compliance data alone are not sufficient to determine whether violations at a particular facility had negative impacts on public health or the environment. Statistics are based upon the 2010 U.S. Census and 2006-2010 American Community Survey 5-Year Summary and are accurate to the extent that the facility latitude and longitude listed below are correct. EPA's spatial processing methodology considers the overlap between the selected radii and the census blocks (for U.S. Census demographics) and census block groups (for ACS demographics) in determining the demographics surrounding the facility. For more detail about this methodology, see the DFR Data Dictionary.

General Statistics	
Total Persons	60,727
Population Density	2,694/sq.mi.
Percent Minority	74%
Households in Area	20,838
Housing Units in Area	23,143
Households on Public Assistance	503
Persons Below Poverty Level	29,741

Geography	
Radius of Selected Area	3 mi.
Center Latitude	41.68501
Center Longitude	-87.54544
Land Area	83%
Water Area	17%

Income Breakdown - Households (%)	
Less than $15,000	3,489 (16.15%)
$15,000 - $25,000	2,954 (13.67%)
$25,000 - $50,000	5,896 (27.29%)
$50,000 - $75,000	4,476 (20.72%)
Greater than $75,000	4,790 (22.17%)

Age Breakdown - Persons (%)	
Children 5 years and younger	4,421 (7%)
Minors 17 years and younger	16,785 (28%)
Adults 18 years and older	43,942 (72%)
Seniors 65 years and older	7,722 (13%)

Race Breakdown - Persons (%)	
White	31,453 (52%)
African-American	12,070 (20%)
Hispanic-Origin	32,563 (54%)
Asian/Pacific Islander	259 (0%)
American Indian	499 (1%)
Other/Multiracial	16,446 (27%)

Education Level (Persons 25 & older) - Persons (%)	
Less than 9th Grade	5,558 (13.62%)
9th through 12th Grade	4,688 (11.49%)
High School Diploma	14,638 (35.87%)
Some College/2-year	10,783 (26.43%)
B.S./B.A. (Bachelor of Science/Bachelor of Arts) or More	5,136 (12.59%)

June 21, 2019

City of Chicago, Department of Public Health
Attn: Environmental Permitting and Inspections
333 South State Street, Room 200
Chicago, IL 60604

Re: Comments on Proposed Rules For Large Recycling Facilities

To Whom It May Concern:

Thank you for the opportunity to comment on the Department of Health's Proposed Rules For Large Recycling Facilities ("Rules"). These comments are submitted on behalf of the Southeast Environmental Task Force ("SETF") and the Chicago South East Side Coalition to Ban Petcoke, active community groups dedicated to improving the Calumet neighborhood's environment; the Little Village Environmental Justice Organization ("LVEJO"), which is committed to organizing with the Little Village community to accomplish environmental justice, and to achieve the self-determination of immigrant, low-income, and working-class families; and the Natural Resources Defense Council ("NRDC") and our roughly 10,000 members and activists in the City of Chicago, including those who reside on the Southeast Side and along the I-55 Southwest corridor. Additional individuals and organizations joining these comments are noted below.

I. Introduction

These long overdue regulations proposed by the Chicago Department of Public Health (CDPH) are welcome as an important first step toward overseeing and controlling the many environmental impacts of recycling facilities, which have long gone un- or under-regulated by all levels of government here in Chicago and across the U.S. For years, community members – including residents of Chicago's Southeast Side, Pilsen, and Little Village communities (not to mention Lincoln Park) – have raised concerns about air and water pollution, noxious odors, noise pollution, and other impacts of recycling facilities. Regulators are finally taking a closer look in response, with auto shredders in particular the subject of enhanced scrutiny by environmental and public health agencies across the country in recent years. Our hope is that the final regulations adopted by CDPH will help reduce the impact of these facilities on the surrounding communities through:

- enhanced evaluation of proposed new and expanded facilities, along with existing facilities, that takes into account the existing burdens on communities, in particular the disproportionate impacts of these and other industrial facilities on environmental justice communities;
- robust performance standards that address the full array of potential impacts from recycling facilities, existing and new/expanded, ideally by building control into the frontend design;

- stringent monitoring requirements that ensure continuous compliance and relieve community members and regulators from the burden of surveillance and enforcement; and
- extensive public participation across the board.

II. Summary of Comments

The first several sections of these comments address the threats to public health, safety, welfare and the environment created by recycling facilities. They also address the characteristics of the Chicago neighborhoods that are at the most risk because of the clustering of large recycling facilities. Section V proposes enhanced monitoring, control and assessment measures to address the air pollution impacts caused by recycling facilities. Section VI asserts that additional measures are necessary to control the air, water and waste impacts of the hazardous auto shredder residue released by scrap metal facilities. Section VII asserts that additional measures must be employed at facilities handling construction and demolition materials to prevent the illegal processing and release of toxic substances. The concluding Section addresses the Rules' environmental impact assessment provision, the need for CDPH to address the cumulative impacts arising from clustered facilities, and public participation.

III. Summary of Environmental and Health Issues Associated with (Metal) Recycling Facilities

On an annual basis, the United States processes 56 million tons of scrap iron and steel, including 10 million tons of scrap automobiles, along with millions of additional tons of other scrap metals.[1] Other states, such as California, have found that despite recycling facilities falling under the jurisdiction of various environmental and health agencies, certain aspects of the operation of metal and auto shredders are inadequately or unregulated, resulting in the release of toxic emissions into the local community. Specifically, as noted in a 2018 draft report by the California Department of Toxic Substances Control ("DTSC") on its wide-ranging review of metal shredders and metal shredder residue,

> In conducting the evaluation of metal shredding facilities and their hazardous waste management practices, DTSC found numerous examples of accidents, improper hazardous waste storage, soil contamination, and hazardous waste releases outside the facilities that were found to be contaminating the surrounding community.[2]

[1] Ex. 1, Occupational Health and Safety Administration ("OSHA"), *Scrap Metal Recycling*, available at https://www.osha.gov/SLTC/recycling/recycling_scrap_metal.html.

[2] Ex. 2, California Department of Toxic Substances Control, *DRAFT Evaluation and Analysis of Metal Shredding Facilities and Metal Shredder Wastes*, January 2018, available at https://dtsc.ca.gov/wp-content/uploads/sites/31/2018/05/Metal-Shredder-Analysis-DRAFT.pdf ("DTSC Metal Shredding January 2018"), at 112. (While the report is marked "DRAFT" and "Do not cite or quote," it appears that DTSC has not finalized a

The agency also performed "an analysis of the treatment and storage activities at the metal shredding facilities, the chemical and physical hazards that those activities present, the types of accidents that could occur, and the risks those activities pose to nearby communities," finding that "the hazardous waste management activities pose substantial risks to nearby communities."[3] Thus, while metal recycling is relevant to reducing a municipality's overall environmental impact, the negative impacts from the process itself must be addressed by the City.[4]

The recycling process is complex, particularly where the commodities being recycled are made of up different types of substances, some of which are coated in toxic substances, release hazardous substances when processed, and/or are themselves hazardous. Despite the risks of processing these materials, metal recycling facilities have a long and disastrous history of being under-regulated, leading to explosions and emissions that have harmed workers and residents. There are important environmental and public safety concerns with the continued operation of metal shredding facilities in particular and large recyclers in general. A brief summary is as follows.

Air Emissions. Metal shredders and metal recyclers produce numerous concerning air pollutants from a range of specific sources. First, the process of shredding (such as in a hammermill) or cutting (as with torchcutting) metal vaporizes the material and creates dust and hazardous air emissions that can affect the local air quality. For example, in 2012, hexavalent chromium (Chrome VI) was detected in the air outside of five of Houston's metal shredding facilities as part of a study conducted by the Houston Department of Health and Human Services, Bureau of Pollution Control and Prevention.[5] This detection came after nearby residents had made 139 reports to Houston's 311 help line about red smoke, yellow smoke, explosions, fires, and children having trouble breathing.[6] Chromium metal is added to alloy steel to increase the metal's hardenability and corrosion resistance, but is released into the air when that metal is heated during cutting or welding.[7] Chrome VI can cause cancer, asthma and damage to the nasal passages and skin.[8]

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version of the report, so we are providing the draft version for purposes of our comments due to the important scope of the work and relevant draft findings.)

[3] *Id.*

[4] We note that, due to multiple city agencies having responsibilities with respect to environmental regulation of recycling facilities and due to zoning and land use ordinances and policies that largely govern siting processes, more reforms will be needed beyond the current proposed CDPH regulations.

[5] *See* Ex. 3, Ingrid Lobet, "Danger in air near metal recyclers," *Houston Chronicle*, December 29, 2012, available at https://www.houstonchronicle.com/news/houston-texas/houston/article/Danger-in-air-near-metal-recyclers-4154951.php#photo-3961405 ("Danger in air") and Ex. 4, Ingrid Lobet, "Metal recycling companies grow, but questions raised," *Houston Chronicle*, December 20, 2012, available at https://www.chron.com/news/article/Metal-Recycling-Companies-Grow-But-Questions-4152230.php.

[6] Ex. 3, Danger in air.

[7] Ex. 5, OSHA, *Hexavalent Chromium*, available at https://www.osha.gov/SLTC/hexavalentchromium/.

[8] Ex. 6, OSHA, *Small Entity Compliance Guide for Hexavalant Chromium*, available at https://www.osha.gov/Publications/OSHA_small_entity_comp.pdf, at 3.

The 2012 Houston study furthermore looked at a total of 11 metals and 75 volatile organic compounds (VOCs), along with PM10 as a whole, near metal recyclers.[9] The study found significant cancer risks around the facilities using measured air quality data, including risks that were much greater than those calculated via the National Air Toxics Assessment (NATA). In addition, the Houston study points to sources of air pollution besides the shredder itself. Specifically, photos accompanying the study presentation implicate yard activities as significant emissions sources, showing white and brown visible emissions associated with outdoor torch cutting and movement of metals by construction vehicles, respectively.

In 2007, the SA Recycling Terminal Island facility in California experienced an explosion, which resulted in an enforcement action by the Los Angeles District Attorneys' office when the facility continued to operate after the explosion damaged its air pollution control system, resulting in the release of an estimated 52 pounds per hour of VOCs and 28.3 tons of PM over the course of 120 days.[10] Further sampling by DTSC in 2008 found that the shredder had also released lead and mercury above the regulatory threshold during the same period.[11]

In addition, once ferrous metals have been sorted out, metal shredder facilities produce a byproduct that can become airborne and that is referred to by many names, among them auto shredder residue, metal shredder aggregate, light fibrous material, and auto fluff. Section VI describes in more detail the hazards of this byproduct. From approximately 2009 until Sims Metal Management settled with the California Attorney General's Office in 2014, nearby residents in Redwood City had observed white fluff originating from the facility.[12] DTSC sampled at the facility as well as in nearby locations and identified exceedances for zinc, lead and copper and determined that Sims had illegally disposed hazardous shredder residue.[13] Similarly, in 2015 DTSC issued the SA Recycling Bakersfield facility a letter for improperly managing shredded materials, which resulted in their escaping the property boundary as hazardous waste.[14] It is our understanding that residents of Lincoln Park have reported concerns with auto fluff in the community that they attribute to the General Iron auto shredding operation.

Fires and explosions. There are inherent risks in the process of shredding metal, from the equipment used by shredders to the items being shredded themselves, such as improperly drained

[9] Ex. 7, Arturo J. Blanco, Loren Raun and Don Richner, Houston Department of Health & Human Services, Bureau of Pollution Control and Prevention, "What is actually emitted from Area Sources: Results of a Special Study of Metals Recyclers," available at https://www3.epa.gov/ttnamti1/files/2012conference/3BRaun.pdf ("Houston DHHS Metal Recycler Study")

[10] Ex. 8, Geoff Mohan, "Auto shredder to pay $2.9 million to settle toxic waste case," Los Angeles Times, September 8, 2011, available at https://latimesblogs.latimes.com/greenspace/2011/09/toxics-agency-settles-with-auto-shredder.html ("LA Sims Settlement"); DTSC Metal Shredding January 2018, at 59.

[11] Ex. 8, LA Sims Settlement; Ex. 2, DTSC Metal Shredding January 2018, at 60 (citing *People of the State of California v. SA Recycling, LLC and Simsmetal West, LLC*, California Superior Court, Los Angeles County, case no. BC458943, Stipulated Judgment and Order, filed August 31, 2011).

[12] Ex. 2, DTSC Metal Shredding January 2018, at 64-65.

[13] *Id.*

[14] *Id.* at 66.

gas tanks.[15] OSHA also warns that metals aluminum or iron in dust form can be explosible and lead to worker deaths or injuries.[16] These risks are anticipated by operators of metal shredding facilities; one CEO has even stated that his facility has "never had a shredder operate for a year without an explosion or two or three. It just doesn't happen."[17] That facility, in New Brunswick, Canada, was ordered by the provincial government to shut down immediately after a series of explosions.[18] When the provincial government allowed it to continue operating during "probationary periods," the explosions continued.[19] Similarly, in Houston, the Texas Port Recycling facility had 41 fires and explosions during a four-month period in 2007 and 2008.[20] In California, DTSC found that four of its six metal shredding facilities had had fires on their properties from 2008 to 2018, including some that had required local fire departments to advise nearby residents to stay indoors and close their air intake systems.[21]

An air monitoring study of a 2014 fire at a Redwood City, California, metal shredding facility that lasted roughly 18 hours (based on the time the fire was reported until the time it was extinguished) also has demonstrated significant negative impacts to air quality from metal shredder fires.[22] The study, conducted by Thomas Cahill, a professor emeritus of physics and atmospheric science at the University of California, Davis, found impacts from aerosols attributable to the fire that "grossly violated" the DTSC's deposition standards, even though they were 20 miles away from the site of the fire.

Water and soil contamination. Byproducts from metal shredding may also contaminate soils, groundwater and nearby waterways when byproduct management methods are not required or ignored. A study of the soil and groundwater at the SA Recycling Terminal Island facility from 1990 to 1994 showed contamination by petroleum hydrocarbons, metals, polychlorinated biphenyls and polycyclic aromatic hydrocarbons.[23] In 2011, U.S. EPA found exceedances for lead, zinc, copper and cadmium in the soils surrounding the Sims Metal Management facility in Redwood City from shredding residue, scrap metal and other debris that Sims had been storing

[15] Ex. 3, Danger in air.
[16] Ex. 9, OSHA, *Combustible Dust: an Explosion Hazard*, available at https://www.osha.gov/dsg/combustibledust/index.html.
[17] Ex. 10, Julia Wright, "Meet the 'Scrap King': controversial scrap yard CEO visits St. John," *CBC*, November 23, 2018, available at https://www.cbc.ca/news/canada/new-brunswick/herb-black-american-iron-metal-explisions-1.4919034.
[18] Ex. 11, Silas Brown, "AIM says Saint John facility may close if deal with province can't be reached," *Global News*, November 30, 2018, available at https://globalnews.ca/news/4716033/aim-says-saint-john-facility-may-close/.
[19] Ex. 12, Connell Smith, "AIM's operating permit renewed, but scrap yard still on probation," *CBC*, March 7, 2019, available at https://www.cbc.ca/news/canada/new-brunswick/scrap-recycler-explosion-blasts-waterfront-noise-dust-environment-1.5047432
[20] Ex. 3, Danger in air.
[21] Ex. 2, DTSC Metal Shredding January 2018, at 57, 64.
[22] *See* Ex. 13, Cahill, Thomas, (*DRAFT) Final Report of Schnitzer Steel Products*, Prepared for the Alameda County District Attorney, April 2, 2014, at 42-43. (Note that we are in the process of obtaining permission from the Alameda County District Attorney's office to share this report with CDPH.)
[23] Ex. 2, DTSC Metal Shredding January 2018, at 59.

outside the facility boundary since the 1990s.[24] In 2010 and 2011, the SA Recycling Terminal Island facility exceeded its water quality standards for chemical oxygen demand, specific conductance and zinc.[25] In 2014 and 2015, SA Recycling Anaheim facility received notices of violation of their storm water permit for chemical oxygen demand and lead and was required by the Santa Ana Regional Water Quality Control Board to implement a corrective action plan that included the best available technology treatment method.[26] In 2015, DTSC sampled soil from the areas where scrap metal was processed and from where non-ferrous metals were removed from metal shredder aggregate at the Schnitzer Steel Products and found exceedances for chromium, lead, nickel, zinc, copper and lead.[27] Also in 2015, following a DTSC inspection of the Ecology Auto Parts facility where metal processing operations were being conducted on bare ground, samples taken from soil near the aggregate lines showed exceedances for lead, cadmium, zinc, and copper.[28] In some cases, litigation has been necessary to require management practices to prevent further water and soil contamination. In 2019, after seven years of litigation, Seattle Iron & Metals agreed to implement numerous control measures at its auto recycling facility, including introducing a height limit on its auto shredder residue piles, updating its storm water pipes, and installing a shredder containment structure and dust containment wind fences.[29]

Disparate, cumulative impact. Many metal shredding facilities operate in highly populated areas, individually and collectively posing a severe risk to the surrounding community when they contaminate the surrounding water and air. Often, these facilities are in low-income African-American, Latinx and immigrant communities, which also display sociodemographic characteristics that make them more susceptible to environmental burdens from a cumulative impacts' perspective. For example, Magnolia Park, home of a Cronimet metal processor, is simultaneously one the oldest historical Latinx neighborhoods in Houston and one of two locations in Houston associated with high cancer risk.[30] Furthermore, these communities are also home to other facilities that produce harmful emissions and environmental impacts, as recognized in the Houston air study.[31]

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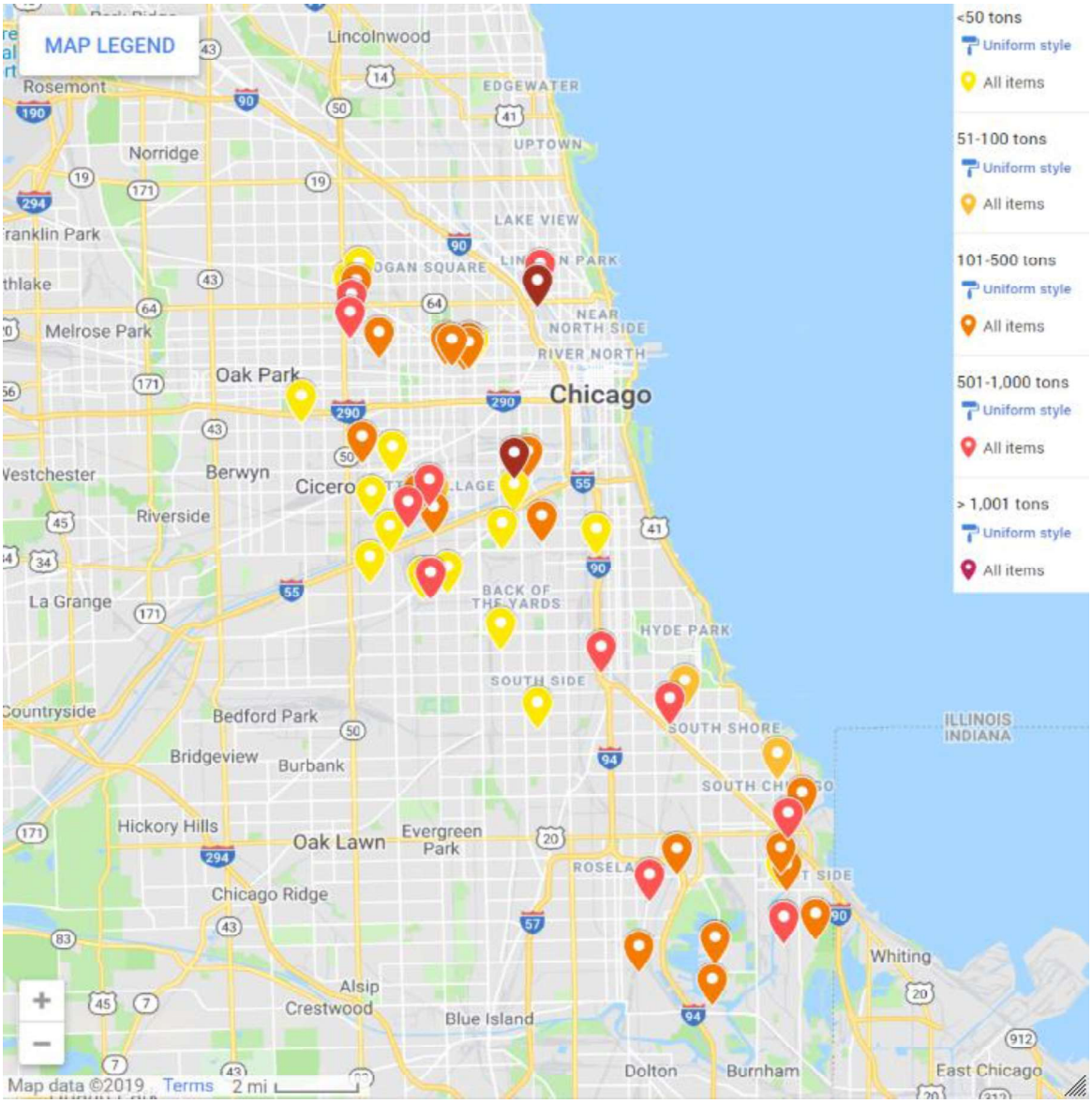
[24] *Id.*, at 63.
[25] *Id*., at 58, citing SWRCB Letter to Ms. Nancy Felix, S.A. Recycling L.L.C., Annual Report Review – Second Benchmark Value Exceedance: NPDES General Permit (Permit) for Storm Water Discharges Associated with Industrial Activity (Order No. 97-03 DWQ; NPDES No. CAS000001), WDID# 4 19I021125, July 5, 2012.
[26] Ex. 2, DTSC Metal Shredding January 2018, at 62.
[27] *Id.*, at 61-62.
[28] *Id.*, at 66-67.
[29] Ex. 14, *Puget Soundkeeper Alliance v. Seattle Iron & Metals, Corp.* Case No. 12-01201RSM, Proposed Consent Decree (January 17, 2019), available at https://pugetsoundkeeper.org/wp-content/uploads/2019/01/Dkt82-1_Proposed-Consent-Decree-Soundkeeper-v.-SIM.pdf. (The proposed Consent Decree was subsequently approved by the Court.)
[30] Ex. 3, Danger in air.
[31] Ex. 7, Houston DHHS Metal Recycler Study.

IV. The Chicago Communities Bearing the Greatest Burden

As noted above, the communities where recycling facilities are located are often more vulnerable and already overburdened by other facilities and the truck traffic that accompanies them. Chicago is no exception, where the threat of significant, adverse and disproportionate impacts associated with concentrated industrial facilities and attendant vehicles are evidenced in neighborhoods on the Southeast and Southwest Sides. Large recycling facilities cluster in these communities, along with the West Side, where their cumulative impacts are heightened due to not only this physical proximity, but also the socio-demographics of the surrounding community.

Figure 1. Map of Preliminary List of (Metal) Recyclers that Would Be Subject to the Rules



Compiled by NRDC using an Excel spreadsheet provided by David Graham, Deputy Commissioner, CDPH, on May 24, 2019. Note that due to uncertainty over the tonnage for the Again Auto Parts, we have omitted this facility from the map.

These neighborhoods are also environmental justice communities, with greater numbers of low-income and minority residents by comparison to Chicago generally. CDPH must take these disparate and cumulative impacts into consideration in adopting its final rules for large recycling facilities, along the lines set forth in these comments.

The following comments focus on the Southeast and Southwest side facilities because these communities are/have been the focus areas for our groups to date. Metal Management Midwest Inc., located at 2500 S. Paulina St., sits in the southwest side cluster of metal recyclers. It is located within a mile of 13,330 households where over 22,000 individuals live below the poverty level. 38% of the households make less than $25,000 a year. The surrounding neighborhood is 74% Latinx with a significant number linguistically isolated (13%). Almost 30% of the residents are minors, with almost 3,000 of those children under 5 years old. As noted below, this facility was the subject of a 2017 U.S. EPA enforcement action that alleged violations of standards that originate in the Clean Air Act and its implementing regulations. Other large recycling facilities (by virtue of area or input) that are part of the Southwest Side cluster include, but are not limited to: Action Iron & Metal, Inc. (3345 W. 31st), C&J Auto Parts (3200 S. Archer Ave.), Chicago Industrial Catalytic Ltd (4427 W. 45th St.), Chuangyi Metals Corp. (3939 S. Karlov), E&O Plastic Recycling (2959 W. 47th St.), Earthlink Recycling Corporation (3333 W. 36th St.), Eco Green Recycling Inc. (1965 W. Pershing Pl.), El Paso Auto Parts (3245 S. Kostner Ave.), Elemento S.A. Inc. (3252 W. 31st St.), Jeff Thompson (2100 S. Kilbourn Ave.), McCoy Auto Parts (2301 S. Pulaski Rd.), Mr. Loop Paper Recycling (2401 S. Laflin St.), Northwest 1 Trucking and Metal Recycling (3200 S. Kedzie Ave.), Reliable Asphalt (3741 S. Pulaski), Stockyard Materials (4031 S. Ashland Ave.) and U-Pic-A-Part (3250 S. St. Louis Ave.).

Apart from metal recycling facilities, the Southwest Side is also home to other large recycling facilities that bring in more emissions and harms to the surrounding community. Many of these large recycling facilities, including the auto and metal shredders,[32] are located within 600 feet of a sensitive area (residential use, park, hospital, clinic, church, daycare center or school, among other areas):

[32] Fig. 1 includes the following auto and metal recycling facilities: Action Iron & Metal, Inc., which accepts up to 20 tons per day of recyclable material, including scrap metal, tires with rims and end-of-life vehicles; C&J Auto Parts, which accepts up to 10 tons per day of recyclable materials including batteries and vehicles; Elemento S.A., Inc., which accepts up a daily average of 750 tons per week of recyclable materials, including scrap metal; El Paso Auto Parts, which accepts up to 50 tons per day of Type C materials (motor vehicles and vehicle parts); McCoy Auto Parts, Inc., which accepts up to 10 tons per day of Type C materials; and Jeff Thompson, which accepts up to 500 tons per day of recyclable materials, including scrap metal.

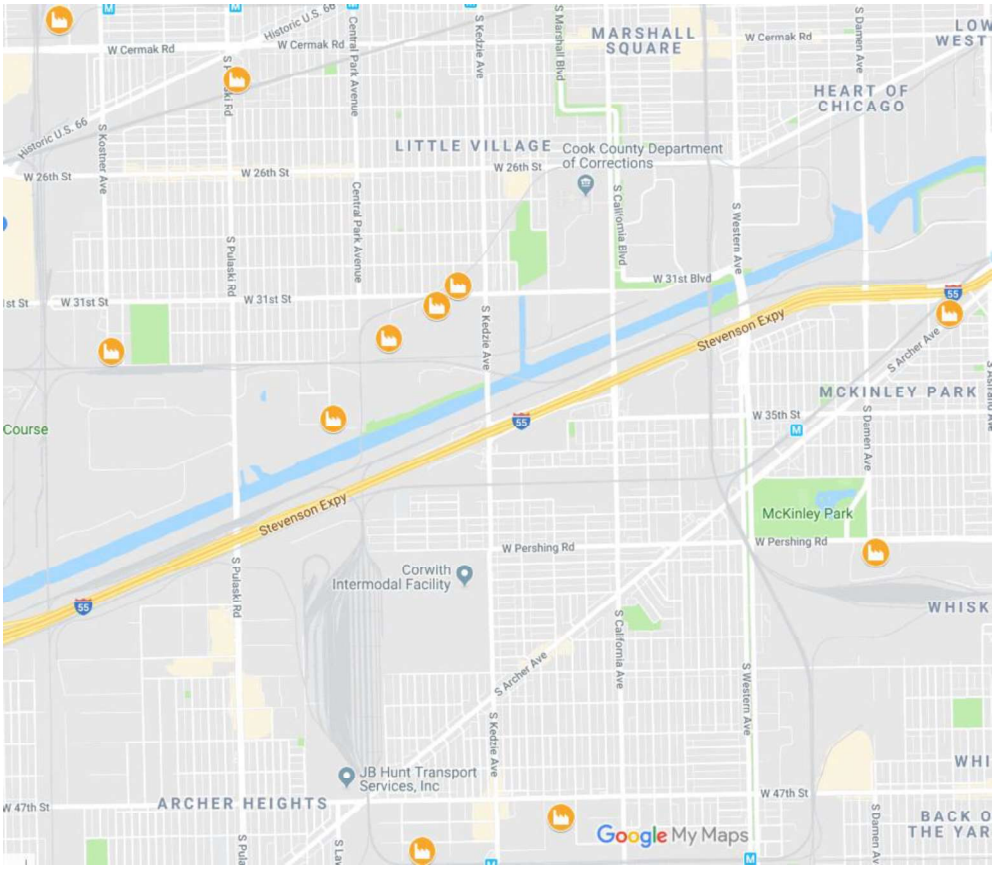


Figure 2. Large Recycling Facilities within 600 ft. of a Sensitive Area (Southwest)

Chicago's Southeast Side is home to another cluster of large recycling facilities. These facilities include, but are not limited to:

- Metal Management Midwest Inc (3200 E. 96th St.), located within a mile of 5,629 households where over 60% of the community lives below the poverty line, with almost 40% of households making less than $25,000 a year. The surrounding neighborhood is 93% minority and 61% Latinx. Almost half of the residents are minors (40%) and 9% are children under 5 years old.
- Mittal Steel (3133 E 106th) and Cronimet (10602 S. Buffalo Ave.), located within a mile of approximately 6,000 households, where about 60% of the community lives below the poverty line, with more than 30% of households making less than $25,000 a year. The surrounding neighborhood is approximately 85% minority and over 70% Latinx. 39% are minors and 8% are children under 5 years old.
- Nichelson Industrial Services (8501 S. Baltimore Ave.), located within a mile of 10,170 households where over 61% of individuals live below the poverty level. 43% of the households make less than $25,000 a year. The surrounding neighborhood is 98% minority and 74% African-American. Almost 40% of the residents are minors, with almost 2,286 of those children under 5 years old.

- Waste Management (13707 S. Jeffrey), located within a mile of 3,137 residents where over 40% below the poverty level. 27% of the households make less than $25,000 a year. The surrounding neighborhood is 91% minority and 83% African-American. 33% of the residents are minors.
- South Shore Recycling (11600 S. Burley Ave-C), located within a mile of 6,815 residents where over 37% live below the poverty level. 19% of the households make less than $25,000 a year. The surrounding neighborhood is 74% minority and 71% Latinx. 34% of the residents are minors and 7% are children under 5 years old. This is also the location of the proposed relocation of the existing General Iron facility, which presently operates in a predominantly white, gentrifying community area on Chicago's north side. As noted below, this facility was the subject of a 2018 U.S. EPA enforcement action that alleged violations of standards that originate in the Clean Air Act and its implementing regulations.

Other Southeast Side large recycling facilities are Akat Scrap Metal Inc. (12100 S. Cottage Grove Ave.), All American Recycling (11900 S. Cottage Grove Ave.), Chicago Rail & Port (3250 E. 106th St.), Cronimet Corp. (3219 E. 106th St.), ELG Metals, Inc. (10301 S. Muskeon), Emesco Marine Services Corp. (12100 S. Stony Island Ave.), Maryland Pig Iron of Illinois (12901 S. Stony Island Ave.), Mr. Nuvareach Scrap Metal Corp. (641 E. 108th St.), Napuck Salvage of Waupaca, LLC (11610 S Ave.) and Reserve FTL (11600 S. Burley Ave.).

As on the Southwest Side, there are numerous large recycling facilities on the Southeast Side located within 600 feet of a sensitive area (residential use, park, hospital, clinic, church, daycare center or school, among other areas), of which most are auto and metal shredders[33]:

[33] Fig. 2 includes the following auto and metal recycling facilities: Nickelson Industrial Services, Inc., which accepts up to 70 tons per day of scrap metal, including aluminum; Metal Management Midwest, Inc, which accepts up to 800 tons per day of recyclable material; ELG Metals, Inc., which accepts up to 450 tons per day of recyclable material; Cronimet Corp., which accepts up to 400 tons per day of non-ferrous and ferrous metal scrap; Napuck salvage of Waupaca, LLC, which accepts up to a weekly average of 400 tons a day, including aluminum, ferrous metal and non-ferrous metal scraps; All American Recycling, which accepts up to 250 tons per day of aluminum, ferrous and non-ferrous metal scrap; and Mr. Nuvareach Scrap Metal Corp., which accepts up to 1,000 tons of recyclable material, including aluminum, ferrous and non-ferrous metal scrap and motor vehicles and vehicle parts.

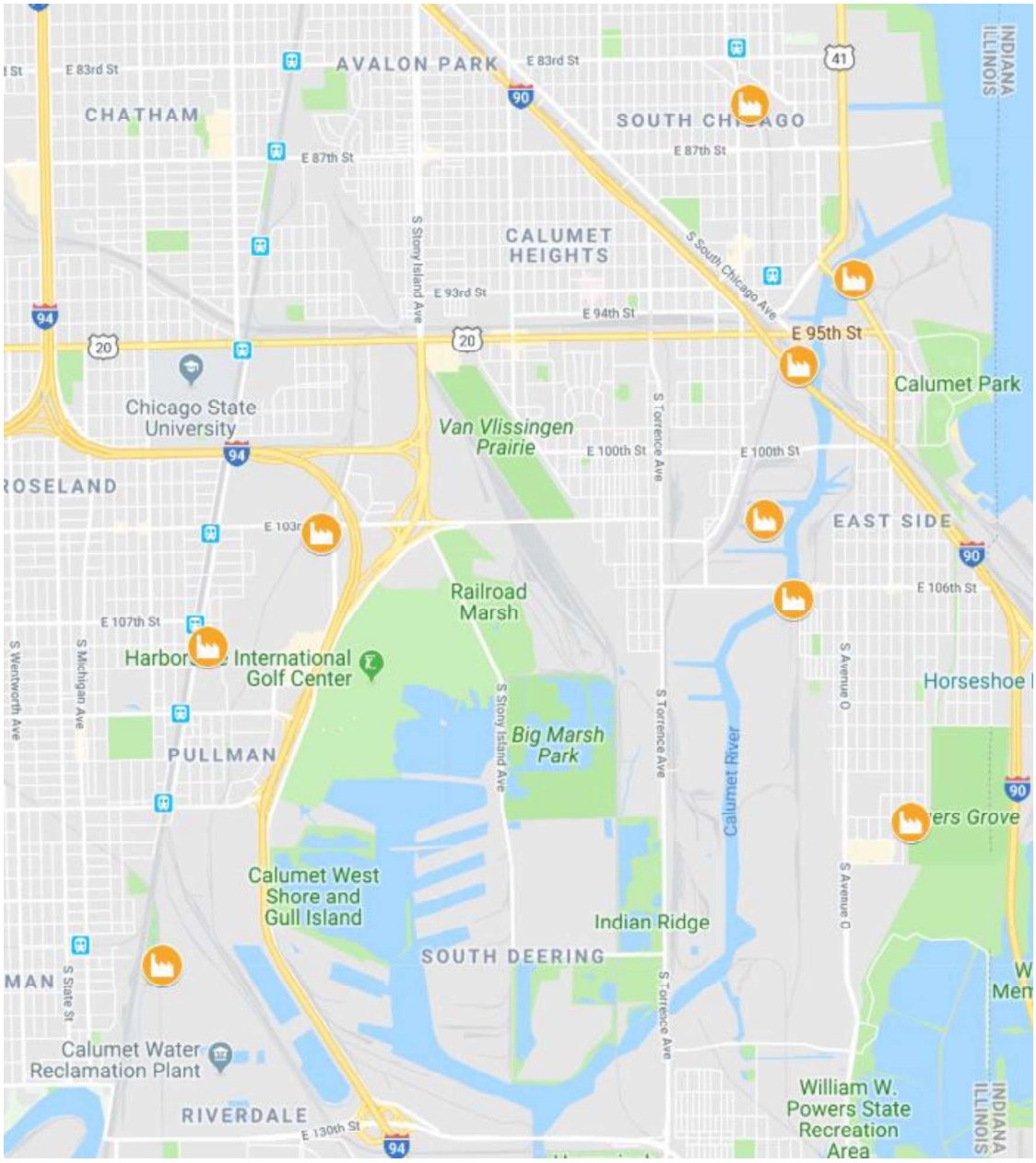


Figure 3. Large Recycling Facilities within 600 ft. of a Sensitive Area (Southeast)

In addition to the numerous scrap metal and auto shredders that already exist in the aforementioned overburdened communities, the placement of these facilities attracts other businesses that rely on a source of recycled metal, such as steel producers and distributors. For example, Atlas Tube is primarily engaged in the production of welded or seamless steel pipe and tubes and heavy riveted steel pipe from purchased materials. It is located within a two-mile radius of South Shore Recycling, All American Recycling, and Waste Management. While Atlas Tube is not within a mile of any residents, the company is just over a mile from the Altgeld Gardens community and within a three-mile radius of 79,507 residents, 90% of whom are people of color, who are at risk of impacts from Atlas Tube's pollution and that of any truck traffic

necessary to bring recycled metal to the Atlas Tube site for processing. In addition, the facility is located in close proximity to a number of natural areas that serve as important recreational amenities for area residents.

Similarly, Kloeckner Metals is a seller and distributor of steel and non-ferrous metals located within a two-mile radius of Azcon Metals, Scrap Metals LLC, and Waste Management. Its site on 13535 South Torrence is less than half a mile from Carver Military Academy High School and 0.6 miles from Altgeld Gardens, located within a mile of 7,838 residents where over 44% live below the poverty level and 25% of the households make less than $25,000 a year. The surrounding neighborhood is 62% minority. Almost 34% of the residents are minors. Again, nearby residents are at risk of exposure to harmful pollution from Kloeckner in combination with the many other nearby sources.

V. The Proposed Rules Must Be Significantly Enhanced to Address the Impacts of Air Pollution from Recycling Facilities

Recycling facilities can be significant sources of harmful particulate matter, especially inhalable fine particulate matter, which can contain toxic heavy metals, as well as volatile organic compounds, which can also contain a host of volatile toxic air contaminants. These facilities generate and emit air pollutants not only from processing of materials in various ways, but also from handling and storing materials and from the transport of such materials to and from the facility. Significant pollution problems arise from facilities conducting a range of processing and handling activities in the open air with little to no effective pollution controls or work practices – often affecting neighbors immediately adjacent such as residences, parks and other community features and sensitive land uses. Often multiple recycling facilities all impact the same community.

For far too long, such recycling facilities have largely escaped both assessment of and requirements to control their air pollution, flying under the radar of state and federal air pollution laws and regulations and virtually untouched by local regulations. As described above, new efforts to characterize air pollution from recycling facilities, in particular auto shredding operations, have arisen across the country in the past few years. These analyses have generated much-needed and disturbing information about the air pollution profiles of recycling facilities, confirming what neighboring residents have suspected and asserted for years.

A brief summary of the air impacts from recycling operations is provided above. In addition, here in Chicago, U.S. EPA has in recent years issued Notices of Violation to two auto shredders for failing to disclose and control air pollution from their shredders.[34] Prior to these actions,

[34] *See* Ex. 15, *In the Matter of Metal Management Midwest, Inc., d/b/a Sims Metal Management, 2500 South Paulina Street, Chicago, Illinois*, Docket No. CAA-05-2019-006, Consent Agreement and Final Order (December 20, 2018), available at http://pilsenperro.org/wp-content/uploads/2018/12/Sims-Metal-Management-CAA-05-2019-0006-CAFO-12-20-2018-15-PGS-.pdf; Ex. 16, In the Matter of General Iron Industries, Inc., Chicago, Illinois,

Illinois EPA brought legal action against an auto shredder in nearby Blue Island over materials emanating from its auto shredder and impacting the surrounding community.[35] Auto shredders in Chicago have also been the source of fires[36], which as shown in California air studies can have huge negative impacts on air quality due to the emissions of a wide range of volatile and semi-volatile toxic compounds. Neighbors of auto shredders and other metal handlers in Chicago also have reported particulate pollution and metallic tastes in their mouths close to shredders, consistent with a study of air pollution from scrap yards conducted in Houston, where photos capture brown and white visible pollution from movement of scrap metal by construction vehicles and from metal fumes due to outdoor torch cutting, respectively.[37] For these reasons, we strongly support Chicago stepping up to finally assess and control air pollution from recycling facilities.

With respect to air pollution, the proposed standards include two new sets of requirements. First, the regulations adopt a limited set of fugitive dust Air Quality Standards and Monitoring provisions, applicable to all Large Recycling Facilities. Second, a "Consequential Facility" must conduct air quality monitoring largely tracking the monitoring provisions of the existing fugitive dust rules, as well as include in its permit application an Air Quality Impact Assessment.

A. Air Quality Standards and Monitoring, Section 4.8

The proposed provisions in Section 4.8 for Air Quality Standards and Monitoring track the existing Bulk Material Rules, including fugitive dust plans, visible emissions and opacity limits, fenceline air monitoring requirements, and Reportable Action Levels and Contingency Plans based on actual air monitoring data. In contrast to the Bulk Material Rules, however, the proposed Recycling Rules apply only the visible emissions and opacity limits to all Large Recycling Facilities, with the remaining air provisions such as monitoring applying solely to the smaller sub-set of Consequential Facilities. We provide the following comments in order to improve and strengthen these requirements.

Visible Dust. The proposed regulations include a "Visible Dust" provision that appears to be weaker than both the corresponding provision of the Bulk Material Rules and the visible emission limit contained in the Illinois State Implementation Plan ("SIP"), as it may be read to allow facilities to create visible emissions beyond the fenceline before recording and taking corrective action to eliminate the visible dust.[38] In contrast, the Bulk Material Rules and the

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Notice and Finding of Violation, EPA-5-18-IL-14 (July 18, 2018), available at https://www.epa.gov/sites/production/files/2018-07/documents/general_iron_industries_inc._nov-fov.pdf.

[35] Ex. 17, Recycling Today Staff, "Illinois EPA scrutinizes Chicago area shredding plant," April 27, 2014, available at https://www.recyclingtoday.com/article/illinois-auto-shredder-epa-investigation/.

[36] Ex. 18, Recycling Today Staff, "Fire hits Chicago scrap yard," December 8, 2015, available at https://www.recyclingtoday.com/article/fire-scrap-recycling-chicago-general-iron/.

[37] Ex. 7, Houston DHHS Metal Recycler Study.

[38] *See* Proposed Rule at Section 4.8.2.1, "Visible Dust." ("Any Fugitive Dust that is visible and travels beyond the boundaries of the Facility shall be documented by the Owner or Operator, who shall immediately implement corrective action such that no visible Fugitive Dust leaves the Facility boundaries.")

Illinois SIP create outright prohibitions on visible dust or emissions beyond the fenceline – meaning that facilities must take proactive steps to prevent such pollution rather than reactive steps after the fact.[39] CDPH should amend the proposed visible dust provision to prohibit visible dust emissions beyond the fenceline of any recycling facility.

Opacity. Also, in Section 4.8.2, CDPH proposes to include a 10% opacity limit on any storage pile, transfer point, roadway or parking area for all Large Recycling Facilities. However, the provision requiring opacity *monitoring* to ensure compliance with this limit, Section 4.8.3.12, is (inadvertently) contained in Section 4.8.3, which pertains to air monitoring only for Consequential Facilities. CDPH should amend these sections to make clear that all Large Recycling Facilities subject to the 10% opacity standard must conduct regular opacity monitoring to ensure compliance with this opacity limit. We recommend that manual opacity monitoring using EPA Method 9 be conducted once daily at all locations where the 10% opacity limit applies when there has been less than 0.1 inches of precipitation in the previous 24-hour period.[40] Daily monitoring is needed because the quarterly monitoring approach (adopted from the original Bulk Material Rules) does not ensure continuous compliance with the opacity limit in the proposed rules.[41] In addition, we recommend the development of site-specific night-time opacity monitoring protocols in order to ensure that facilities meet the 10% opacity limit during night-time hours.[42]

Fugitive Dust Plans & Standards for Controlling Fugitive Dust and Other Air Pollution. Currently, the proposed requirement to prepare, implement and maintain compliance with a facility-specific Fugitive Dust Plan is housed in Section 4.8.3 and thus applies only to Consequential Facilities; and the requirement to prepare a Fugitive Dust Plan likewise is contained in Section 3.8.22 regarding Air Quality Impact Assessments in Design Reports, again applicable only to Consequential Facilities. The proposed rules also lack additional performance standards like those in Part E of the Bulk Material Rules pertaining to outdoor storage and handling of non-coke/coal materials (e.g., cessation of operations during high wind events). As a

[39] *See* 35 Ill. Admin. Code at 212.301, "Fugitive Particulate Matter": "No person shall cause or allow the emission of fugitive particulate matter from any process, including any material handling or storage activity, that is visible by an observer looking generally toward the zenith at a point beyond the property line of the source"; Bulk Material Rules at Section 3.0(2)(a), "Visible Dust": "The Facility Owner or Operator shall not cause or allow any Fugitive Dust that is visible beyond the property line of the Facility."

[40] *See* Ex. 19, Ohio EPA, Draft Air Pollution Permit-to-Install and Operate, Omnisource, July 31, 2008, at 13 of 38 (requiring daily checks for any visible emissions of fugitive dust from sources subject to opacity limits). Note that we cite this permit for purposes of monitoring for opacity only, and not as an endorsement of any other determination reflected in the document.

[41] Since facilities should have trained staff conduct any required opacity monitoring, requiring daily instead of quarterly monitoring should impose little additional burden on facilities.

[42] This comment should not be construed as supporting extension of recycling facility operating hours into the night, especially for facilities in close proximity to residential areas. Instead, we have concerns that yard-related emissions may continue into the night even when active operations have ceased, thus warranting nighttime opacity monitoring to ensure continuous compliance with the opacity limits and protection of communities. Such protocols also are needed to assess opacity levels during regular operating hours in winter months, when daylight is limited.

result, the only proposed fugitive dust or other air quality standards that apply to all Large Recycling Facilities are the visible emissions and opacity limits discussed above.

Allowing all Large Recycling Facilities that are not "Consequential" to escape the requirement of preparing Fugitive Dust Plans and complying with specific air quality standards and practices is unwarranted with respect to their potential for harmful dust. Moreover, doing so would permit such Large Recycling Facilities to escape specific fugitive dust control measures that are required of (other) bulk material handling facilities conducting similar operations with similar dust profiles.

While Consequential Facilities may pose the greatest risk of air pollution impacting communities, other Large Recycling Facilities can also generate significant quantities of air pollution and may be located close to residential areas, parks, and other community features.[43] The Bulk Material Rules recognized that a wide range of material handling facilities should have to comply with robust fugitive dust measures that are objectively described in those Rules themselves, such as the use of covered conveyors to minimize the emissions of fugitive dust; control of all transfer points; and installation of weather stations (which can measure wind speed, wind direction, and precipitation, among other parameters) to inform cessation of operations during high winds.[44] These objective measures are critical means for not only ensuring that facilities meet the visible emissions and opacity limits by preventing the generation of fugitive dust before it can then disperse, but also, in combination with the opacity limits and opacity monitoring requirements, ensuring that facilities minimize fugitive dust to the greatest extent feasible as a general matter.

CDPH should likewise require all Large Recycling Facilities to prepare and submit Fugitive Dust Plans and comply with the types of fugitive dust controls contained in the Bulk Material Rules.[45] These requirements should be housed in Section 4 of the proposed regulations and implemented through CDPH's air permit and air certificate of operation programs, instead of via the every-three-year recycling permit program. Structuring the requirements in this manner instead of tying them to the recycling permit program will mean, in turn, that Existing Consequential Facilities (along with all other Large Recycling Facilities) will need to ensure compliance with air monitoring, Fugitive Dust Plan and air pollution controls in their next

[43] Even small operations, located proximate to neighbors, can pose significant risks to community health. While we understand the rational of the proposed rule to focus on Large Recycling Facilities, and the subset of Consequential Facilities, CDPH should not assume that all small recycling facilities pose little or no risk to neighbors. As an example, see the City of Paramount investigations in the South Coast AQMD region in the Los Angeles area, where relatively small facilities proximate to residential areas posed large risks. *See* Ex. 20, South Coast Air Quality Management District, Summary of Efforts in Paramount, December 2017, at 2-3 of 7, available at https://www.aqmd.gov/docs/default-source/compliance/Paramount/summary-of-efforts-in-paramount.pdf?sfvrsn=8 (finding that three sites, Carlton Forge Works, Aerocraft and Anaplex, were responsible for elevated levels of Chromium IV and Nickel in 2013 (for Carlton) and 2016 (the other two facilities)).

[44] *See* Bulk Material Rules at Part B, Section 3.0(7), (8) and (6), and Part E, Section 7.0(4).

[45] With respect to the Bulk Material Rules Part E requirements for outdoor storage, we note our concern with allowing such outdoor storage and handling for recycling facilities, as taken up below.

certificate of operation, rather than delaying these critical measures until the next recycling permit renewal.

CDPH should also include the following additional air standards and controls in Section 4.8:

1. *Auto Shredders*. CDPH should require that all auto shredders use effective controls of VOCs – such as catalytic oxidizers or biological-based controls where feasible. Properly designed and maintained, such controls can ensure over 95% destruction of inlet VOC levels from shredders. In addition, shredders should capture at least 95% of all of exhaust and then control all sizes of PM emissions using baghouses or fabric filters with an efficiency of at least 99%. Relatedly, the VOC and PM10 emissions sampling plan proposed in 3.9.22.4 should be moved to Section 4.8 accompanying these control requirements. In addition, the sampling should be required on a more frequent periodic basis (such as annually) and/or whenever the feed stream changes significantly from when which prior sampling was required, instead of "at least every 5 years." More frequent sampling is necessary because the feed stream to the shredder can change in ways that alter the types of VOC and PM emissions and due to the inevitable deterioration of containment devices such as hoods over time.
2. *Auto Shredder Residue (Fluff) – Fugitive Dust*. Requirements to (a) conduct all auto shredder residue ("ASR") processing in fully enclosed buildings outfitted with robust air pollution controls, (b) move all ASR between the shredder and any subsequent enclosed residue processing buildings via fully enclosed conveyors, and (c) store any ASR in fully enclosed structures with appropriate air pollution controls.[46]
3. *Storage, Staging and Tipping Floor Areas*. Related to the concerns with ASR handling and storage, it appears that the current proposal allows all storage areas, staging areas and tipping floors to be outdoors, completely in the open air with no specific air pollution

[46] According to court documents in the case regarding Northern Metals, the former Minneapolis shredder created significant amounts of dust from processing of ASR subsequent to the auto shredder but before any treatment or storage of residue. *See* Ex. 21, *In the Matter of Revocation of Air Emission Permit 05300480-003*, OAH Docket No. 60-2200-33647, Memorandum in Support of MPCA's Motion for Summary Judgment, at paragraphs 22, 26 and 57-67 (describing processing of shredder residue to recover additional metals, including (a) at a Metals Recovery Plant in which "particulate matter coated the equipment in the building, as well as the floors and fixtures" and which had garage doors that remained open during processing and openings for conveyors, as well as (b) outdoors next to the Metals Recovery Plan without any controls). The proposed replacement shredding operation in Becker, Minnesota, appears to better control this processing step, with materials conveyed between the new shredder and the new Metals Recovery Plant via a covered conveyor, and the Metals Recovery Plant itself controlled by a baghouse. *See* Ex. 22, *In the Matter of the Decision on the Need for an Environmental Impact Statement for the Proposed Northern Metals*, LLC Becker Sherburne County City of Becker, Minnesota, Findings of Fact, Conclusions of Law and Order, June 13, 2018, available at https://www.pca.state.mn.us/sites/default/files/p-ear2-134b.pdf, at paragraphs 12 and 13. (Note that our citation of this decision is not an endorsement of its findings or conclusions, but is included solely to show that measures can and should be taken to control fugitive dust from the shredder residue processing step. We also note our concerns with allowing the Becker facility to store auto fluff in a covered three-walled bin instead of a full enclosure.)

control requirements.[47] This open-air operation runs counter to the positive movement towards enclosure of dust-generating activities seen with the Bulk Material Rules. As shown in Houston and California studies, yard activity itself can cause significant fugitive dust, especially when construction vehicles move metal materials to and from piles to other areas of the site and vice versa. Given the potential for heavy metal and other emissions from these areas, CDPH should require enclosure, consistent with requirements for treatment of petcoke, coal, and manganese. Such enclosures will not only protect against harmful air pollution, but will also prevent the creation of contaminated stormwater runoff on the front end and prevent visual blight and odors, further justifying the cost of enclosure.

4. *Torch Cutting*. A prohibition on outdoor torch cutting and accompanying requirement to conduct torch cutting in buildings outfitted with robust air pollution controls, along with requirements to minimize any torch cutting that cannot be conducted indoors. Again, the Houston experience identifies outdoor torch cutting as a significant source of air pollution, as well as steps that can be taken to minimize torch cutting at sites near communities and address any remaining pollution from torch cutting.
5. *Storage Tanks*. CDPH should require periodic FLIR monitoring of storage tanks containing high vapor pressure liquids in order to ensure that tank fittings are properly maintained and that all fugitive VOC emissions are thereby minimized.
6. *Fires*. Due to the impacts of fires on air quality, CDPH should require thermal camera hot spot identification and fire suppression systems at recycling facilities.

Air Monitoring Requirements. The fenceline monitoring component of CDPH's Bulk Material Rules has been a central and critical feature of those rules. The data generated by the monitoring program (and EPA's parallel monitoring requests under Section 114 of the Clean Air Act) has provided critical air pollution information to the agency, surrounding community and general public, serving as the basis for several enforcement actions against polluters, confirming community concerns, and raising awareness about pollution issues in industrial areas more broadly. Academic researchers and agency officials, at times in partnership with community advocates, are using the monitoring data to help assess the impacts of facilities on public health. And companies themselves have cited the monitoring as helpful in identifying their own un/under-controlled sources of air pollution - driving the adoption of more effective or enhanced control measures. In addition, technologies such as video monitoring are available as important compliments to more traditional air monitoring. In short, we support requiring recycling facilities to also to conduct robust fenceline air monitoring and implement Reportable Action Level programs.

[47] *See* Proposed Rules at Section 3.9.12.

CDPH should strengthen the proposed air monitoring requirements as follows:

1. Require all Large Recycling Facilities that have any outdoor operations located within 600 feet of a sensitive receptor to conduct initial fenceline monitoring. In addition, per our prior comments on the risks that can be posed by even small facilities, CDPH should also consider requiring such fenceline monitoring at small recycling facilities that have outdoor operations and are located very close (say less than 100 feet) to residential or other sensitive receptors.
2. Fenceline monitoring should include dry season total suspended particulate (TSP or PM) measurements which should then be analyzed for major pollutants expected from the facility – such as metals.
3. Due to the high likelihood of significant toxic metals emissions from certain Large Recycling Facilities, and similar to the manganese-specific dust regulations adopted earlier this year by CDPH, the regulations should de facto require fenceline filter-based metals air monitoring of auto shredders. While we appreciate the inclusion of an "Additional monitoring" provision at Section 4.8.3.2 and the range of facilities covered by the proposed recycling rules, leaving metals monitoring to case-by-case determinations does not provide the public with the assurances that these extremely harmful pollutants will be identified and addressed in a timely fashion. Moreover, as noted above, studies of the air quality impacts from auto shredder operations support the need to require metals monitoring of all such facilities, due to shredder, processing, fire-related, and yard/handling emissions.

B. Air Quality Impact Assessment, Section 3.9.22

As an initial matter, as noted above, CDPH should implement the air monitoring and control requirements of the proposed rules through its air certificate of operation and permit programs, rather than through the recycling permit program. Moving these provisions to Section 4 would leave solely the proposed emissions and air dispersion modeling study in the recycling permit program via the Design Report, to inform the overall decision of whether to permit recycling facilities to operate.

We strongly support requiring all Consequential Facilities to conduct emissions and air modeling studies and to publicly report the results of such studies as a condition of receiving their permits.[48] Doing so will help ensure that a more detailed understanding of a facility's air impacts is available to the public along with other information about facilities' operations and environmental impacts. Moreover, CDPH should strengthen the emissions and air modeling study provision by requiring the use of baseline air quality monitoring data, collected via

[48] We note that we have concerns with Existing Consequential Facilities deferring their air demonstrations to the next recycling permit cycle, potentially pushing out such demonstrations for years. However, ensuring that Existing Consequential Facilities are employing both air monitoring and control measures via Section 4 requirements implemented through the air permit and certificate of operations programs helps to reduce the air impacts of such facilities in the meantime.

monitors placed at the site (as opposed to remote monitors from other locations), in the demonstration. Because the proposed rules already contemplate fenceline monitoring of the site once operational, a requirement to use actual monitoring data from the site in the air quality demonstration would impose little additional burden on the company, while greatly enhancing the accuracy of the air demonstration to the agency's and the community's benefit.[49] (As discussed above, we believe filter-based metals monitoring should be required as well, and thus note here that filter-based metals monitoring data should be used in the air demonstration.)

In addition, all applicants should be required to include both their emission calculations for each source (including the bases for any assumptions used in those calculations) and their modeling files as a part of their recycling permit Design Report/Application.

VI. As Auto Shredder Residue Contains Hazardous Constituents, CDPH Must Mandate ASR Management Methods to Prevent Releases of Hazardous Substances.

Automotive shredder residue ("ASR" or "auto-fluff") is a byproduct of scrap metal recycling facilities. ASR is usually generated by hammermill industrial shredders when vehicles, household appliances, and other manufactured metal products are collected and reprocessed for commercial value.[50] Chemically, ASR is primarily composed of aluminum, carbon, and zinc.[51] However, ASR may also contain polymers and/or hazardous contaminants, including heavy metals, PCB's, and petroleum hydrocarbons.

[49] Alternatively, CDPH can consider allowing the use of mobile monitors by applicants to quickly generate baseline data at multiple locations for purposes of the air quality study.
[50] Ex. 23, Institute of Scrap Recycling Facilities (California Chapter), *Treatment of Auto Shredder Residue*, available at https://dtsc.ca.gov/wp-content/uploads/sites/31/2018/05/ISRI_ASR_Study_JPM_8_2_13.pdf.
[51] Ex. 24, Gerdau, *Material Data Safety Sheet for ASR*, available at https://www2.gerdau.com/sites/default/files/downloadable_files/Automobile%20Shredder%20Residue%20_ASR_%20MSDS%20_NA_%202-15-12.pdf.

Table 1
WET Metal Values in Untreated ASR (mg/L)

Sample Date	Cd	Pb	Zn	Cu
6/18/2009	0.086	**58.7**	**925**	1.25
7/28/2009	**1.29**	**41.8**	**1320**	2.66
8/21/2009	0.657	**88.3**	**1423**	0.426
11/12/2009	**1.25**	**49.6**	**1456**	5.98
5/19/2010	**2.57**	**155**	**864**	6.83
10/26/2010	**2.09**	**109**	**2603**	9.1
1/5/2011	**1.62**	**86.7**	**1685**	3.97
1/25/2011	0.64	**74.4**	**1025**	3.35
4/28/2011	**1.26**	**68.9**	**1110**	4.51
10/31/2011	**1.86**	29.4	**1970**	4.60
11/7/2011	**1.79**	**51.0**	**1525**	2.03
Regulatory Values (CCR, Title 22 Ch. 11, § 66261.24)	**1**	**50***	**250**	**25**

Bold numbers indicate values at or above the STLC value.
* Each of the reclassification letters issued to the shredders allows a soluble lead concentration of 50 mg/L. The requirements of the reclassification letters vary with respect to other Title 22 metals.

(Table 1 above is from Exhibit 23 to these comments, page 7). ASR can vary in chemical and physical composition depending on the treatment process. Untreated ASR may contain a heterogeneous mixture of materials, including plastics, rubber, foam, fabric, carpet, glass, wood, road dirt, debris, and other residual metals. Physically, ASR can range from small granular particles to identifiable pieces of material (i.e. small pieces of glass, wood, etc.).

ASR can be a characteristic hazardous waste under RCRA because of the toxicity of entrained metals and other components of the waste. As described in its Material Data Safety Sheet, ASR contains multiple toxic substances in addition to cadmium, lead and zinc. In Illinois, ASR is characterized as a special waste (specifically, "a waste material generated by shredding recyclable metals").[52] According to 35 IAC § 808, special wastes are given a "toxic score." The generator of a special waste has the burden of characterizing their waste according to ASTM test methods to determine the toxic score of the waste.[53] Because of the hazardous constituents of ASR, CDPH should mandate specific measures to control every aspect of ASR management. These measures include screening scrap materials, rejecting components in these wastes that commonly include hazardous substances, managing and storing ASR in full enclosures and requiring full disclosure of the treatment technologies that will be applied to ASR.

[52] Ex. 25, Illinois EPA, "Do I Have a Special Waste?" available at https://www2.illinois.gov/epa/topics/waste-management/waste-disposal/special-waste/Pages/do-i-have.aspx.
[53] *See* 35 Ill. Admin. Code 808.121(a)

CDPH should mandate strict controls to screen for and exclude hazardous materials to minimize the quantity of hazardous substances that will be entrained in ASR. CDPH should prohibit specific components that can accompany scrap metal wastes, including switches, batteries, gas and propane tanks and any components that contain traces of transmission fluid, gasoline, diesel fuel, lubricating oils and antifreeze. These prohibitions require stringent enforcement practices by the facilities. Visual gate inspections of incoming loads of scrap materials for prohibited components are essential but not adequate. Facilities should be required to employ photoionization detectors to screen for volatile organic compounds and other gases, as well as radiation detectors. Based on screening, facilities should be required to categorically reject "materials requiring special handing", and maintain documentation detailing the supplier, the screening technique that was utilized and the basis for rejecting the materials.

CDPH should mandate that all ASR-related operations (storage, management, processing and transportation) should take place in fully enclosed and controlled structures. This is necessary to prevent the release of hazardous substances into two environmental media. First, as discussed elsewhere in these comments, material, including entrained hazardous substances, can be released from outdoor ASR piles into the air. Second, rainfall and snowmelt can penetrate outdoor ASR piles, causing contaminated leachate (containing suspended solids and hazardous constituents). Enclosure prevents the uncontrolled release of airborne particulate matter. Enclosure also prevents rainfall and snowmelt from penetrating ASR piles, minimizing the release of contaminated leachate.

CDPH should mandate that facilities which generate, treat and/or store ASR must designate the on-site or off-site treatment method that will be employed to address their ASR wastes. With respect to treatment, *Stabilization*/*Solidification* are the preferred methods for heavy metals contained in ASR. *Stabilization* reduces the contaminants' mobility through physical or chemical reactions, and is effective for a wide range of constituents (e.g. lead, arsenic, and chromium). *Stabilization* causes precipitation, complexation, and/or adsorption of the contaminants. *Solidification* requires cement or another inorganic binder to solidify the material. Applying this to ASR treatment processes, the ASR is exposed to a blend of liquid polysilicates (either potassium silicate or sodium silicate) and additives (wetting agents). The liquid polysilicates and additives chemically bind to heavy metals in the solution (forming the "ASR matrix" and completing the *Stabilization* process). Inorganic binders and alkaline activators (cement, lime, or other pozzolanic materials) are then added to the ASR matrix to finalize the *Solidification* process.

VII. Construction and Demolition Debris Can Pose Lead and Asbestos Hazards, thus CDPH Should Mandate That Facilities Employ Specific and Empirical Testing Measures to Exclude Hazardous and Contaminated C&D Waste.

In a 2015 article in the Journal of Hazardous, Toxic, Radioactive Waste, researchers published the results of sampling construction and demolition ("C&D") waste for asbestos and

lead.[54] Notably, the researchers acknowledged that existing regulations require asbestos and lead removal prior to demolition and renovation activities that lead to the generation of C&D waste. Nonetheless, actual sampling of the C&D waste stream revealed that 4.9% of C&D waste included asbestos and 14.4% of the C&D waste tested positive for lead-based paint. The authors traced the asbestos and lead contaminated C&D waste to projects that are either excluded from regulations or less likely to adhere to regulatory requirements, typically, demolition/renovation projects involving single family homes or multi-family dwellings with fewer than four units. The authors concluded, "[I]n the case of asbestos and lead, residential projects contributed overwhelmingly to positive detection, at 94% and 85%, respectively." Notably, certain residential waste streams were more likely to be contaminated. Gypsum waste presented both asbestos and lead hazards. Lead was also detected in painted/stained wood as well as painted brick and concrete. To a lesser extent, roofing materials also presented asbestos hazards.

According to existing Chicago requirements, only "non-hazardous" and "non-contaminated" waste qualifies as recyclable C&D waste. Yet, no specific protocols are imposed on recycling facilities to verify loads of C&D wastes are free of asbestos and lead hazards. Unless a load is entirely traceable to the work of professional contractors that employed pre-demolition asbestos and lead detection and removal measures, it is dangerous and naïve to assume asbestos and lead are not "along for the ride" with C&D waste streams, especially gypsum and painted wood, concrete and brick. Unless specific load screening measures are mandated, dust that is released from subsequent dumping, processing, separation and transport activities could include entrained asbestos and lead hazards. Just as importantly, a load that isn't effectively screened for lead and asbestos hazards may violate the fundamental, categorical legal requirement that only "non-hazardous" and "non-contaminated" C&D waste is eligible for processing.

The new regulations should include specific protocols for permitted facilities to verify that demolition projects are being professionally managed. If a certification doesn't accompany a load, the facility should be required to employ specific screening techniques before allowing the load to be deposited on the site. Visual inspection cannot form the basis for assessing whether wastes are lead-bearing and/or asbestos-containing. For lead, screening should instead include XRF reading on all painted surfaces. Common (but uncharacterized) asbestos containing materials should be rejected until appropriate sampling using a polarized light microscopy analysis is complete.

[54] Ex. 26, "Development and Application of A Framework to Examine the Occurrence of Hazardous Components in Discarded Construction and Demolition Debris: Case Study of Asbestos-Containing Material and Lead-Based Paint." J.Powell, P. Jain, A. Bigger and T. Townsend. J. Hazrd. Toxic Radioact. Waste, 2015, 19(4): 05015001.

VIII. CDPH Should Assert Its Authority to Require Environmental Impact Assessments, to Assess Cumulative Impacts on Public Health, Safety and Welfare Arising from Multiple Permitted Facilities, and to Provide for Public Participation.

A. Environmental Impact Assessments

Proposed Section 3.10 requires that an Environmental Impact Assessment ("EIA") shall be included in the Design Report "as applicable." However, the requirement to prepare an EIA, found in Section 17-13-0902-B of the Chicago Municipal Code, only applies to waste-related uses. Consequently, the obligation to conduct an EIA appears to apply only to a small percentage of large recycling facilities; most categories of recycling facilities are not traditionally regarded as waste-related uses as that term is used in Section 17-13-0902-B.

Limiting the applicability of the EIA (either purposefully or inadvertently) is a significant lost opportunity in the context of the proposed Rules. The EIA is extremely valuable because it requires the broadest range of factors to be evaluated as part of permitting decisions, such as the impact on the surrounding area and the dynamic physical environment, which include but are not limited to 1. critical wildlife habitats, 2. fluvial systems, 3. natural wetlands, 4. air quality, 5. water quality, 6. flora and fauna, 7. public health, 8. potential risks and effects of accidental releases, fires or explosions on surrounding communities, 9. alternatives to the proposed facility, their costs and their environmental impacts. Assessing these factors with respect to large recycling facilities would significantly enhance the scope, depth and quality of CDPH decision making, and provide a basis for CDPH to respond to the common concerns which are expressed by members of affected communities, their elected officials, and groups aligned with them.

The quality of CDPH's permit review will be significantly enhanced by asserting CDPH's authority to require permit applicants to complete EIAs. This would give discretionary authority to CDPH to require an EIA for facilities which otherwise may not be subject to Section 17-13-0902-B, for example, proposals for new, large facilities, or, proposals for significant modifications of existing consequential facilities. This would enable the permit applicant and CDPH to address the widest range of community concerns on the basis of an EIA, rather than mere assertions, aspirations and speculations.

Section 3.10 should be modified to allow CDPH to require an Environmental Impact Assessment as part of a permit application for facilities which are not encompassed in Section 17-13-0902-B. Correspondingly, Section 3.10 should be amended to include the EIA description found in 17-13-0902-B, but as an independently authorized feature of the Rules for Large Recycling Facilities.

B. Cumulative Impacts

CDPH should add a provision to the rules underscoring its authority to make permitting decisions based on the cumulative impacts of clustered large recycling facilities. That is, CDPH

should expressly reserve the right to deny or modify permits to facilities that in combination with other facilities create impacts that could endanger public health, safety and welfare.

The Chicago Municipal Code provides CDPH with the authority and responsibility to assess and act upon cumulative impacts. Section 11-4-600 recognizes that air pollution can pose hazards to human health and the environment. This Section's focus is on air pollution hazards to health and the environment, not on the hazards of any specific air pollution source. Section 11-4-610 authorizes CDPH to take measures to address buildings, structures, facilities, devices, processes and other air pollution sources, within the city. CDPH's mandate is not limited to the narrow business of issuing a single permit to an individual facility, but rather, is explicitly framed as an omnibus authority to regulate "in the plural" to address air pollution that poses hazards. That is, once CDPH identifies air pollution that can pose hazards to human health and the environment, its obligation is to regulate the buildings, facilities, devices, processes, and other sources within the city to eliminate that hazard. Emission sources that can be subject to CDPH's activities are also broadly and inclusively defined, including any and all sources of air pollution, including the widest range of stationary and mobile sources.

This broad mandate carries over to CDPH's authority in permitting. Section 11-4-630 gives the Commissioner an omnibus authority in permitting to achieve the purposes of preventing air pollution hazards. Similarly, pursuant to Section 11-4-800, the Commissioner may issue regulations to implement the mandate to prevent air pollution hazards. At no point is the Commissioner restricted to addressing only the air pollution hazards attributable a single facility. Consistent with the purpose of protecting public health from air pollution hazards, the Commissioner has the authority and responsibility to assess if these hazards are the result of activities within the city, and to take the steps which are necessary to address hazards from contributing air pollution sources. This fundamental responsibility cannot be achieved if CDPH takes a narrow, facility-by-facility, pollutant-by-pollutant approach to its public health mandate. The Rules should be clear that CDPH retains the authority and responsibility to assess the air quality impacts of any individual facility in light of the cumulative air pollution hazards that will affect members of the public, even if those hazards are the result of other stationary and mobile sources. This is especially important in areas like the Southeast and Southwest Sides where facilities are clustered and where this trend is accelerating.

c. CDPH is to be commended for proactively providing for public participation opportunities in rulemaking and permitting. In its Rules, CDPH should expressly commit to the notice-and-comment public participation process it already (but informally) uses in regulatory and permitting activities for Large Recycling Facilities. This will provide consistency in practice, clarity for regulated entities, assurance for members of the public, and clear direction to future CDPH leaders and staff members.

Thank you for your consideration of these comments. Please contact us if you have any questions or comments. We would welcome the opportunity to meet to discuss these matters.

Sincerely,

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Exhibit 1

Scrap Metal Recycling

Recycling | Collection | Scrap Metal | Consumer Electronics | Organic Materials | Batteries | Paper | Used Oil/Chemicals | Cardboard Baling

Metal scrap recycling, also called secondary metal processing, is a large industry that processes, in the U.S. alone, 56 million tons of scrap iron and steel (including 10 million tons of scrap automobiles), 1.5 million tons of scrap copper, 2.5 million tons of scrap aluminum, 1.3 million tons of scrap lead, 300,000 tons of scrap zinc and 800,000 tons of scrap stainless steel, and smaller quantities of other metals, on a yearly basis.

Scrap metals, in general, are divided into two basic categories: ferrous and nonferrous. Ferrous scrap is metal that contains iron, while nonferrous metals are metals that do not contain iron.

Worker Fatalities

- A worker was crushed when attempting to remove a jammed piece of metal from the hydraulic door of a scrap metal shredder

Many workers are employed by scrap metal recycling industries. Private, nonferrous recycling industries in the U.S. employed approximately 16,000 employees in 2001. (Figures were not available for ferrous recycling industries.) In 2001, those nonferrous recycling industries reported approximately 3,000 injuries and illnesses. The most common causes of illness were poisoning (e.g., lead or cadmium poisoning), disorders associated with repeated trauma, skin diseases or disorders, and respiratory conditions due to inhalation of, or other contact with, toxic agents. Of those injuries and illnesses, 701 cases involved days away from work. The most common events or exposures leading to these cases were contact with an object or piece of equipment; overextension; and exposure to a harmful substance. The most common types of these injuries were sprains and strains; heat burns; and cuts, lacerations, and punctures. (BLS, 2003).

OSHA has published Guidance for the Identification and Control of Safety and Health Hazards in Metal Scrap Recycling, which is the best resource currently available from OSHA.

Hazards and Precautions

- Collection
- Forklifts
- Lead
- Machinery - Moving Parts
- Unexpected Machine Startup
- Combustible Dust
- Falls from Height
- Sheeting and Unsheeting
- Manual Handling
- Slips, Trips and Falls
- Fire and Explosion
  - Carbon Monoxide Explosion Hazards in Electric Arc Furnace Steelmaking Operations. OSHA Safety and Health Information Bulletin (SHIB), (December 4, 2015).

- How to reduce exposure to dioxins in aluminium recycling

Exhibit 2

California Department of Toxic Substances Control

DRAFT

Evaluation and Analysis of Metal Shredding Facilities and Metal Shredder Wastes

January 2018

Implementation of
California Health and Safety Code Section 25150.82

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ACRONYMS

ADC	Alternative Daily Cover
APCD	Air Pollution Control District
AQMD	Air Quality Management District
ARB	Air Resources Board
Cal/OSHA	California Occupational Safety and Health Administration (now the California Department of Industrial Relations, Division of Occupational Safety and Health)
CalEPA	California Environmental Protection Agency
CalRecycle	California Department of Recycling and Resource Recovery
CAR	Certified Appliance Recycler
CFC	chlorofluorocarbon
CTMSR	Chemically Treated Metal Shredder Residue
CUPA	Certified Unified Program Agency
DHS	Department of Health Services
DTSC	Department of Toxic Substances Control
EMP	Emissions Minimization Plan
HWTS	Hazardous Waste Tracking System
ISRI	Institute of Scrap Recycling Industries
LFM	light fibrous material
mg/kg	milligrams per kilogram
mg/l	milligrams per liter
MRSH	Materials that Require Special Handling
NAICS	North American Industry Classification System
NPDES	National Pollutant Discharge Elimination System
OCI	Office of Criminal Investigation
OPP	Official Policy and Procedure
PCB	polychlorinated biphenyl
PM	particulate matter
RCRA	Resource Conservation and Recovery Act
RTO	Regenerative Thermal Oxidizer
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SIC	Standard Industrial Classification
SMARTS	Storm Water Multiple Application and Report Tracking System
STLC	Soluble Threshold Limit Concentration
SWRCB	State Water Resources Control Board
TTLC	Total Threshold Limit Concentration
VOC	volatile organic compounds
WDID	Waste Discharger Identification
US EPA	United States Environmental Protection Agency

EXECUTIVE SUMMARY

The Department of Toxic Substances Control (DTSC) has conducted this Evaluation and Analysis (Analysis) of Metal Shredding Facilities and Metal Shredder Wastes to implement Health and Safety Code Sections 25150.82 through 25150.86, collectively referred to here as the Metal Shredding Facilities Law. Based on certain required findings and demonstrations, the law authorized DTSC to adopt alternative management standards for metal shredding facilities that differ from existing hazardous waste control law, and to classify metal shredder waste as nonhazardous waste. This report describes public health and environmental threats posed by metal shredding facilities, and begins the regulatory process to ensure these facilities comply with important public health and environmental protections.

DTSC reviewed hazardous waste management activities, the current regulatory oversight, and the history of releases, contamination, and enforcement actions at the facilities. DTSC directed a study to identify the highest level of treatment that could be achieved on metal shredder waste with current technology. DTSC also reviewed the current disposal practices of metal shredder waste at municipal solid waste landfills to identify the potential for migration of contaminants to groundwater, to surface waters, or through the air.

DTSC found numerous examples of accidents, improper storage of hazardous wastes, soil contamination, and releases of hazardous wastes that impacted surrounding communities. DTSC noted several legal actions taken against metal shredding facilities in response to these types of incidents. Additionally, DTSC is evaluating enforcement actions resulting from current investigations.

DTSC evaluated whether alternative management standards could be developed that would provide adequate protection for human health and safety and the environment. DTSC showed through a series of demonstrations that the most appropriate level of regulation for these kinds of facilities is a hazardous waste permit. Based on this Analysis, DTSC has chosen not to adopt alternative management standards for metal shredding facilities.

However, DTSC's analysis demonstrated that continued disposal of chemically treated metal shredder residue (CTMSR) as nonhazardous waste in municipal solid waste landfills, including its use as alternative daily cover (ADC), has not resulted in harm to human health or safety or to the environment, and that CTMSR has not contributed to the solubilization and migration of heavy metals from solid waste landfills. DTSC has concluded that classification of CTMSR as a hazardous waste is not necessary to prevent or mitigate potential hazards to human health or safety or to the environment.

This report is intended to serve as a basis to establish enforceable operating requirements for metal shredding facilities through a hazardous waste permit. Through a formal and transparent permitting process, DTSC will ensure these facilities come into compliance with existing law, and that communities are adequately protected. This process will provide for a reasonable and orderly transition period for facilities to complete the permitting process. DTSC also intends to promulgate regulations that exclude CTMSR from classification as a hazardous waste, with certain limitations, under separate statutory authority.

DTSC anticipates conducting workshops on the proposed regulatory action in early 2018, and welcomes input from the public, the regulated community, and other stakeholders in the upcoming permitting process and the anticipated rulemaking process.

DRAFT

1 INTRODUCTION AND OVERVIEW

The Department of Toxic Substances Control (DTSC) prepared this Evaluation and Analysis of Metal Shredding Facilities and Metal Shredder Wastes (Analysis) under Health and Safety Code Sections 25150.82 through 25150.86, collectively referred to here as the Metal Shredding Facilities Law. During the research and preparation of this Analysis, DTSC consulted with other state and local governmental regulatory agencies including the California Air Resources Board, State Water Resources Control Board, California Department of Recycling and Resource Recovery (CalRecycle), California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA), Regional Water Quality Control Boards (Regional Water Boards), local Air Quality Management Districts and Air Pollution Control Districts, and the Certified Unified Program Agencies (CUPAs). DTSC engaged with the metal shredding facilities and with the landfill owners and operators in conducting this evaluation. DTSC appreciates the cooperation and assistance of the regulated community, members of the public, and other stakeholders in conducting this evaluation and developing this Analysis.

1.1 Document Scope

This Analysis was prepared to evaluate metal shredding processes and wastes as they are operating under current conditions. The goal of the Analysis is to ensure that these processes are managed and regulated in a manner that protects public health and the environment and minimizes economic impacts to industry. The Analysis specifically considers the applicability of hazardous waste management regulations and determines whether additional requirements are needed or appropriate. This Analysis also considers whether alternative management standards specific to the generation, handling, transfer, storage, transportation, and disposal of hazardous wastes generated and managed at metal shredding facilities should be adopted by DTSC, and would be, if justified, an alternative to DTSC's existing hazardous waste management requirements.

This Analysis is divided into six sections: Section 1, an Introduction and Overview; Section 2, a presentation of the evaluations that DTSC is required to conduct; Section 3, a presentation of the analyses DTSC is required to perform; Section 4, a discussion of the demonstrations DTSC is required to make to allow alternative management standards to be proposed; Section 5, a discussion of the classification and disposal of chemically treated metal shredder residue; and Section 6, a presentation of DTSC's conclusions.

1.2 Terminology

Many terms have been used to describe the metal shredding industry and the wastes it manages. To ensure a clear and common understanding of the concepts discussed in this Analysis, DTSC provides the following definitions of terms used:

Metal Shredding Facility: The Metal Shredding Facilities Law defines a metal shredding facility as "an operation that uses a shredding technique to process end-of-life vehicles, appliances, and other forms of scrap metal to facilitate the separation and sorting of ferrous metals, non-ferrous metals, and other recyclable materials from nonrecyclable materials that are components of the end-of-life vehicles, appliances, and other forms of scrap metal. A metal shredding facility does not include a feeder yard, a metal crusher, or a metal baler, if that facility does not otherwise conduct metal shredding operations." *Also known as: Auto shredder, autoshredder, metal shredder, auto shredding facility, shredder.*

Metal Shredder Aggregate: The mixture of shredded material produced by the metal shredding hammer mill that typically contains recoverable ferrous and non-ferrous metals, plastics, rubber, glass, foam, fabrics, carpet, wood, residual automobile fluids, road dirt, and/or other debris. *Also known as: Aggregate, intermediate manufacturing process stream.*

Metal Shredder Residue: The portion of the metal shredder aggregate that remains after ferrous metals and non-ferrous metals have been separated, and before chemical stabilization occurs. *Also known as: Metal shredder waste, auto shredder waste, autoshredder waste, shredder residue, fluff, auto shredder fluff, recycling residue.*

Chemically Treated Metal Shredder Residue (CTMSR): Metal shredder residue that has been subject to a chemical stabilization treatment consisting of the addition of sodium or potassium silicate and an alkaline cement powder to reduce to the solubility of metals in the residue. *Also known as: Metal shredder waste, auto shredder waste, autoshredder waste, shredder residue, treated auto shredder waste, treated auto shredder residue, treated (stabilized) auto shredder waste, treated shredder waste, fluff, auto shredder fluff, and recycling residue.*

Metal Shredder Wastes: A collective reference to all wastes being managed at metal shredding facilities that emanate from the metal shredding process, including metal shredder aggregate, metal shredder residue, and Chemically Treated Metal Shredder Residue (CTMSR).

Department of Toxic Substances Control, or DTSC: DTSC originated as the Toxic Substances Control Division (TSCD) within the Department of Health Services (DHS), later expanding to a program (the Toxic Substances Control Program (TSCP)). In 1991, TSCP, by the action of the Governor, was reorganized as a department within the California Environmental Protection Agency (CalEPA). "DHS," "TSCD," and "TSCP" are referred to in this Analysis under the umbrella term of "DTSC" for ease of reference. *Also known as: DHS, TSCD, and TSCP.*

1.3 Metal Shredding Operations

There are estimated to be 2,500 scrap metal recycling facilities in California, which in 2014 collected and processed for export an estimated 7 million tons of scrap metal worth $5 billion.[1] Taiwan, Korea, and China received 71 percent of the scrap metal exports from California. Scrap metal recycling facilities include feeder yards that collect scrap metal from the public and businesses, automobile dismantlers that process end-of-life vehicles (approximately 1,200), and metal shredding facilities which shred and separate the scrap metal for export. There are currently six metal shredding facilities in California.

Metal shredding operations all follow the same basic process, as illustrated in Figure 1. The metal shredding facility receives scrap metal input materials, such as whole vehicles and large appliances, and certain hazardous wastes that are still present are removed from the input materials in a process commonly referred to as "de-pollution."[2] The de-polluted input materials are processed through a

[1] See 2014 California Exports of Recyclable Materials, California Department of Resources Recycling and Recovery, Publication # DRRR-2015-1539, September 2015.

[2] Section 42175 of the Public Resources Code requires that hazardous materials be removed from major appliances and vehicles prior to crushing for transport or transferring to a baler or shredder for recycling. The law defines Materials that Require Special Handling (MRSH) as any material that, when removed from a major appliance, is a

hammer mill to break down large metal pieces into smaller pieces, resulting in metal shredder aggregate. Iron-containing metal, or ferrous metal, is separated out, and the remaining metal shredder aggregate is further processed to sort the non-ferrous metals. The material that is left after ferrous and non-ferrous metal separation is called "metal shredder residue," which is chemically treated and sent to landfills. Each of these steps is discussed further below.

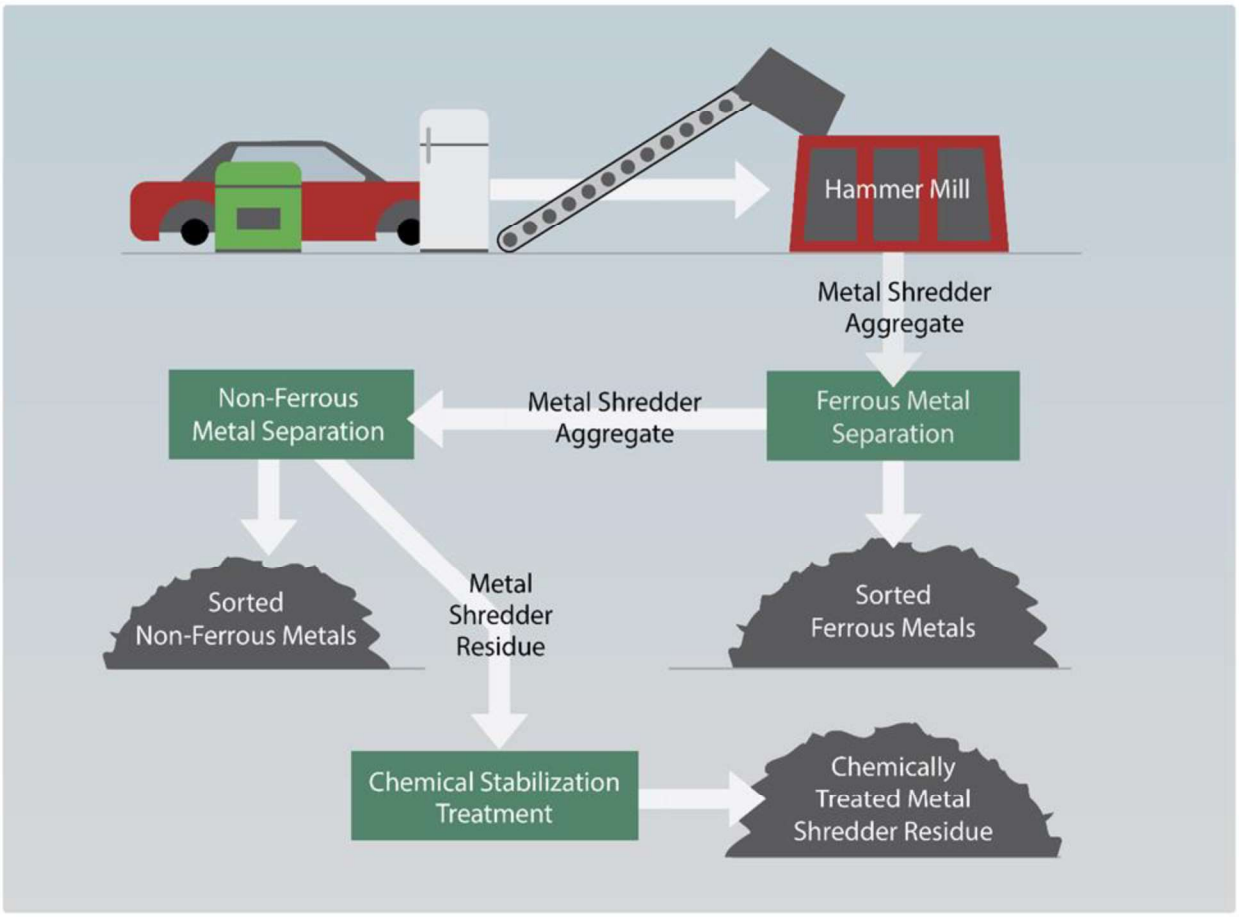


Figure 1. Diagram of a typical metal shredding operation.

Scrap Metal

The types of scrap metals that are sent to metal shredding facilities include end-of-life products that are primarily composed of metal, such as vehicles, appliances, construction and demolition materials, and manufacturing scrap. Much of the scrap metal that arrives at metal shredding facilities comes from metal recycling facilities, which sort, bale, and shear the metal to compress it for ease of transport. Scrap metal arrives at the metal shredding facility in a variety of ways, most commonly by truck or rail. When vehicles, appliances, and other scrap metal arrive at a metal shredding facility, they are subject to

hazardous waste regulated pursuant to Chapter 6.5 (commencing with Section 25100) of Division 20 of the Health and Safety Code.

the scrap metal exclusion, meaning the scrap metal is not regulated as a hazardous waste since it is being recycled.[3]

When the scrap metal arrives at the metal shredding facility, it is unloaded by large machinery and piled for ease of handling. Because scrap metal deliveries can be a mixture of various metals (ferrous and non-ferrous) and other materials, additional separation and processing steps, such as further sorting, de-pollution, and shearing occur before the scrap metal is ready to be shredded. All six metal shredding facilities in California have acceptance policies regarding what materials they will and will not accept as scrap metal.

De-pollution

Much of the scrap metal that metal shredding facilities receive to shred has the potential to contain hazardous materials, also known as materials that require special handling, or MRSH. The MRSH must be removed before the scrap metal can enter the shredder.[4] Typical hazardous materials found in scrap metal include gasoline, oil, antifreeze, lead-acid batteries, vehicle air bags, compressed gas cylinders (e.g., propane tanks, compressed gas tanks, and fire extinguishers), refrigerants in air conditioning or heat transfer systems, polychlorinated biphenyls (PCBs) containing capacitors, light ballasts, transformers, and items containing elemental mercury (e.g., tilt-switches or thermostats).

Metal shredding facilities that conduct the de-pollution operations on-site are subject to hazardous waste generator requirements, as the facility becomes a point of hazardous waste generation. Similarly, the metal shredding facility is subject to requirements for containerization, labeling, storage, and disposal or other means of hazardous waste management.

Scrap metal stored prior to shredding.

[3] See subdivision (3) of paragraph (a) of Section 66261.6 of Division 4.5 of Title 22, California Code of Regulations.
[4] See Public Resources Code section 42175

Hammer Mill

The de-polluted scrap metals are fed into a hammer mill to reduce the size to facilitate downstream sorting processes. The hammer mill can reduce scrap metal to pieces less than four inches in diameter. This shredded waste is called metal shredder aggregate.

A large hammer mill may contain up to 72 hammers, each weighing 1,000 pounds. The hammers are placed around a rotor in balanced positions, with the entire rotor assembly weighing up to 100 tons. The rotor is turned by an electric motor with up to 9,000 horsepower at over 400 revolutions per minute, generating hammer tip speeds of more than 100 miles per hour ("tip speed" refers to the speed at which the tip of the hammer is travelling in the hammer mill). The hammer mill is surrounded by grates with slots that allow the smaller pieces to pass through. Larger pieces continue to be shredded until they are small enough to fit through the slots.

Shredder and loading equipment at Schnitzer Steel, Inc., Oakland, CA.

An earlier photo of the shredder unit at SA Recycling, Anaheim, CA before it was enclosed.

Ferrous Metal Recovery

Ferrous metals are recovered from the metal shredder aggregate using magnets, leaving non-ferrous metals such as aluminum, copper, lead, and zinc.

Magnets at SA Anaheim, shown here before they were enclosed.

Pile of sorted ferrous metal following shredding of scrap metal at SA Terminal Island.

Non-ferrous Metal Recovery

Non-ferrous metals are recovered from metal shredder aggregate based on density and other physical properties. Generally, the non-ferrous metals are separated by first separating the metal shredder aggregate into different size fractions using trommels, then by feeding the segregated sizes into: (1) eddy-current separators to separate most aluminum, zinc and copper materials, (2) under air-actuated sensors to remove stainless steel and copper wire, and (3) through density separators to remove fine copper materials. Additionally, "hand picking" is used at some metal shredding facilities, a process by which individuals manually pick through the metal shredder residue to pull out any remaining non-ferrous metal pieces that the separation may have missed, before the metal shredder residue is subjected to the chemical stabilization treatment.

One of the metal shredding facilities does not conduct the non-ferrous metals separation on-site, but ships partially-processed material to a facility it owns in Arizona for further sorting.[5] The sorted and separated metals are sold in bulk to metal refiners for further purification, ultimately to be used in the manufacture of new metal products.

Eddy current separator, used for recovery of non-ferrous metals.

Hand picking station, Sims Metals, Redwood City, CA.

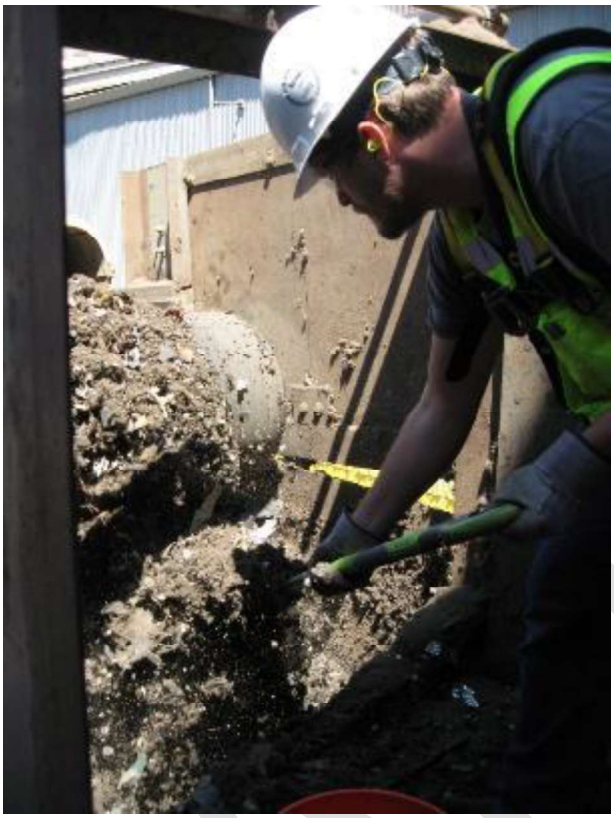
[5] Ecology Auto Parts of Colton, California, ships its aggregate for further processing to another facility owned by Ecology, located at 59260 Highway 72, in Salome, Arizona. The aggregate is shipped as an Excluded Recyclable Material in trucks owned and operated by Ecology.

Pile of sorted non-ferrous metal.

Metal Shredder Residue

A large amount of waste remains after all the metals that can be economically recovered have been removed. This remaining material, called metal shredder residue, consists of plastics, rubber, glass, foam, fabrics, carpet, wood, residual automobile fluids, road dirt, other debris, and a small amount of unrecoverable metals (typically non-ferrous). Approximately 25 percent of the original weight of a typical end-of-life vehicle remains after all the metals have been practicably removed.[6]

[6] See industry presentation, "Regulation of Auto Shredder Residue in California," Oakland Public Workshop, January 23, 2014.



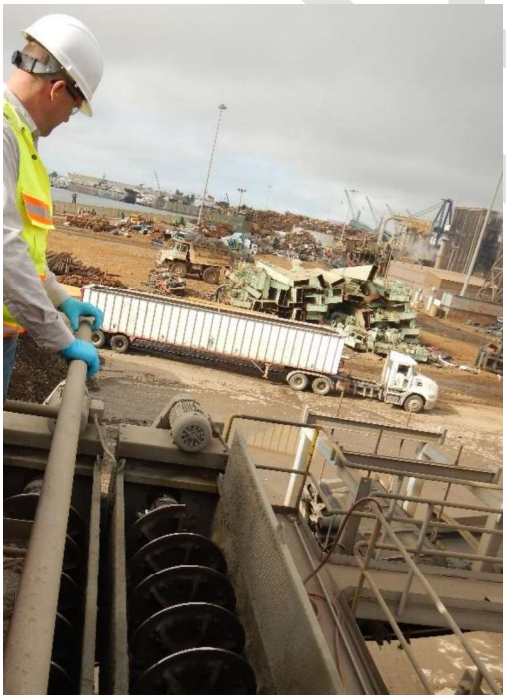
Metal shredder residue exiting the joint products plant following removal of non-ferrous metals.

Chemical Stabilization

Each of the facilities that conducts non-ferrous metal separation on-site treats the resulting metal shredder residue using a chemical stabilization process that applies a sodium or potassium silicate solution and an alkaline activator such as cement.[7] Chemical stabilization is used to reduce the mobility of toxic heavy metals in the residue. The initial step is a thorough wetting of the material with liquid silicate. After the material is wetted, cement powder is added and the material is mixed in a pug mill, yielding chemically treated metal shredder waste. This CTMSR is passed under a final magnet for additional recovery of ferrous metals before it is transported off-site for disposal.

[7] For Ecology Auto Parts, the metal shredder residue produced following the sorting of non-ferrous metals is generated in Arizona, and thus, is not governed by California hazardous waste control law.

Cement storage silos at SA Bakersfield.



Pug mill mixing screw at Schnitzer Steel, Oakland.

Chemically treated metal shredder residue is passed under a final magnet for recovery of ferrous metal at Schnitzer Steel, Inc., in Oakland.

1.4 Regulatory History of Metal Shredding Facilities and Metal Shredder Waste

All facilities that store, treat, or dispose of hazardous waste in California must obtain a permit or grant of authorization from DTSC. California's tiered permitting system includes a full permit, which is generally required for hazardous waste facilities that are managing federally regulated hazardous wastes; a standardized permit, generally available for facilities managing hazardous wastes that are not federally regulated; and three lower-tiered permits that are reserved for lower-risk and lower-volume waste streams.

Metal shredding facilities generally do not produce waste that exceeds the federal regulatory levels established by the U.S. Environmental Protection Agency (US EPA) under the Resource Conservation and Recovery Act (RCRA), and thus are not regulated under the full permit. Metal shredding facilities do, however, produce waste that exceeds California's more stringent regulatory thresholds as is recognized to be a hazardous waste.

Metal shredder residue was not managed as hazardous waste until 1984, when California adopted the Waste Extraction Test to determine whether a waste is hazardous due to the solubility of contaminants in the waste. Metal shredder residue was found to have high levels of lead, copper, and zinc which could be mobilized under the test conditions.

On March 9, 1984, DTSC informed all generators of metal shredder residue that their waste was classified as hazardous and must be managed in accordance with hazardous waste regulations.[8] The

[8] See DHS Letter to Dr. Kenneth Hekimian RE: Disposal of Automobile Shredder Wastes from Hugo Neu-Proler and Clean Steel, Inc., March 9, 1984.

requirement for disposal of metal shredder residue as a hazardous waste greatly increased the cost for the shredder operators and also created a concern about the limited capacity of hazardous waste landfills.

In 1985, Senate Bill (SB) 976 (Bergeson, Ayala and Seymour, Chapter 1395, Statutes of 1985) addressed the issue of limited capacity at hazardous waste landfills by requiring five Regional Water Quality Control Boards (RWQCBs)[9] to prepare a list of Class III nonhazardous waste landfills that would be authorized to accept and dispose of metal shredder residue.[10] Class III landfills are generally authorized to only accept nonhazardous waste. The RWQCBs identified 13 Class III landfills, including at least one in each of the five RWQCB jurisdictions, that could accept metal shredder residue. SB 976 did not require that the listed landfills accept metal shredder residue, and did not provide exemptions from other hazardous waste regulations. Metal shredder residue was designated nonhazardous for purposes of disposal only, and it retained the hazardous designation for purposes of storage, transportation, manifesting, and disposal fees. The RWQCBs required the 13 landfills to upgrade their facilities to accept metal shredder residue; doing so was financially prohibitive, and only a few Class III landfills that became authorized by SB 976 actually accepted the metal shredder residue. By its own operation, this statute expired on January 1, 1988.

In 1986, DTSC began working with a shredder in Los Angeles to determine if shredder waste could be treated with silicate and cement to reduce the solubility of metals so that it would qualify for a nonhazardous waste classification. Based on testing results of the treated waste, DTSC made the determination that CTMSR exhibited "mitigating physical or chemical characteristics which rendered it insignificant as a hazard to human health and safety, livestock, and wildlife" and classified the waste as nonhazardous. It cited as legal authority subdivision (e) of Section 66305 of Title 22 of the California Administrative Code.[11] This authority was later renumbered to subdivision (f) of Section 66260.200 of Title 22 of the California Code of Regulations. The letters granting the nonhazardous waste determinations are now referred to as "f letters."

In 1987, as DTSC continued to work with the industry to develop effective chemical stabilization for metal shredder residue, the State Water Resources Control Board (SWRCB) adopted Resolution 87-22, which established a policy to standardize the requirements for the Class III landfills to accept metal shredder residue for disposal. The policy attempted to resolve the conflict between the Legislature's direction to accept the metal shredder residue at Class III landfills, and the RWQB's longstanding policy to prevent hazardous wastes from being accepted by nonhazardous waste landfills. The SWRCB's Resolution 87-22 stated that metal shredder residue that was determined to be hazardous by DTSC, but was granted a variance for the purposes of disposal by DTSC, was suitable for disposal at designated Class III landfills.

In 1987, Assembly Bill (AB) 1542 (Bradley and Peace, Chapter 1483, Statutes of 1987), exempted untreated metal shredder residue that was disposed in an appropriate Class III landfill from hazardous waste disposal fees and taxes. The AB 1542 conditional exemption was effective only if the generator

[9] RWQCBs in the San Francisco, Central Valley, Los Angeles, Santa Ana, and San Diego regions.

[10] See former Section 25143.6 of the Health and Safety Code, now repealed (SB 976, Bergeson, Ayala and Seymour, Chapter 1395, Statutes of 1985, Section 1).

[11] See letter from Dr. David J. Leu, Department of Health Services, Toxic Substances Control Division to Jim Wothorspoon, Hugo Neu-Proler Company, February 21, 1986.

carried out specified monitoring, recordkeeping, and testing requirements; if the waste was disposed within 45 days of being generated; and if DTSC determined that the metal shredder residue would not pose a threat to human health or water quality. AB 1542 required the metal shredder residue generators to analyze their residue for total and soluble concentrations of chromium, cadmium, copper, lead, mercury, nickel, and zinc, and for total concentrations of PCBs.

On November 30, 1987, in anticipation of AB 1542 going into effect on January 1, 1988, DTSC rescinded all disposal variances it had previously issued to metal shredder residue generators in 1984 and 1985.[12] The timing of this rescission allowed metal shredder residue generators sufficient time to apply to DTSC for a new variance prior to the effective date of AB 1542.

Of the eight metal shredding facilities in California at that time, only Levins Metal Corporation (later to become Sims Metal Management) and Schnitzer Steel Products, used the AB 1542 nonhazardous disposal provision. Four of the facilities applied to DTSC for nonhazardous waste classifications by submitting testing data demonstrating their use of the silicate and cement treatment. DTSC approved the treatment based on the reduction in solubility of the metals. Nonhazardous waste classifications were granted to Ferromet (later to become SA Rancho Cucamonga; no longer in operation), Hugo Neu-Proler (later SA Terminal Island), Clean Steel (later Ecology Auto Parts), and Orange County Steel Salvage (later SA Anaheim). The two remaining facilities—Pacific Steel (no longer operating) and Golden State Metal (later SA Bakersfield)—were not disposing of metal shredder residue at that time. By its own operation, AB 1542 expired on January 1, 1989.

In 1988, DTSC also issued Official Policy and Procedure Number 88-6 (OPP 88-6) to ensure that a consistent regulatory approach would be applied to the management and disposal of auto shredder waste.[13] The policy was designed to assist staff in regulating generators, and provided clarification for several scenarios typically encountered at metal shredding facilities. Facilities that treat, store, or dispose of hazardous waste in California are required to have a hazardous waste permit. DTSC's OPP 88-6 focused on the chemical stabilization process being performed on the metal shredder residue, which required a hazardous waste facility permit. Through OPP 88-6 DTSC interpreted that the metal shredder aggregate that was undergoing separation at the metal shredding facilities was not yet a waste. If the chemical stabilization were to take place while the metal shredder aggregate was still undergoing separation processes, prior to the last separation process, the treatment would be considered "in-line" and would not require a permit. Each of the metal shredding facilities complied with OPP 88-6 by conducting a final ferrous metal separation step after the chemical stabilization. Each metal shredding facility now passes the CTMSR under a final magnet as a stage of ferrous separation to conform their operations to the OPP 88-6 policy and to avoid requiring a permit.

In 2002, DTSC conducted sampling at three auto shredding facilities to verify compliance with the existing statutes, regulations, and DTSC policy.[14] The investigation identified longstanding and continuing issues related to the treatment, storage, and handling of hazardous waste at the facilities. However, DTSC's historic waste classifications and policies remained in effect during the investigation, and were affirmed in 2005, when one of the metal shredding facilities was reorganized under a new

[12] See DHS Letter to Adams RE: Auto Shredder Disposal Variances, November 30, 1987.

[13] See DHS Official Policy and Procedure Number 88-6 Auto Shredder Waste Policy and Procedure, 1988 (OPP 88-6).

[14] See DTSC draft report "California's Automobile Shredding Waste Initiative", 2002.

name, and requested that the previous "f letter" be transferred from the existing facility's location to that of a new facility.[15]

In 2008, based on the results sampling conducted during the 2002 investigation, DTSC determined that the conditions contained in DTSC's authorization letters and in OPP 88-6 were not sufficient to reduce the waste to a nonhazardous solid waste. DTSC informed the metal shredding facilities of DTSC's intention to rescind the nonhazardous classifications and OPP 88-6,[16] and to impose management standards (including requiring a permit or some other form of authorization to treat the metal shredder wastes). DTSC then began discussions with industry on the process to rescind the conditional nonhazardous waste classifications and require the waste to be managed as hazardous waste. In response, industry representatives provided DTSC with a significant amount of technical information supporting the treatment and legal arguments challenging the process to rescind the authorizations and policy. DTSC's proposed rescission was not finalized, and the "f letters" and policy continued to remain in place.

During this time, DTSC conducted in-depth investigations of specific metal shredding facilities. An explosion at the SA Terminal Island facility (then operated by a subsidiary of Sims) in 2007 resulted in the release of hazardous waste. In 2011, the multi-agency enforcement action against the company resulted in penalties of nearly $3 million and improved environmental protections. DTSC also investigated releases of light fibrous material (LFM) from the Sims facility in Redwood City beginning 2009. The enforcement action resulted in $2.4 million in penalties in 2015 and enclosure of the entire facility to prevent future releases into the surrounding community.

In 2012, DTSC again met with industry to discuss the "f letters" and OPP 88-6. DTSC raised questions about the efficacy of the treatment, the protectiveness of the policy, and the appropriateness of allowing the metal shredding facilities to perform hazardous waste treatment without a permit. DTSC invited industry to provide additional information that demonstrated the effectiveness of the chemical treatment through a treatability study, as well as to document the industry's claims that the current treatment was the best available.

In 2013, the Institute of Scrap Recycling Industries (ISRI) submitted a Draft Metal Shredder Residue Treatability Study Workplan to DTSC, presenting a methodology to determine the effectiveness of various application rates of the current treatment technology.[17] In late 2013 and early 2014, DTSC held a series of workshops with the public, other state and local government agencies, and the regulated community to receive feedback and input on the development of the treatability study.[18]

In 2014, Senator Jerry Hill introduced SB 1249 (Chapter 756, Statutes of 2014) in response to safety concerns at metal shredding facilities related to two recent fires in his district, and his concern that the

[15] See DTSC Letter to Lynn Delzell regarding the transfer of the Clean Steel nonhazardous waste classification ("f letter") to Pacific Rail Industries, dated August 1, 2005.

[16] See DTSC Letter to Metal Shredding Facilities repealing "f letters" and Policy and Procedure 88-6 effective January 1, 2009, dated September 29, 2008.

[17] See DTSC Letter to Margaret Rosegay, July 11, 2013, providing DTSC's review of the Draft Metal Shredder Residue Treatability Study Workplan (Treatability Study Workplan), dated May 9, 2013.

[18] Local Governmental Agency Workshops were held in Berkeley on November 7, 2013 and in Cypress on November 15, 2013. Public Workshops were held in Wilmington on January 14, 2014 and in Oakland on January 23, 2014. A meeting with Landfill Owners and Operators was held on December 16, 2013.

hazards associated with these operations were not adequately regulated. The Senate Committee on Environmental Quality noted that many of these facilities are in highly populated areas and have been found to have contaminated air and water surrounding their facilities.[19] The bill was amended to require DTSC to consider additional aspects of the industry and its wastes. SB 1249 was passed by the Legislature, signed by the Governor, and became effective on January 1, 2015. The final bill as chaptered authorizes DTSC to adopt regulations establishing management standards for metal shredding facilities for hazardous waste management activities within the department's jurisdiction, as an alternative to the requirements of existing hazardous waste control law, based on a comprehensive evaluation of the industry and its practices, which would identify the appropriate level of regulatory controls to place on the industry and the management of treated metal shredder residue.

1.5 Requirements of Legislation

SB 1249 enacted Health and Safety Code Sections 25150.82 through 25150.86. These provisions are collectively referred to in this document as the Metal Shredding Facilities Law. It requires DTSC to evaluate the risks posed by metal shredding facilities and the management of metal shredder aggregate. Based on the findings of its evaluation, SB 1249 authorizes DTSC to either develop alternative management standards for metal shredding facilities or to rescind any prior decisions and require the facilities and their hazardous wastes to be subject to full hazardous waste management requirements.

In Section 1 of the Metal Shredding Facilities Law, the Legislature expressed its intent "that the conditional nonhazardous waste classifications, as documented through the historical 'f letters,' be revoked and that metal shredding facilities be thoroughly evaluated and regulated to ensure adequate protection of the human health and the environment."

The general requirements of the Metal Shredding Law:

- Authorize DTSC, in consultation with CalRecycle, SWRCB, and affected local air quality management districts, to adopt regulations establishing management standards for metal shredding facilities for hazardous waste management activities as an alternative to current hazardous waste control law and regulations.
- Require DTSC, before adopting regulations establishing alternative management standards, to first prepare an analysis evaluating the hazardous waste management activities to which alternative management standards would apply.
- Prohibit DTSC from adopting management standards that are less stringent than applicable standards under federal law.
- Authorize the alternative management standards, to the extent consistent with the federal hazardous waste standards, to allow CTMSR to be classified and managed as nonhazardous waste.

[19] See SB 1249 Committee Analysis, Senate Committee on Environmental Quality, Committee Consultant Rachel Machi Wagoner, April 30, 2014, p. 3.

- Allow CTMSR that is classified as nonhazardous waste pursuant to the alternative management standards to be managed as either alternative daily cover or for beneficial reuse, or to be placed in a unit that meets specified state waste discharge requirements.
- Require that all hazardous waste determinations and policies, procedures or guidance issued by DTSC before January 1, 2014, governing CTMSR be inoperative if DTSC completes its analysis and does either of the following: 1) adopts new regulations establishing alternative management standards; or 2) rescinds the existing conditional nonhazardous waste classifications.
- Sunset DTSC's authority to adopt regulations on January 1, 2018.
- Authorize DTSC to collect an annual fee from metal shredding facilities to pay DTSC's costs for implementation. This bill also establishes a separate subaccount in the Hazardous Waste Control Account and requires the fees to be deposited into the account, to be available upon appropriation by the Legislature, and authorizes regulations relating to fee provisions to be adopted as emergency regulations.
- Repeal Section 25143.6 of the Health and Safety Code.[20]

In order to implement the Metal Shredding Facilities Law, the Legislature directed DTSC to evaluate:

1) The operative environmental and public health regulatory oversight of metal shredding facilities (HSC Section 25150.82(d)(1)); and
2) The hazardous waste management activities (HSC Section 25150.82(d)(2)).

The Legislature then directed DTSC, if it were to propose any alternative management standards, to prepare an analysis that would address the following:

1) The types of hazardous waste and the estimated amounts of each hazardous waste that are managed as part of the activity (HSC Section 25150.82(d)(3)(A));
2) The complexity of the activity, and the amount and complexity of operator training, equipment installation and maintenance, and monitoring that are required to ensure that the activity is conducted in a manner that safely and effectively manages each hazardous waste (HSC Section 25150.82(d)(3)(B));
3) The chemical or physical hazards that are associated with the activity and the degree to which those hazards are similar to, or different from, the chemical or physical hazards that are associated with the production processes that are carried out in the facilities that produce the hazardous waste that is managed as part of the activity (HSC Section 25150.82(d)(3)(C));
4) The types of accidents that might reasonably be foreseen to occur during the management of particular types of hazardous waste streams as part of the activity, the likely consequences of those accidents, and the reasonably available actual accident history associated with the activity (HSC Section 25150.82(d)(3)(D));

[20] Repeal of the requirement for five RWQCBs to prepare a list of Class III nonhazardous waste landfills that would be authorized to accept and dispose of metal shredder residue that was enacted by SB 976 (Bergeson, Ayala and Seymour, Chapter 1395, Statutes of 1985).

5) The types of locations where hazardous waste management activities associated with metal shredding and management of treated metal shredder waste may be carried out and the types of hazards or risks that may be posed by proximity to the land uses described in Section 25227 (HSC Section 25150.82(d)(3)(D)).[21]

The Legislature next directed DTSC to demonstrate, for any alternative management standards that DTSC is proposing, one of the following:

1) The requirements that the alternative management standards replace are not significant or important for either a) Preventing or mitigating potential hazards to human health or safety or to the environment posed by the activity; or b) Ensuring that the activity is conducted in compliance with other applicable requirements of this chapter and the regulations adopted pursuant to this chapter (HSC Section 25150.82(e)(1));

2) A requirement is imposed and enforced by another public agency that provides protection of human health and safety and the environment that is as effective as, and equivalent to, the protection provided by the requirement, or requirements, that the alternative management standards replace (HSC Section 25150.82(e)(2));

3) Conditions or limitations imposed as part of the alternative management standards will provide protection of human health and safety and the environment equivalent to the requirement, or requirements, that the alternative management standards replace (HSC Section 25150.82(e)(3)); or

4) Conditions or limitations imposed as part of the alternative management standards accomplish the same regulatory purpose as the requirement, or requirements, that the alternative management standards replace, but at less cost or with greater administrative efficiency, and without increasing potential risks to human health or safety or to the environment (HSC Section 25150.82(e)(4)).

SB 1249 also allows DTSC to classify and manage CTMSR as nonhazardous waste if the analysis demonstrates that classification and management as hazardous waste is not necessary to prevent or mitigate potential hazards to human health or safety or to the environment. SB 1249 authorizes the classification of CTMSR as nonhazardous waste to be included in any regulations to establish alternative management standards. The alternative management standards may allow CTMSR to be used as either alternative daily cover or for beneficial reuse, or to be placed as a nonhazardous waste in a land disposal unit that meets specified requirements.

However, SB 1249 requires the disposal of CTMSR to be regulated by existing hazardous waste control law unless alternative management standards are adopted by DTSC. If the department does not adopt alternative management standards that include the classification of CTMSR as nonhazardous waste, SB 1249 allows the current disposal of CTMSR to continue until the department rescinds the conditional nonhazardous waste classifications. If DTSC were to rescind the nonhazardous waste classifications without alternative management standards, or other new regulations in place which classify the waste

[21] HSC § 25227 cites sensitive land uses including hospitals for humans, schools for persons under 21 years of age, day care centers for children, and permanently occupied human habitations, other than those used for industrial purposes.

as nonhazardous, the waste would be required to be managed as hazardous waste. This provision in SB 1249 which allows DTSC to adopt alternative management standards and to classify metal shredder waste as nonhazardous sunsets as of January 1, 2018.

Importantly, SB 1249 does not affect or limit DTSC's other statutory authorities to regulate metal shredding operations or to classify wastes as hazardous or nonhazardous as appropriate to ensure proper management and disposal.

The information summarized in this report provides the evaluations, analyses, and demonstrations required by SB 1249.

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2 EVALUATION

Pursuant to HSC Sections 25150.82(d)(1) and 25150.82(d)(2), the Metal Shredding Facilities Law requires DTSC to evaluate:

- The operative environmental and public health regulatory oversight of metal shredding facilities, identifying activities that need to be addressed by the alternative management standards or other advisable regulatory or statutory changes; and
- The hazardous waste management activities being conducted by metal shredding facilities or at landfills that handle metal shredder waste.

This section presents the information that DTSC gathered in performing the required evaluations.

2.1 Identification of Metal Shredding Facilities

Pursuant to SB 1249, DTSC first identified all metal shredding facilities that would be evaluated based on the statutory definition of a metal shredding facility and using available data as shown in Table 1.

Table 1.
Databases Searched for Potential Metal Shredding Facilities

Database	Identified metal handlers
Hazardous Waste Tracking System (HWTS)	1,325 entities with ID numbers with company featuring keywords (“metal” or “scrap”) or Standard Industrial Classification (SIC) codes related to metal recycling activities
California Department of Motor Vehicles list of Licensed Automobile Dismantlers	1,111 auto recyclers identified as automobile salvage/recycler
DTSC’s Certified Appliance Recycler (CAR) Program	343 registered facilities
State of California Auto Dismantlers Association	171 member companies
Dunn and Bradstreet Business Listings for specific North American Industry Classification System (NAICS) codes	999 business entities with NAICS codes for used motor vehicle parts, metal wholesalers, metal service centers, and recyclable mineral merchant wholesalers
Institute of Scrap Recycling Industries (ISRI)	241 California businesses
2014 North American Scrap Metals Directory	8 facilities

The data review identified approximately 2,000 businesses that managed scrap metal (some of the businesses were identified across multiple databases). In narrowing the scope to further identify only metal shredding facilities, DTSC identified 400 facilities that were shown in HWTS records to have shipped contaminated soil or other hazardous waste solids off-site for disposal. DTSC examined satellite images of the 400 facilities in Google Earth and identified 101 locations where metal processing equipment and piles of material indicating that metal shredding operations were visible.

DTSC next sought the assistance of the CUPAs in evaluating the 101 potential metal shredding operations within their respective jurisdictions.[22] The CUPAs confirmed that 74 of the identified locations did not perform any shredding activities, that 18 facilities had not been inspected and the CUPAs had no additional information on them, and that nine were potential metal shredding facilities. DTSC's Office of Criminal Investigations (OCI) then conducted follow-up inspections of the facilities identified by the CUPAs to determine if they met the statutory definition of a metal shredding facility.

OCI completed its initial inspection of the facilities in December 2015. The name and locations of metal shredding facilities authorized to operate in California are shown in Table 2. In addition to the facilities identified in Table 2, an SA Recycling facility in Rancho Cucamonga holds a valid "f letter" but was not operating as a metal shredding facility as of 2017.[23] DTSC identified two additional facilities which were not currently authorized to operate: Universal Recycling Services in Stockton and Kramar's Iron and Metal in Sun Valley. Due to pending enforcement activities by DTSC, these facilities were not included in the evaluation.

Table 2.

Authorized Metal Shredding Facilities Operating in California

Facilities Currently Holding an "f letter"	**Original "f letter" Recipient**	**Original "f letter" Issue Date**
SA Recycling, Terminal Island 901 New Dock Street Terminal Island, CA 90731	Hugo Neu-Proler Company 901 New Dock Street P. O. Box 3100 Terminal Island, CA 90731	February 21, 1986
Schnitzer Steel Products 1101 Embarcadero West Street Oakland, CA 94607-2536	Schnitzer Steel Products Foot of Adeline Street P.O. Box 747 Oakland, CA 94604	June 13, 1988
SA Recycling, Anaheim 3200 East Frontera Street Anaheim, CA 92806-2822	Orange County Steel Salvage, Inc. 3200 E. Frontera Road Anaheim, CA 92806	December 19, 1988
Sims Metal Management 699 Seaport Boulevard Redwood City, CA 94063-2712	LMC Metals 600 South 4th Street Richmond, CA 94804	May 31, 1989
SA Recycling, Bakersfield 2000 East Brundage Lane Bakersfield, CA 93307-2734	Golden State Metals, Inc. P.O. Box 70158 Bakersfield, CA 93387	February 25, 1992
Ecology Auto Parts, Inc. doing business as (DBA) Pacific Rail Industries 785 East M Street Colton, CA 92324-0000	Transferred from Clean Steel, Inc. August 1, 2005	Transferred from Clean Steel, Inc. August 1, 2005

[22] See DTSC Letter requesting assistance from the CUPAs, July 28, 2015.

[23] See DHS Letter to Mr. Thomas Hightower, Ferromet, Inc., February 23, 1990.

The locations of the six metal shredding facilities that were identified as currently active and operating under the authority of the "f letters" and OPP 88-6 are shown in Figure 2. Additionally, the locations of the five solid waste landfills that accept CTMSR as of 2017 are also presented in Figure 2.

Figure 2. Metal shredding facilities currently active and operating under the authority of the "f letters" and OPP 88-6 and landfills accepting CTMSR.

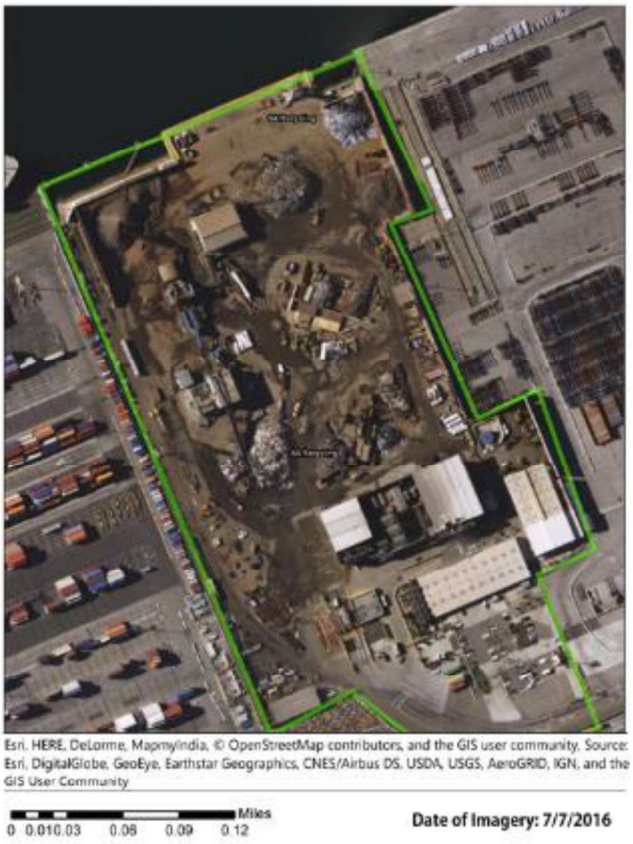
2.2 Survey of Metal Shredding Facilities

In 2015, DTSC sent questionnaires to the authorized metal shredding facilities and to the landfills currently accepting CTMSR as a preliminary assessment of their operational practices. The survey requested information on general operating conditions and practices, acceptance policies, volumes processed, environmental controls, and waste management practices related to the generation, treatment, storage, transportation, and disposal of metal shredder wastes. Responses were returned by all six metal shredding facilities, and from four of the five landfills. The complete responses to the questionnaires are provided in Appendices A and B.

General information about each of the metal shredding facilities and their operations is provided below. Additional information from these surveys has been integrated into the relevant sections of this Analysis.

SA Terminal Island

SA Terminal Island is located on 27 acres in the Terminal Island area of the Port of Long Beach. The area is entirely industrial. More than 95 percent of the facility site is covered with pavement or by structures.[24] The facility captures storm water and wash water from the yard and reuses it after chemical treatment and clarification. Water that is not reused is discharged to the Cerritos Channel, which flows to the Pacific Ocean.



SA metal recycling facility in Terminal Island CA.

The facility receives automobiles, consumer and industrial appliances, manufacturing scrap, curbside collection scrap, demolition scrap, miscellaneous scrap from consumers and homeowners, and industrial scrap. In some circumstances, appliances and vehicles have fluids, batteries, mercury switches, and other pollutants, which are removed on-site prior to being sent to the shredder. The facility reported that a total weight of approximately 300,000 metric tons of scrap metal was shredded for the year 2014. The scrap metal consisted of 42.16 percent automobiles, 43.63 percent appliances, and 14.21 percent miscellaneous. SA Terminal Island uses a 9,000-horsepower mega shredder manufactured by Riverside Engineering.

SA Terminal Island reported that there is no material storage on bare ground. The facility reported up to 100,000 tons of ferrous and non-ferrous scrap metal were stored on-site at any given time. The facility

[24] See Storm Water Pollution Prevention Plan, SA Recycling LLC dba SA Recycling, Waste Discharge Identification (WDID) number 419I021125, June 20, 2015.

reported that it typically stores 1,000 to 4,000 tons of metal shredder waste with its ferrous metals removed, prior to the removal of non-ferrous metals. SA Terminal Island reported that it typically stores 1,500 to 2,000 tons of CTMSR on-site at any given time, but that up to 10,000 tons could potentially be present at the site.

Schnitzer Steel Products

Schnitzer Steel Products (Schnitzer) is located on 26.5 acres in southern Oakland in the industrialized port area. The facility is adjacent to Oakland Inner Harbor and the Port of Oakland.[25] Approximately 57 percent of the site is composed of paved roads and other paved areas, 12 percent is composed of buildings and structures, and the remaining 31 percent is composed of unpaved dirt and gravel surfaces. The facility is bounded to the south by the Oakland Inner Harbor, to the east and west by the Port of Oakland, and to the north by Embarcadero West and the Union Pacific Railroad tracks. The facility is located approximately 0.3 mile south of Interstate 880. The nearest residential area is approximately one-half mile to the north of the facility, with other residents to the south in nearby Alameda.

Schnitzer Steel Products metal recycling facility, located in Oakland, CA.

The facility does not normally discharge storm water. Any storm water that falls on the facility is contained on-site and used as cooling water in the shredder. Containment is achieved by a combination of structural and physical features, including a 2,400-foot concrete wall with a raised walkway that runs the entire length of the shoreline, a 1,300-foot concrete wall that runs along the facility's western

[25] See Industrial Activities Storm Water Pollution Prevention Plan, prepared for Schnitzer Steel Products Company, Inc., Oakland, CA, WDID number 201I003365, June 2015.

boundary, a 1,000-foot concrete wall and 300-foot sheet pile wall that run along the facility's eastern boundary, and a 1,000-foot concrete wall that encloses the pier crane dock. Storm water is retained on-site in a 1.2-million-gallon storage tank pending use in the shredder. There are no storm water outfalls at the facility and no storm drains that connect to the separate municipal storm sewer system.

Schnitzer processes iron containing scrap including end-of-life vehicles, appliances, and demolition scrap; non-ferrous metals including copper, aluminum, and stainless steel; electronics scrap; and lead-acid batteries. Schnitzer's scrap acceptance policy prohibits items such as elemental mercury; nickel-cadmium, lithium ion, and alkaline batteries; scrap metals with free-flowing liquids (e.g. used oil); scrap metals with refrigerants; scrap metals with capacitors, ballasts, and transformers; munitions and other explosives; asbestos; radioactive scrap metal; and any wastes that contain hazardous materials.

Schnitzer reported that the scrap metal processed at its facility was composed of approximately 50 percent end-of-life vehicles, 10 percent appliances, and 40 percent other light tin or iron. Schnitzer also uses a 9,000-horsepower mega shredder manufactured by Riverside Engineering.

Schnitzer reported that between 70,000 and 80,000 tons of sorted scrap metals are stored outdoors at any given time. Additionally, on average there may be 300 to 500 tons of metal shredder aggregate which has had ferrous metal removed stockpiled near the shredder and the non-ferrous separation plant. The facility reported that the maximum amount of CTMSR typically stored at the facility is approximately 350 tons. Typically, 20 loads per day of CTMSR are transported off-site for disposal in a landfill. Each load weighs between 20 and 25 tons.

SA Anaheim

SA Anaheim is located on approximately 20 acres of a 40-acre site in Anaheim, near retail centers, warehouses, and residential neighborhoods. Scrap metal operations are conducted on the 20-acre portion. The remainder of the site is used as a railyard.[26] The facility is completely paved and is designed to collect storm water for recycling and on-site reuse. The site is surrounded by Highway 91 to the west and north, the Santa Ana River Basin to the south-southeast, and commercial properties including a hotel to the south-southwest. Other surrounding land areas are zoned heavy industrial.

SA Anaheim reported that end-of-life vehicles, consumer and industrial appliances, manufacturing scrap, curbside collection scrap, demolition scrap, miscellaneous scrap from consumer and homeowners, and industrial scrap are all processed at the facility. The facility receives scrap from industrial accounts, from other scrap metal recycling facilities, and from the public. Some materials are received with the fluids, batteries, mercury switches, and other pollutants already removed. In other circumstances, such pollutants are removed from the appliances and vehicles at the site, in a specially designated area, prior to being sent to the shredder.

[26] See Storm Water Pollution Prevention Plan SA Recycling LLC dba SA Recycling, WDID: 830MR000004, revision dated June 6, 2011.

SA metal recycling facility, located in Anaheim, CA.

SA Anaheim reported that approximately 225,000 metric tons of scrap metal were shredded in 2014. The scrap metal was composed of 39.25 percent end-of-life vehicles, 34.63 percent appliances, and 26.11 percent miscellaneous. The facility uses a 7,000-horsepower mega shredder manufactured by The Shredder Company.

The facility reported that it stores more than 20,000 tons of separated ferrous and non-ferrous scrap metal on-site at any given time. The separated ferrous and non-ferrous scrap is stored in containers and in piles in bermed areas that also serve as surface impoundments for storm water collection. These storage locations are in various areas of the site. There are typically 500 to 1,000 tons of metal shredder aggregate which has had the ferrous metal removed stored in the metals recovery plant. The facility reported storing less than 150 tons of CTMSR on-site at any one time.

Storm water collected from the parking lot and the central industrial operations main yard is captured and treated in the storm water treatment system prior to reuse or discharge. The facility has a multi-stage chemical treatment process to reduce the concentration of contaminants in the collected water. The facility has a 135,000-gallon aboveground storage tank. Water exiting the treatment system which is not reused on-site is discharged to the municipal storm drain that discharges to the Santa Ana River, which eventually discharges to the Pacific Ocean.

Sims Metal Management

Sims Metal Management (Sims) is located on 13.54 acres in the northern industrialized section of the Port of Redwood City and adjoins Redwood Creek, a tributary to San Francisco Bay.[27] The facility is

[27] See Storm Water Pollution Prevention Plan for Sims Metal Management, Redwood City, June 30, 2015.

surrounded by sensitive wetlands, including Bair Island State Marine Park, and extensive commercial salt evaporation ponds. Residential areas are located approximately two miles south of the facility.

Sims metal recycling facility, located in Redwood City, CA.

The facility reported that it stores approximately 3,400 tons of ferrous and non-ferrous scrap on-site at any given time. In addition, the facility stores 350 tons of CTMSR awaiting disposal.

The facility reported that approximately 90 percent of the site is either paved or beneath structures.[28] There are no storm drain connections from the facility to any off-site storm water drainage system. Run-off and on-site precipitation from storm events is collected in two storage ponds designed to contain enough volume to hold the precipitation from a 100-year storm event. One pond is lined while the other, which has a surface area of 95,000 square feet (2.2 acres), is unlined. The unlined pond is also used to store ferrous metal before it is loaded onto ships. The collected water is used for dust control in the yard, and for cooling and dust control in the shredder and material recovery plant.

The facility has installed 34-foot fencing on the east boundary, 20-foot fencing on the south boundary, and 25-foot fencing on the west boundary. The fence on the east side of the shredder stockpile is 22 feet high, with a “candy cane” curve installed at the top intended to capture fugitive emissions of LFM.

[28] See Emissions Minimization Plan, Regulation 6, Particulate Matter, Rule 4: Metal Recycling and Shredding Operations, Sims Metal Management, Redwood City, September 25, 2014.

SA Bakersfield

SA Bakersfield is located on 18.1 acres in central Bakersfield in a predominantly industrial area, and a mile from the nearest residences.[29] More than 95 percent of the facility is paved or beneath structures.

SA metal recycling facility, located in Bakersfield, CA.

The facility processes end-of-life vehicles, consumer and industrial appliances, manufacturing scrap, curbside collection scrap, demolition scrap, consumer/homeowner scrap, and industrial scrap. It receives scrap from industrial accounts, materials from other scrap metal recycling facilities, and materials from the public. The facility reported that it processed approximately 75,000 metric tons of scrap metal in 2014. The scrap was composed of 52.34 percent end-of-life vehicles, 30.10 percent appliances, and 17.56 percent miscellaneous. The facility uses a 6,000-horsepower mega shredder manufactured by The Shredder Company.

The facility reported that less than 6,000 tons at any given time of ferrous and non-ferrous scrap is stored in bins, boxes, and in piles in bermed areas that also serve as surface impoundments. Shredded scrap metal is not stored at the site, but 300 to 800 tons of metal shredder aggregate with ferrous metal removed is stored on concrete paved surfaces prior to further metal removal. Following the chemical stabilization treatment, there can be from 100 to 300 tons of CTMSR stored on-site at any one time.

[29] See Storm Water Pollution Prevention Plan, SA Recycling LLC dba SA Recycling, June 17, 2015.

SA Bakersfield reported that it has no active outfalls that are a point of discharge. Rather, it manages storm water through infiltration on the property. The storm water management includes settling/sedimentation, oil-water separation, filtration, and reuse.

Ecology Auto Parts

Ecology Auto Parts (Ecology) is located on approximately 22 acres in an industrial section of Colton, but with residences nearby. Ecology accepts various types of materials for shredding, including end-of-life vehicles, appliances, tin, and other forms of scrap metal. In most instances, auto bodies that have not been depolluted are not accepted directly at Ecology's shredder facility; most have fluids, batteries, mercury switches, and other pollutants removed before delivery to the shredder facility. Ecology estimated that it processed 264,000 tons of scrap metal in 2014, comprising 35 percent end-of-life vehicles, 56 percent appliances, and 9 percent miscellaneous. Ecology uses a 6,000-horsepower hammer mill manufactured by Metso Corporation.

Ecology Auto Parts metal recycling facility, located in Colton, CA.

Ecology is unique among the other shredding facilities in that it performs the initial removal of ferrous materials using magnets at the shredding facility in Colton, but then transports the remaining aggregate to a facility in Arizona for further processing to recover the non-ferrous metals. At one time, the facility recovered non-ferrous metals at the Colton facility and then chemically treated the remaining metal shredder aggregate on-site. However, since the metal shredder aggregate is currently sent off-site for further processing, Ecology is no longer operating the chemical stabilization treatment system.

Ecology reported that between 80 and 85 percent of the site is paved, and that the site is graded so that all storm water runoff is captured in a lined storm water pond with a capacity of one million gallons.[30] The captured water is transferred to a holding tank, also with a capacity of one million gallons, and reused for cooling in the hammer mill and for dust suppression throughout the facility. Ecology's retention pond was constructed with a capacity to accommodate the precipitation from a 100-year, 24-hour storm event.

2.3 Operative Environmental and Public Health Regulatory Oversight of Metal Shredding Facilities

This section presents the information that DTSC gathered to evaluate the operative environmental and public health regulatory oversight of metal shredding facilities, and to identify activities that need to be addressed by the alternative management standards or other advisable regulatory or statutory changes.

Table 3 provides information regarding the local environmental regulatory agencies that exercise jurisdiction over the metal shredding facilities.

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[30] See Report of Investigation on Ecology Auto Parts, Inc., Colton dba: Pacific Rail Industries, December 16, 2015.

Table 3.
Local Environmental Regulatory Agencies That Oversee Metal Shredding Facilities

Metal Shredding Facility	Air District	RWQCB	CUPA
SA Recycling, Terminal Island 901 New Dock Street Terminal Island, CA 90731 Los Angeles County	**South Coast Air Quality Management District** 21865 Copley Drive Diamond Bar, CA 91765-4182	**Los Angeles Regional Water Quality Control Board** 320 West Fourth Street Los Angeles, CA 90013	**Los Angeles County Fire Department** 5825 Rickenbacker Road Commerce, CA 90040
Schnitzer Steel Products 1101 Embarcadero West Oakland, CA 94607-2536 Alameda County	**Bay Area Air Quality Management District** 939 Ellis Street San Francisco, CA 94109-7799	**San Francisco Bay Regional Water Quality Control Board** 1515 Clay Street Oakland, CA 94612	**Alameda County Environmental Health** 1131 Harbor Parkway, Suite 240 Alameda, CA 94502-
SA Recycling, Anaheim 3200 E Frontera Street Anaheim, CA 92806-2822 Orange County	**South Coast Air Quality Management District** 21865 Copley Drive Diamond Bar, CA 91765-4182	**Santa Ana Regional Water Quality Control Board** 3737 Main Street, Suite 500 Riverside, CA 92501-3348	**Anaheim City Fire Department** 201 South Anaheim Boulevard, Suite 300 Anaheim, CA 92805
Sims Metal Management 699 Seaport Boulevard Redwood City, CA 94063-2712 San Mateo County	**Bay Area Air Quality Management District** 939 Ellis Street San Francisco, CA 94109-7799	**San Francisco Bay Regional Water Quality Control Board** 1515 Clay Street, Suite 1400 Oakland, CA 94612	**San Mateo County Environmental Health** 2000 Alameda de las Pulgas San Mateo, CA 94403
SA Recycling, Bakersfield 2000 East Brundage Lane Bakersfield, CA 93307-2734 Kern County	**San Joaquin Valley Air Pollution Control District** 1990 East Gettysburg Avenue Fresno, CA 93726	**Central Valley Regional Water Quality Control Board** 1685 E Street Fresno, CA 93706-2007	**Kern County Environmental Health Services Department** 2700 M St., Suite 300 Bakersfield, CA 93301-2370
Ecology Auto Parts, Inc. DBA Pacific Rail Industries 785 East M Street Colton, CA 92324-0000 San Bernardino County	**South Coast Air Quality Management District** 21865 Copley Drive Diamond Bar, CA 91765-4182	**Santa Ana Regional Water Quality Control Board** 3737 Main Street, Suite 500 Riverside, CA 92501-3348	**San Bernardino County Fire Department Hazardous Materials Division** 620 South E Street San Bernardino, CA 92415

2.3.1 Air Quality: Regulation by Local Air Quality Management Districts or Air Pollution Control Districts

The federal Clean Air Act requires attainment of National Ambient Air Quality Standards (NAAQs) for criteria air pollutants causing human health impacts. The criteria pollutants include: ozone, particulate matter (PM), carbon monoxide, lead, nitrogen dioxide, and sulfur dioxide. The Clean Air Act established deadlines for all states to reach attainment levels for these pollutants. States are required to develop a State Implementation Plan (SIP) to attain the NAAQs by the attainment deadlines. SIPs must contain air pollution measures in adopted "regulatory" form and must be approved by US EPA as containing sufficient measures to attain NAAQs. California law makes the California Air Resources Board the lead

agency for developing and implementing the SIP. Local air districts and certain other agencies prepare SIP elements and submit them to ARB for review and approval. ARB forwards SIP revisions to US EPA for approval and publication in the Federal Register. Local air districts are responsible for developing and implementing the portion of the SIP applicable within their boundaries, including adoption of control regulations for stationary sources, and implementation of other source control measures. Metal shredding facilities are stationary sources of air pollution subject to regulation by local air districts.

Metal shredding facilities and landfills that accept metal shredder waste are also regulated by California's Air Toxics "Hot Spots" program.[31] The program's goals are to collect emissions data, identify facilities having localized impacts, ascertain health risks, and notify nearby residents of significant risks. The program requires stationary sources to report the types and quantities of certain substances their facilities routinely release into the air. Each of the metal shredding facilities and landfills has submitted data on their emissions, including their annual emissions of particulate matter and lead. These data are reviewed by the local air district and, depending on the nature and quantity of the emissions, the facility may be required to prepare a formal health risk assessment, notify the public of potential risks, and take additional actions. The local air districts submit emissions and health risk information to ARB, which then provides that information to the public.[32]

Emissions from each of the metal shredding facilities are quantified and permitted by the local air districts. Total facility throughput is also often specified in the permits, along with the types and quantities of pollutants, such as volatile organic compounds (VOCs) and particulate matter. Visible emissions are also often specified.

The Ringelmann Smoke Chart, referenced in this section, is used to quantify visible emissions. The Ringelmann scale was officially promulgated by the U.S. Bureau of Mines and is used to determine whether emissions of smoke or dust are within limits or standards of permissibility established and expressed with reference to the chart.[33] It is widely used by law enforcement or compliance officers in jurisdictions that have adopted standards based on visible emissions.

A summary of the regulatory oversight of the metal shredding facilities by local air districts is shown in Table 4.

[31] See Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly), as amended (SB 1731 1992, Calderon).

[32] Annual emissions data is available on the ARB website at: https://www.arb.ca.gov/app/emsinv/facinfo/facinfo.php

[33] United States Department of the Interior, Bureau of Mines, Information Circular 8333, 1967.

Table 4. Regulatory Oversight of Metal Shredding Facilities by Local Air Districts						
Facility	**Sims Metal Manageme**	**Schnitzer Steel Products**	**SA Terminal Island**	**SA Anaheim**	**SA Bakersfield**	**Ecology**
District	BAAQMD	BAAQMD	SCAQMD	SCAQMD	SJVAPCD	SCAQMD
Permit Identification	PTermitfor Plant #5152	Permit for Plant #208	Permit No. R-G27565	Permit No. G 16984	Permit Number(s): S-1256-7-2	Permit No. G32848
Point Source	Hood, H2O, Cyclone	Hood, H2O, Cyclone	Hood, H2O	Hood, H2O	Hood, H2O	Hood, H2O
VOC Control Technology	Scrubber	Scrubber	RTO, Scrubber	RTO, Scrubber	No RTO or Scrubber	RTO
Fugitive Emissions Requirements	Ringelmann less than 1.0, Emissions Minimization Plan	Ringelmann less than 1.0, Emissions Minimization Plan	Must be kept moist	Must be kept moist	5% max opacity, PM10 limit	Must be kept moist
Maximum Throughput Authorized	200 tons/hr max	720,000 tons/yr	108,333 tons/mo max	56,160 tons/mo	2,300 tons/day max	40,000 tons/mo max
Particulate Matter Emissions in 2015, tons/yr[34]	6.1	0.4	1.7	0.9	1	0
PM 10 Emissions in 2015, tons/yr	3.9	0.3	0.4	0.2	0.6	0
PM 2.5 Emissions in 2015, tons/yr	2.9	0.2	0.3	0.2	0.4	0
Lead Emissions in 2015, lbs/yr	N/A	0	13.4	1	N/A	N/A

The following is more detailed information regarding the air pollution control permits and compliance activities at each of the facilities.

[34] All emissions data from https://www.arb.ca.gov/app/emsinv/facinfo/facinfo.php

SA Terminal Island

SA Terminal Island is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). Air permits issued by SCAQMD include Permits to Operate for the shredder (R-G27565), the metals recovery plant (R-G18947), and the shredder air pollution control system (APCS) (R-G27566).

SA Terminal Island and the other facilities within the SCAQMD have the most extensive air pollution control equipment. Regenerative Thermal Oxidizers (RTOs) are required at the three facilities to remove VOCs from exhaust air. The RTO uses a substrate bed of ceramic material to absorb heat from the exhaust gas. Incoming gases are passed over this heated bed, which destroys the organic compounds by oxidizing (burning) them. The RTO requires a dust-free air stream, so demisters and PM filters are placed before the oxidizer. Any dust containing metal particles that enter the RTO can form slag, which reduces performance and can damage the unit. Subjecting organic compounds to the high temperatures in the oxidizer ideally yields only carbon dioxide and water vapor. Any halogenated compounds in the incoming exhaust stream, such as remaining chlorofluorocarbons (CFCs) in vehicle and appliance refrigerant systems, can create acid gasses when burned in the oxidizer, and are removed using a wet scrubber at the final stage of the air pollution control system following the RTO.

The facility employs a variety of measures to control off-site migration of contaminants. These include:

- RTO for control of VOCs
- A chemical scrubber to neutralize and remove acid gases from the shredder exhaust
- Water spray inside the shredder chamber to control temperature and reduce dust generation
- Overhead exhaust hood to collect particulate matter and VOCs generated from shredding
- Dust/mist collector to capture oils, particulate matter and moisture from shredder exhaust
- Various moisture-coalescing filters and high-efficiency dust filters
- Periodic sweeping of material stacking areas throughout the day to reduce dust generation
- A sweeper truck to clean the entrances and driveways in the yard
- Water applied to the yard, haul roads, and material piles to reduce dust generation

The facility is concrete-paved, and is designed to allow collection of the wash water for recycling and subsequent reuse on-site.

Schnitzer Steel Products

Schnitzer is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). Air permits issued by BAAQMD include a Permit to Operate for Plant # 208, as well as application of BAAQMD Rule 4 for Metal Recycling and Shredding Operations, and BAAQMD Regulation 6 for particulate matter. The facility employs a variety of control measures to eliminate the potential for off-site contamination. These include:

- Shredder emissions abatement by a water spray system
- Irrigated cyclone scrubber (venture scrubber), mist eliminator, moving dry belt filter
- A simple cyclone downstream of the magnets
- Frequent sweeping of paved traffic surfaces with a mobile sweeper
- Frequent application of water to all traffic surfaces and stockpiles
- Use of mist turbines at key material handling areas to minimize fugitive emissions
- Enclosure of many material conveyance systems to minimize fugitive emissions

- Use of an industrial wheel wash at the facility exit to minimize tracking off-site

BAAQMD Regulation 6, Rule 4 for Metal Recycling and Shredding Operations requires metal recycling facilities to develop an Emissions Minimization Plan (EMP) to minimize the fugitive emissions of particulate matter from the facilities operating in the district. The EMP is to detail the management practices, measures, equipment, and procedures that are used to minimize fugitive emissions. Operations subject to the EMP include roadways and traffic areas, metal management, metal shredder waste management, and de-pollution operations. Schnitzer submitted its EMP to BAAQMD on October 27, 2014.

SA Anaheim

SA Anaheim is under the jurisdiction of SCAQMD. Air permits issued by SCAQMD include a permit to construct/operate the shredder (Permit to Construct/Modify No. 502884), the shredder air pollution control system (Permit to Construct No. 495678), and for the Metals Recovery Plant (G16984). The facility employs the following measures to control off-site migration:

- RTO for VOC control
- A chemical scrubber to neutralize and remove acid gases from the shredder exhaust
- Water spray inside the shredder chamber to control temperature and reduce dust generation
- Overhead exhaust hood to collect particulate matter and VOCs generated from shredding
- Dust/mist collector to capture oils, particulate matter, and moisture from shredder exhaust
- Various moisture-coalescing filters and high-efficiency dust filters.
- Periodic sweeping of material stacking areas throughout the day to reduce dust generation
- Use of a sweeper truck to clean the entrances and driveways in the yard
- Extensive application of water to the yard haul roads and piles of materials to reduce dust generation
- The entire Metals Recovery Plant operation, from receipt of aggregate via conveyer, through non-ferrous recovery operations, to loading out CTMSR in trucks, is conducted within a covered structure, although the sides are open

The entire facility is concrete-paved.

Sims Metal Management

Sims is under the jurisdiction of BAAQMD. Air permits issued by BAAQMD include Permit to Operate for Plant # 5152, as well as application of BAAQMD Rule 4 for Metal Recycling and Shredding Operations, and BAAQMD Regulation 6 for particulate matter. The facility employs a variety of measures to reduce the potential for off-site contamination. These include:

- Water spray inside the shredder chamber to control temperature and reduce dust generation
- An exhaust collection system
- A cyclone dust collection system for the shredder exhaust
- A wet scrubber system
- A fabric-covered fencing to reduce off-site emissions of LFM

BAAQMD Regulation 6, Rule 4 for Metal Recycling and Shredding Operations requires the facilities to develop an EMP to minimize the fugitive emissions of particulate matter from metal recycling facilities operating in the district. The EMP details the management practices, measures, equipment, and procedures that are used to minimize fugitive emissions. Operations subject to the EMP include

roadways and traffic areas, metal management, metal shredder waste management, and de-pollution operations. Sims submitted its EMP to BAAQMD on September 25, 2014.

Sims has dry and wet cyclones and secondary high-efficiency particulate filtration units on the main shredding chamber exhaust. Various sprinklers, mist turbines, and sweepers are used to keep the ground area dust-free.

According to Sims, in response to recent enforcement actions (see Section 2.3), it has made a number of improvements to reduce the potential for fugitive emissions from transfer and loading operations. The facility has taken efforts to enclose its conveyor systems to eliminate them as a source of fugitive emissions of particulate matter and light fibrous material (LFM).

SA Bakersfield

SA Bakersfield is under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). Air emissions from the facility are governed under permits to operate the shredder and the air pollution control system (S-1256-7-2 and S-1256-3-10). The shredder is equipped with an exhaust collection system, which incorporates a mist/oil eliminator and a series of high-efficiency particulate filters on the main shredder exhaust. However, the shredder and the metals recovery plant are not enclosed. The facility employs a variety of measures to control off-site migration. These include:

- Water spray inside the shredder chamber to control temperature and reduce dust generation
- Overhead exhaust hood to collect particulate matter and VOCs generated from shredding
- Dust/mist collector to capture oils, particulate matter, and moisture from shredder exhaust
- Various moisture-coalescing filters and high-efficiency dust filters
- Material stacking areas are swept periodically throughout the day

A sweeper truck is used to clean the entrances and driveways in the yard. The SA Bakersfield facility is fully paved.

Ecology Auto Parts

Ecology is under the jurisdiction of SCAQMD. Air permits issued by SCAQMD include a Permit to Operate the Shredder (G32848 and A/N 567354) and a Permit to Operate the RTO (G32228). The facility employs a variety of measures to control off-site contamination. These include:

- RTO for VOC control
- Water spray inside the shredder chamber to control temperature and reduce dust generation
- Overhead exhaust hood to collect particulate matter and VOCs generated from shredding
- High-efficiency particulate air filtration system for ultra-fine particulate control
- A full-time mechanical street sweeper
- A water truck to wash down specific areas when needed
- Overhead, remote-controlled water cannon and mist turbines to spray down the shredder area
- Use of a water truck to wash down specific areas when needed

The entire shredding area, including the receiving and stockpile areas, is completely paved.

2.3.2 Water Quality: Regulation by the Regional Water Quality Control Boards

SWRCB implements federal requirements for storm water quality for industrial facilities using the industrial general permit (referred to as the "general permit"), which is used throughout California. Applicability of the general permit is based on the types of activities that occur that the facility using Standard Industrial Classification codes, recycling being one of the categories. RWQCBs administer the statewide general permit, in addition to any region-specific requirements for that permit. Once a facility is covered under the general permit they are assigned a waste discharge identification (WDID) number and must submit a Notice of Intent for coverage under the permit, explaining how they will adhere to all the requirements of the general permit. Additionally, a facility covered under the general permit is required to create and implement a storm water pollution prevention plan (SWPPP) with a site map, conduct water quality monitoring and reporting, and install best management practices.

SA Terminal Island

SA Terminal Island is under the jurisdiction of the Los Angeles RWQCB. Storm water discharges from SA Terminal Island are permitted under the SWRCB General Permit to Discharge Storm Water Associated with Industrial Activity. The WDID number is 4 19I021125.

Schnitzer Steel Products

Schnitzer is under the jurisdiction of the San Francisco Bay RWQCB. Storm water discharges from the Schnitzer facility are permitted by the East Bay Municipal Utilities District under Wastewater Discharge Permit No. 02300311.

SA Anaheim

SA Anaheim is under the jurisdiction of the Santa Ana RWQCB. Storm water discharges from SA Anaheim are permitted under the Sector-specific General Permit for Storm Water Runoff Associated with Industrial Activities from Scrap Metal Recycling Facilities within the Santa Ana Region. The WDID number is 8 30MR000004.

Sims Metal Management

Sims is under the jurisdiction of the San Francisco Bay RWQCB. Storm water discharges from Sims are permitted under WDID number 2 41I005107. Sims has also obtained a National Pollutant Discharge Elimination System (NPDES) permit under the authority of the federal Clean Water Act to discharge storm water into San Francisco Bay.

SA Bakersfield

SA Bakersfield is under the jurisdiction of the Central Valley RWQCB. Storm water discharges from SA Bakersfield are permitted under the SWRCB General Permit to Discharge Storm Water Associated with Industrial Activity, and the facility WDID number is 5 F15I021109.

Ecology Auto Parts

Ecology is under the jurisdiction of the Santa Ana RWQCB. Storm water discharges from Ecology are permitted under SWRCB General Permit to Discharge Storm Water Associated with Industrial Activity (WQ Order No. 97-03-DWQ). The facility is designated WDID number 8 361027274.

Ecology received a no-discharge exemption from the Santa Ana RWQCB in 2012 since it does not discharge storm water associated with industrial activities to surface waters. Instead, a retention pond was constructed with a capacity to accommodate the precipitation from a 100-year, 24-hour storm event.

2.3.3 Hazardous Waste: Regulation by DTSC

DTSC is responsible for ensuring that hazardous wastes generated and handled in California are managed safely and legally to prevent harm to public health and the environment. There are currently 113 facilities permitted by DTSC to store, treat, or dispose of hazardous waste in California. Additionally, there are over 100,000 businesses that generate hazardous waste, and approximately 900 transporters registered with DTSC to transport hazardous waste. Federal and California law creates the framework for the management of hazardous waste by generators, transporters, and storage, treatment, and disposal facilities. DTSC administers these laws in part by issuing permits and registering hazardous waste transporters. DTSC enforces these laws by inspecting hazardous waste generators, transporters, and facilities, and providing compliance assistance and training. DTSC's compliance assistance activities include partnering with the CUPAs.

DTSC can conduct investigations of potential hazardous waste violations on its own initiative, or in response to complaints that have been submitted to CalEPA's Environmental Complaint System, but the CUPAs have had the primary responsibility for conducting routine inspections of metal shredding facilities' hazardous waste management activities.

2.3.4 Hazardous Waste and Hazardous Materials: Regulation by Local CUPAs

CalEPA oversees the statewide implementation of the Unified Program and its 81 certified local government agencies, known as CUPAs. The CUPAs administer and enforce a consolidated program that includes the following individual environmental and emergency management programs:

- Aboveground Petroleum Storage Act Program;
- Area Plans for Hazardous Materials Emergencies;
- California Accidental Release Prevention Program;
- Hazardous Materials Release Response Plans and Inventories;
- Hazardous Material Management Plan and Hazardous Material Inventory Statements;
- Hazardous Waste Generator and On-site Hazardous Waste Treatment (tiered permitting) Programs; and
- Underground Storage Tank Program.

The hazardous waste activities conducted by the metal shredding facilities are under the jurisdiction of the CUPA in their geographic area. But because of DTSC's historical decisions to classify CTMSR as nonhazardous waste, and DTSC's implementation of OPP 88-6, the CUPAs do not permit or inspect the metal shredding operations, the storage of metal shredder waste on-site, or the chemical stabilization treatment. The oversight provided by the CUPAs is limited to hazardous waste activities such as implementing DTSC's Certified Appliance Recycler program, and overseeing the storage of traditional hazardous wastes, such as the materials that require special handling that are removed from appliances and vehicles prior to shredding. None of the metal shredding facilities is operating under the one of the

lower-tiered permitting programs for which the CUPAs would have primary jurisdiction. Table 3 identifies the CUPAs that oversee each metal shredding facility.

2.4 Hazardous Waste Management Activities

This section provides a summary of the hazardous waste management activities at the facilities. It is important to note that DTSC's historic decisions and policies have affected the regulation and management of wastes and hazardous wastes at all California metal shredding facilities. For purposes of this Analysis, DTSC assessed the generation and management of hazardous wastes by metal shredding facilities based on existing law and regulation, without consideration of the "f letters" or OPP 88-6.

2.4.1 Hazardous Wastes Generated and Managed at Metal Shredding Facilities

Scrap Metal Feedstock: When vehicles, appliances and other scrap metals arrive at a metal shredding facility, they are subject to the scrap metal exclusion.[35] At this point, the scrap metal is not regulated as a hazardous waste.

Scrap metal awaiting shredding

Metal Shredder Aggregate: After vehicles, appliances, and other scrap metal are shredded in the hammer mill, a combination of ferrous metals, non-ferrous metals, and nonrecyclable materials is generated. This combination of ferrous metals, non-ferrous metals, and nonrecyclable or reclaimable materials is referred to in this Analysis as metal shredder aggregate.

[35] See subdivision (3) of paragraph (a) of Section 66261.6 of Division 4.5 of Title 22, California Code of Regulations.

Pile of aggregate awaiting further processing at Schnitzer Steel Industries, Inc., Oakland, CA.

Stockpiled aggregate prior to processing in joint products plant, Schnitzer Steel, Inc., Oakland, CA.

Stored aggregate pile at Ecology, Colton, CA.

Metal shredder aggregate has been demonstrated to contain levels of lead, copper, and zinc in finely divided form that exceed their respective Soluble Threshold Limit Concentrations (STLCs) and Total Threshold Limit Concentrations (TTLCs). Historically, metal shredder aggregate has also contained levels

of cadmium and PCBs in excess of their respective STLCs and TTLCs, although the presence of these constituents has decreased in recent years.[36] These constituents are listed in subdivision (a) of Section 66261.24 of Chapter 11, of Title 22 of the California Code of Regulations along with their respective STLCs and TTLCs. The STLC and TTLC are regulatory levels that determine whether a waste is considered hazardous because of its toxicity.

Due to challenges in sampling methodology, there is limited empirical data available demonstrating the toxicity of metal shredder aggregate at the precise point of shredding in the hammer mill. Sampling data from later stages of processing demonstrates the toxicity of the metal shredder wastes, and therefore provides the basis for a reasonable assumption that the metal shredder aggregate is generally hazardous.

Metal Shredder Residue: After the metal shredder aggregate has been treated to separate the ferrous and non-ferrous metals, the portion that remains is referred to in this Analysis as metal shredder residue. As with the metal shredder aggregate, the metal shredder residue also contains levels of lead, copper, and zinc that exceed their respective Soluble STLCs and TTLCs, and historically contained levels of cadmium and PCBs in excess of their respective STLCs and TTLCs.

Metal shredder residue exiting the joint products plant following removal of non-ferrous metals

[36] Metal Shredder Residue Treatability Study, prepared for the Institute of Scrap Recycling Industries, California Chapter, prepared by Terraphase Engineering, Inc., April 26, 2017.

CTMSR: To reduce the solubility of hazardous constituents in the metal shredder residue, the metal shredding facilities apply a chemical treatment of silicates and cement to reduce the solubility of the lead, copper and zinc. After this chemical treatment, it is referred to in this Analysis as CTMSR. Although the chemical treatment has been shown to reduce the solubility of the lead, copper, and zinc, it has not been successful in consistently reducing the soluble concentrations below their respective STLCs, and does not affect their total concentrations, which still exceed their respective TTLCs. (More detailed information regarding the characteristics of the metal shredder residue and CTMSR are presented below, as part of the information on a treatability study that was performed by the metal shredding industry.) Thus, although the solubility of metals in the waste is reduced by the treatment, CTMSR continues to exhibit hazardous characteristics after treatment, and is a hazardous waste.

Pile of chemically treated metal shredder residue, Schnitzer Steel, Inc., Oakland, CA

Treatability Study for Metal Shredder Residue and CTMSR: In 2016, metal shredding facilities at the direction of DTSC conducted a study to demonstrate the effectiveness of their treatment methods. The treatability study demonstrated different application rates of silicate and cement under full-scale operating conditions to determine if the treatment could be optimized, and if the optimized treatment could achieve the required reduction in soluble metals. The treatability study confirmed the treatment process used by metal shredding facilities can significantly reduce the solubility of regulated heavy metals contained within CTMSR, including lead. However, the treatability study confirmed that CTMSR remains a non-RCRA hazardous waste even after treatment.

Data collected in preparation for the treatability study showed that metal shredder residue prior to chemical treatment is nonhazardous waste under RCRA. Metal shredder residue is not regulated as a hazardous waste under the federal hazardous waste program because US EPA thresholds for regulated hazardous constituents were not met or exceeded. For instance, US EPA's toxicity characteristic regulatory threshold for lead is 5.0 milligrams per liter (mg/l), and the average and maximum

concentrations found in 17 samples of untreated metal shredder residue were 0.99 and 2.60 mg/l, respectively.[37] In addition, the highest result for PCBs was 33 mg/kg.[38]

As a result of the bench-scale testing in the treatability study, three treatment reagent combinations were selected for evaluation during the subsequent demonstration of the treatment at the full-scale. The reagent combinations ranged from 0.5 to 0.7 gallons of silicate per ton, and from 5 to 12 percent cement. Treatment at the highest rates, 0.7 gallons of silicate per ton and 12 percent cement, was found to be most effective at reducing soluble metals. However, even metal shredder residue treated at the highest still exceeded regulatory thresholds for both total and soluble metals.

The treatability study showed that CTMSR remains a non-RCRA hazardous waste (i.e., the waste is a hazardous waste under California's Hazardous Waste Control Law and under Chapter 11 of Title 22 of the California Code of Regulations). This was demonstrated by the TTLC test results, which showed that CTMSR exceeded regulatory thresholds for lead and zinc, although STLCs were met occasionally.

In California, wastes that exceed the TTLC for regulated hazardous constituents, including lead and zinc, regardless of their STLCs, are classified as hazardous wastes. The TTLC limit for lead is 1,000 milligrams per kilogram (mg/kg) and the average concentration in CTMSR treated at the higher, most effective, rates was found to be 1,041 mg/kg.[39] Likewise, the TTLC limit for zinc is 5,000 mg/kg and the average concentration in CTMSR was found to be 6,468 mg/kg.[40] However, the maximum lead concentration observed in 120 samples treated at the higher rates was 11,300 mg/kg.[41] Similarly, the maximum zinc concentration was 15,500 mg/kg, which further indicates that significant concentration spikes are a possibility for individual sampling events.[42]

The treatability study also demonstrated that the treatment process used by metal shredding facilities could not consistently lower soluble concentrations for lead. The STLC limit for lead is 5 mg/l and the average concentration was found to be 13.4 mg/l.[43] The concentration of zinc in CTMSR did not exceed the zinc STLC of 250 mg/l. The average concentration measured was 180 mg/l.[44] The maximum observed

[37] Metal Shredder Residue Treatability Study, April 26, 2017, Discrete sample results found in Table A1, Baseline Analysis - Total and Extractable Metals Results for Untreated Samples Bench-scale Study, Metal Shredder Residue Treatability Study.

[38] Metal Shredder Residue Treatability Study, April 26, 2017, Discrete sample results found in Table A2, Baseline Analysis - PCBs, Moisture Content, pH, Alkalinity, Aquatic Toxicity Bioassay, and Ignitability, Results for Untreated Samples, Metal Shredder Residue Treatability Study.

[39] Metal Shredder Residue Treatability Study, April 26, 2017, Individual Sample Results for the high dosages found in Table B1, Pilot Study, Metal Shredder Residue Treatability Study.

[40] Ibid.

[41] Metal Shredder Residue Treatability Study, April 26, 2017, Results for sample SMM-2-H-8, Eurofins Calscience Analytical Report, Work Order Number 16-09-1887, page 678 of Part 5.

[42] Metal Shredder Residue Treatability Study, April 26, 2017, Results for sample SARB-1-3-H, Eurofins Calscience Analytical Report, Work Order Number 16-08-1653, page 1629 of Part 4.

[43] Metal Shredder Residue Treatability Study, April 26, 2017, Individual Sample Results for the high dosages found in Table B1, Pilot Study.

[44] Metal Shredder Residue Treatability Study, April 26, 2017, Individual Sample Results for the high dosages found in Table B1, Pilot Study.

concentration for lead was 91.3 mg/l.[45] The maximum observed concentration for zinc was 529 mg/l, which as noted previously is an indication that significant concentration spikes are possible in individual samples.[46]

The treatability study showed that soluble concentrations of cadmium, lead, and zinc usually decreased when application rates were increased. In most cases, the greatest percent reduction achieved during the full-scale demonstration was with a treatment rate of 0.7 gallons per ton silicate and 12 percent cement.[47] However, even though the treatment significantly reduces the solubility of regulated heavy metals, CTMSR still exceeds total thresholds for lead and zinc, and soluble thresholds for lead. that although the highest treatment rates used in the pilot-scale test generally achieved the highest reductions in soluble metals concentrations, the lead and zinc concentrations were not consistently reduced below their respective STLCs.[48] The treatment results also reflected the high degree of variability in metal shredder residue, as shown by the difference between single samples collected at a given point in time, compared to composite samples of daily production runs. Thus, the treatability study results indicate that, even at the highest levels of treatment evaluated during the study, regulatory thresholds for soluble and total metals were usually not achieved. While concentrations below STLCs of some soluble metals were achieved in individual samples, this was not consistent from sample to sample, or over a range of treatment rates.[49]

Hazardous Materials Removed from Received Scrap Metals: Scrap metal often contains hazardous materials when received by metal shredding facilities. Although many of the metal shredding facilities require these materials to be removed prior to their arrival at the facility, some are discovered as loads are checked. In some instances, a metal shredding facility will remove the hazardous materials rather than reject the load. Typical hazardous materials found in scrap metal include free-flowing hazardous liquids (e.g., gasoline, oil, antifreeze), flammable or combustible materials, corrosive materials (e.g., lead-acid batteries), radioactive materials, explosives in any form (e.g., vehicle air bag actuators, ammunition), pressurized containers (e.g., propane tanks, compressed gas tanks, fire extinguishers), refrigerants, capacitors, ballasts, transformers or other materials containing PCBs, and items containing elemental mercury (e.g., switches or thermostats).

[45] Metal Shredder Residue Treatability Study, April 26, 2017, Results for sample SMM-3-H-4, Eurofins Calscience Analytical Report, Work Order Number 16-09-1616, page 586 of Part 5.
[46] Metal Shredder Residue Treatability Study, April 26, 2017, Results for sample SSP-2-4-H, Eurofins Calscience Analytical Report, Work Order Number 16-09-0276, page 159 of Part 5.
[47] Ibid., page 68 of Part 5.
[48] Ibid., page 71 of Part 5.
[49] Metal Shredder Residue Treatability Study, April 26, 2017, Results for sample SSP-2-4-H, Eurofins Calscience Analytical Report, Work Order Number 16-09-0276, page 71 of Part 5.

Compressors removed from refrigerators and other appliances, Ecology, Colton, CA.

Storage area for materials requiring special handling, SA Recycling, Anaheim, CA. Two pallets of lead-acid batteries are shown in the foreground.

Waste mercury switches pulled from appliances, Ecology Auto Parts, Colton, CA.

Air Pollution Control Equipment Dust and Filters: The air pollution control equipment operated by metal shredding facilities to capture particulate and emissions from the hammer mill and other operational equipment will capture contaminants in bag houses or filters. These filtered materials are expected to contain the same contaminants as the metal shredder aggregate, and are also expected to be hazardous wastes. The amount and characteristics of this type of waste have not been quantified by the metal

shredding facilities. No residues from air pollution control equipment were analyzed as part of this analysis. Hazardous waste manifests use general hazardous waste codes that may not always specify the particular source of the waste stream. Therefore, DTSC has not been able to verify through the Hazardous Waste Tracking System (HWTS) whether this material is being managed as a hazardous waste.

Wastewater Treatment System Residuals: Most of the metal shredding facilities capture their surface water runoff and treat it to allow for its recycling and reuse as hammer mill quench water or for dust suppression. The treatment of the water includes the removal of contaminants and suspended solids. These filtered materials are expected to contain the same contaminants as the metal shredder aggregate, and are also expected to be hazardous wastes. The amount of this type of waste has not been quantified by the metal shredding facilities, and DTSC has been unable to verify through the HWTS whether this material is being managed as a hazardous waste. No samples from this waste stream were analyzed as part of this analysis and DTSC was not able to identify this waste stream in HWTS.

Storm Water Collection System Tank Bottoms: Most of the remaining metal shredding facilities have no surface water discharge, meaning they capture and store all surface water runoff in large tanks, and recycle and reuse it directly as hammer mill quench water and for dust suppression. The captured surface water runoff contains contaminants and suspended solids which, as the water is retained in the tank, settles to the bottom. These tank bottom materials are expected to contain the same contaminants as the metal shredder aggregate, and are also expected to be hazardous wastes. The amount of this type of waste has not been quantified by the metal shredding facilities. No samples from this waste stream were analyzed as part of this analysis and DTSC was not able to identify this waste stream in HWTS.

Metal Shredding Facility Equipment Maintenance Wastes: Each metal shredding facility operates gasoline and diesel-powered equipment, including forklifts, cranes, front-end loaders, and other mechanical equipment. This mechanical equipment requires routine maintenance for continued operation. The routine maintenance can generate a variety of hazardous wastes that must be disposed by the metal shredding facility, including used oil, hydraulic fluid, contaminated gasoline or diesel fuel, used oil filters, aerosol spray cans (paints and solvents), oily rags, absorbent material, and contaminated soil from spills or releases. Each of these wastes is a hazardous waste. The amount of this type of waste has not been quantified separately by the metal shredding facilities. No samples from this waste stream were analyzed as part of this analysis and DTSC was not able to identify this waste stream in HWTS.

Metal Shredding Facility Maintenance Wastes: Each metal shredding facility performs routine "housekeeping" of its facility, cleaning up dirt and debris that escapes from the scrap metal and metal shredder aggregate and metal shredder residue treatment activities. Most of the metal shredding facilities collect this dirt and debris using sweepers and vacuums. These housekeeping wastes are expected to contain the same contaminants as the metal shredder aggregate and metal shredder residue, and are also expected to be hazardous wastes. The amount of this type of waste has not been quantified by the metal shredding facilities. No samples from this waste stream were analyzed as part of this analysis and DTSC was not able to identify this waste stream in HWTS.

Summary of Hazardous Wastes Shipped Off-site on Manifests

DTSC does not have information with which it can quantify the individual waste streams which are generated by metal shredding facilities that are expected to be hazardous wastes. DTSC has access to copies of the hazardous waste manifests used to ship hazardous wastes from the metal shredding facilities to off-site hazardous waste facilities. (All hazardous waste shipments must be accompanied from the site where they are generated to the site where they are disposed by a hazardous waste manifest.) Table 5 provides the approximate quantities of hazardous waste manifested by the metal shredding facilities in 2016. The hazardous waste types listed correlate to the California Waste Codes that were used. These waste codes do not often correlate directly to the hazardous wastes discussed above. If these wastes are managed as hazardous wastes, they may be included in the category for soils and other solids.

Table 5.
Hazardous Wastes Manifested from Metal Shredding Facilities in 2016

Facility	Soils and Other Solids (tons)	Asbestos (tons)	Oils (tons)	PCBs (tons)	Solvents (tons)	Other Wastes (tons)
SA Recycling, Terminal Island	28.86	0	91.61	0.17	0	0.14
Schnitzer Steel Products	395.93	0	0	0	0	0
SA Recycling, Anaheim	53.35	0.11	24.14	0.65	5.50	0
Sims Metal Management	0.57	0	0	0	0	0
SA Recycling, Bakersfield	18.33	0	0.18	3.22	91.81	1.87
Ecology Auto Parts	135.44	0	0	0	0	0

2.4.2 Treatment, Storage and Handling of Metal Shredder Wastes at Metal Shredding Facilities

The treatment, storage, and disposal of any hazardous waste must be performed in accordance with the hazardous waste management statutes and regulations. Each of these terms is defined in the hazardous waste laws and regulations.

Treatment is defined as “any method, technique, or process which changes or is designed to change the physical, chemical, or biological character or composition of any hazardous waste or any material contained therein, or removes or reduces its harmful properties or characteristics for any purpose including, but not limited to, energy recovery, material recovery or reduction in volume.” (See Section 25123.5 of the Health and Safety Code, and Section 66260.10 of Division 4.5 of Title 22 of the California Code of Regulations.)

Storage is defined as "the holding of hazardous waste for a temporary period, at the end of which the hazardous waste is treated, disposed of or stored elsewhere." (See Section 25123 of the Health and Safety Code, and Section 66260.10 of Division 4.5 of Title 22 of the California Code of Regulations.)

Disposal is defined as "the discharge, deposit, injection, dumping, spilling, leaking or placing of any waste or hazardous waste into or on any land or water so that such waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters," as well as "the abandonment of any waste." (See Section 25113 of the Health and Safety Code, and Section 66260.10 of Division 4.5 of Title 22 of the California Code of Regulations.)

Unless specifically excluded or exempted from regulation, treatment, storage,[50] and disposal of hazardous wastes can only be performed at a facility that has a hazardous waste permit issued by DTSC or that has received some other grant of authorization to conduct the activities (e.g., through statute or regulation). Apart from the "f letters" and OPP 88-6, none of the metal shredding facilities have been granted authorization for the treatment, storage, or disposal of hazardous waste. Storage of hazardous waste generated at the metal shredding facilities, for less than 90 days, would not require a permit if it is stored in appropriate containers and the metal shredding facilities comply with other applicable accumulation requirements.

Treatment Processes

Generally, a facility must apply for and obtain a hazardous waste permit or other form of authorization to conduct treatment on a hazardous waste. There are many treatment processes that can occur at a metal shredding facility, as described below.

Metal Shredding Unit or Hammer Mill: Hazardous waste regulations are not applicable to scrap metal entering the hammer mill since the crushed vehicles, appliances, and other forms of scrap metal are excluded from hazardous waste management when recycled. Therefore, a hazardous waste permit is not required to operate the hammer mill. In practice, however, hammer mills at metal shredding facilities rarely operate in isolation, and are usually adjacent to ferrous recovery equipment.

Physical Separation of Ferrous Metals from Metal Shredder Aggregate: The removal of ferrous metals from metal shredder aggregate using magnets may be considered a hazardous waste treatment activity, depending on the circumstances.

Physical Separation of Ferrous Metals from Metal Shredder Aggregate: The removal of ferrous metals from metal shredder aggregate using magnets may be considered a hazardous waste treatment activity, depending on the circumstances.

Chemical Stabilization of Metal Shredder Residue: The metal shredder residue that remains after ferrous and non-ferrous metals have been removed (which was shown to be a non-RCRA hazardous waste) is treated with silicate and cement to reduce the mobility of toxic metals in the waste, which is recognized to be a hazardous waste treatment activity.

[50] Generators typically cannot store hazardous waste onsite for longer than 90 days.

Tube for feeding cement into the pug mill for chemical treatment of metal shredder residue, Sims Metal Management, Redwood City, CA.

Pug mill mixing screw, chemical treatment of metal shredder residue, Sims Metal Management, Redwood City, CA

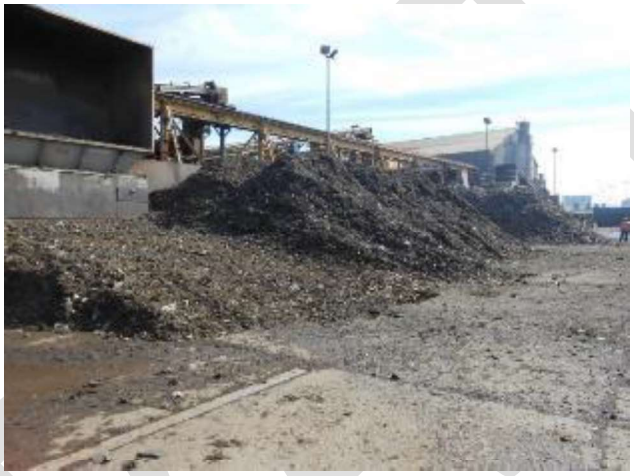
Storage Processes

The metal shredder aggregate stored in piles exhibits hazardous waste characteristics. California's hazardous waste laws generally allow the storage of hazardous wastes for 90 days or less without a permit or grant of authorization, but only if certain conditions are met (including that they are stored in tanks or containers). There are many storage activities that occur with the metal shredder aggregate, CTMSR, and components of the metal shredder waste, as it is processed at a metal shredding facility.

Storage of Metal Shredder Aggregate: Metal shredder aggregate is stored for varying periods of time at various stages of its processing in piles due to the quantities being managed. These piles at most of the metal shredding facilities are outside of buildings, and at some facilities are on bare ground. The metal shredder aggregate exhibits hazardous waste characteristics. The hazardous waste laws generally allow for storage of hazardous wastes for 90 days or less without a permit or grant of authorization, but only if certain conditions are met (including that the waste is stored in tanks or containers). The storage of hazardous waste in piles is regulated as a hazardous waste management activity; to the extent the aggregate includes hazardous wastes, a metal shredding facility would need to apply for and receive a hazardous waste permit, or obtain some other form of authorization, to conduct this activity.

Storage of Sorted Ferrous and Non-ferrous Metals: Sorted ferrous and non-ferrous metals are typically stored following the shredding and metals separation processes. The sorted metals are largely homogeneous materials which are not further processed at the metal shredding facilities. Because of their quantities, they are typically stored in piles. The sorted ferrous and non-ferrous metals are reclaimed materials and, because they have been segregated from the metal shredder aggregate (which may contain hazardous wastes, depending on the circumstances), are not expected to exhibit hazardous

waste characteristics. Residual amounts of the hazardous constituents from the metal shredder aggregate, however, could remain in the sorted ferrous and non-ferrous metals. The storage and management of the ferrous and non-ferrous metals could consequently cause the residual hazardous waste constituents to separate from the recovered metals. This residue would be considered hazardous waste. Metal shredding facilities need to ensure that the hazardous wastes generated by the storage of the ferrous and non-ferrous metals are managed to minimize their releases. Storage of sorted ferrous and non-ferrous metal would not be regulated as a hazardous waste management activity, and a metal shredding facility would not need a hazardous waste facility permit to conduct this activity unless residual amounts of metal shredder aggregate, or hazardous constituents of the metal shredder aggregate, remain in the segregated metals.



Stockpiled aggregate, Schnitzer Steel, Inc., Oakland, CA.

Stockpiled aggregate, Ecology, Colton, CA.

Storage of CTMSR: CTMSR is stored in piles (sometimes outside of buildings) due to the quantities being managed for varying periods of time after treatment. CTMSR continues to exhibit hazardous waste characteristics, even after chemical treatment to stabilize the soluble metals in the waste. The storage

of hazardous waste in piles does not meet the storage in tanks or containers requirement, and therefore does not meet the conditions for storage for 90 days or less. Because of this, its storage would be regulated as a hazardous waste management activity, and a metal shredding facility would need to apply for and receive a hazardous waste permit, or obtain some other form of authorization, to conduct this activity.

CTMSR, Schnitzer Steel, Inc., Oakland, CA.

Pile of sorted ferrous metal, background, and scrap metal from the Oakland Bay Bridge demolition project, foreground, Schnitzer Steel, Inc., Oakland, CA.

Pile of sorted ferrous metal following shredding of scrap metal at SA Terminal Island.

Transportation Processes

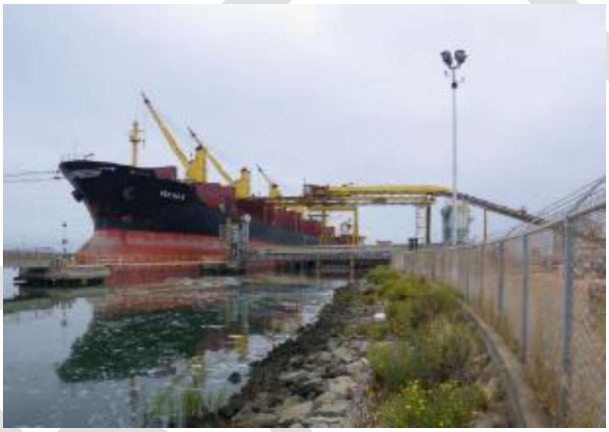
There are many transportation processes that occur with the metal shredder aggregate as it is processed at a metal shredding facility, as described below:

Transfer of Metal Shredder Aggregates within the Facility: Metal shredder aggregate is transferred within the metal shredding facilities from the hammer mill to the different locations where it is further treated. This transfer occurs via conveyor belts and via heavy equipment such as trucks and front-loading tractors. These methods to convey this material within a site do not require a permit from DTSC, nor do they require the use of a registered hazardous waste transporter. However, the conveyance of this material is generally required to be performed in a manner that minimizes or prevents the release of hazardous wastes and hazardous waste constituents into the environment.

Conveyor belt lines used to transport material through the joint products plant and to the chemical treatment system at Schnitzer Steel, Inc., Oakland, CA.

Front loader used to feed stockpiled aggregate into the joint products plant, Schnitzer Steel, Inc., Oakland, CA.

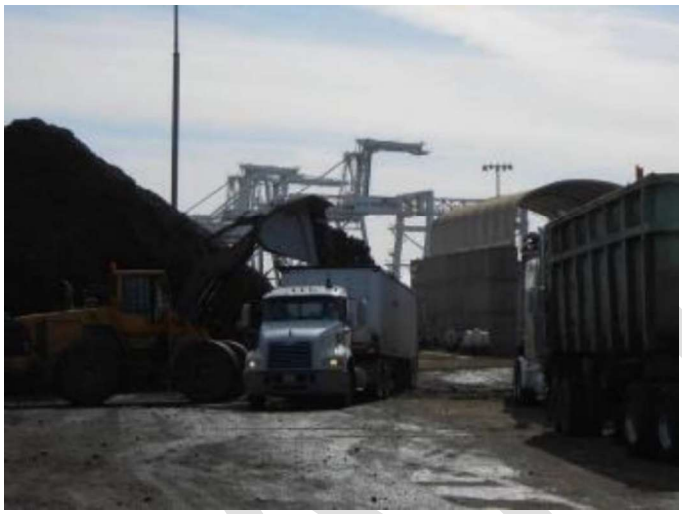
Transportation of Ferrous Metal from the Metal Shredding Facility: Ferrous metal is transferred from the metal shredding facilities primarily by way of ocean-going vessels to steel mills in Pacific Rim countries.



Loading sorted and shredded ferrous metals onto ship via conveyor system, Sims Metal Management, Redwood City, CA.

Ferrous metal being loaded onto a truck for transportation at Ecology Auto Parts, Colton, CA.

Transportation of CTMSR from the Metal Shredding Facility: CTMSR is transferred from the metal shredding facilities to the landfills where it is either being directly disposed, or used as alternative daily cover. CTMSR continues to exhibit hazardous waste characteristics, even after chemical treatment to stabilize the soluble metals in the waste. Its transportation is regulated as a hazardous waste management activity, and its transportation to another facility requires the use of a registered hazardous waste transporter.



Truck being loaded with CTMSR for transportation to
Altamont or Vasco Road Landfill, Schnitzer Steel, Oakland, CA.

Transportation of Untreated Metal Shredder Aggregate from a Metal Shredding Facility: One metal shredding facility, Ecology, transports its metal shredder aggregate (after ferrous metal has been removed) out of state for further processing. Ecology uses a facility in Arizona owned by the same company to recover non-ferrous metals from its metal shredder aggregate. Ecology ships the aggregate as an excluded recyclable material under the provisions of subdivision (d) of Section 25143.2 of the Health and Safety Code. DTSC is reviewing Ecology's assertion that the material is not subject to hazardous waste requirements and has not yet made a determination regarding the claimed exclusion. Because the aggregate is processed out of state, the facility does not generate CTMSR in California, and does not dispose of CTMSR in California landfills.

Disposal Processes

Land Disposal: The current practices employed by the metal shredding facilities to manage metal shredder wastes generally meet the definition of land disposal. The metal shredder wastes are being managed in piles in direct contact with bare soil or on paved surfaces that are designed to withstand traffic but not to prevent migration of hazardous waste or hazardous waste constituents. Particulate and LFM have been shown to be emitted from the metal shredding facilities and to deposit onto the ground outside the facility boundaries. Metal shredder aggregate or residue that falls from conveyors or outside of waste management units and is not retrieved or cleaned up, results in all operational areas of the metal shredding facilities being contaminated with the hazardous constituents present in the metal shredder wastes.

Solid Waste Landfill Disposal: CTMSR is currently managed at solid waste landfill facilities. The disposal processes will be discussed further in Section 5 of this Analysis.

Vasco Road Landfill, Livermore, CA with municipal solid waste in the foreground (lighter material) and stockpiled CTMSR in the distance (darker colored material).

2.5 Enforcement History

DTSC reviewed compliance and enforcement history from CUPAs, SWRCB, and DTSC's own investigations. Enforcement history was requested from each respective authority for a 10-year timespan, starting in 2007 and ending in 2016. The following databases and resources were used to obtain information on violations:

Storm Water Requirements: SWRCB's Storm Water Multiple Application and Report Tracking System (SMARTS) is a public database that keeps track of facilities that have storm water permits and all supporting documentation, including sampling results, notices of violation, and storm water pollution prevention plans.[51] Facilities were searched by their WDID number, and supporting documentation was reviewed to discern if there had been any enforcement actions regarding their storm water permit.

Soil/Groundwater Contamination: SWRCB's GeoTracker database is used to track facilities with groundwater contamination.[52] Additionally, DTSCs EnviroStor was consulted to see if any of the facilities had undergone cleanup activities.[53]

Fire/Explosions: A search of newspaper articles was conducted regarding any fires or explosions that had occurred at the metal shredding facilities and summarized.

CUPA Inspections: DTSC contacted CUPAs that oversee hazardous waste inspections for the metal shredding facilities in their jurisdictions for inspection reports during the 10-year time span.

DTSC Inspections or Investigations: DTSC reviewed all investigations for the six metal shredding facilities from 2007 to 2016 that were included in the report, including complaints received.

[51] See https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.xhtml

[52] See https://geotracker.waterboards.ca.gov/

[53] See https://www.envirostor.dtsc.ca.gov/public/

Storm Water Violations: Two of the four metal shredding facilities that operate under an industrial general permit had issues with routine exceedances of the water quality thresholds (known as numeric action levels). The exceedances were for specific conductance, chemical oxygen demand, iron, and lead. The SWRCB requires subsequent proof of implementation of best management practices to mitigate any future exceedances of the numeric action levels.

One metal shredding facility had violations for both its NPDES permit and the Clean Water Act, enforced by US EPA, which identified material associated with metal shredding exiting the property boundary and contaminating surrounding areas. Subsequent soil and sediment samples from the areas surrounding the property revealed TTLC exceedances of lead, zinc, copper, and cadmium.

Soil/Groundwater Contamination: All six metal shredding facilities have been cited by DTSC and/or SWRCB for soil or off-site migration contamination, or have had monitoring conducted which revealed regulatory threshold exceedances. As a result of enforcement actions by RWQCBs, two facilities were required to install an impermeable concrete cap over part of their properties due to contamination found in both the soil and groundwater attributed to metal shredding activities. Three facilities required soil cleanup due to the presence of petroleum hydrocarbons, metals, PCBs, and other contaminants associated with metal shredding activities. Two facilities have had soils collected and analyzed by DTSC in areas where metal processing and storage operations occur, revealing STLC and TTLC exceedances for lead, copper, zinc, and cadmium. Two facilities had off-site migration of LFM, which lands on soil and can cause contamination of the surrounding properties.

Fire/Explosions: Four metal shredding facilities have had fires on their properties, either in the metal shredding machinery or in the piles of scrap metal, with a total of six known fires over the past 10 years. Two of the four had more than one fire from 2009 to 2013. One of the fires resulted in substantial damage to the air pollution control device on the shredder to reduce particulate emissions, resulting in the release of particulate matter and VOCs and enforcement action by the Los Angeles County District Attorney's Office.

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CUPA Inspections

Typically, facilities are inspected by CUPAs for hazardous waste and materials management every three years. Minor violations were most commonly cited, and included improper containerization and labeling of hazardous wastes, improper tank certifications, inadequately maintained health and safety measures (such as exit signs, eyewash and shower installations, aisle space, and housekeeping), missing tank log inspections, improper storage, keeping containers closed when not in use, and failure to dispose of wastes within appropriate storage time limits.

Class I and II violations also occurred, including improper storage and inadequate hazardous waste plan for hazardous waste ammunitions, unknown fluids being stored, and inaccurate and out-of-date hazardous waste inventory.

DTSC Inspections/Investigations

DTSC has inspected or investigated all of the metal shredding facilities, several times in coordination with SWRCB. DTSC has responded to fires, collected soil samples that have led to or are in the process of supporting enforcement actions, and enforced off-site migration of contaminants associated with metal shredding facilities.

SA Terminal Island

Storm Water Requirements: In 2010 and again in 2011, the facility exceeded water quality benchmark standards for specific conductance and chemical oxygen demand (COD).[54] In 2011, the facility also exceeded water quality standards for zinc under its industrial storm water permit. The exceedances prompted the Los Angeles RWQCB to require the facility to ensure that it is in full compliance with the general permit, and that it has either implemented best management practices (BMPs) identified in its Storm Water Pollution Prevention Plan or has described which additional BMPs will be implemented, and updated its Storm Water Pollution Prevention Plan with the additional BMPs.[55] A response from SA Terminal Island indicated that significant structural changes were made, including "storage containers for [material recovery plant] finished product … a roof for [material recovery plant] storage bunkers," and "fully [enclosing] the shredder operation and 75% of the [material recovery plant] operation" to mitigate storm water quality exceedances.[56] In 2013, the facility was cited by the Los Angeles RWQCB for inadequately updating the Storm Water Pollution Prevention Plan, failing to update the site map to specifically address the pollutant sources, and failing to fully describe the pump station sizes in the storm water treatment system.[57] After a subsequent site inspection conducted two months afterward by the Los Angeles RWQCB, the facility was required to submit a description of the storm water

[54] See SWRCB Letter to Ms. Nancy Felix, S.A. Recycling L.L.C., Annual Report Review – Second Benchmark Value Exceedance: NPDES General Permit (Permit) for Storm Water Discharges Associated with Industrial Activity (Order No. 97-03 DWQ; NPDES No. CAS000001), WDID# 4 19I021125, July 5, 2012.
[55] Ibid.
[56] See SA Recycling Letter to Mr. Sean Lee, Regional Water Quality Control Board, RE: July 5, 2012 Annual Report Review – Second Benchmark Value Exceedance: NPDES General Permit (Permit) for Storm Water Discharges Associated with Industrial Activity (Order No. 97-03 DWQ; NPDES No. CAS000001), WDID# 4 19I021125, July 19, 2012.
[57] See Los Angeles Regional Water Quality Control Board Notice to Comply for SA Recycling, WDID# 4 19I021125, Order No. 97-03, February 25, 2013.

treatment system to resolve discrepancies in the plan.[58] The RWQCB also required the facility to sample for priority pollutants using the correct detection limits, and to provide proof of proper grading to the pump stations.[59]

Soil Contamination: The Los Angeles RWQCB required SA Terminal Island to add an impermeable concrete cap to all or part of the property and to conduct semi-annual groundwater monitoring as part of remediation plans associated with contamination found in both the soil and groundwater.[60] Both actions were intended to prevent further soil and groundwater contamination from ongoing shredding activities. Investigations of soil and groundwater were conducted from 1990 to 1994 to assess the environmental impact from long-term scrap metal recycling at the facility. Soils were found to have been impacted by petroleum hydrocarbons, metals, polychlorinated biphenyls, and polycyclic aromatic hydrocarbons. Cleanup involved removing, backfilling the excavation, and placing a concrete cap over the affected area to prevent further contamination. Low-level detections of methyl tert-butyl ether and tert-butyl alcohol were present, but were attributed to an off-site source.

Fire/Explosions: On May 21, 2007, there was an explosion at SA Terminal Island that damaged the air pollution control system, which was used to control emissions of particulate matter and VOCs.[61] The shredder operated without its air pollution control system for 120 days following the explosion. DTSC described the matter as a significant and ongoing health risk to the employees and the surrounding community in its Statement of Facts in the Investigation of SA Recycling LLC, presented to the Los Angeles County District Attorney and State Attorney General's Office in Oakland, on April 22, 2009. An estimated 52 pounds per hour of VOCs were released into the air, and approximately 28.3 tons of particulate matter were emitted over the course of the 120 days that the shredder was in operation after the explosion. Although a chiller box was later installed to control the release of particulates and VOCs in the absence of the air pollution control system, it was estimated to have removed only 40 percent of total particulates. The Los Angeles County District Attorney's Office reached a $2.9 million settlement with SA Recycling for these violations.[62]

CUPA Inspections: One hazardous waste inspection report from 2015 was provided to DTSC from the 10-year timeframe requested. Records for the most recent inspection (conducted on August 27, 2015 were provided, in addition to the dates of additional inspections conducted between September 1999 to September 2016. SA Terminal Island was visited by the CUPA 18 times during that time, in 1999, 2003, 2011, 2015, and 2016.[63] On August 27, 2015, the Los Angeles Fire Department conducted a routine inspection and noted three minor violations.[64] The inspectors observed hazardous waste solids stored in an open metal container without the required labeling. They observed five open 12-foot roll-off

[58] See California Regional Water Quality Control Board – Los Angeles Region, Industrial Storm Water Inspection Report for SA Recycling, WDID# 4 19I021125, April 19, 2013.
[59] Ibid.
[60] See California Regional Water Quality Control Board Los Angeles Region, Order No. R4-2012-0088, Termination of Waste Discharge Requirements for Discharges to Land/Groundwater.
[61] See Statement of Facts in the Investigation of SA Recycling LLC. Case No. 13450-19-078, April 22, 2009.
[62] People of the State of California v. SA Recycling, LLC and Simsmetal West, LLC, California Superior Court, Los Angeles County, case no. BC458943, Stipulated Judgment and Order, filed August 31, 2011.
[63] See LA County Fire Department, Facility Information Report for SA Recycling, retrieved on October 4, 2016.
[64] See Los Angeles County Fire Department – Health Hazardous Materials Division, Inspection Report for SA Recycling LLC on August 27, 2015.

dewatering bins at the storm water tank area that are required to be kept closed at all times except when adding or removing waste. They found that the facility did not have tank assessments for the 10 10,000-gallon hazardous waste holding tanks at the storm water tank area. An operator of a hazardous waste tank is required to obtain a written certification from a professional engineer.

DTSC Inspections or Investigations: In 2008, DTSC sampled the filter media of the air pollution control system and found quantities of lead and mercury above the regulatory threshold. DTSC concluded that during the period in 2007 when the shredder was operating without a functioning air pollution control system (see above description in "Fires/Explosions"), particulates containing lead and mercury were released into the surrounding community.[65] These findings were included in the case brought by the Los Angeles County District Attorney's Office against SA Recycling.[66]

Schnitzer Steel Products

Soil Contamination: Schnitzer was identified in GeoTracker for groundwater contamination that required remedial measures. The San Francisco Bay RWQCB required Schnitzer to add an impermeable concrete cap to part of the property and to conduct semi-annual groundwater monitoring as part of the remediation plans.[67] Both actions are intended to prevent further soil and groundwater contamination resulting from Schnitzer's operations.

In 1987 soil samples were collected during construction at the Schnitzer facility that showed elevated levels of PCBs, copper, lead, and zinc, prompting a more thorough investigation of potential soil and groundwater contamination from metal shredding activities. In 1987, Schnitzer installed a graded concrete cap along the inner-estuary shoreline to prevent storm water runoff into San Francisco Bay; it also installed an engineered riprap along the shore and implemented routine groundwater monitoring as part of an overall remedial action plan. The San Francisco Bay RWQCB required Schnitzer to maintain the concrete cap and riprap to ensure that the soil contaminants do not migrate from their current location. The San Francisco Bay RWQCB also required Schnitzer to place a deed restriction on the property to ensure that any future use of the property would take into account the residual soil contamination at the site.

During the excavation of nine pits for the construction of a wind wall on the eastern part of the property as part of Cleanup and Abatement Order R2-2013-001 issued by The San Francisco Bay RWQCB, oily soil was discovered in the subsurface along with a severed pipe leaking oily sludge in one of the pits.[68] The Bay RWQCB allowed Schnitzer to continue construction of the wind wall, provided it did not interfere with the evaluation and cleanup of the subsurface oily soil discovered during initial construction. Schnitzer filled in the pits with pea gravel and removed soil piles that had accumulated from the excavation of the pits. In response to the potential petroleum hydrocarbon contamination, the San

[65] See Statement of Facts in the Investigation of SA Recycling LLC. Case No. 13450-19-078, April 22, 2009.
[66] People of the State of California v. SA Recycling, LLC and Simsmetal West, LLC, California Superior Court, Los Angeles County, case no. BC458943, Stipulated Judgment and Order, filed August 31, 2011.
[67] See California Water Quality Control Board, San Francisco Bay Region, Order No. 88-023 Site Cleanup Requirements for Schnitzer Steel Products Company, Inc., February 17, 1988.
[68] See San Francisco Bay Regional Water Quality Control Board Letter to Chris Orsolini, Schnitzer Steel Industries, Inc., Conditional Approval of Work Plan for sampling in the vicinity of nine pits; Requirement for Technical Report – Schnitzer Steel Products, 1101 Embarcadero West, Oakland, Alameda County, File No. 01S0067 (CFC), March 23, 2015.

Francisco Bay RWQCB required Schnitzer to evaluate the extent of the contamination and any migration pathways, to assess the potential surface water infiltration due to the pea gravel infill, and to sample soil, groundwater, standing water, and sludge. The San Francisco Bay RWQCB approved the cleanup work plan, with a draft report submitted on September 28, 2016.

Fire/Explosions: On April 8, 2009, a fire occurred at Schnitzer in a pile of debris at the site.[69] The smoke was reported to create air quality concerns for the local neighborhoods. On September 29, 2011, another fire occurred in a pile of scrap metal, which was reported to have sent a plume of smoke into the sky that was visible for miles.[70]

CUPA Inspections: Two hazardous waste inspection reports were provided to DTSC from the 10-year timeframe requested, one on February 13, 2007, and the second on September 14, 2015. The Alameda County Environmental Health Department conducted a routine inspection of the Schnitzer facility on the latter date.[71] The CUPA found six violations, all of which were minor. Schnitzer had violated two recordkeeping and documentation requirements related to eyewash and shower station installation, lack of exits signs in a specific area, and verification of employee training for hazardous waste handling. Schnitzer also violated three hazardous waste generator requirements for waste labels that did not have accumulation start dates, for unlabeled waste stored in open containers, and for missing tank inspection logs in a hazardous waste storage area. A general facility violation was also noted for visible oil stains and for improper storage of compressed gas cylinders.[72] During the previous inspection on February 13, 2007, no violations had been found.[73]

DTSC Inspections or Investigations: On March 17, 18, and 19, 2015, DTSC conducted a Compliance Investigation Inspection of Schnitzer.[74] During the inspection DTSC collected soil samples from bare ground where scrap metal was stored or being processed; from piles of material collected from the bare ground and from paved surfaces (swept material); and from areas adjacent to and under the joint products plant where the non-ferrous metals are removed from metal shredder aggregate. DTSC found that samples collected from various locations at the facility had the following characteristics:

- Five exceeded the STLC for chromium.
- Eleven exceeded the STLC for lead.
- One exceeded the STLC for nickel.
- Ten exceeded the STLC for zinc.
- Five exceeded the TTLC for copper.
- Twelve exceeded the TTLC for lead.

[69] See Don Sanchez of ABC 7 News, "Fire Breaks Out at Steel Plant in Oakland," April 8, 2009, http://abc7news.com/archive/6751956/

[70] See Angela Woodall of East Bay Times, "Oakland Firefighters Extinguish Scrap Metal Blaze," September 29, 2011, http://www.eastbaytimes.com/2011/09/29/oakland-firefighters-extinguish-scrap-metal-blaze/

[71] See Alameda County Department of Environmental Health Inspection Report for Schnitzer Oakland, September 14, 2015.

[72] Ibid.

[73] See Alameda County Department of Environmental Health, Hazardous Waste Generator Inspection Report for Schnitzer Steel, February 13, 2007.

[74] See DTSC Letter to Orsolini, Re Report of Investigation on Schnitzer Steel Industries, Inc. Oakland Facility, August 18, 2015.

- Two exceeded the TTLC for nickel.
- Ten exceeded the TTLC for zinc.

One of the samples exceeded the federal limit for lead as measured by the Toxic Characteristic Leaching Procedure, indicating that the waste was also federally regulated as hazardous waste.

DTSC has shared a copy of the Report of Investigation with Schnitzer and is evaluating appropriate enforcement actions.

SA Anaheim

Storm Water Requirements: The facility holds a specific storm water permit for scrap metal recyclers administered by the Santa Ana RWQCB. A notice of violation was issued in 2014 for exceeding limits for chemical oxygen demand and iron for the sampling year 2012-13, and exceeding the annual average numeric action level for specific conductance, chemical oxygen demand, and iron.[75] In response, the facility was required to submit a corrective action plan to identify preventative measures and control measures to reduce the concentrations of each specific contaminant. In 2015, SA Anaheim received another notice of violation for exceeding the numeric action levels for chemical oxygen demand and lead after developing a corrective action plan resulting from the 2014 notice of violation.[76] SA Anaheim was required to develop a corrective action plan that included the best available technology treatment method. The RWQCB conducted an inspection in 2016, and found that no corrective actions were needed and all documentation required as part of the storm water permit was present.[77]

Soil Contamination: In June 1987, a Remedial Action Order was issued by DTSC requiring the facility, then known as Orange County Steel Salvage, to characterize contamination at its facility, and in the piles of metal shredder residue that had been accumulated. In June of 1991 DTSC approved a Remedial Action Plan for the site, which included plans to remove and dispose of the accumulated metal shredder residue to a hazardous waste landfill. Some areas of the site were found to have soil contaminated with PCBs, heavy metals, and oil and grease. Some areas had contamination that exceeded the TTLC of 50 mg/kg for PCBs. By December 1998, 31,250 cubic yards of PCB-contaminated soil had been removed. On October 30, 2002, DTSC certified that remediation of the site had been completed and that no further action was required.[78] No deed restriction was required for the property and, because no groundwater contamination was found, the groundwater monitoring wells were abandoned and removed per agreement with the Santa Ana RWQCB.

CUPA Inspections: Six hazardous waste inspection reports from 2008, 2010, 2013, and 2016 were provided to DTSC from the 10-year timeframe requested, with two of the six being re-inspections. On

[75] See Santa Ana Regional Water Quality Control Board Letter to Lindsay Maine of SA Recycling, Notice of Violation with Industrial Activities from Scrap Metal Recycling Facilities Within the Santa Ana Region, Order No. R8-2012-0012 (Scrap Metal Storm Water Permit), April 3, 2014.

[76] See Santa Ana Regional Water Quality Control Board Letter to Lindsay Maine of SA Recycling, Notice of Violation of the Sector-specific General Permit for Storm Water Runoff Associated with Industrial Activities from Scrap Metal Recycling Facilities within the Santa Ana Region, Order No. R8-2012-0012 (Scrap Metal Storm Water Permit), June 29, 2015.

[77] See Santa Ana Regional Water Quality Control Board Inspection Report for SA Recycling LLC (WDID: 8 30MR000004), September 1, 2016.

[78] See DTSC Letter to Mr. George Adams, Jr., October 30, 2002.

March 13, 2008, during a routine inspection, the CUPA cited a minor violation for not properly marking and labeling containers, including the presence of unmarked containers.[79] On March 4, 2010, during a routine inspection, the CUPA cited a minor violation pertaining to damage to the concrete pad where metal turnings were stored, in addition to irregular inspection of oil drainage collection sump.[80] On February 20, 2013, the CUPA observed one Class II violation regarding containers that held mixed live ammunition with empty casings, with no accumulation start date and no hazardous waste plan for hazardous waste ammunitions.[81]

On February 12, 2016, the CUPA conducted a routine inspection and cited one Class II violation for containers with unknown fluids found stored, requiring a hazardous waste determination for the wastes.[82] One minor violation related to aisle space and housekeeping issues was also cited. On March 22, 2016, the CUPA determined that all violations from the February 12, 2016, inspection had been corrected.[83]

Sims Metal Management

Storm Water Requirements: On March 4, 2011, US EPA observed material outside the Sims property boundary, including "shredding residue, scrap metal, and other debris associated with industrial activities" while conducting a storm water inspection for its NPDES permit.[84] On August 25, 2011, US EPA returned and collected sediment and soil samples from areas surrounding the facility, which were found to have TTLC exceedances for lead, zinc, copper, and cadmium. US EPA determined that Sims had been operating that way since at least the early 1990s. On December 16, 2011, US EPA issued an Order for Compliance based on findings of violations of the Clean Water Act and the NPDES permit regulating storm water and non-storm water discharges from the facility.[85] In 2014, US EPA fined Sims $189,500 for polluting Redwood Creek and San Francisco Bay.[86]

Fires/Explosions: On November 10, 2013, a two-alarm fire originated from "crushed cars and scrap metal that were in a large pile about 30 feet high."[87,88] The fire sent a plume of smoke into the area that

[79] See Anaheim Fire Department Hazardous Materials Section, Hazardous Waste Generator Inspection Report for SA Recycling, LLC, March 13, 2008.
[80] See Anaheim Fire Department Hazardous Materials Section, Hazardous Waste Generator Inspection Report for SA Recycling, LLC, March 4, 2010.
[81] See Anaheim Fire & Rescue Hazardous Materials Section, Hazardous Waste Generator Inspection Report for SA Recycling, LLC, February 20, 2013.
[82] See Anaheim Fire & Rescue Hazardous Materials Section, Hazardous Waste Generator Inspection Report for SA Recycling, LLC, February 12, 2016.
[83] See Anaheim Fire & Rescue Hazardous Materials Section, Hazardous Waste Generator Inspection Report for SA Recycling, LLC, March 22, 2016.
[84] See DTSC Statement of Facts in the Investigation of Sims Group USA Corporation, Case No. 14158-48.
[85] See US EPA Letter to Mr. Steven Shinn, Sims Metal Management, Findings of Violation and Order for Compliance, December 16, 2011.
[86] See "EPA fines Sims Metal plant in Redwood City $189,500 for polluting the Bay," The Mercury News, September 19, 2014.
[87] See Bay Area Air Quality Management District, "Incident Report, Sims Metal Management (A5152), Redwood City, CA," Compliance and Enforcement Division, November 10, 2013.
[88] See "Redwood City requires Sims Metal to take more than a dozen steps to prevent future fires," The Mercury News, February 21, 2014.

prompted the Redwood City Fire Department to advise nearby residents to avoid the smoke, stay indoors and close air intake systems to their homes. On December 17, 2013, another fire broke out at about 12:50 a.m. after a small explosion, which again prompted "health, emergency and air quality officials … to [advise] residents … to stay inside with the windows closed."[89] DTSC also received complaints filed by a local business via the CalEPA Environmental Complaint System stating that employees had sore throats due to the smoke and were unable to come to work.

CUPA Inspections: Five hazardous waste inspection reports from 2009, 2010, 2011, 2014, and 2016 were provided to DTSC from the 10-year timeframe requested. In 2009 and 2010, no violations were cited, and in 2011, one violation regarding an unlabeled drip pan was found but corrected on-site.[90,91,92] On March 18, 2014, four violations were cited pertaining to checking eyewash stations and fire extinguishers on a monthly basis, proper labeling of hazardous waste containers and tanks, keeping hazardous waste containers closed when not in use, and properly managing empty containers.[93] On April 18, 2016, two minor violations and one Class II violation were cited.[94] The minor violations included improper labeling for a container of hazardous waste antifreeze and improperly contained and labeled filters.

DTSC Inspections or Investigations: Following up on the US EPA report of the NPDES inspection (see *Storm Water Requirements* section above), DTSC conducted its own investigation of Sims after the soil and sediment sampling results indicated that "disposal of a non-Resource Conservation and Recovery Act (non-RCRA) hazardous waste" had occurred.[95] Results of the soil/sediment samples collected by US EPA revealed exceedances of DTSC's TTLCs for cadmium, copper, lead and zinc. Prior to DTSC visiting the facility with US EPA for a reinspection, the San Francisco Bay RWQCB submitted a report to DTSC regarding observations of "man-made fibrous material ('white fluff') originating from the [Sims] Metal Management site in Redwood City."[96] Release of light fibrous material has been an issue at the Sims facility since at least 2009, when discoloration, subsequently identified as light fibrous material, was found in the ponds at the neighboring Cargill Salt facility. Beginning on March 13, 2012, samples from various locations in and around the vicinity were collected, including treated shredder waste, fluff, soil,

[89] See "Redwood City Officials Meet with Recycling Plant After Second Blaze in Two Months," San Francisco Examiner, December 20, 2013.
[90] See San Mateo County Environmental Health Division, Hazardous Waste Generator Inspection Report for Sims, February 25, 2009.
[91] See San Mateo County Environmental Health Division, Hazardous Waste Generator Inspection Report for Sims Metal, November 18, 2010.
[92] See San Mateo County Environmental Health Division, Hazardous Waste Generator Inspection Report for Sims Metal, December 9, 2011.
[93] See San Mateo County Environmental Health Division, Hazardous Waste Generator Inspection Report for Sims Metal Management, March 18, 2014.
[94] See San Mateo County Environmental Health Division, Hazardous Waste Generator Inspection Report for Sims Metal Management, April 18, 2016.
[95] See DTSC Statement of Facts in the Investigation of Sims Group USA Corporation, Case No. 14158-48.
[96] Ibid.

soil/fluff combination, and HVAC air filters. Of the samples collected, exceedances were noted for zinc, lead, and copper, demonstrating the illegal disposal of hazardous shredder residue.[97]

DTSC referred the case to the California Attorney General's Office, alleging that Sims's scrap metal recycling operations released light fibrous material, some of which deposited onto nearby property. The release, migration, deposition, and accumulation of this hazardous waste outside the facility constituted the unlawful disposal of hazardous waste and a failure to minimize the possibility of a release of hazardous waste. The California Attorney General's Office filed an action in San Mateo County Superior Court and negotiated a settlement on behalf of DTSC.

In November 2014, Sims agreed to pay nearly $2.4 million to settle the civil environmental enforcement action.[98] Under the settlement, Sims was directed to pay $825,000 to DTSC in civil penalties and for reimbursement of DTSC's investigative costs; $125,000 to the Environmental Enforcement and Training Account Program as a Supplemental Environmental Project; and at least $1,443,814 to upgrade the facility. Additionally, Sims was directed to implement facility upgrades including construction of buildings to enclose the metal shredder and the screening unit and associated magnets; improving the air pollution control system; constructing additional perimeter fencing; and conducting regular sweeping of the public roadways outside of the facility. Interim measures outlined in the settlement included logged weekly visual inspections for accumulation of LFM in areas including private properties, public sidewalks, and streets adjacent to and downwind of Sims, immediate removal of any deposits, and proper characterization and management of any deposits.

SA Bakersfield

Fires/Explosions: On February 19, 2008, SA Bakersfield experienced a fire in a scrap metal pile that was about "150 feet, by 300 feet by 50 feet high, firefighters reported."[99] Ultimately, the fire was managed by using a large crane to pull metal pieces from the pile to reach the fire.

CUPA Inspections: Three hazardous waste inspection reports from 2009, 2012, and 2015 were provided to DTSC from the 10-year timeframe requested. During hazardous waste generator inspections conducted by the Kern County Environmental Health Services Department in 2012 and 2015, no violations were found.[100,101] In 2009 and 2012, inspections for three program areas were conducted simultaneously: business plan, hazardous waste generator, and aboveground storage tank.[102]

On April 10, 2009, a routine inspection found three violations under the hazardous waste generator program and two violations under the business plan requirements program. The three minor violations

[97] See DTSC's Supplemental Statement of Facts in the Investigation of Sims Group USA Corporation, Case No. 14158-48, March 12, 2013.
[98] See People of the State of California, ex rel. Miriam Barcellona, Acting Director of the California Department of Toxic Substances Control v. Sims Group USA Corp., California Superior Court, San Mateo County, case no. CIV531456, Stipulation for Entry of Final Judgment and Order, filed November 24, 2014.
[99] See "Public Safety Digest: Golden State Metals Catches Fire," Bakersfield.com, February 19, 2008.
[100] See Kern County Public Health Services, Hazardous Waste Generator Inspector Report for SA Recycling LLC DBA SA Recycling, May 19, 2015.
[101] See Environmental Health Division, Certified Unified Program Agency (CUPA) Hazardous Material Inspection Form, March 15, 2012.
[102] See Environmental Health Services Department, (CUPA) Hazardous Material Inspection Form, April 10, 2009.

cited under generator requirements were related to improper labeling of hazardous waste storage containers, missing accumulation start dates on spent lead-acid batteries, and failure to dispose of lead-acid batteries within 180 days of generation. Of the two business plan requirements, one Class II violation was cited regarding inaccurate and out-of-date inventory of hazardous waste, and one minor violation related to improperly labeled hazardous waste containers.

DTSC Inspections: In 2014, soil and sludge samples collected by DTSC in areas surrounding the facility showed lead levels that exceeded the STLC. DTSC could not determine the source of the lead, and because the samples did not contain the light fibrous materials often associated with metal shredding facilities, the case was closed without further action. The source of the lead has not been determined. In 2015, SA Bakersfield was issued a letter by DTSC for improper housekeeping on-site including improperly managing shredded materials that escaped the property boundaries as hazardous waste.[103] DTSC warned that failure to prevent metal shredder waste from leaving the site would result in the facility being subject to additional enforcement action.

Ecology Auto Parts

CUPA Inspections: Three hazardous waste inspection reports from 2011, 2012, and 2015 were provided to DTSC from the timeframe requested. On September 25, 2015, the San Bernardino County Fire Department conducted an inspection of the facility and found a violation relating to the failure to update the business plan within 30 days. The facility subsequently submitted updated business plan elements electronically to the California Environmental Reporting System (CERS), and the violation was corrected on October 12, 2015. The facility was previously inspected on June 19, 2012, and November 1, 2011, and no violations were found.[104,105]

DTSC Inspections or Investigations: In 2014, LFM was found in the public access areas outside of the property boundaries, indicating that waste material was migrating from the facility. In 2014 and 2015, it was found that Ecology had "significantly reduced" the amount of LFM that was being generated by the facility based on an observation and on-site inspection conducted by DTSC. Due to the improved management practices employed by the facility, DTSC did not pursue the issue further.

On June 2 and 3, 2015, DTSC conducted an inspection of the Ecology facility.[106] During a walk-through tour of the facility DTSC observed metal processing operations being conducted on bare ground, stained soils collected on paved surfaces, and contaminated soils collected in piles. Inspectors also observed light fibrous material, similar to a heavy dust, that had settled on surfaces and covering piles of other material. DTSC collected samples from each of these locations and found that the collected samples exhibited the following characteristics:

- Soil from the torch cutting area exceeded the STLC for lead.
- Soil from the railroad processing area exceeded the STLC for lead.
- Material from an aggregate pile exceeded the STLCs for cadmium, lead, and zinc.

[103] See DTSC Letter to Adams, Re Operational Expectations During Implementation of SB 1249, April 13, 2015.
[104] See CUPA San Bernardino Fire Department Hazardous Materials Division, Hazardous Waste Generator and Hazardous Materials Handler Inspection Report, June 19, 2012.
[105] See CUPA San Bernardino Fire Department Hazardous Materials Division, Preliminary Field Inspection Report, November 1, 2011.
[106] See DTSC Report of Investigation on Ecology, Inc., Colton, dba: Pacific Rail Industries, December 16, 2015.

- Material from an aggregate pile exceeded the TTLCs for copper, lead, and zinc.
- Shredder residue on the ground under the conveyors exceeded the STLCs for cadmium and zinc.
- Shredder residue on the ground under the conveyors exceeded the TTLCs for copper, lead, and zinc.
- LFM exceeded the STLC for zinc, and the TTLCs for copper, lead, and zinc.
- Soil collected near the aggregate lines exceeded the STLCs for cadmium, lead, and zinc.
- Soil collected near the aggregate lines exceeded the TTLCs for copper, lead, and zinc

DTSC has shared a copy of the Report of Investigation with Ecology and is evaluating appropriate enforcement.

2.6 Evaluation Findings and Conclusions

Each of the metal shredding facilities is under the jurisdiction of various environmental and health agencies, and their oversight is often specific to particular media or activities. However, even though several agencies have jurisdiction and provide oversight, certain aspects of the operation of the metal shredding facilities appear to be either not regulated adequately or entirely unregulated. DTSC found that the level of regulation clearly differs among local agencies for air pollution control, water pollution programs, and the oversight of hazardous waste management activities. DTSC found that this has resulted in the release of contaminants to the surrounding communities.

Several of the facilities were found to have had storm water runoff exceedances. Two of the four metal shredding facilities had exceedances of the water quality thresholds for specific conductance, chemical oxygen demand, iron, and lead. One metal shredding facility had violations of both its NPDES permit and the Clean Water Act, in which material associated with metal shredding activities was found to have exited the property boundary and contaminated surrounding areas. Subsequent soil and sediment samples from the areas surrounding the property revealed TTLC exceedances of lead, zinc, copper, and cadmium.

Two facilities were required to install an impermeable concrete cap over part of the property due to contamination found in both the soil and groundwater, which was attributed to their metal shredding activities. Three facilities required soil cleanup due to the presence of contaminants associated with metal shredding activities.

Two facilities have had soils collected and analyzed by DTSC in areas where metal processing and storage operations occur, revealing STLC and TTLC exceedances for lead, copper, zinc, and cadmium. During DTSC's 2015 inspection of Schnitzer, soil samples collected from bare ground where scrap metal was stored or being processed, from piles of swept material from paved surfaces, and from areas adjacent to and under the joint products plant where the non-ferrous metals are removed from metal shredder aggregate, were found to exceed regulatory thresholds for metals.

DTSC inspections at Ecology found similar soil contamination. DTSC observed metal processing operations being conducted on bare ground, stained soils accumulating on paved surfaces, and piles of contaminated soils. DTSC collected samples from these areas, and found that the piles often exceeded TTLCs and STLCs for lead, cadmium, copper, and zinc.

Four metal shredding facilities have had fires on their properties, either in the metal shredding machinery or in piles of scrap metal, with a total of six known fires over the past 10 years. Two of the four had more than one fire from 2009 to 2013.

Several of the facilities were found to have had accidents that resulted in releases of hazardous constituents to the air, or to have had ongoing emissions of hazardous constituents resulting from their routine, normal operations. DTSC found that the explosion in the air pollution control system at SA Terminal Island resulted in the release of an estimated 52 pounds per hour of VOCs, and approximately 28.3 tons of particulate matter, over the course of the 120 days that the shredder was in operation after the explosion. DTSC found that the normal, routine operations at Sims had resulted in emissions of light fibrous material from that facility since at least 2009, when the material was found in the ponds at the neighboring Cargill Salt facility. Samples collected of the LFM were found to contain zinc, lead, and copper. The off-site release of this material was found to demonstrate the illegal disposal of hazardous metal shredder residue.

These examples show that while each metal shredding facility is under the jurisdiction of environmental and health agencies, each of those agencies implements a program that is tailored to the priorities that have been established for its district. Notably, the metal shredding facilities in SCAQMD have been required to install and maintain RTO units to control the emissions of VOCs because SCAQMD has identified the emission of VOCs as a priority in its district. BAAQMD does not require the use of RTO, but allows the use of air scrubbers to control the emission of all pollutants, including VOCs. SJVAPCD does not mandate control of VOCs at all.

Given the similarity of the material being shredded, and the common use of a hammer mill to shred the vehicles, appliances and other scrap metals, each metal shredding facility is likely to emit similar pollutants, from its similar processes, to the air, water, and soil surrounding its facilities. These jurisdictional differences indicate that unequal levels of public health or environmental protection may result near the metal shredding facilities.

These jurisdictional differences, coupled with the continued effect of DTSC's "f letters" and OPP 88-6, have resulted in inadequate regulatory oversight of the operations being conducted at the metal shredding facilities.

DRAFT

3 ANALYSIS REQUIRED TO ADOPT REGULATIONS

Pursuant to HSC Sections 25150.82(d)(3)(A) through 25150.82(d)(3)(D), the Metal Shredding Facilities Law requires DTSC to prepare an analysis addressing specific factors relating to activities that would be subject to the alternative management standards, if promulgated, or to existing hazardous waste control law.

DTSC, in its evaluation of the metal shredding facilities and their hazardous waste management activities, has determined that the activities that would most significantly relate to the establishment of alternative management standards or to the requirements of existing hazardous waste control law would be the hazardous waste treatment and storage activities that have been historically "authorized" or otherwise exempted from regulation as a result of OPP 88-6. Therefore, as required by the Metal Shredding Facilities Law, these hazardous waste management activities are the subject of this Analysis.

The following sections present DTSC's analysis of the factors specified in the Metal Shredding Facilities Law as they pertain to the treatment and storage of metal shredder wastes. All of these wastes are hazardous wastes, and all are activities that would otherwise require a hazardous waste permit or other form of authorization from DTSC to perform. Any alternative management standards proposed would be substituted for the hazardous waste management requirements and permitting standards that apply to these types of hazardous waste management activities under existing statutes and regulations. (Note that the disposal of CTMSR to landfills, which would otherwise require a hazardous waste permit to perform if not for the nonhazardous classifications provided in the "f letters," is discussed in Section 5.0.)

3.1 Types of Hazardous Waste and Estimated Amounts That Are Managed as Part of the Activity

Health and Safety Code Section 25150.82(d)(3)(A) requires DTSC, if it intends to promulgate alternative management standards, to prepare an analysis of the types of hazardous waste and the estimated amounts of each hazardous waste that are managed as part of the activity. Unless alternative management standards are developed, these activities would be regulated by the hazardous waste management requirements and permitting standards that apply to these types of hazardous waste management activities under existing statutes and regulations.

Metal Shredder Aggregate: The facilities treat the aggregate using physical separation processes to separate ferrous and non-ferrous metals. Except in two instances where the metal shredding facilities claimed the information was confidential business information, each of the facilities provided an estimate of the amount of scrap metal it processed in 2014 (the year prior to the survey responses. According to the surveys, the incoming scrap composition typically consists of end-of-life vehicles (20 to 50 percent), appliances (10 to 70 percent), and other forms of scrap metal (9 to 40 percent).

The total amount of metal shredder aggregate estimated to be processed by all the metal shredding facilities in 2014 was 1.9 million tons. This amount was assumed to be equivalent to the amount of scrap metal received; in other words, the weight of the material before it is shredded in the hammer mill would be the same as the weight of the material after it is shredded. This may overestimate the actual amount of metal shredder aggregate, depending on how much of the scrap metal that is received includes scrap metal that is already "clean" and does not require shredding or separation before being

managed as sorted ferrous or non-ferrous metals. However, the estimated amount correlates well with the amount of CTMSR that was reported as alternative daily cover in the same year. To the extent the aggregate contains hazardous wastes, some portion of the estimated amount of aggregate would be a measure of hazardous waste, depending on specific circumstances.

Metal Shredder Residue: After the metal shredder aggregate has been treated to separate the ferrous and non-ferrous metals, the portion that remains is referred to as "metal shredder residue."

The total amount of metal shredder residue estimated to be generated by all of the metal shredding facilities is 536,000 tons. According to the survey responses, the metal shredding facilities provided, the amount of metal shredder residue generated by each facility was reported to range from 29 to 38 percent of the facility's total scrap metal throughput. To approximate the amount of metal shredder residue being generated in 2014, an average of 33.5 percent was applied to the estimated amount of metal shredder aggregate being generated. Again, although it may not provide a precise amount, the calculated estimate correlates well with the amount of CTMSR that was reported as alternative daily cover in the same year.

CTMSR: After the metal shredder waste has been chemically treated, the facilities store it in piles at their facilities. Later, it is loaded onto trucks and transported to solid waste landfills, where it is disposed or used as alternative daily cover. According to information reported to CalRecycle by the solid waste landfills that use CTMSR for alternative daily cover, an estimated 517,000 tons of CTMSR were used as alternative daily cover in 2014. This number does not include the amount of CTMSR sent to H.M. Holloway by SA Bakersfield. CTMSR received by H.M. Holloway is disposed of, and is not used for alternative daily cover. The amount of CTMSR sent to H.M. Holloway by SA Bakersfield in 2014 was approximately 25,000 tons. The total estimated amount of CTMSR generated by metal shredding facilities in 2014 was 542,000 tons.

Quantities of Hazardous Waste Managed at Metal Shredding Facilities: Table 6 summarizes the Quantities of Throughput and Waste Generation from Metal Shredding Facilities reported for 2014. The amount of scrap metal shredded annually was reported by each metal shredding facility in the questionnaires provided to DTSC. The amount of metal shredder aggregate generated is considered to be the same as the amount of scrap metal shredded, because no ferrous or non-ferrous materials have yet been removed. Metal shredder residue remains once the ferrous and non-ferrous metals have been removed. The amount of chemically treated metal shredder residue that was transported offsite for disposal was also reported in the questionnaires from each facility. CalRecycle provides a public record of the amount of CTMSR being used as alternative daily cover. Additional data was provided by the landfills in response to DTSC's survey. The other values in Table 6 were calculated as functions of the known data. Because some facilities claimed that their production and generation volumes were confidential business information, some of the values in Table 6 are estimates based on overall industry averages. Although some of the values are estimated, they provide a reliable approximation of the scale of hazardous waste management activities being conducted at the metal shredding facilities.

Table 6.
Quantities of Throughput and Waste Generation and Management at Metal Shredding Facilities

Facility	Scrap Metal Shredded (Tons)	Metal Shredder Aggregate Generated and Treated (Tons)[b]	Metal Shredder Residue (Approximate Tons)[c]	CTMSR Disposed (Tons)[d]
SA TERMINAL ISLAND	330,000	330,000	110,550	115,172
SCHNITZER STEEL PRODUCTS[a]	582,000[g]	582,000[f]	195,000[f]	195,000[e]
SA ANAHEIM	247,000	247,000	82,745	87,093
SIMS METAL MANAGEMENT[a]	358,000[g]	358,000[f]	120,000[f]	120,000[e]
SA BAKERSFIELD	83,000	83,000	27,805	24,567
ECOLOGY AUTO PARTS	264,000	264,000	N/A	N/A

[a] Some information was claimed as Confidential Business Information. Estimates based on overall industry averages were used to in place of data that was unavailable.
[b] Amount assumed to be the same as the amount of scrap metal processed.
[c] Calculated based on the industry's estimate that the amount of metal shredder residue generated by each facility ranged from 29 to 38 percent of its total throughput. An average of 33.5 percent was applied to approximate the amount generated.
[d] Based on information provided to CalRecycle on the amount of CTMSR that was reported to be used as alternative daily cover.
[e] Estimated from amount of CTMSR used as alternative daily cover reported to CalRecycle.
[f] Calculated using the estimated amount of CTMSR used as alternative daily cover as reported to CalRecycle.
[g] Calculated using the estimated amount of metal shredder residue, using the ratio of metal shredder residue to total throughput of 33.5 percent.

Hazards to Human Health or Safety or to the Environment Posed by Reasonably Foreseeable Mismanagement of Those Hazardous Wastes and Their Constituents

The risks and hazards associated with the management and mismanagement of hazardous wastes are directly related to the hazardous constituents present in the hazardous waste and the characteristics the hazardous waste exhibits. California regulates waste based on the toxicity and hazard to humans and to other biological organisms. The risk posed by hazardous wastes is also a function of the routes of release into the environment and the potential exposure that can take place as a result of that release.

Chemical Hazards of Hazardous Waste Constituents in Metal Shredder Wastes

The primary hazardous waste constituents in metal shredder wastes, shown in previous DTSC sampling and in the treatability study, are lead, copper, and zinc. Each of these contaminants is present at concentrations that exceed their respective STLCs and TTLCs, and the soluble concentrations are only decreased in CTMSR—but even then, not to levels below the STLC. Cadmium has also occasionally been observed in some samples at levels that exceed its STLC. Historically, metal shredder wastes have also contained mercury and PCBs, but these constituents have not recently been found in chemical testing performed.

The primary health and environmental concerns with these hazardous waste constituents are as follows:

Lead: Lead can present health hazards if it is inhaled, ingested, or absorbed as particles.[107] Inhalation presents the greatest risk, because the body absorbs higher levels of lead through this exposure pathway. Lead is absorbed and stored in bones, blood, and tissues. Bones can be demineralized by lead, which replaces other natural elements in the bone structure.

Lead poisoning can happen if a person is exposed to very high levels of lead over a short period of time. This can cause abdominal pain, fatigue, weakness, memory loss, and pain or loss of feeling in the hands and/or feet. Exposure to high levels of lead may cause anemia, weakness, and kidney and brain damage. Prolonged exposure to lead can cause abdominal pain, nausea, and changes in personality, and can increase the risk for high blood pressure, heart disease, kidney disease, and reduced fertility. Very high levels of lead exposure can cause death. The U.S. Department of Health and Human Services, US EPA, and the International Agency for Research on Cancer (IARC) have determined that lead is probably cancer-causing in humans.[108]

Generally, children tend to show signs of severe lead toxicity at lower levels than adults. Lead poisoning has occurred in children whose parents accidentally brought home lead dust on their clothing. Neurological effects and mental retardation have also occurred in children whose parents may have job-related lead exposure. Lead can cross the placental barrier, which means that the fetuses of pregnant women who are exposed to lead are also exposed. Lead can damage a developing baby's nervous system and even low-level lead exposures in developing babies have been found to affect behavior and intelligence. Lead exposure can cause miscarriage, stillbirths, and infertility.

Cadmium: Cadmium has an inhalation hazard that can cause pulmonary irritation.[109] Long-term exposure to cadmium through inhalation or oral ingestion can cause kidney disease due to the build-up of cadmium in the kidneys. Similarly, cadmium is classified by US EPA as a probable human carcinogen, with animal studies concluding increased rates of lung cancer due to chronic exposure.[110]

Cadmium (as an oxide, chloride, or sulfate) will exist in the air as particles or vapors from high-temperature processes. It can be transported long distances in the atmosphere, where it will deposit (wet or dry) onto soils and water surfaces. Cadmium and its compounds may travel through soil, but its mobility depends on several factors such as pH and the amount of organic matter in the soil, which will vary depending on the local environment. Generally, cadmium binds strongly to organic matter, where it will be immobile in soil and be taken up by plant life, eventually entering the food supply.

Copper: Exposure to high doses of copper can cause liver and kidney damage and even death.[111] Long-term exposure to copper dust can irritate the nose, mouth, and eyes, and cause headaches, dizziness,

[107] See Health effects of Lead, The National Institute for Occupational Safety and Health (NIOSH), available at https://www.cdc.gov/niosh/topics/lead/health.html
[108] Toxicological Profile for Lead, U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, 2007.
[109] Toxicological Profile for Cadmium, U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, 2012.
[110] See www.epa.gov/sites/production/files/2016-09/documents/cadmium-compounds.pdf
[111] See Public Health Statement for Copper, U.S. Department of Health and Human Services Agency for Toxic Substances and Disease Registry, 2004.

nausea, and diarrhea. If water that contains higher than normal levels of copper is consumed, it can cause nausea, vomiting, stomach cramps, or diarrhea. It is not known if copper can cause cancer in humans. US EPA does not classify copper as a human carcinogen because there are no adequate human or animal cancer studies.

Elemental copper does not break down in the environment. Copper can be found in plants and animals, and at high concentrations in filter feeders such as mussels and oysters. Copper is also found in a range of concentrations in many foods and beverages that we eat and drink, including drinking water. When copper and copper compounds are released into water, the copper that dissolves can be carried in surface waters either in the form of copper compounds or as free copper or, more likely, copper bound to particles suspended in the water. Even though copper binds strongly to suspended particles and sediments, there is evidence to suggest that some water-soluble copper compounds do enter groundwater. When copper is released into soil, it can become strongly attached to organic material and other soil components (clay, sand, etc.) in the top layers of soil, and may not move very far when it is released. Copper that enters water eventually collects in the sediments of rivers, lakes, and estuaries.

Zinc: Zinc exposure can cause stomach cramps, anemia, and changes in cholesterol levels.[112] Inhaling large amounts of zinc (as dusts or fumes) can cause a specific short-term disease called metal fume fever. However, DHHS and IARC have not classified zinc for carcinogenicity, and US EPA has determined that zinc is not classifiable as to its human carcinogenicity. Zinc is not listed by the State of California as a naturally occurring or synthetic chemical that is known to cause cancer or birth defects or other reproductive harm.

Zinc dust can travel in the air and be deposited by rain and snow. Depending on the type of soil, some zinc compounds can move into the groundwater and into lakes, streams, and rivers. The zinc dissolved in water can build up in fish and other organisms.

Research conducted by US EPA has shown that zinc is a strong aquatic pollutant.[113] Inherent water quality parameters like pH, hardness, and alkalinity change the biological activity of zinc. This is significant because calcium hardness and carbonate alkalinity are both important factors in governing the toxicity of zinc to fish. In the US EPA study, the sensitivity of various fish species to zinc was found to vary by a factor of 2.7 between hard and soft water.

The rulemaking documents that established California's hazardous waste criteria stated that "[z]inc appears to have low toxicity to higher animals, but is highly toxic to fish, especially in soft waters. Moreover, zinc has a synergistic, toxic effect with copper compounds on fish. Zinc is an essential nutrient for plants and animals, but also has an appreciable phytotoxicity which is dependent on soil pH. Liming the soil reduces the phytotoxic effects of zinc. There is a recommended limit of 2.0 milligrams of zinc per liter of water applied to limed soils."[114]

[112] See Toxic Facts for Zinc, U.S. Department of Health and Human Services, The Agency for Toxic Substances and Disease Registry (ATSDR), U.S. Department of Health and Human Services, available at: https://www.atsdr.cdc.gov
[113] See Holcombe, G.W. and Andrew, R.W., The Acute Toxicity of Zinc to Rainbow and Brook Trout: Comparisons in Hard and Soft Water, Ecological Research Series, Research and Development. US EPA Environmental Research Lab, Duluth, MN. EPA-600/3-78-094PB-289 939, October 1978.
[114] See Final Statement of Reasons, Criteria for Identification of Hazardous and Extremely Hazardous Wastes, Department of Health Services, R-45-78, July 20, 1984, p. 22.

Hazards from Reasonably Foreseeable Releases of Metal Shredder Wastes

The hazards to human health or safety or to the environment posed by hazardous wastes that exceed any of the TTLCs and STLCs are associated both with the toxic constituents that are present in excess of the TTLC as well as how the hazardous waste is being managed.

Wastes that contain constituents that exceed their respective TTLCs can pose hazards to human health and the environment if managed in ways that do not prevent them from being released into the environment. In addition, wastes that contain constituents that exceed their respective STLCs can pose hazards to human health and the environment if mismanaged in ways that allow the soluble constituents to migrate via surface or groundwater to sensitive aquifer systems such as drinking water supplies or aquatic wildlife environments.

The Department of Health Services (DHS) described potential routes of release of and exposure to particulate toxics, for which TTLCs were developed. The potential routes include:

- Surface run-off and contamination of land and water
- Direct discharge into waterways
- Volatilization of organics
- Airborne dispersal before, during, and after disposal
- Direct on-site land contamination
- Long-term solubilization

As further explained in the rulemaking establishing the hazardous waste criteria, "It was decided to consider the potential impacts on land, resulting from improper disposal of particulate toxic wastes, in establishing TTLC values. The most direct impact of indiscriminate disposal is contamination of the land and the attendant potential impact on organisms which contact the land. These can include persons, animals, or plants."[115]

In its rulemaking documents in which the STLCs were established, DHS explained that "the establishment of the STLC was based upon the potential for soluble substances from improperly disposed wastes to migrate via surface or groundwater to sensitive aquifer systems such as drinking water supplies or aquatic wildlife environments. Several steps can be envisioned in such a process: (a) dissolving of toxic substance from the waste by the leaching action of rain, surface water, ground water, or landfill leachate; (b) movement of the resulting extractant from the disposal area; (c) attenuation (dilution) of toxic substance in the extractant through soil absorption or through mixing with ground or surface waters; and (d) pollution of the aquifer."[116]

The establishment of the STLCs and TTLCs assumed that the "proper" management of hazardous wastes would prevent releases consistent with the potential routes of dissemination and exposure listed above. The primary method of controlling the hazards posed by the hazardous constituents in the waste would be to manage it so that releases cannot occur that could allow it to contaminate land or water, and potentially come into contact with human or biological receptors.

[115] See Final Statement of Reasons, Criteria for Identification of Hazardous and Extremely Hazardous Wastes, Department of Health Services, R-45-78, July 20, 1984, pp. 95 – 98.
[116] See Final Statement of Reasons, Criteria for Identification of Hazardous and Extremely Hazardous Wastes, Department of Health Services, R-45-78, July 20, 1984, pp. 89–91.

The hazardous waste management requirements that would otherwise apply to the metal shredder wastes are all designed to prevent the release of the hazardous waste and hazardous waste constituents into the environment. In all cases, the management of hazardous waste from the point of its generation through its treatment and storage, and ultimately to its transportation to a disposal facility, is required to be performed inside tanks or containers so that the hazardous constituents are controlled and contained. In some cases, these containment standards can be accomplished by performing them inside buildings that meet the standards for containment buildings (see Article 29, Chapter 14, Title 22, California Code of Regulations, Section 66264.1101 et seq.), or in units that meet specific design and operating standards to prevent the release of hazardous wastes into the environment (e.g., waste piles designed and operated in accordance with Article 12, Chapter 14, Title 22, California Code of Regulations, Section 66264.250 et seq.).

The information presented in Section 2.3 demonstrates that metal shredder wastes are not currently managed within tanks or containers, inside containment buildings that meet the Article 29 standards, nor in waste piles that meet the design and operating standards in Article 12. At metal shredding facilities, the metal shredder wastes are not being managed in accordance with existing hazardous waste requirements for transfer, storage, or treatment of hazardous wastes. This has allowed hazardous wastes to be released, causing potential impacts to human health and the environment.

3.2 Complexity of Treatment and Storage Activities at Metal Shredding Facilities

Health and Safety Code Section 25150.82(d)(3)(B) requires DTSC, if it intends to promulgate alternative management standards, to prepare an analysis of the complexity of the activity, and the amount and complexity of operator training, equipment installation and maintenance, and monitoring that are required to ensure that the activity is conducted in a manner that safely and effectively manages each hazardous waste

Complexity of Treatment Activities

Ferrous and Non-ferrous Metal Separation – For ferrous metal separation, the amount of charge placed on the electromagnet and the rate at which the metal shredder aggregate is passed under the magnet affect the efficiency and effectiveness of the retrieval of ferrous metal. For non-ferrous metal separation, the equipment's air flow, timing, and feed rates that account for the density of materials all affect the efficiency and effectiveness of the retrieval and separation. The efficiency or effectiveness of the removal of the ferrous and non-ferrous metals does not affect the amount or toxicity of the hazardous constituents in the metal shredder aggregate or the subsequent metal shredder residue. It may, based on the mass of the metals that are not removed, effectively decrease the concentrations of the hazardous constituents in the remaining wastes.

The most complex aspects of the ferrous and non-ferrous metal separation processes, with regards to containment of hazardous wastes, appear to be controlling releases of hazardous wastes from the processes. Observations by DTSC and other regulatory agencies as noted in Section 2.3 have documented the release of LFM and particulate matter from the separation processes, and have also documented metal shredder aggregate falling outside of the separation process and off of conveyor systems throughout the facilities.

Chemical Stabilization – Chemical stabilization is a common chemical treatment process. It is used to stabilize soluble concentrations of metals in a variety of circumstances and wastes (for site remediation,

as well as mandated treatment standards for land disposal restrictions for many hazardous wastes). Stabilization is a common remediation technology employed at state and federal Superfund sites. US EPA estimates that 23 percent of the source control remedies performed at these sites between 1982 and 2005 involved the use of solidification or stabilization, and 94 percent of the solidification/stabilization remediations performed included inorganic binders such as cement, fly ash, lime, phosphate, soluble silicates, or sulfur.

The most complex aspect of the chemical treatment of metal shredder residue is due to its highly heterogeneous composition. Metal shredder residue is a mixture of materials (including plastics, rubber, foam, fabric, carpet, glass, wood, road dirt, and debris, along with a small amount of residual metal). These materials are present in a complex assortment of sizes, shapes, and densities with various physical and chemical properties. Each sample of metal shredder residue can be composed of different ratios and sizes of these materials, making the application of the treatment chemicals and even distribution of them throughout the metal shredder residue more difficult.

The chemical stabilization treatment of the metal shredder residue requires careful control of the application rates of silicate solution and alkaline cement to achieve the needed stabilization of the soluble lead, cadmium, copper, and zinc. The treatment process requires an accurate delivery of the required cement and sodium or potassium silicate mixture to the residue for the treatment to be effective. The effectiveness of the treatment, and the immobilization of the soluble metals, are directly affected by how the treatment process is carried out. Higher concentrations of lead, cadmium, copper, or zinc can result from insufficient application of treatment chemicals.

Hazardous Waste Sampling and Analysis – In addition to the complexity of the application of the treatment chemicals, the methods to verify or validate the effectiveness of the treatment are also complex. Not only is each sample likely to contain different proportions of the material that it is composed of, but the techniques used to take samples must account for the composition of the waste.

Sample preparation and laboratory procedures to measure the concentrations of the chemical constituents are also complex. Because the metal shredder residue is composed of many different materials, it is uniquely heterogeneous, and it is extremely difficult to collect and prepare samples for analysis that are representative of this waste stream. The sample preparation procedures require the sample to be milled to a consistent particle size before mixing with the specified extraction liquid. The varying composition requires special milling equipment to reduce the particle size of the material, and additional time spent by the laboratory staff to ensure the sample can pass through the designated sample sieve. Laboratory staff must also pay close attention to the required procedures to decide whether any of the sample is considered extraneous (not needing to be analyzed) or needs to be retained and processed with the remainder of the sample. Significant variation in analytical results can occur if samples are not collected or prepared for analysis as required to address the unique heterogeneous nature of this waste stream.

Complexity of Storage Activities: Storage of the metal shredder aggregate, the metal shredder residue, and CTMSR at the metal shredding facilities is in piles due to the volume of the waste being managed. Where these piles contain hazardous wastes, they must be managed in compliance with regulations. The requirements for storage of hazardous waste in waste piles are much more complex than what is currently practiced at the metal shredding facilities. To store hazardous waste in a waste pile, the waste pile must be designed and managed in accordance with the Waste Pile standards in Article 12 of Chapter

14, Title 22, California Code of Regulations, Section 66264.250 et seq. These standards include but are not limited to an impermeable liner beneath the pile, a leachate collection system, a leak detection system, and an ongoing monitoring program to detect the migration of contaminants from the waste pile. Storage of hazardous waste in waste piles that are not designed or managed in accordance with the prescribed standards allows for contamination of soils, leakage of contaminants into the subsurface, and the potential for migration of hazardous constituents via surface water runoff and air dispersion throughout the site as well as off-site.

Amount and Complexity of Operator Training Associated with Treatment and Storage of Metal Shredder Wastes

As described above, the operational personnel at the metal shredding facilities must be familiar with, and be trained on, the treatment processes and equipment to ensure they are performing efficiently and effectively.

Improper or inadequate screening of incoming waste scrap metals to confirm they have been adequately de-polluted could result in hazardous materials remaining in the scrap metal that is being fed into the hammer mill. These hazardous materials would further contaminate the metal shredder wastes, potentially exposing operational personnel to unexpected risks and hazards as they operate the equipment used to treat the wastes. There have also been occasions that resulted in catastrophic results. For instance, explosions have occurred within the hammer mill that could have been caused by compressed gas cylinders or explosive ordnance that was not detected in the incoming waste scrap metal being detonated by the hammer mill. These explosions create tremendous risk to the hammer mill operator, potentially causing injury or death, and they could also result in the hammer mill or its pollution control equipment becoming disabled, resulting in process stoppage and release of hazardous constituents into the environment.

Improperly operated ferrous and non-ferrous separation processes could result in ferrous and non-ferrous metals remaining in the metal shredder residue, increasing the amount of metal shredder residue requiring chemical treatment, increasing the amount of CTMSR requiring disposal, and decreasing the profitability of the metal shredding facility's metal recovery operation.

The chemical treatment system is automated to reflect belt scale and speed, but it does not measure the amount of contaminants present to adjust the treatment chemicals accordingly. Therefore, operational personnel must be trained to inspect the metering pump system and associated tank gauges in the chemical treatment system to ensure that the required amount of the sodium or potassium silicate solution and cement is added to metal shredder residue in the pug mill to achieve the required treatment outcomes. Failure to operate the chemical treatment system correctly could result in potential harm. CTMSR that is insufficiently treated could result in contamination at the solid waste landfill and possible harm to the landfill personnel who come in contact with it.

Operational personnel must also be trained on the operation and maintenance of all pollution control equipment, and in the facilities' pollution control best management practices, to ensure that they are functioning properly and are not allowing for discharges that exceed permit standards or allowable limits. Failure to properly operate and maintain pollution control equipment, or to implement pollution control best management practices, could result in releases of hazardous waste or hazardous waste

constituents that could expose people to health risks, contaminate the environment, or injure or harm other biological receptors outside the facilities' boundaries.

Required Monitoring to Ensure That Treatment and Storage of Metal Shredder Wastes Are Conducted in a Manner Which Safely and Effectively Manages Each Hazardous Waste

As discussed above, the treatment processes, and the pollution control equipment and pollution control best management practices, must be constantly monitored to ensure they are being operated and implemented effectively. Properly operating pollution control devices reduce emissions from the equipment and the potential for off-site migration and resulting risks due to inhalation, dermal absorption, air deposition, or surface water runoff. Local air districts require periodic analysis of the air emissions to verify that the equipment is operating properly and that emissions are within the allowable limits. Similarly, the RWQCBs require routine monitoring of surface water discharges (if any), and industrial sewer discharges (if any). This monitoring is also intended to verify that wastewater treatment systems are operating properly and that the discharges are within allowable limits. At some metal shredding facilities that have previous cases of soil contamination, the RWQCBs have also required groundwater to be monitored (where subsurface contamination has been confirmed). This monitoring is intended to identify migration of contaminants and potential threats to groundwater or drinking water sources.

3.3 Chemical and Physical Hazards Associated with Treatment and Storage

Health and Safety Code Section 25150.82(d)(3)(C) requires DTSC, if it intends to promulgate alternative management standards, to prepare an analysis of the chemical or physical hazards that are associated with the treatment and storage of metal shredder wastes and the degree to which those hazards are similar to, or different from, the chemical or physical hazards that are associated with the production processes that are carried out in the facilities that produce the hazardous waste that is managed as part of the activity.

The primary chemical hazards associated with the treatment and storage of metal shredder wastes are posed by the elevated soluble and total levels of lead, cadmium, copper, and zinc that are present in the wastes. The waste management practices that are common to the metal shredding facilities do not sufficiently contain or control the metal shredder aggregate, which allows the aggregate and its constituents to be released into the environment (both on and off-site). Metal shredder facility waste management practices have resulted in LFM and particulate containing the contaminants being released onto and outside of the metal shredding facilities. They have also resulted in the dispersion of metal shredder wastes outside of waste treatment equipment, arguably creating circumstances of unintentional disposal when the metal shredder waste is released or becomes separated from the waste treatment equipment or storage areas.

The greatest chemical hazards these hazardous waste constituents pose is when they or the waste they are within are not contained or otherwise controlled, and they are allowed to be released into the environment. This can result in contamination of the metal shredding facilities and potentially the areas near the metal shredding facilities, and may result in both the public and other biological organisms coming into contact with or being exposed to these hazardous constituents, and potentially suffering negative health impacts and harm.

The physical hazards associated with the treatment and storage of metal shredder wastes are hazards that would be common to the operation of large industrial equipment that is managing large amounts of material. The operation of the ferrous and non-ferrous separation processes and equipment must be done in conformance with Cal/OSHA worker safety requirements. DTSC collected reported incidents of worker injury reported to Cal/OSHA but did not find any incidents of accident or injury associated with the operation of the ferrous and non-ferrous separation equipment. DTSC also identified a 2004 fire at Vasco Road Landfill in Livermore in a pile of CTMSR that was being stored for use as alternative daily cover (which is further discussed in Section 5 of this Analysis). Fires in this waste would result in large plumes of dense smoke consistent with the burning of plastics and other synthetic materials that comprise the majority of the metal shredder wastes. The chemical constituents in this smoke can harm those who come in contact with it by, for example, exacerbating existing respiratory problems.

Additional chemical hazards associated with the treatment and storage of metal shredder residue and CTMSR are associated with the sodium or potassium silicate and alkaline cement treatment chemicals. The Material Safety Data Sheet for one brand of silicate solution indicates that it has no fire or explosion hazard, but also indicates that mist or sprays from the solution can cause chest discomfort and coughing; that direct contact can cause eye irritation; that prolonged or repeated contact can remove body oils from skin causing slight irritation; and that swallowing large amounts can cause nausea and vomiting. The Material Safety Data Sheet for cement indicates that it has no fire or explosion hazard but that inhalation of dust should be avoided, and that the cement can cause irritation of the eyes, skin and respiratory tract. Ingestion can also cause irritation of the gastrointestinal tract, which could be introduced to the scrap metal feed as MRSH.

Degree to Which Hazards Are Similar to, or Different From, Chemical or Physical Hazards Associated with Production Processes Carried Out in Facilities That Produce Metal Shredder Wastes

The metal shredder aggregate and metal shredder residue are produced at the same locations where their treatment and storage take place. They are not being produced at a different location, and are not transported to the metal shredding facilities to be treated. Landfill disposal of CTMSR, which occurs at locations other than the metal shredding facilities, is discussed in Section 5 of this Analysis.

3.4 Types of Accidents That Might Reasonably Be Foreseen During Treatment and Storage

Health and Safety Code Section 25150.82(d)(3)(D) requires DTSC, if it intends to promulgate alternative management standards, to prepare an analysis of the types of accidents that might reasonably be foreseen to occur during the management of particular types of hazardous waste streams, the likely consequences of those accidents, and the reasonably available actual accident history associated with the activity. In the context of this Analysis, the focus has been on accidents related to the treatment and storage of metal shredder wastes. As defined in Section 66260.10 of Title 22, California Code of Regulations, an accidental occurrence is an accident, including continuous or repeated exposure to conditions, which results in bodily injury, property damage or environmental degradation neither expected nor intended from the standpoint of the insured.

The types of accidents that might reasonably be foreseen to occur during the treatment and storage of metal shredder wastes include the following:

- Spills or releases of metal shredder wastes outside of conveyor systems and the ferrous and non-ferrous metal separation equipment
- Spills or releases of metal shredder residue and CTMSR outside of conveyor systems and the metal shredder residue treatment equipment
- Spills or releases of sodium or potassium silicate treatment solution outside the containers and tanks it is stored in
- Spills or releases of alkaline cement outside the containers and tanks it is stored in
- Failure of air pollution control equipment
- Fires in piles of the stored metal shredder waste, or in the metal shredder waste treatment equipment
- Meteorological events with high winds causing the wind-borne dispersal of metal shredder wastes outside the boundaries of the metal shredding facilities
- Earthquakes that could result in collapse or damage of buildings or equipment at the metal shredding facilities where metal shredder wastes are managed
- Flooding associated with local or regional events or unanticipated rainfall events

Likely Consequences of Accidents Reasonably Foreseen to Occur During Treatment and Storage of Metal Shredder Wastes

DTSC considered the likely consequences of the accidents reasonably foreseen to occur during the treatment and storage of metal shredder wastes. The waste management practices that are common to the metal shredding facilities do not sufficiently contain or control the metal shredder wastes, which has consistently allowed the metal shredder wastes and their constituents to be released into the environment, both on-site and off-site.

The consequence of any of the accidents listed above related to spills or releases of metal shredder wastes would be a contribution of additional contaminants to areas already impacted by releases of metal shredder wastes and their constituents, as well as to additional areas possibly well outside of the facility or areas in proximity that may already be impacted. The significance of the consequence of some of the more catastrophic events is amplified by the waste management practices being used by the metal shredding facilities. Because the metal shredder wastes are largely not contained at the facility, there is no factor that would limit or inhibit their release to the environment well outside of the facility boundaries, which could potentially result in more widespread impacts of the event.

The consequences of spills or releases of sodium or potassium silicate solution or alkaline cement would be localized in the area of the spill, likely limited to on-site impacts, and could result in both worker health and safety concerns, and could contribute additional chemical contaminants to areas already impacted by releases of metal shredder wastes and their constituents.

Reasonably Available Actual Accident History Associated with Treatment and Storage of Metal Shredder Wastes

In its search for accident history related to the treatment and storage of metal shredder wastes, DTSC could not find any records of accident events specifically related to the subject activities. The only accidents at locations associated with the subject activities were a fire and explosion in 2007 at SA Terminal Island (in the air pollution control equipment used to control emissions from its hammer mill) and a fire in 2004 at Vasco Road Landfill in Livermore (in a pile of CTMSR that was being stored for use

as alternative daily cover). All other available accident history at metal shredding facilities was related to either the storage of vehicles, appliances, or other scrap metal prior to its processing in the facilities' hammer mill (2007 and 2012 incidents at Sims Metal Management in Redwood City), or to fires and explosions in a facility's hammer mill (a 2012 incident at Sims Metal Management in Redwood City). None of these accidents occurred in the treatment or storage of metal shredder wastes.

3.5 Demographics of Communities Around Metal Shredders

Health and Safety Code Section 25150.82(d)(3)(E) requires DTSC, if it intends to promulgate alternative management standards, to prepare an analysis of the types of locations where hazardous waste management activities associated with metal shredding and management of treated metal shredder waste may be carried out and the types of hazards or risks that may be posed by proximity to the land uses described in Section 25227 of the Health and Safety Code. The six metal shredding facilities are located in the cities of Anaheim, Bakersfield, Colton, Long Beach, Oakland, and Redwood City. These cities are some of California's most densely populated communities, and together they account for 10 percent of the state's population. According to City-Data.com, the majority of California's industrial workforce is located in the major manufacturing centers of Los Angeles–Long Beach–Orange County and the San Francisco–Oakland–San Jose area. Demographic information related to the areas where each metal shredding facility is located is presented in Table 7.

Table 7.
Demographics of Metal Shredding Facility Locations [a]

	Population [a]	Unemployment Rate [b]	Poverty Rate [c]
Anaheim	351,043	5.4%	16.5%
Bakersfield	376,380	8.4%	19.8%
Colton	54,712	5.8%	22.1%
Oakland	420,005	5.4%	20.4%
Redwood City	84,950	2.9%	9.4%
Long Beach	470,130	5.9%	20.6%

[a] United States Census Bureau, July 1, 2016
[b] California Employment Development Department, Labor Market Information Division, August 2017
[c] United States Census Bureau, 2015 American Community Survey, 5 Year Estimates

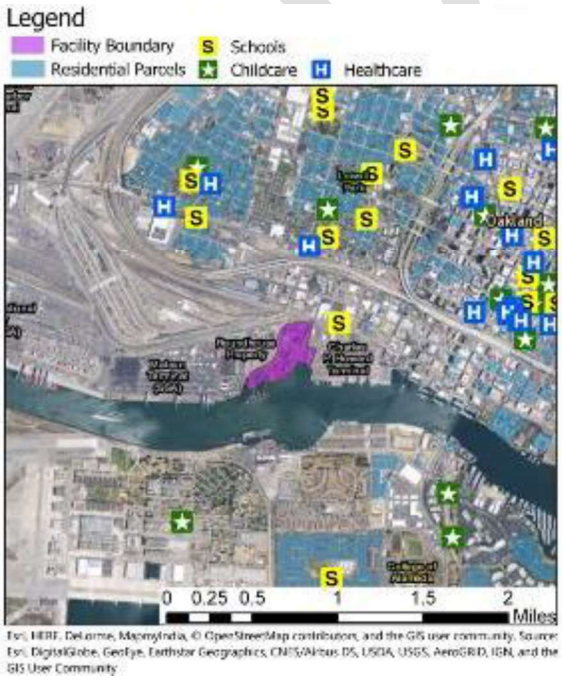
Proximity of Treatment and Storage of Metal Shredder Wastes to Land Uses Described in Section 25227 of the Health and Safety Code

Section 25227 of the Health and Safety Code lists the following sensitive land uses:

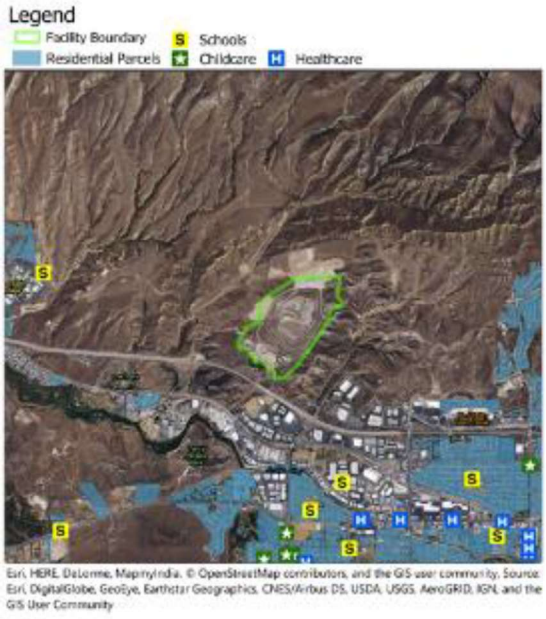
1) Residences, including mobile homes or factory-built housing constructed or installed for use as permanently occupied human habitation;
2) Hospitals for humans;
3) Schools for persons under 21 years of age;
4) Day care centers for children; and
5) Any permanently occupied human habitation, other than those used for industrial purposes.

A Geographical Information System (GIS) tool was used to evaluate the proximity of sensitive receptors (child care facilities, health care facilities, census housing data, and kindergarten through twelfth-grade schools, as identified in section 25227(c)(1)(B), Health and Safety Code) to metal shredding facilities and landfills that accept CTMSR. The location of each of the identified land uses was marked by geographic coordinates, and the property boundary was used for the metal shredding facilities and landfills. A tool was developed that found the closest sensitive receptor to each of the metal shredding facilities and landfills. In the case of residences, the tool evaluated the distance between the property boundary of the metal shredding facility or landfill and land parcels that are designated as residential, whether an occupied residential structure was on the parcel or not.

The following images of Schnitzer Steel in Oakland and Simi Valley Landfill in Simi Valley show the results of the geographic information system (GIS) mapping for the facilities and landfills. The location and proximity of child care facilities, health care facilities, residential housing, and schools are shown for the two facilities. Images for the additional facilities are included in Appendix C.



GIS mapping of Schnitzer Steel Products, Oakland CA, showing proximity to sensitive receptors.



GIS mapping of Simi Valley Landfill, Simi Valley CA.

Table 8 displays the results of DTSC's analysis, showing the closest distance between the metal shredding facilities and any of the identified land uses.

Table 8.

Distance to Sensitive Receptors

Location	Hospital for Humans	Schools (For Persons Under 21 Years of Age)	Day Care Centers (Children)	Residences
	Closest (in miles)	Closest (in miles)	Closest (in miles)	Closest (in miles)
SA Terminal Island	1.37	1.22	1.22	1.01
SA Anaheim	0.4	1.1	1.1	0.18
SA Bakersfield	1.6	1.4	1.12	0.1
Ecology Auto Parts	0.48	0.5	0.5	0.06
Sims Metal Management	1.58	1.57	1.79	0.73
Schnitzer Steel	0.35	0.12	0.39	0.23
Altamont Landfill	No health care facilities within 5 miles	3.8	No day care facilities within 3 miles	0.79
Holloway Landfill	3.89	3.59	No Day care facilities within 3 miles	3.68
Vasco Road Landfill	No health care facilities within 5 miles	1.37	1.85	0.02
Chiquita Canyon Landfill	0.91	1.2	0.91	0.12
Simi Valley Landfill	1.33	0.34	1.11	0.75

Table 8 shows that some of the metal shredder facilities or landfills where wastes are managed have sensitive land uses located within a mile of the facility. Sensitive land uses that are in close proximity would be especially vulnerable to releases that occur at metal shredding facilities or landfills.

Types of Potential Hazards Posed by Proximity of Metal Shredder Waste Activities to Land Uses Described in Health and Safety Code § 25227

The most likely hazard or risk posed by proximity to residences, hospitals, schools, day care centers, and other human habitation is the risk posed by off-site releases of hazardous waste, hazardous waste constituents, or treatment reagents. Releases of metal shredder waste and metal shredder waste constituents occur either as a result of routine, ongoing treatment or storage activities, or as a result of accidental occurrences. The proximity of these residential land uses to sites where metal shredder waste is being managed increases the risk and likelihood of exposure to those releases.

Regarding the potential impact of releases, it is important to consider the ambient background conditions that exist in communities near the metal shredding facilities evaluated and the landfills that accept CTMSR. To assess ambient conditions, DTSC used the CalEnviroScreen version 3.0 (CES) screening tool, created for CalEPA by the Office of Environmental Health Hazard Assessment (OEHHA). CES is a geospatial screening tool that evaluates a variety of factors, such as unemployment, potential exposures to pollutants, adverse environmental conditions, and the prevalence of certain health conditions, within census-designated tracts in California. Each census tract is assigned a unique CES score that incorporates the pollution and population factors specific to that census tract; a higher CES score indicates a greater burden on the community from activities occurring in the surrounding environment.[117] Vulnerable communities are identified by CalEPA as geographic areas with CES scores between the 75th and 100th percentiles.[118] The percentile indicates how each specific census tract ranks in relation to all of the census tracts throughout California (e.g., if a census tract is in the 80th percentile, it ranked higher than 80 percent of the remaining census tracts in California). Access to the mapping tool and additional information on the mapping tool development and application of indicators can be accessed on OEHHA's Web page.[119]

DTSC used the addresses of the metal shredding facilities and landfills that accept CTMSR to identify the census-designated tracts they are in, allowing the CES score and respective pollution and population information to be extracted. Census tract information for each metal shredding facility and landfill that accepts CTMSR is provided in Tables 9 and 10, respectively.

[117] See Faust, J., August, L., Bangia, K., Galaviz, V., Leichty, J., Prasad, S., Schmitz, R., Slocombe, A., Welling, R., Wieland, W., and Zeise, L. Update to the California Communities Environmental Health Screening Tool, CalEnviroScreen 3.0. CalEPA OEEHA, January 2017. https://oehha.ca.gov/media/downloads/calenviroscreen/report/ces3report.pdf

[118] See Designation of Disadvantaged Communities Pursuant to Senate Bill 535 (De León), April 2017.

[119] See OHHEA https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30

Table 9.

CalEnviroScreen 3.0 Population and Pollution Characteristics Near Metal Shredding Facilities

Facility Name & Address	CalEnviroScreen Percentile Range [a]	Population in Census Tract	Pollution Burden Percentile [b]	Population Characteristics Percentile [c]
SA Recycling, Terminal Island 901 New Dock Street Terminal Island, CA 90731	Not evaluated; low population, and health data are unreliable	61	99%	Incomplete evaluation; only asthma and cardiovascular disease contained data
SA Recycling, Anaheim 3200 East Frontera Street Anaheim, CA 92806	96 – 100%	6,488	97%	78%
SA Recycling, Bakersfield 2000 East Brundage Lane Bakersfield, CA 93307	96 – 100%	3,378	86%	99%
Ecology Auto Parts, Inc. **DBA Pacific Rail Industries** 785 East M Street Colton, CA 92324	96 – 100%	4,268	97%	96%
Sims Metal Management 699 Seaport Boulevard Redwood City, CA 94063	61 – 65%	2,108	86%	42%
Schnitzer Steel Products 1101 Embarcadero West Street Oakland, CA 94607	Not evaluated; low population, and health data are unreliable	71	63%	Incomplete evaluation; only asthma and cardiovascular disease contained data

[a] The CES score for each census tract is the product of multiplying the pollution burden by population characteristics. The CES percentile range displayed allows for a relative ranking of CES scores for all census tracts throughout California.

[b] Pollution burden is the average of the seven exposure indicator percentiles (ozone concentrations, PM 2.5 concentrations, diesel particulate matter emissions, drinking water contaminants, use of certain high-hazard and high-volatility pesticides, toxic releases from facilities, and traffic density) and the average of the five environmental effect indicator percentiles (toxic cleanup sites, groundwater threats from leaking underground storage sites and cleanups, hazardous waste facilities and generators, impaired water bodies, and solid waste sites and facilities). Note that the environmental effect indicator value was given half the weight of the exposure indicator when calculating the pollution burden value.

[c] Population characteristics is the average of the three sensitive population indicator percentiles (asthma emergency department visits, cardiovascular disease as indicated by emergency department visits for heart attacks, and low birth-weight infants) and the average of the five socioeconomic factor indicator percentiles (educational attainment, housing burdened low income households, linguistic isolation, poverty, and unemployment).

Three of the six metal shredding facilities are in census tracts with CES scores that fall between the 96th and 100th percentiles, meaning they are not only located in disadvantaged communities in California but are among those most burdened by pollution and population characteristics (SA Recycling in Anaheim, SA Recycling in Bakersfield, and Ecology Auto Parts; Table 9). Four of the six metal shredding facilities have a calculated pollution burden greater than 86 percent, and three of the six metal shredding facilities have a calculated population characteristic burden greater than 78 percent (Table 9). The location of these metal shredding facilities in disadvantaged communities demonstrates that any release of metal shredder wastes or metal shredder waste constituents would impact populations that are already burdened by other environmental factors, and those populations may exhibit greater sensitivity

due to a variety of factors. The population and pollution characteristics near landfills that accept CTMSR are shown in Table 10.

Table 10.
CalEnviroScreen 3.0 Population and Pollution Characteristics Near Landfills That Accept CTMSR

Facility Name & Address	CalEnviroScreen Percentile Range [a]	Population in Census Tract	Pollution Burden Percentile [b]	Population Characteristics Percentile [c]
Altamont Landfill & Resource Recovery 10840 Altamont Pass Livermore, CA 94550	41 – 45%	7,081	93%	16%
H.M. Holloway Surface Mine Landfill 13850 Holloway Road Lost Hills, CA 93249	86 – 90%	3,937	95%	64%
Vasco Road Sanitary Landfill 4001 N. Vasco Road Livermore, CA 94550	41 – 45%	7,081	93%	16%
Chiquita Canyon Sanitary Landfill 29201 Henry Mayo Drive Castaic, CA 91384	66 – 70%	3,110	66%	59%
Simi Valley Landfill & Recycling Center 2801 Madera Road Simi Valley, CA 93065	31 – 35%	8,420	50%	24%
Potrero Hills Landfill 3675 Potrero Hills Lane Suisun City, CA 94585	56 – 60%	6,808	52%	55%

[a] The CES score for each census tract is the product of multiplying the pollution burden by population characteristics. The CES percentile range displayed allows for a relative ranking of CES scores for all census tracts throughout California.
[b] Pollution burden is the average of the seven exposure indicator percentiles (ozone concentrations, PM 2.5 concentrations, diesel particulate matter emissions, drinking water contaminants, use of certain high-hazard and high-volatility pesticides, toxic releases from facilities, and traffic density) and the average of the five environmental effect indicator percentiles (toxic cleanup sites, groundwater threats from leaking underground storage sites and cleanups, hazardous waste facilities and generators, impaired water bodies, and solid waste sites and facilities). Note that the environmental effect indicator value was given half the weight of the exposure indicator when calculating the pollution burden value.
[c] Population characteristics is the average of the three sensitive population indicator percentiles (asthma emergency department visits, cardiovascular disease as indicated by emergency department visits for heart attacks, and low birth-weight infants) and the average of the five socioeconomic factor indicator percentiles (educational attainment, housing burdened low income households, linguistic isolation, poverty, and unemployment).

One of the six landfills that accepts CTMSR is located in a disadvantaged community (H.M. Holloway Surface Mine Landfill). Three of the six landfills have a calculated pollution burden greater than 93 percent, and three of the six landfills have a calculated population characteristic burden between 55 percent and 64 percent, with the remaining three below 24 percent. While the CES scores and respective calculated pollution and population characteristic burdens are lower for landfills, the same

conclusion regarding the populations' lowered ability to tolerate additional off-site releases could be made based on population size.

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4 DEMONSTRATIONS REQUIRED TO ADOPT REGULATIONS

Pursuant to HSC Sections 25150.82(e)(1) through 25150.82(e)(4), the Legislature directed DTSC to make certain demonstrations in order to be authorized to adopt any alternative management standards. According to the Metal Shredding Facilities Law, DTSC cannot adopt alternative management standards unless it can make one of the following demonstrations:

1. The requirements that the alternative management standards replace are not significant or important in either of the following situations (Health and Safety Code Section 25150.82(e)(1)):
    a. Preventing or mitigating potential hazards to human health or safety or to the environment posed by the activity; or
    b. Ensuring that the activity is conducted in compliance with other applicable requirements of this chapter and the regulations adopted pursuant to this chapter.
2. A requirement is imposed and enforced by another public agency that provides protection of human health and safety and the environment that is as effective as, and equivalent to, the protection provided by the requirement, or requirements, that the alternative management standards replace (Health and Safety Code Section 25150.82(e)(2)).
3. Conditions or limitations imposed as part of the alternative management standards will provide protection of human health and safety and the environment that are equivalent to the requirement, or requirements, that the alternative management standards replace (Health and Safety Code Section 25150.82(e)(3)).
4. Conditions or limitations imposed as part of the alternative management standards accomplish the same regulatory purpose as the requirement, or requirements, that the alternative management standards replace, but at less cost or with greater administrative efficiency, and without increasing potential risks to human health or safety or to the environment (Health and Safety Code Section 25150.82(e)(4)).

DTSC must therefore satisfy one of the above required demonstrations in order to adopt any regulations establishing alternative management standards.

4.1 Hazardous Waste Management Requirements That Any Proposed Alternative Management Standards Would Replace

Each of the demonstrations in Section 25150.82(e) asks DTSC to analyze the requirements that the alternative management standards would replace, which are the existing hazardous waste management requirements. DTSC must therefore identify the existing hazardous waste management requirements that apply to metal shredding facilities. Any person who stores, treats, or disposes of hazardous waste must obtain either a full permit or a standardized permit from DTSC, unless the operation qualifies for coverage under a permit by rule. A full permit is a type of permit that is generally required for hazardous waste facilities that are managing federally regulated hazardous wastes, as well as for certain types of hazardous waste facilities managing California-regulated hazardous wastes (e.g., used oil recycling facilities). A standardized permit is a type of permit that is generally available for California facilities managing hazardous wastes that are not federally regulated. A facility with a standardized permit must comply with most of the operational requirements applicable to a full-permit facility, but the permit application process has been simplified. A permit by rule establishes management standards for

covered facilities as a class, rather than on a facility-specific basis. The following is a description of the permit standards that would apply to metal shredding facilities under a full or a standardized permit.

Facility-wide Standards

Article 2. General Facility Standards – The requirements in this article ensure that a metal shredding facility is being operated according to standards that apply to all hazardous waste facilities. It includes operating requirements such as obtaining an identification number and conducting a waste analysis. It also includes inspection requirements, personnel training, location standards (relative to seismic faults and floodplains, e.g.), and construction quality standards (to ensure the constructed units meet or exceed all design criteria and specifications in the permit). Design standards must also be addressed for issues such as foundations, low-permeability soil liners, geomembranes (flexible membrane liners), leachate collection and removal systems and leak detection systems, and final cover systems.

Article 3. Preparedness and Prevention – The requirements in this article ensure that a metal shredding facility is located, designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of metal shredder waste or metal shredder waste constituents to air, soil, or surface water.

Article 4. Contingency Plan and Emergency Procedures – The requirements in this article ensure a metal shredding facility has a plan and procedures in place for responding to emergencies.

Article 5. Manifest System, Recordkeeping, and Reporting – The requirements in this article ensure that a metal shredding facility is keeping accurate and complete records to document the disposition of metal shredder wastes under its management.

Article 7. Closure and Post-closure – The requirements in this article ensure that a metal shredding facility has developed a plan for when the facility eventually will close (and for post-closure if metal shredder wastes will remain), the required elements of that plan, and that the plan satisfies the requirements to certify that closure is complete.

Article 8. Financial Requirements – The requirements in this article ensure that a metal shredding facility has preserved sufficient financial resources to carry out its closure plan and certify closure of the facility, as well as to carry out a post-closure plan if applicable. This article also specifies insurance requirements to ensure a metal shredding facility has resources available to respond to sudden and non-sudden releases.

Article 9. Use and Management of Containers – The requirements in this article ensure that a metal shredding facility manages hazardous wastes in containers safely.

Article 10. Tank Systems – The requirements in this article ensure that a metal shredding facility manages metal shredder wastes in tanks (if used) safely.

Article 17. Environmental Monitoring and Response Programs for Air, Soil, and Soil-pore Gas for Permitted Facilities – The requirements of this article ensure that impacts resulting from metal shredder waste management activities are detected and responded to as quickly as possible.

Waste Pile Standards

As presented in both Section 1 and Section 3, the common way that metal shredder facilities store metal shredder wastes is in waste piles. In addition to the above requirements, "land disposal"[120] of metal shredder waste is subject to additional requirements; some generally apply to all land disposal methods, and some are specific to the method being used. "Land disposal method" is defined in Section 66260.10, Title 22, California Code of Regulations as "disposal of hazardous wastes on or into the land, including, but not limited to, landfill, surface impoundment, *waste piles*, deep-well injection, land spreading and co-burial with municipal garbage" (emphasis added), as well as "storage of hazardous wastes on or in the land, such as *waste piles* and surface impoundments, other than neutralization and evaporation ponds, for longer than one year" (emphasis added). "Pile or waste pile" is defined in that same section of regulations as "any noncontainerized accumulation of solid, nonflowing hazardous waste that is used for treatment or storage and that is not a containment building."

Because metal shredder wastes are stored in waste piles, the following articles in Chapter 14, Title 22, California Code of Regulations would apply to metal shredding facilities:

Article 6. Water Quality Monitoring and Response Programs for Permitted Facilities – The requirements in this article ensure that metal shredder waste constituents are not migrating from the waste pile, and mandate that the metal shredding facility perform corrective action when releases are detected.

Article 12. Waste Piles – The requirements in this article ensure that the metal shredder waste being stored in waste piles does not migrate via wind, surface water, or groundwater, and specify monitoring and leak detection requirements.

Waste Management Unit Specific Standards Applicable to Metal Shredding Facilities

Containment Building Standards: Many of the metal shredder waste management activities at metal shredding facilities are not conducted in containers or tanks or other devices that would prevent the release of metal shredder wastes and metal shredder waste constituents into the environment. One method to contain potential releases is to conduct the metal shredder waste management activities inside a "Containment Building." A "Containment Building" is, according to Section 66264.1100, Title 22, California Code of Regulations, "a completely enclosed, self-supporting structure that is designed and constructed of manmade materials" meeting specified design standards, "has controls sufficient to prevent fugitive dust emissions," and "is designed and operated to ensure containment and prevent the tracking of materials from the unit by personnel or equipment." None of the metal shredding facilities evaluated by DTSC have installed or constructed a building that meets the design standards required by the regulation and would meet the definition of a containment building. If a metal shredding facility chose to use a containment building to demonstrate that it was conducting treatment in a building that was equivalent to a container or tank or other device, it would need to meet the standards applicable to Containment Buildings found in Article 29 in Chapter 14.

[120] According to Section 66260.10, Title 22, California Code of Regulations, "'Land disposal' means placement in or on the land, except in a corrective action management unit, and includes, but is not limited to, placement in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, salt bed formation, underground mine or cave, or placement in a concrete vault or bunker intended for disposal purposes."

Article 16. Miscellaneous Unit Standards: The metal shredding facilities are also using metal shredder waste management methods for which DTSC has not established specific management standards (e.g., conveyor systems used to transport metal shredder wastes between locations where it is being stored and treated). DTSC applies the standards applicable to Miscellaneous Units for any metal shredder waste management activities that are conducted in units for which no specific standards have been developed. The standards applicable to Miscellaneous Units are found in Article 16 in Chapter 14:

The requirements in this article ensure that the unit is located, designed, constructed, operated, maintained, and closed in a manner that ensures protection of human health and the environment. This article establishes performance and operating standards for hazardous waste management units that do not fit into any of the other unit descriptions. The applicable standards include requirements for monitoring, testing, analytical data, inspections, response, and reporting procedures and frequency.

The above hazardous waste permit standards are applied through a review of an application submitted by the facility operator to DTSC, unless the facility is covered by a permit by rule. The review is followed by the development of tailored specific permit conditions that are incorporated into an operations plan, and that detail the requirements applicable to the metal shredder facility, the metal shredder wastes being managed, the equipment and management methods being used, and the operator conducting the metal shredder waste management activities. These elements of the operations plan form the basis of the metal shredding facility's permit, and would provide the grant of authorization for the metal shredding facility to operate.

4.2 Demonstrations Required to Adopt Alternative Management Standard Regulations

The demonstrations in Section 25150.82(e) require DTSC to compare the alternative management standards to the requirements the alternative management standards would replace. In preparing this Analysis and its demonstrations, DTSC contemplated whether the Legislature intended DTSC to compare possible alternative management standards to the requirements currently in place under the "f letters" and OPP 88-6. DTSC dismissed this approach because the legislative intent of the Metal Shredding Facilities Law stated that "[i]t is the intent of the Legislature that the conditional nonhazardous waste classifications, as documented through the historical 'f letters,' be revoked and that metal shredding facilities be thoroughly evaluated and regulated to ensure adequate protection of human health and the environment." Furthermore, the regulation authorizing the "f letters" (subdivision (f) of Section 66260.200, Title 22, California Code of Regulations) merely addresses how waste is classified, not how it is managed. OPP 88-6 does contain such standards, but it is intended as policy for DTSC only, and is not authorized by any law. DTSC therefore must compare any proposed alternative management standards to existing hazardous waste control law.

4.2.1 First Demonstration Required by HSC § 25150.82(e)(1)

Pursuant to HSC Sections 25150.82(e)(1) through 25150.82(e)(4), the Legislature directed DTSC to make certain demonstrations in order to be authorized to adopt any alternative management standards. According to HSC Section 25150.82(e)(1), DTSC cannot adopt alternative management standards under the law's authority unless the requirements which the alternative management standards would replace are not significant or important in either of the following situations:

a. Preventing or mitigating potential hazards to human health or safety or to the environment posed by the activity; or
b. Ensuring that the activity is conducted in compliance with other applicable requirements of this chapter and the regulations adopted pursuant to this chapter.

Under this demonstration, DTSC must first evaluate whether permit requirements for metal shredding facilities are significant or important in 1) preventing or mitigating potential hazards to human health or safety and the environment or 2) ensuring compliance with other hazardous waste requirements.

Risks Addressed by Permit Standards Are Significant

Based on DTSC's analysis, the current treatment and storage practices of metal shredding facilities allow for releases of metal shredder wastes and their constituents into the environment. Releases also occur throughout the facilities' entire operational areas. These releases have resulted in significant soil contamination at each of the sites in areas of the metal shredding facilities where pavement had not been installed. For those metal shredding facilities which are paved, DTSC has not evaluated the construction or integrity of the pavement. The heavy metals stored on pavement and equipment used to transport metals easily degrade most types of pavement over time. The pavement's long-term integrity is therefore unknown.

In addition, as described in the information DTSC received from the RWQCBs (presented in Section 2.3), the pavement at most facilities has not been present for the entire operational history. In some cases, pavement was required in response to releases or enforcement actions. Soil contamination is likely to be present beneath the paved surfaces at all of them because these facilities lacked suitable safeguards to prevent releases of the metal shredder wastes.

DTSC has also identified (as presented in Section 2.3) many documented incidents of the dispersion of metal shredder wastes outside of facility boundaries. These emissions of light fibrous materials have been found to exceed regulatory thresholds when the LFM have been chemically tested.

DTSC has determined that the permitting standards are significant and important in addressing the soil and air releases identified above. Permit requirements are comprehensive, as outlined in Section 4.1. They address every aspect of hazardous waste management and would be tailored to each facility's operations. The installation of pavement would protect against further contamination of soil beneath the facilities, and approved treatment processes and structures would mitigate releases to areas outside of the facility perimeter. DTSC's permit application and review process will correct the potential for releases before they can result in impacts to human health or the environment.

DTSC has also determined that the permitting standards would ensure that metal shredding waste management is conducted in compliance with the Hazardous Waste Control Law and its implementation regulations. The permit mandates the most robust management standards that can govern a metal shredding facility. The permit addresses every aspect of hazardous waste management and ensure comprehensive oversight of the facility, providing the best guarantee that Chapter 6.5 of the Health and Safety Code and Title 22, California Code of Regulations are followed. Storage, treatment, and disposal are all overseen by a permit's authority. No other level of oversight is as equipped to ensure compliance with hazardous waste management as a facility permit issued by DTSC.

Based on these factors, DTSC cannot conclude that the existing hazardous waste management regulations and the hazardous waste facility standards are not significant or important in either:

1) preventing or mitigating potential hazards to human health or safety or to the environment, or

2) ensuring that the activity is conducted in compliance with other applicable requirements of Chapter 6.5 of the Health and Safety Code and Title 22, California Code of Regulations. DTSC was therefore unable to make this demonstration.

4.2.2 Second Demonstration Required by HSC § 25150.82(e)(2)

According to HSC Section 25150.82(e)(2), DTSC cannot adopt alternative management standards under the law's authority unless a requirement is imposed and enforced by another public agency that provides protection of human health and safety and the environment that is as effective as, and equivalent to, the protection provided by the requirement, or requirements, that the alternative management standards replace. In analyzing this second demonstration, DTSC evaluated whether the requirements imposed and enforced by other public agencies are equivalent to, or as effective as, the existing hazardous waste management regulations and the hazardous waste facility standards that are presented in detail in Section 4.1 above. As presented in Section 2.3, there are several environmental regulatory agencies that oversee or exercise jurisdiction over some activities at metal shredding facilities. These other environmental regulatory agencies exercise their jurisdiction and authority over the environmental media they are mandated to protect (e.g., the requirements implemented and enforced by the local air districts are intended to protect air quality, and the requirements implemented and enforced by the RWQCBs are intended to protect water quality). Still other agencies, such as Cal/OSHA, implement and enforce requirements intended to protect worker health and safety. None of these agencies oversee the entirety of the metal shredding facilities' treatment and storage of metal shredder wastes.

DTSC implements and enforces requirements intended to ensure that the treatment and storage of hazardous wastes are performed in a manner that protects the broader spectrum of public health and safety and the environment. The metal shredding facilities' generation and management of metal shredder wastes are all hazardous waste management activities. DTSC is the primary regulatory agency that oversees and regulates the treatment, storage, and disposal of hazardous wastes. No other agency provides oversight as broad as DTSC.

Lastly, DTSC's determination that metal shredder waste is hazardous is relied upon by other agencies. These agencies determine the scope of their respective authorities based on DTSC's classifications. No other agency can therefore regulate metal shredding facilities absent the regulatory involvement of DTSC and its requirements as the first line of defense for risks to human health and the environment.

Based on this, DTSC was not able to conclude that the requirements imposed and enforced by other public agencies are equivalent to, or as effective as, existing hazardous waste management regulations and hazardous waste facility standards.

DTSC was therefore unable to make the demonstration required by HSC Section 25150.82(e)(2).

4.2.3 Third Demonstration Required by HSC § 25150.82(e)(3)

According to HSC Section 25150.82(e)(3), DTSC cannot adopt alternative management standards under the law's authority unless conditions or limitations imposed as part of the alternative management standards will provide protection of human health and safety and the environment equivalent to the requirement, or requirements, that the alternative management standards replace.

DTSC evaluates here whether any alternative management standards could achieve an equivalent level of protection as the existing hazardous waste management regulations and the hazardous waste facility standards described in detail in Section 4.1 above. The highest level of protection is offered by a hazardous waste facility permit. These permits are tailored to ensure that permitted facilities are located, designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned releases to the environment.

As discussed throughout this Analysis, the current storage and treatment practices of metal shredding facilities have allowed for the release of metal shredder wastes and their constituents into the environment and their dispersal throughout the facilities' entire operational areas. These releases have resulted in significant amounts of soil contamination at each of the sites as well as impacts outside of facility boundaries.

Based on the observations of releases at metal shredding facilities, in addition to operational standards that are intended to prevent releases, alternative management standards must require the use of containment buildings that meet the Chapter 14, Article 29 standards for Containment Buildings, the pavement and liner requirements for Waste Piles in Chapter 14, Article 12, the environmental monitoring requirements for Water Quality Monitoring and Response Programs for Permitted Facilities in Chapter 14, Article 6, and the general requirements for Preparedness and Prevention in Chapter 14, Article 3 facility standards. These detailed requirements are not established within the regulations. Rather, the regulations establish the general objectives that are to be achieved, but the detailed requirements that would be carried out at each site are developed as part of the permitting process.

These permits must also consider the variability between facilities' operations, treatment equipment, pollution control equipment and practices, and environmental setting and proximity to nearby sensitive land uses, such as residences, schools, day care centers, and hospitals. Permits are also the only way to develop and apply standards to waste management units and activities for which specific standards do not exist. The development of a permit, and the application of the general permit standards to the site and the specific operations, equipment, and operator, tailor the hazardous waste management requirements in a way that can account for each facility's unique operations and location. In DTSC's view, this has been and continues to be the most effective method to achieve protection of human health or safety and the environment from risks and hazards posed by the treatment and storage of metal shredder wastes.

Considering the waste management practices that are being implemented by the metal shredding facilities, DTSC cannot envision a set of alternative management standards that could provide the required amount of detail within the regulations to achieve the intended safeguards and protections. The hazardous waste management requirements for permitted facilities are tailored or adapted to the industry-specific circumstances through the administration of the unique permit standards. Absent this tailoring, the safeguards and protections that could be achieved through alternative management

standards would not be considered "equivalent" to those provided by the hazardous waste management requirements for permitted facilities.

DTSC was therefore unable to make the demonstration required by HSC Section 25150.82(e)(3).

4.2.4 Fourth Demonstration Required by HSC § 25150.82(e)(4)

According to HSC Section 25150.82(e)(4), DTSC cannot adopt alternative management standards under the law's authority unless conditions or limitations imposed as part of the alternative management standards accomplish the same regulatory purpose as the requirement, or requirements, that the alternative management standards replace, but at less cost or with greater administrative efficiency, and without increasing potential risks to human health or safety or to the environment.

DTSC evaluated whether any conditions or limitations that could be imposed as part of the proposed alternative management standards could accomplish the same regulatory purpose as the existing hazardous waste management regulations and the hazardous waste facility standards, regardless of their cost or administrative efficiency.

As described in the discussion of the Second and Third Demonstrations (see Sections 4.2.2 and 4.2.3 above), metal shredding facilities' treatment and storage of metal shredder wastes has allowed the release of metal shredder wastes and their constituents into the environment and throughout the facilities' operational areas.

DTSC has previously adopted alternative management standards of other hazardous wastes to promote administrative efficiency and lower costs (e.g., the Standards for Universal Waste Management in Chapter 23 of Title 22, California Code of Regulations or the Requirements for Units and Facilities Deemed to Have a Permit by Rule in Chapter 45 of Title 22, California Code of Regulations). In those cases, DTSC could make the required demonstration that reduced compliances costs and added administrative efficiency offered by those regulations did not sacrifice the necessary protections to human health and safety and to the environment. DTSC was able to make the demonstrations because the quantities of hazardous waste being managed under those alternative management standards were much smaller. In addition, the types of waste management activities being used with those wastes were limited, and because of that, detailed operating requirements could be developed and included in the alternative management standards that were adopted.

DTSC evaluated requirements that apply to permitted facilities to assess whether DTSC can propose a less costly or more administratively streamlined option that would not increase potential risks to human health or the environment.

Article 7. Closure and Post-closure – The requirements in this article ensure that metal shredding facilities develop a plan for when the facility eventually will close (and for post-closure, if hazardous wastes will remain). The article specifies the required elements of those plans, and the requirements to certify that closure is complete.

As described in this Analysis, the metal shredding facilities have been designed and operated in a manner that has resulted in significant surface and subsurface contamination. The facilities also manage significant quantities of hazardous wastes. Upon closure, these facilities may require a significant amount of waste disposal and environmental cleanup. In DTSC's experience, a closure plan becomes more complicated, and its contents more critical, when larger volumes of hazardous waste and numbers

of hazardous waste units are present at a permitted hazardous waste facility. In addition, a closure plan is increasingly more complicated when the soil beneath waste management units, or beyond waste management units, has been contaminated with hazardous wastes or constituents of the hazardous wastes. As documented in the Analysis, each metal shredding facility manages significant quantities of metal shredder waste. The shredder waste management areas encompass large proportions of their sites. As also documented in the Analysis, there have been significant releases of metal shredder wastes over the facilities' many years of operation, which has contaminated not only those areas where metal shredder wastes have been managed, but also areas well outside the metal shredder waste management areas, including areas outside of their site boundaries. These facts make closure of metal shredding facilities complex and expensive and in need of significant regulatory oversight. The lack of a robust closure plan could result in unaddressed long-term contamination at a site that could impact public health and the environment, with the cost of remediation to be paid for by public funds, if the contamination is remediated at all.

Closure plans for metal shredding facilities will require significant effort to prepare and are likely to require significant review and feedback from DTSC, as well as revisions based on that feedback. DTSC has imposed limited closure requirements in other alternative management standards it has adopted. In those instances, the closure requirements are either overseen by CUPAs or self-implemented and verified afterwards by DTSC. DTSC has included closure requirements in other alternative management standards it has previously adopted, such as its Universal Waste standards and its Permit by Rule standards. In those cases, the volumes of hazardous waste being managed are much more limited. In addition, the types of waste management activities and the types of waste management equipment being used are also more limited, and DTSC was able to tailor the regulations to include sufficient detail for them to be self-implemented, and later verified by either DTSC or a CUPA as being complete.

Because of the volume of metal shredder waste involved, the number of metal shredder waste management units present, and the amount of contamination that exists, DTSC does not believe a self-implementing or post-implementation verification could achieve an equivalent standard of protecting human health and the environment. A permit is necessary.

Article 8. Financial Requirements – The requirements in this article ensure that permitted metal shredding facilities preserve sufficient financial resources to carry out their closure plan and certify closure of the facility, as well as to carry out an approved post-closure plan if applicable. This article also specifies insurance requirements to ensure the facility has resources available to respond to sudden and non-sudden releases.

As described in this Analysis, the historical operation of the metal shredding facilities in their locations has resulted in significant surface and subsurface contamination. Because of this, the cost of closing the facilities, as well as potential post-closure and corrective action costs, are likely to be substantial. If the metal shredding facilities fail to set aside sufficient funds to pay for the costs of closure, post-closure and corrective action, the costs are likely to fall on California taxpayers and fee payers.

DTSC has imposed financial assurance requirements in other alternative management standards it has adopted. In those instances, the financial assurance mechanisms are for far lower values than metal shredding operations, management, and closure would entail because the amounts of hazardous waste are much smaller and the costs of closure much lower.

The metal shredding facilities manage very large amounts of metal shredder waste. They also employ a large number of metal shredder waste management units. Finally, each of the metal shredding facilities reviewed has significant amounts of soil contamination. The costs of closure (and, potentially, corrective action) may be significant. DTSC believes administering financial assurance requirements through alternative management standards would jeopardize California taxpayers and fee payers, increasing their risk of being required to pay the price of closing and cleaning up the metal shredding facilities. The permitting process will go further to ensure accurate financial assurance is implemented under stricter oversight.

Article 6. Water Quality Monitoring and Response Programs for Permitted Facilities; and Article 17. Environmental Monitoring and Response Programs for Air, Soil, and Soil-pore Gas for Permitted Facilities: The requirements in these articles, applicable to surface impoundments, waste piles, land treatment units, or landfills, ensure that metal shredder waste constituents are not migrating from the metal shredder waste management units, and mandate that corrective action be performed when releases are detected.

As described in this Analysis, the metal shredding facilities have caused significant environmental contamination. In addition, the metal shredding facilities' current metal shredder waste management activities (e.g., management of hazardous wastes in piles) continue to contaminate the environment. The environmental monitoring programs described in this article are essential to both define the extent of contamination and to determine whether the releases from the metal shredding facilities are migrating off-site and posing a threat to the public and the environment, including groundwater. DTSC believes the environmental monitoring requirements are essential to protect human health and safety and the environment from the impacts of releases that occur during management of hazardous wastes. DTSC also believes administering the environmental monitoring requirements through alternative management standards would increase potential risks to human health or the environment. Requirements that could be implemented as alternative management standards would need to incorporate all of the detail necessary to ensure that the monitoring to be performed collects sufficient samples of the appropriate environmental media, in the appropriate locations, and to ensure that they are chemically analyzed for the contaminants of concern. Except in very limited cases, these details cannot be generalized or anticipated, but must be developed based on specific information. This is why the environmental monitoring requirements for permitted facilities are developed based on specific information that is gathered and evaluated as part of the permitting process.

Article 12. Waste Piles – The requirements in this article ensure that the metal shredder waste being stored in waste piles does not migrate via wind, surface water, or groundwater. The article specifies design and operating standards for the storage of metal shredder waste in waste piles, and specifies monitoring and leak detection requirements.

As presented in this Analysis, most of the management of metal shredder wastes is taking place in waste piles. This historical practice has resulted in significant environmental contamination and migration of contaminants from the metal shredder wastes, including LFM. DTSC believes the design and operating requirements for waste piles are essential to protect human health and safety and the environment from threats posed by the storage of metal shredder waste in waste piles on ground surfaces. DTSC also believes administering the waste pile requirements through alternative management standards would increase potential risks to human health or the environment.

Article 29. Containment Buildings – The requirements in this article ensure that metal shredder wastes managed in containment buildings are not released into the environment. The article establishes the design and operating standards for containment buildings.

The only management standard that DTSC could envision that would limit the risks and hazards posed by the storage of metal shredder waste in waste piles would be a prohibition on the use of waste piles. Releases from the metal shredder waste treatment and storage activities at the metal shredding facilities could be significantly controlled if they were conducted within containment buildings that met the Article 29 standards.

As described in this Analysis, the metal shredding facilities manage significant quantities of hazardous wastes. The design and construction of containment buildings that meet the Article 29 standards becomes more complicated, and the contents of proposed plans more critical, when larger volumes of hazardous wastes are being managed at the permitted hazardous waste facility. In addition, the shredder waste management areas encompass large proportions of their sites, which would require larger structures to contain the metal shredder waste management operations and releases from those operations.

The design plans for containment buildings at the metal shredding facilities will require significant effort to prepare, and are likely to require significant review and feedback from DTSC, with revisions based on that feedback. DTSC is aware of occasions where generators without permits have been able to install containment structures that meet their secondary containment requirements for container and tank storage. However, those instances involve much smaller quantities of hazardous wastes and far smaller containment buildings.

Because of the large volume of metal shredder waste involved and the large number of metal shredder waste management units that would need to be covered by a containment building, DTSC does not believe a containment building requirement that is self-implementing could control the potential risks to human health and the environment.

Based on these factors, DTSC cannot conclude that any alternative management standard DTSC could propose, or any conditions or limitations that could be imposed as part of those alternative management standards, could accomplish the same regulatory purpose as the existing hazardous waste management regulations and the hazardous waste facility standards, regardless of their cost or administrative efficiency. DTSC is therefore unable to make this demonstration.

4.3 Conclusions of the Required Demonstrations

DTSC evaluated the hazardous waste management activities at metal shredding facilities, and analyzed those activities to determine the hazards and risks that are posed to the surrounding communities. Based on those evaluations and analyses, the Metal Shredding Facilities Law authorizes DTSC to adopt alternative management standards if it can satisfy one of the demonstrations required by HSC Sections 25150.82(e)(1) through 25150.82(e)(4). DTSC has assessed each of the four demonstrations to determine whether alternative management standards would provide adequate safeguards for human health and safety and the environment.

In the first demonstration, DTSC evaluated whether the requirements of existing hazardous waste control law, including the requirement to obtain a permit to conduct hazardous waste treatment and

storage activities, are significant or important in preventing or mitigating potential hazards to human health or safety and the environment, or in ensuring compliance with other hazardous waste requirements.

DTSC found that the current practices for treatment and storage of hazardous waste at the facilities have allowed for releases of metal shredder wastes and their constituents into the environment. DTSC documented releases that resulted in soil contamination, contaminated storm water runoff, and emissions of light fibrous materials outside the boundaries of the facility. DTSC found that current practices create potential hazards to human health or safety and the environment.

DTSC determined that the existing permitting standards would ensure that metal shredding waste is managed in compliance with existing hazardous waste control law. The facility permit mandates the most robust management standards that can govern a metal shredding facility. No other level of oversight is as equipped to prevent or mitigate potential hazards to human health or safety and the environment, or to ensure compliance with other hazardous waste requirements, as a facility permit issued by DTSC; however depending on certain factors, a permit by rule may provide adequate protections.

In the second demonstration, DTSC evaluated whether the requirements imposed and enforced by other public agencies are equivalent to, or as effective as, the existing hazardous waste control law. Several public agencies exercise jurisdiction and provide regulatory oversight of metal shredding facilities, including local air districts, the regional water boards, and the CUPAs. However, DTSC found that none of these agencies oversee the entire range of hazardous waste management activities at the metal shredding facilities.

DTSC found that the requirements of hazardous waste control law are the most effective means to ensure that hazardous waste management activities are performed in a manner that protects the broader spectrum of public health and safety and the environment. DTSC is the primary regulatory agency that oversees and regulates the treatment, storage, and disposal of hazardous wastes.

Further, those other agencies rely upon DTSC's determination that metal shredder waste is hazardous waste. The scope of the agencies' respective authorities is then based on DTSC's determination. Therefore, no other agency can regulate metal shredding facilities absent the regulatory involvement of DTSC.

In the third demonstration, DTSC evaluated whether conditions or limitations could be developed that would provide protection of human health and safety and the environment equivalent to the requirement, or requirements, of existing hazardous waste control law. DTSC determined that the highest level of protection of human health and safety and the environment is offered by a hazardous waste facility permit.

These permits are tailored to ensure that facilities are located, designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned releases to the environment. These detailed requirements are not established within the regulations. Rather, the regulations establish the general objectives that are to be achieved at the facility, but the detailed requirements that would be established at each permitted site are developed as part of the hazardous waste permitting process.

DTSC found that the hazardous waste permit is the most effective method to achieve protection of human health or safety and the environment from risks and hazards posed by the treatment and storage of hazardous wastes. Absent this industry-specific tailoring, any safeguards and protections that could be developed would not be considered "equivalent" to those provided by the hazardous waste management requirements for permitted facilities.

In the fourth demonstration, DTSC evaluated whether conditions or limitations could be imposed that would accomplish the same regulatory purpose as the requirement, or requirements, of existing hazardous waste control law, but at less cost or with greater administrative efficiency, and while preventing potential risks to human health or safety or to the environment.

DTSC evaluated requirements that apply to permitted facilities to assess whether DTSC could propose a less costly or more administratively efficient option that would not increase potential risks to human health or the environment. Requirements on permitted facilities include Closure and Post-closure plans, Financial Assurance, and Environmental Monitoring and Response Programs.

DTSC found that because of the volume of metal shredder waste involved, the number of metal shredder waste management units present, and the amount of contamination that already exists, no self-implementing or post-implementation verification of these requirements could achieve an equivalent standard of protection for human health and safety and the environment, unless key conditions can be addressed to ensure effectiveness of a permit by rule.

Based on these four determinations, DTSC cannot conclude that alternative management standards would provide adequate safeguards for human health and safety and the environment:

- DTSC was not able to conclude that the existing hazardous waste management regulations are not significant or important in preventing or mitigating potential hazards to human health or safety or to the environment, or in ensuring that the activity is conducted in compliance with other applicable requirements.
- DTSC could not conclude that the requirements imposed and enforced by other public agencies are equivalent to, or as effective as, existing hazardous waste management regulations and hazardous waste facility standards.
- DTSC did not find any safeguards and protections that could be achieved through alternative management standards that would be considered "equivalent" to those provided by the hazardous waste management requirements for permitted facilities.
- DTSC found that any alternative management standards, conditions, or limitations that DTSC could propose would not accomplish the same regulatory purpose as existing hazardous waste management regulations and the hazardous waste facility standards, regardless of their cost or administrative efficiency.

DTSC has shown that there is no factual basis to make any of the four demonstrations required by the Metal Shredding Facilities Law. Therefore, DTSC will not adopt regulations to establish alternative management standards under the authority of the Metal Shredding Facilities Law.

5 CLASSIFICATION AND DISPOSAL OF CTMSR

Subdivision (i) of Section 25150.82 of the Health and Safety Code authorizes the alternative management standards adopted by DTSC to allow Chemically Treated Metal Shredder Residue to be classified and managed as nonhazardous waste. In order for this allowance to occur, DTSC's analysis must demonstrate that classification and management as hazardous waste is not necessary to prevent or mitigate potential hazards posed by CTMSR to human health or safety or to the environment.

CTMSR is currently disposed in six landfills (although 22 landfills are authorized to accept the waste for disposal). Altamont Canyon Landfill and Simi Valley Landfill typically receive approximately 60 percent of the state's total CTMSR for disposal.[121] The six California landfills currently accepting CTMSR for disposal or for use as alternative daily cover (ADC) are shown in Table 11.

Table 11.
Landfills Accepting CTMSR

Landfill	Amount Accepted in 2014	Amount Accepted in 2015	Amount Accepted in 2016
Altamont Landfill & Resource Recovery 10840 Altamont Pass Livermore, CA 94550	163,402	146,058	167,179
Simi Valley Landfill & Recycling Center 2801 Madera Road Simi Valley, CA 93065	142,727	141,677	151,633
Vasco Road Sanitary Landfill 4001 Vasco Livermore, CA 94550	94,969	73,137	83,785
Chiquita Canyon Sanitary Landfill 29201 Henry Mayo Drive Castaic, CA 91384	60,351	73,406	85,999
Potrero Hills Landfill 3675 Potrero Hills Lane Suisun City, CA 94585	56,137	43,198	30,612
H.M. Holloway Surface Mine Landfill Lost Hills, CA 93249	24,396	N/A	N/A

The H.M. Holloway Landfill is an industrial landfill that does not accept municipal solid waste and does not use CTMSR as alternative daily cover. At Altamont and Vasco Road landfills, CTMSR is also used to

[121] See Disposal Reporting System, California Solid Waste Statistics, CalRecycle, available at: http://www.calrecycle.ca.gov/lgcentral/Reports/DRS

absorb free liquids from other liquid or semi-solid wastes. Wastes which have free liquids are mixed with CTMSR until the combined material has greater than 50 percent solids by volume. The solidified waste is then transported to the active face of the landfill for use as ADC.

In the surveys they completed, the landfills reported that, except for rare occasions, CTMSR is used almost immediately for ADC and is not stored for periods exceeding two weeks or in amounts exceeding 300 tons at any of the landfills. The information from their surveys also indicated that the handling of CTMSR used as ADC at each of the landfills is similar. Upon arrival, the load of CTMSR is deposited in piles near the active face of the landfill where putrescible municipal wastes are being deposited. The municipal wastes are deposited into cells which contain one day's waste. As the cell is filled, the waste is compacted and then covered with CTMSR. At the end of each working day, the active face is completely covered with CTMSR that acts as a daily cover. ADC is placed over the municipal wastes at the end of each operating day to control vectors, fires, odors, blowing litter, and scavenging. The handling at H.M. Holloway is different, because it does not accept municipal solid waste that requires the use of ADC, but instead disposes CTMSR directly.

5.1 Regulatory Oversight of Disposal of CTMSR

5.1.1 Water Quality: Regulation of Landfills by RWQCBs

According to the Santa Ana RWQCB: "The State Water Resources Control Board (SWRCB) issued two General Permits (General Industrial Activities Storm Water Permit and the General Construction Activity Storm Water Permit) to address most of the industrial facilities and the construction-sites within California. Individual storm water permits were adopted by a number of regional boards, including the Santa Ana Regional Board in Region 8. The regional boards administer the State's General Permits and the regional board's individual permits. The Santa Ana Regional Board adopted a sector-specific General Permit for storm water discharges from certain industrial facilities identified by the Standard Industrial Classification (SIC) Code 5093, specifically identifying metal scrap recyclers (excluding recycling facilities that only receive recyclable materials where no processes are performed on the metal scrap other than sorting, compaction, storage and transport). This sector-specific permit (R8-2012-0012, CAG 618001) was adopted on February 10, 2012."[122] The Industrial General Permit (2014-0057-DWQ) became effective on July 1, 2015.

Per information provided by the SWRCB, facilities are required to obtain permit coverage under the Industrial General Permit (IGP) if they operate under a SIC code that is subject to the permit. Typically, recyclers fall into SIC 5015 or 5093, and landfills fall under SIC 4953, which all generally require permit coverage. These industrial activities are federally defined, and the IGP lists applicable activities in "Attachment A" of the general permit order (2014-0057-DWQ). [123]

A facility covered under the IGP is assigned a Waste Discharge Identification (WDID) number, and a facility with Notice of Intent (NOI) coverage is required to adhere to all requirements in the IGP. Facilities with NOI coverage are generally required to create and implement a storm water pollution prevention plan (SWPPP) and site map, conduct monitoring and reporting, and install best management practices. The facilities would be required to identify monitoring locations in the SWPPP and site map,

[122] https://www.waterboards.ca.gov/santaana/water_issues/programs/stormwater/index.html
[123] Electronic correspondence between DTSC and the SWRCB.

and would be responsible for making those determinations, which are addressed in Section X of the permit.[124]

Sampling and monitoring requirements are outlined in Section XI.B. of the permit. The discharger is required to sample two Qualifying Storm Events (QSEs) from July 1 to December 31, and two QSEs from January 1 to June 30 of the Reporting Year, and report results in the Storm Water Multiple Application and Report Tracking System (SMARTS). A QSE is defined as a storm event that produces a discharge for at least one drainage area and is preceded by 48 hours with no discharge from any drainage area at the industrial facility.[125]

Similarly, the Santa Ana Region 8 sector-specific permit (R8-2012-0012, CAG 618001) addresses the monitoring, reporting and permit requirements in Sections I through X in the "Monitoring and Reporting Program No. R8-2012-0012" section of the permit. The test methods and minimum levels of constituents are provided in a revision of Table 3.[126] A facility would need to maintain all requirements of the permit to stay in compliance.

5.1.2 Solid Waste: Regulation of Landfills by CalRecycle and Local Enforcement Agencies

Municipal solid waste landfills are required to cover the "active face" of the landfill with earthen material at the end of each operating day to control vectors, fires, odors, blowing litter, and scavenging. The active face is the working surface of a landfill where solid wastes are deposited during operation. Vectors include insects, rodents, or other animals capable of transmitting the causative agents of human disease.

CalRecycle has approved 11 types of earthen materials for use as alternative daily cover and established Alternative Daily/Intermediate Cover Guidelines to govern their use. The local enforcement agency must approve the use of any ADC on a site-by-site basis.

Section 41781.3 of the Public Resources Code states that the use of solid waste for beneficial reuse, including use as ADC, constitutes diversion through recycling, and is not considered disposal. In addition to CTMSR, CalRecycle has approved other waste-derived materials for use as ADC including construction and demolition waste, contaminated sediments, municipal waste water treatment plant sludge, and shredded tires. In total, CTMSR accounts for approximately 15 percent of all waste materials diverted for use as ADC statewide.[127]

5.1.3 Air Quality: Regulation of Landfills by Local Air Districts

Local Air Districts also regulate activities at solid waste landfills related to the handling, storage, transportation and disposal of CTMSR. The solid waste landfills are required to employ management practices that minimize the fugitive emissions of dirt and debris from the downstream processes. Each

[124] Ibid.

[125] Ibid.

[126] https://www.waterboards.ca.gov/santaana/water_issues/programs/stormwater/docs/scrap_metal/REVISED_TABLE_3.pdf

[127] Alternative Daily Cover White Paper, California Integrated Waste Management Board, October 2009.

particulate-emitting operation at a landfill is required to be abated to the extent necessary to ensure compliance with the Ringelmann No. 1 limitation. Controls include use of water sprays and dust suppressants at the active face of the landfill and for stockpiles at the rate and frequency necessary to ensure compliance with limits for visible emissions of particulate matter and to prevent wind erosion from these areas.

5.2 Hazardous Waste Management Activities

Transportation: CTMSR is transported from metal shredding facilities to California solid waste landfills by nonhazardous waste transporters in loads of 20 to 25 tons using standard end-dump trailers. CTMSR continues to exhibit hazardous waste characteristics, even after chemical treatment to stabilize the soluble metals in the waste. If the "f letters" were not in place, transportation of CTMSR would be regulated as a hazardous waste management activity, and a transporter would be required to be registered as a California hazardous waste transporter, to comply with all hazardous waste transportation regulations, and to accompany each shipment with a Uniform Hazardous Waste Manifest.

Landfill Management: CTMSR is managed at solid waste landfill facilities. There are two primary dispositions of the chemically treated metal shredder waste at landfills: disposal and use as alternative daily cover. CTMSR is either disposed along with the other solid wastes shipped to the landfill facility, or it is used as alternative daily cover. As previously discussed, CTMSR continues to exhibit hazardous waste characteristics, even after chemical treatment to stabilize the soluble metals in the waste. If the "f letters" were not in place, its disposal or use as alternative daily cover would be regulated as a hazardous waste management activity, and a metal shredding facility could not send CTMSR to a solid waste landfill. Instead, the waste would need to be sent to a hazardous waste landfill that has a hazardous waste facility permit issued by DTSC to conduct this activity, or to a landfill site that has received a variance from DTSC to accept this waste. Alternately, CTMSR could be transported to a landfill in another state or jurisdiction where it may not be regulated as a hazardous waste. In that case, the receiving facility would need to hold the appropriate authorization from the jurisdiction where it is located.

5.3 Assessment of Hazards Associated with Transportation of CTMSR

The hazards associated with the transportation of CTMSR to landfills include:

- A release of CTMSR to the environment if an accident occurs during transport to the landfill
- A release of CTMSR, or particulate from the waste, if the waste is not appropriately covered during transport

As discussed previously, CTMSR exceeds STLCs for zinc and occasionally for lead, and TTLCs for lead, zinc, and copper. These hazardous constituents can pose risks and hazards to public health and the environment if CTMSR were to be released into the environment.

Reasonably foreseeable releases of CTMSR, or of particulate from CTMSR, could occur if a truck transporting CTMSR is involved in an accident and the contents of its load are spilled, or if CTMSR is not adequately covered or contained during transport, and thus can be carried out of the truck due to wind dispersion.

The concerns of release during transport may be reduced if there is assurance that trucks remain covered during transport, and if CTMSR remains moist. California Vehicle Code Section 23114 requires that the operator of any vehicle on California's roadways must prevent any of the vehicle's contents from dropping, sifting, leaking, blowing, spilling, or otherwise escaping from the vehicle. These requirements apply equally to both hazardous wastes and nonhazardous wastes.

In addition, for trucks transporting CTMSR:

- Drivers must be adequately trained in the risks and hazards associated with CTMSR to ensure that they adequately respond to any transportation incidents.
- Transportation companies must possess adequate insurance coverage to be able to pay for costs associated with any accidents or transportation incidents.
- Shipments of CTMSR need to be adequately tracked from point of generation to disposal location to ensure that they are received and disposed of at the landfill as intended.

The regulatory requirements that would otherwise be applicable to the transportation of CTMSR if it is considered nonhazardous waste may be adequate, on their own, to ensure the prevention of the associated risks to public health and the environment. As was stated previously, most metal shredding facilities use a variety of best management practices to minimize the risks and hazards related to the transportation of CTMSR, and to the extent that they are used they are not adequate.

Although the requirements that govern the transportation of hazardous waste are designed to address all of the identified concerns, DTSC has also determined they are not necessary, specifically because the requirements in the Vehicle Code effectively regulate the release of CTMSR or hazardous constituents of CTMSR from vehicles during transportation. Additionally, based on its assessment, DTSC has not seen evidence of accidents or other transportation incidents that warrant the hazardous waste transportation requirements.

5.4 Assessment of Hazards Associated with CTMSR Use or Disposal at Landfills in California

The hazards associated with the acceptance and use or disposal of CTMSR at landfills include the migration of contaminants via leachate and groundwater, the migration of contaminants via surface water, and the migration of contaminants via the air. Each of these potential pathways is discussed in detail in the following sections.

5.4.1 Migration of Contaminants via Leachate and Groundwater

Contaminants in wastes that have been disposed to landfills have the potential to migrate via leachate and impact the subsurface and, potentially, groundwater and drinking water sources. Leachate is water in the landfill that either emanates from the moisture content of the disposed wastes or enters the landfill through rainfall that percolates through the waste and picks up soluble contaminants from the waste and ADC. If not captured in the landfills' systems designed to capture it, or if the systems are damaged or fail to perform as designed, the leachate can migrate into the environment, seeping to the surface or deep below ground surface to threaten groundwater and drinking water.

STLC is used to identify wastes that are hazardous due to the solubility of its regulated constituents. DTSC's Waste Extraction Test was designed to mimic the conditions a waste would be expected to

encounter in a solid waste landfill environment. The test serves as a predictor of the mobilization of hazardous constituents from wastes disposed in a solid waste landfill.

CTMSR has historically exceeded STLCs for zinc and occasionally for lead. It has also, for most of the past 30 years, been disposed or used as ADC in certain solid waste landfills that were authorized to receive it. Because both metal shredder residue and CTMSR have been disposed for a long period of time in some solid waste landfills, DTSC could reasonably assume that the leachate from those landfills would contain elevated levels of lead and zinc.

To validate this assumption, DTSC evaluated a comparative analysis, provided by one of the landfills, which compared leachate from landfills that accepted CTMSR for use as ADC with landfills that did not. Additionally, DTSC assessed leachate and surface water quality results using publicly available leachate and surface water monitoring data from SWRCB.

Geo-Logic Associates Comparative Leachate Study

In response to DTSC's requests for information in preparation for this Analysis, Republic Services, owner and operator of several landfills in California (some of which use CTMSR as ADC), commissioned Geo-Logic Associates (Geo-Logic)[128] in 2014 to prepare a study to compare leachate from landfills that do accept CTMSR to landfills that do not. Geo-Logic concluded that landfills that accepted and used CTMSR as ADC did not have increased metals in leachate when compared to landfills that did not accept any CTMSR. Since Geo-Logic did not provide the raw data they used to draw these conclusions, DTSC was unable to confirm the report's analysis or conclusions.

Geo-Logic compared leachate data from the landfills shown in Table 12 below:

Table 12.
Landfill Data Used by Geo-Logic Comparative Leachate Study

Landfill	Location	Received CTMSR	Number of Years CTMSR in the Landfill
Forward/Austin Landfill	Manteca, CA	Yes	20 years
Vasco Road Landfill	Livermore, CA	Yes	22 years
Ox Mountain Landfill	Half Moon Bay, CA	No	N/A
Keller Canyon Landfill	Pittsburg, CA	No	N/A

The narrative in Geo-Logic's report offered the following data conclusions (excerpted here):

DTSC Comparative Leachate Analysis

Since lead and zinc in CTMSR have historically exceeded STLCs, DTSC conducted a comparative evaluation of the concentrations of lead and zinc in leachate from the landfills that accepted CTMSR to concentrations in leachate from landfills that had never accepted CTMSR. Leachate data for landfills was accessed through SWRCB's GeoTracker system. Quarterly reports from February 2005 to March 2017

[128] Evaluation of Metal Shredding Residue Waste for Alternative Daily Cover, Geo-Logic Associates, January 21, 2014.

were reviewed from Vasco Road Landfill (Vasco Road), which accepts CTMSR. Monitoring reports from February 2005 to October 2016 were reviewed for Ox Mountain Landfill (Ox Mountain), which never accepted CTMSR. Analyte concentrations are shown in Table 13.

For Vasco Road, DTSC also evaluated lead and zinc concentrations in the leachate over time. There was a weak trend of decreasing concentrations of lead and zinc in the leachate during the time period evaluated. The decreasing trend is considered weak because 84 percent of the samples for lead were non-detect (r-squared of -0.35), and 52 percent of the samples for zinc were non-detect (r-squared of -0.34).

ProUCL 5.1 (US EPA) was used to conduct the comparative statistical analysis, using the Kaplan-Meier nonparametric method for the large numbers of non-detect values and the Gehan and Tarone-Ware tests (for non-detects and multiple detection limits) in two-sample hypothesis testing. Comparable hypothesis testing for lead concentrations was not found to be significantly different between Vasco Road and Ox Mountain. However, the zinc concentration was found to be significantly different, with Ox Mountain showing higher average zinc concentrations compared to Vasco Road. These comparisons of the concentrations of soluble metals in the leachate from landfills that accept CTMSR and those that do not accept CTMSR do not indicate that the soluble metals in CTMSR are solubilizing and migrating in the municipal solid waste landfills.

DTSC's assumption that the leachate from the landfills in which CTMSR has been consistently disposed of or used as ADC would show higher soluble lead and zinc results was not confirmed by the leachate data analyzed. DTSC concludes from this analysis that constituents from CTMSR are not migrating from the solid waste landfills.

Table 13.
Landfill Leachate Analyte Concentrations for a Landfill That Accepts CTMSR and a Landfill That Does not accept CTMSR

Analyte	Vasco Road			Ox Mountain		
	Number of Samples	Average Concentration (µg/L)	Number of Non-detects	Number of Samples	Average Concentration (µg/L)	Number of Non-detects
Lead	176	6.9	147	52	3.2	19
Zinc	176	9.8	91	51	19.3	6

5.4.2 Migration of Contaminants via Surface Water

Contaminants in wastes that have been disposed to landfills have the potential to migrate via surface water runoff during periods of rainfall. The surface water runoff, if not captured in the landfills' systems designed to capture it, or if the systems are damaged or fail to perform as designed, can migrate into the environment. Any off-site migration could contaminate the surface water drainages of the solid waste landfills and potentially migrate off-site, where it can come into contact with people or animals, or contaminate the environment. Because CTMSR is currently being disposed in some solid waste landfills, DTSC could reasonably assume that the surface water runoff from the solid waste landfills in which CTMSR is being disposed or used as ADC would contain elevated levels of constituents in CTMSR.

Similar to the leachate data evaluation from landfills that do, and do not, accept CTMSR, DTSC examined storm water sampling data for lead and zinc, since these were known constituents in CTMSR that exceeded STLC values. DTSC evaluated whether the averages of the reported sample results were statistically different from Simi Valley Landfill (Simi Valley), which accepts CTMSR, and from Sunshine Canyon Landfill (Sunshine Canyon), which does not accept CTMSR. Storm water monitoring data is dependent upon rainfall events, which are unpredictable and do not always result in sufficient water volume to sample, which is why the landfills chosen for the storm water evaluation differ from those used for the leachate evaluation. Storm water monitoring data from landfills was accessed from SWRCB's SMARTS database. Data contained in the SMARTS database is self-reported by the holders of the storm water permits. Where available, DTSC corroborates the data in the SMARTS database against respective laboratory reports uploaded by the permit holders. Analyte concentrations from those reports are shown in Table 14.

For Simi Valley, sample results for lead and zinc from 2008 to 2014 were uploaded for five qualifying storm events. In 2014, water samples were collected from two different locations around Simi Valley. Data on lead was available, but zinc was not analyzed in all sampling events. For Sunshine Canyon, sample results for lead and zinc from 2013 to 2017 were uploaded for 17 qualifying storm events. ProUCL 5.1 (US EPA) was used to conduct the comparative statistical analysis.[129] Visual data comparisons were also conducted utilizing box-whisker and quantile-quantile plots. Comparable hypothesis testing results for lead and zinc concentrations were not found to be significantly different between Simi Valley and Sunshine Canyon. These comparisons demonstrate that the concentrations of soluble metals in the surface water runoff from landfills that accept CTMSR and those that do not accept CTMSR are not significantly different.

DTSC's hypothesis that the surface water at solid waste landfills in which CTMSR has been disposed or used as ADC would have higher concentrations of lead and zinc migrating via surface water into the environment was not confirmed by the analysis of surface water data. DTSC concludes from this analysis that constituents from CTMSR do not appear to be migrating from the solid waste landfills via surface water.

For Leachate: For Vasco Road, DTSC also evaluated lead and zinc concentrations in the leachate. A visual inspection of the data indicated that there was weak trend of decreasing concentrations of lead and zinc in the leachate during the time period evaluated. The decreasing trend is considered weak because 84 percent of the samples for lead were non-detect, and 52 percent of the samples for zinc were non-detect.

ProUCL 5.1 (US EPA) was used to conduct the comparative statistical analysis of lead and zinc concentrations in the leachate.[130] Visual data comparisons were also conducted utilizing box-whisker and quantile-quantile plots. Comparable hypothesis testing for lead concentrations was not found to be significantly different between Vasco Road and Ox Mountain. However, the zinc concentration was

[129] US EPA's ProUCL software used the Kaplan-Meier nonparametric methods for Gehan, Tarone-Ware, and Wilcoxon-Mann-Whitney tests in two-sample hypothesis testing

[130] US EPA's ProUCL software used the Kaplan-Meier nonparametric method for the large numbers of non-detect values and the Gehan and Tarone-Ware tests (for non-detects and multiple detection limits) in two-sample hypothesis testing.

found to be significantly different, with Ox Mountain showing higher average zinc concentrations compared to Vasco Road. These comparisons of the concentrations of soluble metals in the leachate from landfills that accept CTMSR, and those that do not accept CTMSR, do not indicate that the soluble metals in CTMSR are solubilizing and migrating in the municipal solid waste landfills.

Table 14.
Storm Water Monitoring Analyte Concentrations from a Landfill That Accepts CTMSR and a Landfill That Does Not Accept CTMSR

Analyte	Simi Valley Landfill			Sunshine Canyon Landfill		
	Number of Samples	Average Concen-tration (ug/l)	Number of Non-detects	Number of Samples	Average Concen-tration (ug/l)	Number of Non-detects
Lead	6	11.9	0	17	39.1	0
Zinc	4	200	0	17	829	0

5.4.3 Migration of Contaminants from Landfills via Air

Contaminants in wastes that have been disposed to landfills have the potential to migrate through airborne dispersion from wind. Windborne particulate dispersion, if not prevented through the landfills' management practices, can migrate into the environment, contaminating the area surrounding the active face of the landfill, including the surface water drainages of the solid waste landfills. It could also potentially migrate off-site, where it could come into contact with people or animals, or contaminate the environment.

If CTMSR being disposed or used as ADC in solid waste landfills, or particulates from it, were to migrate through the air, DTSC could reasonably assume that measurable concentrations of contaminants commonly found in CTMSR would also be found in samples of air collected at the landfill. DTSC could also reasonably assume that measurable concentrations of the same contaminants would be found in storm water samples, since particulate migrating from a source will come to rest downwind at a distance that varies by particle size, density, wind speed, and topography.

As discussed above, DTSC did not observe a statistical difference between concentrations of contaminants commonly found in CTMSR in surface water samples collected at a landfill that accepted CTMSR and a landfill that did not. The surface water analysis is evidence that DTSC's hypothesis of windborne dispersion is not confirmed, and that chemically treated metal shredder waste, and constituents from the waste, do not appear to be migrating via air from the landfills where it is being placed or disposed.

In addition to the analysis of the surface water data, DTSC contracted to collect air samples at two landfills that receive CTMSR: Vasco Road Landfill and Simi Valley Landfill. The sampling was based on previous air studies conducted at three metal shredding facilities, and was designed to determine the

potential for migration of particulate matter from the two landfills.[131] Sampling was conducted at the landfills between August and September of 2017.[132]

The air samples were analyzed for TSP, PM 10, and PM 2.5, and the collected particulate matter samples were further analyzed for metals, including lead. Samples from both landfills frequently exceeded the annual or 24-hour ambient air quality standards for PM10 or PM2.5. Lead is the major metal contaminant of concern which has an established regulatory threshold. However, the sampling results showed that the highest concentration of lead at either landfill was 0.0161 ug/m^3. This value is just over 1/10 of the National Ambient Air Quality Standard for lead of 0.15 ug/m^3 (3-Month Average). Further, DTSC's review of the data indicated that the measured lead concentrations were well below National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limits and the OSHA Permissible Exposure Limits of 0.050 mg/m^3.[133]

Based on DTSC's review of the air monitoring data from the shredders and landfills, DTSC does not expect CTMSR or contaminants commonly found in CTMSR to migrate off-site at a landfill via the pathway of windborne particle dispersion. The measured concentrations of hazardous metals in the air monitoring samples collected from the landfills were skewed towards the larger particle sizes (which are not expected to travel long distances before dropping out of the air). Based on these results, DTSC does not expect the CTMSR used as ADC, nor contaminants commonly contained in it, to migrate off-site at a landfill via windborne particulate dispersion. The measured concentrations of hazardous metals in samples collected from the landfills were also skewed toward the larger particle sizes based on the differences between the TSP and smaller sizes, and were in general even lower than the concentrations measured at the shredder facilities. This supports DTSC's assumption, based on the air sampling data collected from the metal shredding facilities, that neither CTMSR used as ADC, nor contaminants commonly contained in it, would be expected to migrate off-site at a landfill via windborne particulate dispersion.

5.5 Evaluation Findings and Conclusions

CTMSR exceeds hazardous waste regulatory threshold levels. The metal shredding industry, through its treatability study, has demonstrated that it can improve the performance of the treatment, but that it still cannot achieve a reduction in soluble levels below STLCs for zinc and, in some instances, lead. It also verified that the chemical treatment cannot affect the total concentrations of lead, copper, or zinc.

In evaluating the potential hazards and possible harm that could be associated with the management of this residue when disposed in solid waste landfills for the past 30 years, DTSC has concluded that its continued disposal as nonhazardous waste, including its use as ADC, has not resulted in harm to human health or safety or to the environment, and that there is no evidence available that demonstrates its ability to contribute to the solubilization and migration of heavy metals from the solid waste landfills into which it has been placed as a nonhazardous waste.

[131] See Air Monitoring Summary Reports for SA Recycling – Terminal Island, SA Recycling – Bakersfield, and Sims Metal Management, December 2016, available at: http://www.dtsc.ca.gov/HazardousWaste/MetalDocLib.cfm
[132] See Sampling and Analysis Plans for Air Sampling at Vasco Road Landfill and Simi Valley Landfill, August 2017, available at: http://www.dtsc.ca.gov/HazardousWaste/MetalDocLib.cfm
[133] See "NIOSH Pocket Guide to Chemical Hazards"; Department of Health and Human Services, Center for Disease Control and Prevention, National Institute for Occupational Safety and Health, 2010.

However, although CTMSR is identified as a hazardous waste, DTSC believes that the classification and management of it as a hazardous waste is not necessary to prevent or mitigate potential hazards to human health or safety or to the environment posed by it, if appropriate conditions are developed.

DTSC therefore concludes that CTMSR does not need to be classified and managed as a hazardous waste to prevent or mitigate potential hazards to human health or safety or to the environment. As a result, DTSC concludes that it may continue to be classified as a nonhazardous waste, and continue to be disposed of, or used as ADC, in solid waste landfills in California with certain limitations. Because DTSC's conclusions are based on comparative analyses using data from landfills that are currently receiving CTMSR, DTSC's conclusions would continue to be supported only if the solid waste landfills to which CTMSR is sent meet the same general description as those to which it has been sent historically. The landfills that have historically received CTMSR have disposed or used as ADC in a composite-lined portion of their solid waste landfill unit which meet all requirements applicable to disposal of municipal solid waste in California after October 9, 1993, and the landfills are authorized to accept it by the appropriate RWQCB.

DRAFT

6 CONCLUSION

DTSC has prepared this report to evaluate and analyze metal shredding facilities and the wastes they generate, in order to identify the most appropriate level of regulatory oversight necessary to protect public health and safety and the environment. DTSC's purpose in issuing this report is to describe the public health and environmental threats posed by metal shredding facilities and their wastes and to begin the process of ensuring that these facilities comply with existing hazardous waste control law, so that the important public health and environmental protections that existing law provides are afforded to the communities near these facilities.

In conducting the evaluation of metal shredding facilities and their hazardous waste management practices, DTSC found numerous examples of accidents, improper hazardous waste storage, soil contamination, and hazardous waste releases outside the facilities that were found to be contaminating the surrounding community. DTSC noted an explosion in the air pollution control system at the SA Recycling facility in Terminal Island in 2007 that resulted in the release of contaminants to the community; the Los Angeles County District Attorney's Office reached a $2.9 million settlement for those violations. DTSC identified releases of light fibrous material from the Sims facility in Redwood City in 2012, with light fibrous material subsequently found in ponds at the neighboring Cargill Salt facility; DTSC referred the case to the California Attorney General's Office, and Sims agreed to pay $2.4 million to settle the civil environmental enforcement action. DTSC also noted a series of fires at Sims in 2013 that resulted in shelter-in-place orders for nearby residents. At the Schnitzer facility in Oakland in 2015, DTSC inspectors collected samples from areas where scrap metal was stored or being processed and found exceedances for chromium, lead, nickel, zinc, and copper. Also in 2015, DTSC conducted an inspection at the Ecology facility in Colton and found similar releases and contamination. DTSC is evaluating appropriate enforcement actions for these facilities.

DTSC then performed an analysis of the treatment and storage activities at the metal shredding facilities, the chemical and physical hazards that those activities present, the types of accidents that could occur, and the risks those activities pose to nearby communities. DTSC found that the hazardous waste management activities pose substantial risks to nearby communities. DTSC next evaluated whether alternative management standards—alternative regulations to existing hazardous waste control law—could be developed that would provide adequate protection for human health and safety and the environment. DTSC showed through a series of demonstrations that the most appropriate level of regulation for facilities of this size, that are managing hazardous wastes of these types and in these volumes, is a hazardous waste permit. As a result of this analysis, DTSC will not be adopting alternative management standards as authorized by the Metal Shredding Facilities Law.

DTSC also evaluated the longstanding practice of disposal of chemically treated metal shredder waste in municipal landfills to identify threats and risks that would warrant a change in these practices. DTSC found no evidence of migration from landfills that have been accepting this material for over 30 years. DTSC evaluated the potential for migration of the waste through air dispersion, surface water runoff, and leaching into groundwater. DTSC found minimal impacts to air from the standard management practices at the landfills. Comparing surface water and leachate data from landfills that receive the waste with data from landfills that have never accepted the waste, DTSC found no discernable difference in the data from the compared landfills, which indicates that there is no additional risk posed by continued disposal of the waste in municipal landfills under specified conditions. DTSC concluded that

classification of CTMSR as a hazardous waste is not necessary to prevent or mitigate potential hazards to human health or safety or to the environment posed by the treated metal shredder waste. DTSC intends to promulgate regulations that exclude CTMSR from classification as a hazardous waste under separate statutory authority.

DTSC's evaluation and analysis of metal shredding facilities and their hazardous waste management practices have demonstrated that, although the Metal Shredding Facilities Law authorized DTSC to adopt management standards as an alternative to the existing hazardous waste management requirements, the risks and hazards posed by the hazardous waste management activities conducted at metal shredding facilities require the protections that can only be provided by the existing hazardous waste management requirements. This report is intended to serve as a basis for establishing enforceable requirements for metal shredding facilities through a hazardous waste permit. Through the formal permitting process, DTSC will ensure that these facilities come into compliance with existing law, and that adequate protections are developed and implemented for human health and safety and the environment. DTSC intends to work with the metal shredding industry and other stakeholders during a transition period to develop and implement the new permitting requirements.

DTSC looks forward to working in an open and cooperative way with the public, the regulated community, and other stakeholders in the permitting process and when the department announces its proposed rulemaking. DTSC is committed to work transparently to implement safeguards for public health and safety and the environment. DTSC anticipates conducting public workshops on the proposed regulatory action in early 2018, and DTSC welcomes input from all stakeholders.

DRAFT

APPENDIX A: DTSC QUESTIONNAIRE RESPONSES FROM ALL SHREDDERS (REDACTED)

SIMS METAL MANAGEMENT REDWOOD CITY RESPONSE 7/17/15

DTSC METAL SHREDDING QUESTIONNAIRE 5/8/15

1. **Describe your facility's scrap metal acceptance policy and describe all materials you bring into your facility for shredding, metals recovery or both**

   The Redwood City Facility of Sims Metal Management (Sims) purchases mainly shreddable ferrous scrap that is managed in the Shredder. The Facility's scrap metal acceptance policy is described as follows: The Facility maintains a Prohibited Materials List (see attached) that clearly identifies items prohibited from purchase with inbound material. Regular suppliers are informed of Prohibited Materials through their Account Managers. They are required to sign a Scrap Acceptance Agreement (see attached) through which they certify that they will not send the facility Prohibited Materials. Suppliers such as peddlers who do not execute a Scrap Acceptance Agreement warrant that their inbound materials do not contain Prohibited Materials. The scale operator also provides peddlers and other suppliers the list of Prohibited Materials in both English and Spanish. In addition, for all suppliers: The Facility has prohibited materials signage located at the entrance to the Facility. Loads are inspected at the scale and by inspectors in the unloading areas. Material handlers also assist in the inspection process. If prohibited materials are identified in inbound materials during the inspection process the prohibited materials and/or the entire load are rejected.

2. **How much material by weight did your facility shred from January 1, 2015 through January 1, 2015. Include the percentage of total materials shredded annually for each of the following: vehicles, appliances, and other forms of scrap metal.**

   CONFIDENTIAL BUSINESS INFORMATION (CBI) – The information provided in response to Question #2 is considered Proprietary Confidential Business Information by Sims.

   [redacted]

3. **What type of shredder (e.g., the model, brand, and its horse power) is used by your facility?**

   CONFIDENTIAL BUSINESS INFORMATION (CBI) – The information provided in response to Question #3 is considered Proprietary Confidential Business Information by Sims.

[redacted]

4. **Is your facility's shredder equipped with an Air Pollution Control Device (APCD)? How else does our facility control any particulate emissions throughout the facility?**

   The Shredder at the Redwood City Facility has an Air Pollution Control Device (APCD) which is a permitted source with the BAAQMD. The APCD collects emissions from the Shredder from the Undermill Oscillator (UOM) and directs the air through a cyclone and then a wet scrubber system. This system is more fully described in response to Question 6.

   The Facility utilizes multiple BMPs for fugitive dust control including buildings and other structures, coverings or containment around conveyor systems, fabric covered fencing with candy cane tops, sprinklers, dust bosses, sweepers, and manual sweeping/portable vacuum units. Sims is currently working with the BAAQMD on the finalization of the Redwood City Facility Emissions Minimization Plan (EMP) which addresses fugitive emissions in accordance with the BAAQMD Regulation 6. Rule 4: Metal Recycling and Shredder Operations (see attached Draft EMP).

5. **Provide a copy of all permits and other forms of authorization issued to your facility by any governmental entity related to metal shredding activities.**

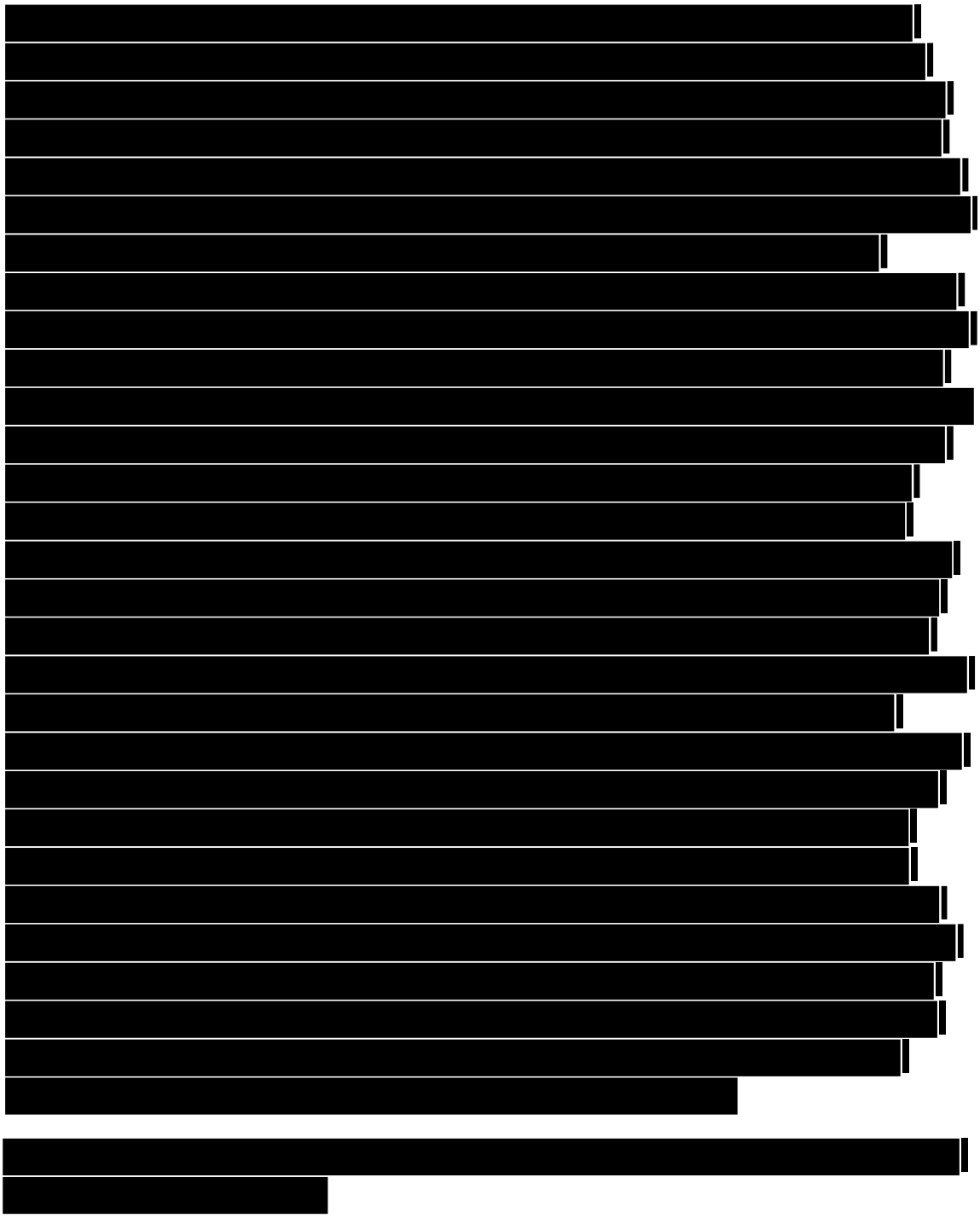
   <u>Sims Metal Management Redwood City Permits</u>

   - BAAQMD - Air Permit – Shredder - attached
   - DTSC - Certified Appliance Recycler Permit - attached
   - RWQCB - Industrial Storm Water Permit – Notice of Intent(NOI) attached
   - San Mateo County Environmental Health - CUPA Permit - attached
   - State of CA DOSH – Air Pressure Tanks/LPG Gas Permits attached
   -

6. **Describe the ferrous metals separation process, including how shredded material is sent to the ferrous metals separation process, the type of magnet used, if any and under what circumstances would materials exiting the ferrous metals separation process be reintroduced. Also indicate if your facility recovers ferrous metals from any material that is not shredded at your facility. If so, please describe that process. Please include representative pictures of the ferrous recovery process and a site map of where activities occur when applicable.**

   CONFIDENTIAL BUSINESS INFORMATION (CBI) – The information provided in response to Question #6 is considered Proprietary Confidential Business Information by Sims.

[redacted]



7. Is the shredded material ever stored onsite before ferrous metal recovery occurs? Is so, on average how much and for how long is it stored, how is it stored (e.g., on a paved surface), and where in the facility is it stored?

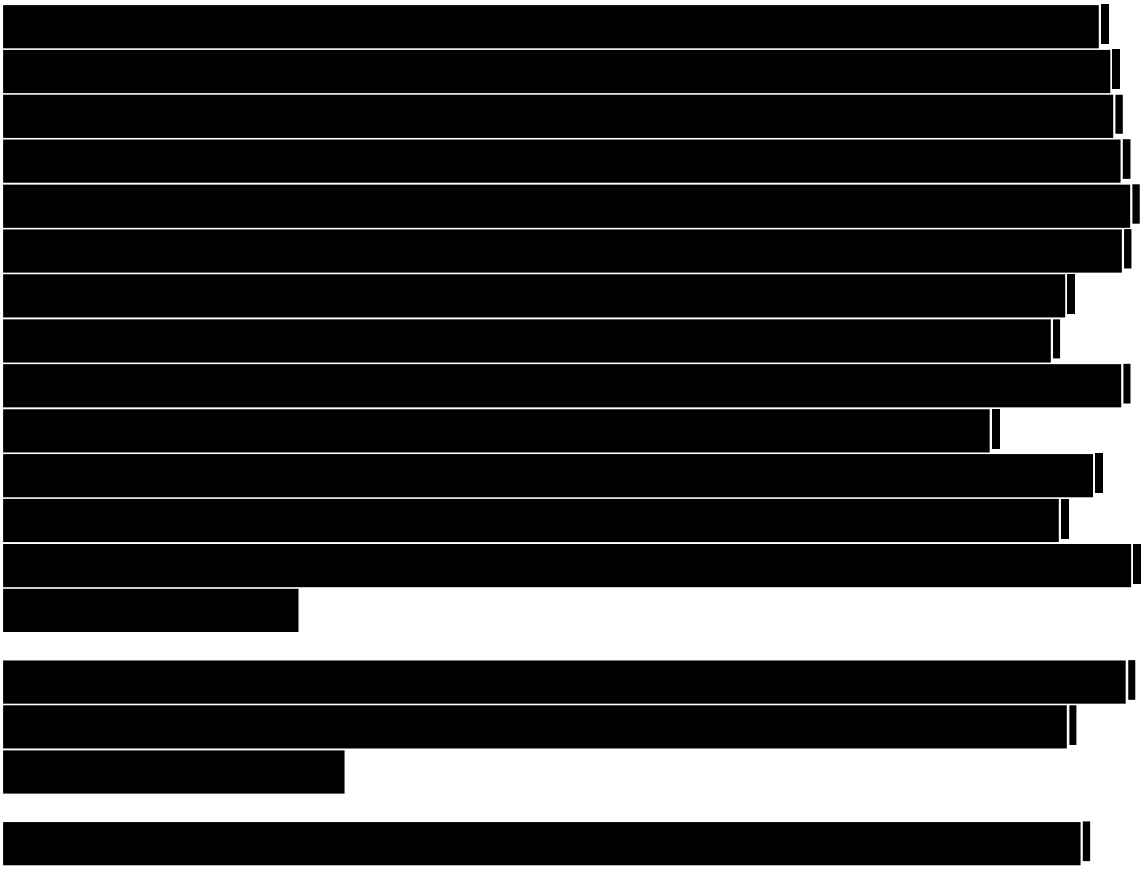
The magnets are in line with the Shredder and thus ferrous metal recovery occurs immediately following shredding. There is some ferrous metal recovery in the Non-Ferrous Separation process including an over-band ferrous metal magnet on the final aggregate conveyor after treatment.

8. **If ferrous metals recovery does not occur onsite, please respond to the following questions:**
    - **How much shredded material is stored onsite?**
    - **How long is shredded material stored onsite?**
    - **How is the shredded material stored (e.g. on paved ground)"?**
    - **Where in the facility is the shredded material stored?**
    - **Where is the shredded material sent (please include addresses)?**

    Not Applicable to the Redwood City Facility

9. **Describe the nonferrous metals separation process at your facility, it any. Describe how aggregate (i.e. the shredded material remaining after ferrous metals separation) is introduced into that process, the type of system (s) used, where in your facility it occurs, and under what circumstances would materials exiting nonferrous metals separation processes be reintroduced. Also indicate if your facility recoveries nonferrous metals from any material that is not shredded at your facility. Please provide a site map of where activities occur.**

    CONFIDENTIAL BUSINESS INFORMATION (CBI) – The information provided in response to Question #9 is considered Proprietary Confidential Business Information by Sims.



[redacted]

10. Is aggregate ever stored onsite prior to or during the nonferrous metals separation process, if so, how much is stored and for how long? Identify where in your facility it is stored.

Aggregate is stored in Building E at the MRP. Approximately 2100 tons of aggregate could potentially be stored in the building but the Facility makes an effort to process the aggregate "to the ground" every day. Daily processing can range from 200 to 500 tons of aggregate. On average, there is no more than 300 tons present in the building each day.

11. If nonferrous metals recovered does not occur onsite, please respond to the following questions:

- **How much aggregate is store onsite?**
- **How long is aggregate stored onsite:**
- **How is the aggregate stored (e.g., on pave ground)?**
- **Where in the facility is the aggregate stored? Where is the aggregate sent (please include addresses)?**
- **Describe the offsite transportation and if any Department of Transportation (DOT) requirements are followed.**

This question is not applicable to the Redwood City Facility.

12. Describe how your facility chemically treats metal shredder waste. For the purposes of this document only, "metal shredder waste" shall mean the material remaining after metal recovery is complete. Include how metal shredder waste not chemically treated is sent to the treatment process, how screening is conducted, the type of equipment used to perform the chemical treatment, chemical formulas and doses, and the sampling and analysis performed on the chemically treated metal shredder waste to ensure adequate treatment.

CONFIDENTIAL BUSINESS INFORMATION (CBI) – The information provided in response to Question #12 is considered Proprietary Confidential Business Information by Sims.

13. Do landfills, regional water quality control boards, or other regulating authority impose any requirement on treated metal shredder waste sent for disposal or use as Alternative Daily Cover (ADC)? If so, what are the requirements?

The Redwood City Facility complies with all the requirements from the landfills for the management of treated metal shredder waste (treated auto shredder waste or TASW). Each landfill received approval from the Regional Water Quality Control Board to utilize this material as ADC at their landfill and to our knowledge follows the Waste Disposal Requirements (WDRs) under those approvals.

14. Is untreated metal shredder waste stored onsite prior to treatment? Is so, how much and for how long is it stored, how is it stored and where on the facility is it stored?

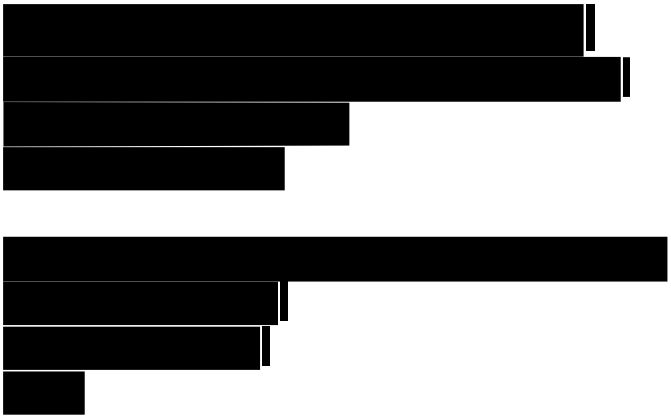
No - All aggregate exiting the non-ferrous separation area immediately goes through treatment, so no untreated metal shredder waste is stored at the Facility.

15. **Is treated metal shredder waste stored on site before disposal? If so, how much and for how long is it stored, how is it stored and where on the facility is it stored?**

CONFIDENTIAL BUSINESS INFORMATION (CBI) – The information provided in response to Question #15 is considered Proprietary Confidential Business Information by Sims.

16. **How much treated metal shredder waste, if any, was transported offsite in the calendar year January 1, 2014, through January 1, 2015? List all destinations with addresses.**

CONFIDENTIAL BUSINESS INFORMATION (CBI) – The information provided in response to Question #16 is considered Proprietary Confidential Business Information by Sims.



17. **Describe the offsite transportation of metal shredder wastes. Are there any DOT requirements followed during transportation?**

Treated metal shredder waste or TASW is shipped to the landfills by subcontracted trucks hauling end dumps. The empty trucks drive into an enclosed structure specifically designed and constructed to load TASW into the trailers. The doors of the structure are closed while the end dumps are loaded inside, in order to minimize fugitive emissions. Once loaded the trucks are tarped before they travel on-road to the landfills. The subcontracted trucks are required to comply with those California DOT requirements pertaining to vehicles hauling non-hazardous waste materials.

Schnitzer Steel Products Company
1101 Embarcadero West
Oakland, CA 94607

Metal Shredding Facility Questionnaire- Schnitzer Steel

1. Describe your facility's scrap metal acceptance policy and describe all materials you bring into your facility for shredding, metals recovery or both.

   Schnitzer Steel recycles the following types of metal at our facility:

   Ferrous Metals to Be Shredded

   - Ferrous (Iron containing scrap) Metals of light gauges, grades and sizes.
     a. End of life vehicles-depolluted only.
     b. End of life appliances-depolluted only.
     c. Ferrous demolition scrap.

   Ferrous Metals to Be Sheared and/or Torch Cut (Not Shredded)

   - Ferrous (Iron containing scrap) metals of heavy grades, gauges, and sizes.

   Non-Ferrous Metals to Be Collected, Packaged, and Shipped to End Users (Not Shredded):

   - Copper scrap metal
   - Aluminum scrap metal
   - Stainless steel scrap metal
   - Some limited electronic scrap (Schnitzer Steel is an authorized E-waste collector)
   - Lead acid batteries (purchased and resold as commodities; not shredded)

   Schnitzer Steel has a robust written scrap acceptance policy which prohibits acceptance of hazardous materials and/or waste in our incoming scrap metal streams. This policy is designed to keep prohibited material out of Ferrous scrap streams and especially shredder feedstock. This policy includes, but is not limited to prohibitions on materials such as:

   - Items with elemental Mercury.
   - Batteries such as NiCad, Li Ion, Alkaline, etc.
   - E-waste (Schnitzer Steel will purchase some electronic scrap for recycling as a separate commodity)
   - Scrap with free-flowing liquids (i.e. used oil, etc.)
   - Scrap with CFC's (i.e. Refrigerants)

- Scrap with PCBs (i.e. capacitors, ballasts, transformer oil, etc.)
- Military Munitions and other explosives.
- Scrap metal with asbestos
- Radioactive scrap metal
- Materials which contained hazardous materials or waste not meeting the definition of empty (22 CCR 66261.7)

See attached Schnitzer Steel's attached Scrap Acceptance Policy and attached ISRI material specification document.

2. How much material by weight did your facility shred from January 1, 2014 to January 1, 2015? Include the percentage of total materials shredded annually for each of the following: vehicles, appliances, and other forms of scrap metal.

Schnitzer considers the amount of metal shredded at our facility to be Confidential Business Information/Proprietary.

[redacted]

3. What type of shredder (e.g., the model, brand, and its horsepower) is used by your facility?

Riverside Engineering Model 122 x 102 which is 9000hp.

4. Is your facility's shredder equipped with an Air Pollution Control Device (APCD)? How else does your facility control any particulate matter emissions throughout the facility?

Yes, our shredder emissions are abated by a water spray system, irrigated cyclone scrubber (venturi scrubber), mist eliminator, moving dry belt filter, and simple cyclone (This simple cyclone is downstream of the magnets and is used to further remove non-metallic material from the shred prior to the conveyor that sends shred to the pile. By minimizing non-metallic in the shred, emissions are minimized when discharging shred to the stockpile.), and regulated by the BAAQMD under a Permit to Operate (PTO) for plant # 208.

Additionally, Schnitzer Steel Oakland is regulated by BAAQMD Regulation 6, Particulate Matter, Rule 4 Metal Recycling and Shredding Operations which is designed to minimize particulate

fugitive emissions from our operations. We have developed an Emissions Minimization Plan (EMP) in compliance with this rule. (Attached) BMP's to minimize fugitive emissions at our Oakland facility include but are not limited to the following:

- Frequent sweeping of paved traffic surfaces with a mobile sweeper to minimize dust from equipment traffic.
- Frequent application of water to all traffic surfaces and stockpiles.
- Use of Dust Boss mist turbines at key material handling areas to minimize fugitive emissions.
- Enclosure of many material conveyance systems to minimize exposure to ambient wind and minimize generation of fugitive emissions.
- Use of an industrial wheel wash at facility exit to minimize tracking of soil/sediment offsite.
- Enforcement of a facility speed limit of no more than 5 miles per hour.
- Maintaining a high moisture content in our Aggregate and Treated Auto Shredder Residue. (Typically 15 to 20% by weight)
- Daily facility housekeeping in areas prone to fugitive emissions.

5. Provide a copy of all permits and other forms of authorization issued to your facility by any governmental entity related to metal shredding activities.

   Copies of the following permits are attached:

   a) Notice of Intent Receipt Letter from the CA State Water Resources Control Board (Storm water permit)
   b) EPA Generator Identification Number Verification (Hazardous Waste Generator)
   c) Business License, City of Oakland
   d) Bay Area Air Quality Management District (BAAQMD) Permit to Operate (PTO)
   e) East Bay Municipal Utility District (EBMUD) Waste Water Discharge Permit
   f) DTSC Certified Appliance Recycler Certificate
   g) DTSC/CAL Recycle Electronic Waste Collector Registration

6. Describe the ferrous metals separation process, including how shredded material is sent to the ferrous metals separation process, the type of magnet used, if any, and under what circumstances would materials exiting the ferrous metals separation process be reintroduced. Also indicated if your facility recovers ferrous metals from any material not shredded at your facility. If so, please describe that process. Please include representative pictures of the ferrous recovery process and a site map of where activities occur when applicable.

The shredding process at Schnitzer is a continuous, in-line process from the infeed belt of the shredder hammermill to the outputs of ferrous shred and aggregate material. After shredder feed stock is processed through the hammermill, the resulting material is conveyed downstream for ferrous separation on a conveyor belt. Large, rotating drum electromagnets are used to separate most of the ferrous metal (e.g., steel and iron) from the nonferrous metals (e.g., copper, aluminum and stainless steel) and other non-metallic materials contained in the shredder output. The aggregate (the mixture of non-ferrous metal and non-metallic material remaining after removal of ferrous metal) is conveyed under the magnet drums to the aggregate output conveyor, while the ferrous metal is conveyed to the ferrous line conveyor. The ferrous material is then further cleaned of incidental, remaining rag and fiber via a closed loop air aspiration system which uses material density to further separate residual non-metallics from the ferrous shred. This enclosed system returns the separated material (which contains some nonferrous metals) to the aggregate output conveyor for further processing. A final quality assurance step involves a hand picking operation to remove copper and other nonferrous materials that may have been carried through the ferrous line prior to the radial conveyor stacker which stages the final shred product for export. Schnitzer Steel Oakland does not recover ferrous metal from any material that is not shredded onsite. See attached site map for location of shredder activities.

7. Is the shredded material ever stored onsite before ferrous metal recovery occurs? If so, on average how much and for how long is it stored, how is it stored (e.g. on a paved surface), and where in the facility is it stored?

   No, see response to question number 6.

8. If ferrous metal recovery does not occur onsite, please respond to the following questions:
   - How much shredded material is stored onsite?
   - How long is the shredded material stored onsite?
   - How is the shredded material stored?
   - Where in the facility is the shredded material stored?
   - Where is the shredded material sent (please include addresses)?

   This question and sub questions are not applicable as Schnitzer Steel Oakland shreds and recovers ferrous onsite.

9. Describe the nonferrous metals separation process at your facility, if any. Describe how aggregate (i.e. the shredded material remaining after ferrous materials separation) is introduced into the process, the type of system(s) used, where in your facility it occurs, and under what circumstances would materials exiting nonferrous metals separation processes be

reintroduced. Also indicate if your facility recovers nonferrous metals from any material that is not shredded at your facility. Please provide a map of where activities occur.

Once the ferrous metal (or “shred”) has been separated from the shredder output, the remaining material (aggregate or “Nonferrous Raw”) moves through a series of trommels, screens and other “downstream” sizing equipment to separate and size the remaining materials into different fractions so that they can be further processed to optimize removal of nonferrous metals. These fractions are based on size. The sizing equipment separates the aggregate into 3/8” minus, 3/8” to 3/4”, 2.5”, and 2.5” to 5” fractions. The nonferrous metal is typically separated from the non-metallic material by eddy current separators (which create a means for magnetic separation of the nonferrous metals) and advanced mechanical separation methods (e.g., inductive or optical sensor sorting systems). An inductive sorter uses metal sensing technology to detect and target metals from nonmetals. An optical sensor uses infrared or visual light spectrum to detect and target shapes or specific nonmetallic metals from metals. Manual hand picking is also used at various points in the process to maintain quality and collect specific high value materials that cannot be recovered via mechanical means. After the majority of non-ferrous metals separation has occurred, the remaining material is sent through the shredder residue treatment process. Prior to exiting the treatment process a belt magnet is used to recover any remaining ferrous metals that were not removed in the ferrous metal recovery operations.

In-process material (i.e., material that has not yet reached the residue treatment process and that still contains recoverable nonferrous metals) may fall off moving conveyors and is periodically collected and placed back into the aggregate pile for reprocessing to further extract valuable metal.

Schnitzer Steel Oakland does not accept aggregate from other metal shredding facilities. On rare occasions, the facility accepts coarse screenings with recoverable metal from other Schnitzer feeder yards to recover economically valuable metal.

The majority of the conveyors in the non-ferrous recovery system have been covered to minimize the generation and/or escape of fugitive emissions. Additionally, an elevated, oscillating Dust Boss mister turbine has been installed to blanket the area in a mist of atomized water further minimizing fugitive emissions.

See attached facility map which indicates location of the non-ferrous recovery operations.

10. Is aggregate ever stored onsite prior to or during the nonferrous metals separation process? If so, how much is stored and for how long? Identify where in your facility it is stored.

    Yes, aggregate processing is a more complex process than shredding metal. To ensure efficient recovery of non-ferrous metals and adequate treatment of the resulting residue (by maximizing metals recovery prior to treatment), the nonferrous metals separation process is necessarily slower than the shredding process. As a consequence, there is generally a stockpile of aggregate onsite awaiting non-ferrous metal separation and processing. On average, there may be 300 to 500 tons of aggregate stockpiled near the shredder and the non-ferrous separation plant. Aggregate is moved from the shredder output area to the non-ferrous separation plant via front end loader and rock trucks. The aggregate has a high moisture content due to the water added during the shredding process. Typically, the moisture content is 15 to 20% by weight. This high residual moisture content helps to minimize the amount of potential fugitive emissions from stockpiles and material handling. Additionally, the aggregate stockpile near the non-ferrous separation plant is wetted during plant operation by a Dust Boss turbine mister further reducing fugitive emissions.

    See attached facility map which indicates the location of the aggregate storage stockpiles.

11. If non-ferrous metals recovery does not occur onsite, please respond to the following questions:
    - How much aggregate is stored onsite?
    - How long is aggregate stored onsite?
    - How is the aggregate stored (e.g. on paved ground)?
    - Where in the facility is the aggregate stored?
    - Where is the aggregate sent (please include addresses)?
    - Describe the offsite transportation and if any Department of Transportation (DOT) requirements are followed.

    This question is not applicable as Schnitzer Steel conducts non-ferrous metals recovery onsite.

12. Describe how your facility chemically treats metal shredder waste. For the purposes of this document only, "shredder metal waste" shall mean the material remaining after metal recovery is complete. Include how metal shredder waste not chemically treated is sent to the treatment process, how screening is conducted, the types of equipment used to perform the chemical treatment, chemical formulas and doses, and the sampling and analysis performed on the chemically treated metal shredder waste to ensure adequate treatment.

    Schnitzer Oakland treats its metal shredder residue prior to the final metal separation step. After all non-ferrous metal recovery is complete; the material is conveyed via covered belt to the treatment process. Shredder residue passes through an enclosure where a metered water

and silicate mixture is sprayed onto the material as it passes through. Next, the material passes through a second enclosure where the alkaline cement activator is applied along with additional water spray to aid in mixing and minimize the cement dust. Schnitzer currently uses a chemical dose of 0.3 lbs. of Metabond MCX 90 (silicate compound) chemical per ton of residue. Schnitzer then applies Portland cement at a rate 6 percent (120 pounds) by weight per ton of residue. The material then enters a pug mill with two large metal screws that mix the treatment chemicals and shredder residue. After exiting the pug mill, the material is transported via conveyor belt for final ferrous metal recovery by a belt magnet and is then added to the treated shredder residue stockpile for transport offsite.

As discussed in the DTSC requested May 2012 report "Treatment of Auto Shredder Residue" written by Dr. George Trezek et al., the process for treatment of auto shredder residue is similar to "Stabilization Treatment" as described by the EPA. According to EPA, "Stabilization has been shown to be effective for a wide range of constituents including lead, arsenic, and chromium" (USEPA, 2009).[1] Stabilization is a process that chemically renders metals less soluble, thereby reducing their leachability in a landfill situation. It should be noted that the Metal Recycling industry, in cooperation with the DTSC, is performing a concurrent treatability study of Metal Shredder Residue to demonstrate the effectiveness of the industry treatment process, determine optimum treatment chemical ratios, and identify appropriate treatment standards. The treatment process, chemistry, and efficacy will be discussed in detail in the forthcoming treatability study report. Additionally, DTSC staff is involved and will continue to be involved with this ongoing process.

Schnitzer collects daily samples of treated shredder residue which are composited into samples for various types of analysis. These analyses include total PCBs for every 1000 tons of shredder residue, quarterly metals leachability analysis using landfill leachate, and occasional total metals analysis as requested by the landfills.

13. Do landfills, regional water quality control boards, or other regulating authority impose any requirements on treated metal shredder waste sent for disposal or use as Alternative Daily Cover (ADC)? If so, what are the requirements?

    Yes, both Waste Management's Altamont landfill and Republic's Vasco Road landfill require Schnitzer to perform periodic analysis related to their material acceptance policies and their respective WDRs.

    Republic Service's Vasco Road Landfill requires Schnitzer to conduct a quarterly landfill leachate extraction test for Lead, Zinc, Cadmium, Chromium, Nickel, and Copper. This process utilizes landfill supplied leachate (From Vasco Road) to provide a realistic simulation of the landfill conditions that the material will be subject to. In addition, Schnitzer performs total PCB analysis for every 1000 tons of treated shredder residue on an ongoing basis.

Waste Management's Altamont landfill requires total metal analysis for Cadmium, Chromium, Lead, Copper, and Mercury for profile renewal every three years. Waste Management also requires total PCB analysis for every 1000 tons of treated shredder residue on an ongoing basis.

14. Is untreated metal shredder waste stored onsite before disposal? If so, how much and for how long is it stored, how is it stored, and where on the facility is it stored?

    Schnitzer Steel does not store untreated metal shredder waste onsite, nor does Schnitzer Steel dispose of untreated shredder waste. All treated shredder residue is transported offsite for beneficial reuse as alternative daily cover (ADC).

15. Is treated metal shredder waste stored onsite before disposal? If so, how much and for how long is it stored, how is it stored and where on the facility is it stored?

    Although shredder residue is typically shipped offsite Monday through Friday, there is always some amount of material onsite. Typically, there is anywhere from 250 to 500 tons of treated shredder residue onsite awaiting transport to the landfill for use as alternative daily cover. Typically, 20 loads per day are transported offsite to the landfill. This material is accumulated in a stockpile near the treated shredder residue output belt of the treatment system and is indicated on the attached facility site map.

16. How much treated metal shredder waste, if any, was transported offsite in the calendar year January 1, 2014 through January 1, 2015? List destinations with addresses.

    1) Republic Services, Vasco Road Landfill
       4001 N. Vasco Rd.
       Livermore, CA 94550

       Schnitzer considers the amount of treated metal shredder waste to be Confidential Business Information/Proprietary.

    2) Waste Management, Altamont Landfill
       10840 Altamont Pass Road
       Livermore, CA 94551

       Schnitzer considers the amount of treated metal shredder waste to be Confidential Business Information/Proprietary.

17. Describe the offsite transportation of metal shredder wastes. Are there any DOT requirements followed during transportation?

    Treated Metal Shredder Residue is loaded into end dump trailers for transport to the above-mentioned landfills for beneficial reuse as alternative daily cover (ADC). The high residual moisture content of this material helps to minimize generation of fugitive emissions (typically 15 to 20%). All trucks exiting the facility must pass through an industrial wheel wash to minimize tracking of material offsite. These trailers are tarped prior to leaving the site to contain material during transport to the landfill.

    Standard DOT requirements related to the movement of goods, safe operation of tractor and trailer, proper license/endorsements of drivers apply. Auto Shredder Residue is not a RCRA hazardous waste; therefore, no DOT Hazardous Materials Rules apply. All Shredder Waste transported is documented with a standard Bill of Lading (BOL).

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[1] USEPA, (2009) *Technology Performance Review: Selecting and Using Solidification/ Stabilization Treatment for Site Remediation*, document EPA/600/R-09/148.

DTSC QUESTIONNAIRE
METAL SHREDDING FACILITIES
SA RECYCLING TERMINAL ISLAND FACILITY
901 New Dock Street, Terminal Island, CA 90731

1. *Describe your facility's scrap metal acceptance policy, and describe all materials you bring into your facility for shredding, metals recovery, or both.*

   The SA Recycling material acceptance policy is contained in the attached document titled "Supplier Source Control Procedure" (revised 3/27/15). (See Attachment 1)

   The facility receives every type of scrap metal material including Automobiles, consumer and industrial appliances, manufacturing scrap, curbside collection scrap, demolition scrap, consumer/homeowner scrap, industrial scrap. The facility receives scrap from industrial accounts, including materials from other scrap metal recycling facilities. All materials received meet the definition of "scrap metal" under title 22, CCR, section 66260.10.

   The "Supplier Source Control Procedure" document contains a Prohibited Materials List which details the types of materials that are not accepted at the shredder. Automobiles must have all fluids drained to the extent practical, and batteries and mercury switches removed. Appliances such as refrigerators must be properly depolluted prior to being sent to the shredder infeed area. In some circumstances, appliances and vehicles will be de-polluted on site, pursuant to applicable law, in a specially designated area, prior to being sent to the shredder.

   Items removed/recovered from the de-polluting process including waste oil, diesel/gasoline fuel, batteries, capacitors etc. are all managed under separate programs per State regulations.

2. *How much material by weight did your facility shred from January 1, 2014, through January 1, 2015? Include the percentage of total materials shredded annually for each of the following: vehicles, appliances, and other forms of scrap metal.*

   A total weight of approximately 300,000 MT of material was shredded for the year 2014.

   Annual percentages of material are as follows:

Vehicles:	42.16%
Appliances/Tin:	43.63%
Other/Misc:	14.21%

3. What type of shredder (e.g., the model, brand and its horsepower) is used by your facility?

   Shredder is manufactured by Riverside Engineering. Model RIV 122X112 Mega Shredder. 9,000 horse power.

4. *Is your facility's shredder equipped with an Air Pollution Control Device(APCD)?*

Yes. The shredder is controlled by a four-stage air pollution control system (APCS), which has a Permit to Operate (R-G27566, attached) issued by the South Coast Air Quality Management District.

APCS Stage One

Shredder overhead exhaust system hood designed to capture at least 90% of all particulate matter (PM) and volatile organic compounds (VOC's), and send those emissions through to the second stage.

APCS Stage Two

Dust/Mist Collector – Custom designed and manufactured, Model No. TAME-40K-2008, dual parallel compartments designed to capture oils, PM and moisture present in the exhaust stream.

- Mist Eliminating Wall manufactured by UDC and poly pad (coarse PM, moisture and oils control)
- Drop Safe Rigid Pocket Bag Filters (Microscopic water molecules filtration)
- DP-40 Synthetic PM Filters (additional PM filtration at MERV 8)
- Legacy PM Filters (additional PM filtration at MERV 11)
- HydroVee, High Efficiency PM Filters (additional PM filtration at MERV 15)

APCS Stage Three

40K SCFM Regenerative Thermal Oxidizer (RTO) - The 40K SCFM RTO, Model No. RETOX 40.0 RTO095 was manufactured by CECO-ADWEST Technologies.

APCS Stage Four

HEE Environmental Chemical Scrubber - The vertical, counter-current chemical scrubber neutralizes the exhaust from the RTO.

How else does your facility control any particulate emissions throughout the facility?

Terminal Island employs a number of measures to control particulate matter emissions, as follows:

The entire shredding chamber is enclosed and connected to the air pollution control system. Many of the conveyors and magnet systems are all covered or enclosed. All shredded material (Aggregate) that is processed following ferrous metal removal, including Treated Auto Shredder Residue (TASR), is staged within covered containment buildings.

Material stacking areas are swept periodically throughout the day, as necessary. The sweeping is performed with a mechanical broom. During operations, the mechanical broom is used to

maintain the outer boundary of the intake piles of feedstock material by pushing material on the edge of the piles back toward the center of the pile.

A TYMCO sweeper is used to clean-up the entrances and driveways in the yard on a regular basis, as necessary throughout the day. There are track-out devices (to minimize dirt track-out) for all of the trucks that exit the facility.

Water is applied extensively to the yard haul roads and piles of materials throughout the day with a water truck, as necessary. The entire facility is concrete paved, and is designed to collect all of the water and direct it to an industrial waste water facility where the water is recycled for re-use onsite.

Most incoming trucks that are self-dumping are doused with water before unloading scrap metal to minimize airborne emissions during the unloading process

The Metals Recovery Plant (MRP) is equipped with dust collectors to control particulate matter emissions during the non-ferrous metals recovery process. The MRP utilizes a series of pulse-jet type dust collectors on all of its cyclones to control particulate emissions. Many of the process areas are enclosed as well as the aggregate and TASR staging areas.

5. *Provide a copy of all permits and other forms of authorization issued to your facility by any governmental entity related to metal shredding activities.*

Terminal Island holds SCAQMD Permits to Operate for the shredder (R-G27565), the MRP (R-G18947), and the shredder APCS (R-G27566). The facility also holds a CAR Permit and an NOI issued by the State Water Resources Control Board. Copies of permits are provided.
(See Attachment 2)

6. *Describe the ferrous metals separation process, including how shredded material is sent to the ferrous metals separation process, the type of magnet used, if any.*

The shredder feed materials, including automobiles and appliances, are loaded onto the conveyor and conveyed into the enclosed shredding chamber (vented to the Air Pollution Control System). The shredder shreds the cars and scrap metal materials into fist sized pieces. (Everything exits the shredder chamber through eight-inch square openings.) This stream of material collectively is called “Aggregate”.

All shredded Aggregate exits the shredder onto a shaker table, which then transfers the materials to a single conveyor belt. That single flow of Aggregate is split into two equal streams of material and continues through two parallel processing lines. Each stream is run over a first drum magnet (Steinert Drum Magnet, 60-inch diameter by 96-inch wide). The magnetic fraction, which primarily consists of steel and iron materials, is conveyed via a short length shaker table to a second identical Steinert drum magnet, which further separates the magnetic fraction from the non-magnetic fraction. The two non-magnetic fractions are combined and run through a similar but smaller magnetic recovery system consisting of two 24-inch diameter by 48-inch-wide drum magnets. The non-magnetic Aggregate contains non-magnetic metals such as aluminum,

copper, zinc and stainless steel. After the magnetic separation process, the aggregate is conveyed to a trommel where the oversized fraction (pieces typically lager than 4-5 inches) is screened out. The oversized materials are re-shredded on a daily basis. The screened aggregate is conveyed to the Interim Aggregate Staging Building.

…and under what circumstances would materials exiting the ferrous metals separation process be reintroduced?

The non-magnetic aggregate fraction is screened through a trommel, and all materials over 4- 5 inches are returned to the shredder in-feed for re-shredding.

Materials that have accumulated on and under the conveyor belts and picking stations and related equipment described above are returned to the shredder in-feed for re-shredding.

Also, indicate if your facility recovers ferrous metals from any material that is not shredded at your facility. If so, please describe that process and a site map of where activities occur when applicable.

The Terminal Island facility receives all types of scrap metal, including prepared and unprepared materials that are not shredded at the facility. The prepared materials, including HMS (Heavy Melt Steel) and P&S (Plate and Structural) are received and stockpiled for future shipment via bulk vessels. The unprepared materials are sheared or cut in the areas designated for those activities on the site map. The facility operates a 2,000 ton guillotine type shear which is used to size longer pieces of steel into lengths typically under 5 feet. Scrap materials that are too big to fit into the shear or contain metal that is too thick to cut with the shear, are sent to a designated torch cutting area.

After processing to reduce the size and length of the scrap metal, the material is transferred to the “prepared” stockpiles to await shipment via bulk vessels.

Please include representative pictures of the ferrous recovery process and a site map of where activities occur when applicable.

- Site Map (See Attachment 3)
- Magnet Photos (See Attachment 4)

7. *Is the shredded material ever stored onsite before ferrous metal recovery occurs? If so, on average how much and for how long is it stored, how is it stored (e.g., on a paved surface), and where in the facility is it stored?*

No, shredder output is always processed in-line after it leaves the shredder. Material may temporarily be located on a conveyance system in the event of an emergency shut-down; however, it is not stored in the system.

8. *If ferrous metals recovery does not occur onsite, please respond to the following questions:*

   How much shredded material is stored onsite?
   How long is shredded material stored onsite?
   How is the shredded material stored (e.g., on paved ground)?
   Where in the facility is the shredded material stored?
   Where is the shredded material sent (please include addresses)?

   Not-applicable

9. *Describe the nonferrous metals separation process at your facility, if any. Describe how aggregate (i.e., the shredded material remaining after ferrous metals separation) is introduced into that process, the type of system(s) used, where in your facility it occurs,*

   Aggregate materials exiting the shredder go through the ferrous recovery stage described above in question #6 and then are conveyed by an enclosed conveyor to the first aggregate staging building (enclosed, covered, concrete floor). At the Interim Aggregate Staging Building, aggregate materials are loaded onto a 45 ton Terex dump truck via a front-end wheel loader. The Terex truck transfers the material to the enclosed, covered Primary Aggregate Staging Area in the non-ferrous metal recovery plant (MRP) building. From the covered Primary Aggregate Staging Area, the aggregate material is loaded onto a track feeder that meters the flow of the aggregate into the MRP.

   In the first step of the non-ferrous recovery process, aggregate is separated into three size fractions through the use of screens and trommels.
   Each of these three size fractions continues through the MRP, which utilizes three types of technology to separate and recover non-ferrous materials, as well conventional magnets for residual ferrous material recovery.

   The three technologies used for non-ferrous metal recovery include:

   1. Eddy- current magnetic separators for most aluminum, zinc and copper materials
   2. Sensors (air actuated) for stainless and copper wire
   3. Density separators for fine copper materials

   ……and under what circumstances would materials exiting nonferrous metals separation processes be reintroduced.

   Materials that accumulate under or on the equipment are in-progress materials and are routinely returned to the MRP infeed area using front-end loaders and skid-steer type tractors. Any recovered product that does not meet a quality standard is returned to the aggregate in-feed area for re-processing. There are several product streams that require a second pass through the MRP.

Also indicate if your facility recovers nonferrous metals from any material that is not shredded at your facility. Please provide a site map of where activities occur.

The facility does not typically receive or handle any non-ferrous material other than what is generated from the shredding activity. The facility does not receive any previously shredded material from another location for non-ferrous recovery through the MRP.

10. *Is aggregate ever stored onsite prior to or during the nonferrous metals separation process? If so, how much is stored and for how long? Identify where in your facility it is stored.*

    Yes, aggregate is staged in two locations on site: The Interim Aggregate Staging Building and the Primary Aggregate Staging Area (as designated on the site map).

    The amount of aggregate on site ranges from 1,000 to 4,000 tons. Aggregate is typically processed through the MRP within 7 to 10 days of production.

11. *If nonferrous metals recovery does not occur onsite, please respond to the following questions:*

    Not Applicable

    - *How much aggregate is stored onsite?*
    - *How long is aggregate store onsite?*
    - *How is the aggregate stored (e.g., on paved ground)?*
    - *Where in the facility is the aggregate stored?*
    - *Where is the aggregate sent (please include addresses)?*
    - *Describe the offsite transportation and if any Department of Transportation (DOT) requirements are followed.*

12. *Describe how your facility chemically treats metal shredder waste. For the purposes of this document only, "metal shredder waste" shall mean the material remaining after metal recovery is complete. Include how metal shredder waste not chemically treated is sent to the treatment process, how screening is conducted, the types of equipment used to perform the chemical treatment, chemical formulas and doses, and the sampling and analysis performed on the chemically treated metal shredder waste to ensure adequate treatment.*

    Treatment of aggregate that has been fully processed for recovery of non-ferrous metal occurs in-line at the end of the non-ferrous metals recovery process. Residual materials from all of the various non-ferrous recovery steps as previously described are combined on a single, scaled (weigh belt) conveyor which delivers material to the treatment auger. A proprietary silicate-phosphate liquid is applied first. Silicate-phosphate is drawn from a tote into a foamer/tank where it is blended with a 9 – 13x volume of water. This solution is pumped from the foamer tank and is combined with the metal shredder waste in the auger chamber. The auger blends and pushes the treated material toward the cement feeds. The proprietary, non-hydraulic cement is formulated to reduce the leachability of metals. The incoming weigh belt scale is used

to control the by-weight cement allocation, 9.0 – 10.0%, at the treatment auger. Cement is fed into the auger chamber from adjacent silos and applied to the material in the remaining length of the auger chamber, approximately five (5) meters, before being deposited onto the outgoing conveyor. The auger mixes and blends the material with the cement and silicate phosphate solution. The total residence time in the auger is approximately 60 seconds. Fully treated material is then passed under a magnet for final ferrous metal recovery and then conveyed to the enclosed, paved TASR staging area before loading and transport to the receiving landfill.

Sampling of the treated metal shredder waste occurs approximately six (6) meters from the exit of the treatment auger chamber. Samples are taken manually from the conveyor and added to a composite, shift sample, each half-hour. Samples from a given week are combined - mixed, coned and quartered – before being submitted to the receiving laboratory for analysis of volatile organic compounds (VOCs) via EPA method 8260B, poly-chlorinated biphenyls (PCBs) via EPA method 8082, and soluble cadmium, chromium, copper, lead, mercury, nickel and zinc via the Waste Extraction Test (WET). One such weekly composite sample is analyzed per month.

The Terminal Island facility is participating in an ongoing MSR Treatability Study that is evaluating the effectiveness of the treatment process and will serve as a basis for uniform, statewide treatment standards appropriate to TASR.

13. *Do landfills, regional water quality control boards, or other regulating authority impose any requirements on treated metal shredder waste sent for disposal or use as Alternative Daily Cover (ADC)? If so, what are the requirements?*

TASR is shipped to two landfills: Chiquita Canyon Landfill in Castaic CA, and Simi Valley Landfill in Simi CA. Both landfills operate under the jurisdiction of the Los Angeles Regional Water Quality Control Board. There are sampling and analysis and reporting requirements specified by the Waste Discharge Requirements (WDRs) of the receiving landfills for treated auto shredder waste (TASR) regardless of whether it is employed as alternative daily cover (ADC) or disposed of as waste. SA's understanding is that essentially all of the TASR received at both of these landfills is used as ADC.

The landfill is required to record the quantity of TASR deposited each month and the number of loads deposited from each generator. The landfill must report the TASR laboratory analysis results provided by the generator, in addition to those from the landfill's own monitoring per the WDR's.

Per the WDR's the analysis of TASR samples include analysis of volatile organic compounds via EPA method 8260B, polychlorinated biphenyls via EPA method 8082, and soluble cadmium, chromium, copper, lead, mercury, nickel and zinc via the Waste Extraction Test (WET).

The WDRs for Simi Valley Landfill also specify the sampling procedure and SA has adopted this procedure, as described above. Composite samples of TASR are collected daily; one (1)-pound sample each half-hour per shift. Samples from a given week are combined – mixed, coned and quartered – before being submitted to the receiving laboratory. One weekly composite sample, prepared as described, is submitted per month for the above-mentioned analyses.

Additionally, Simi Valley Landfill requires that one such sample, per quarter, be analyzed for the solubility of the full suite of "CAM-17" metals using the Synthetic Precipitation Leaching Procedure (EPA method 1312).

14. *Is untreated metal shredder waste stored onsite before disposal? If so, how much and for how long is it stored, how is it stored and where on the facility is it stored?*

    There is no untreated shredder waste stored on-site. At the conclusion of the non-ferrous recovery process, fully processed aggregate is conveyed directly to the treatment process and treated in-line as discussed above.

15. *Is treated metal shredder waste stored onsite before disposal? If so, how much and for how long is it stored, how is it stored and where on the facility is it stored?*

    TASR is staged for shipment in the MRP building under a roof on a concrete floor. There is typically 1,500 - 2,000 tons of TASR on site at any one time, which is approximately one week's worth of production. TASR is typically transported off-site within 5 to 7 days of production.

16. *How much treated metal shredder waste, if any, was transported offsite in the calendar year January 1, 2014, through January 1, 2015? List all destinations with addresses.*

    From January 1st, 2014 to January 1st, 2015, the facility shipped 115,172 tons of treated metal shredder waste to two (2) landfills:

    - Simi Valley Landfill
      2801 Madera Rd
      Simi Valley, CA 93065

    - Chiquita Canyon Landfill
      29201 Henry Mayo Drive
      Castaic, CA 91384

    37,662 tons of treated metal shredder waste shipped to Chiquita Canyon Landfill.

    77,510 tons of treated metal shredder waste shipped to Simi Valley Landfill.

17. *Describe the offsite transportation of metal shredder wastes. Are there any DOT requirements followed during transportation?*

    Treated metal shredder waste is transported on a non-hazardous waste manifest. Material is loaded into end dumps and a tarpaulin placed over the exposed surface. The transportation activity is conducted in compliance with the US Department of Transportation regulations and the Federal Motor Carrier Safety Administration (49 CFR Parts 300-399).

DTSC QUESTIONNAIRE
METAL SHREDDING FACILITIES
SA RECYCLING BAKERSFIELD FACILITY
2000 East Brundage Lane, Bakersfield CA 93387

1. *Describe your facility's scrap metal acceptance policy, and describe all materials you bring into your facility for shredding, metals recovery, or both.*

   The SA Recycling material acceptance policy is contained in the attached document titled "Supplier Source Control Procedure" (revised 3/27/15). (See Attachment 1)

   The facility receives every type of scrap metal material including:

   Automobiles, consumer and industrial appliances, manufacturing scrap, curbside collection scrap, demolition scrap, consumer/homeowner scrap, industrial scrap. The facility receives scrap from industrial accounts, including materials from other scrap metal recycling facilities. All materials received meet the definition of "scrap metal" under title 22, CCR, section 66260.10.

   The "Supplier Source Control Procedure" document contains a Prohibited Materials List which details the types of materials that are not accepted at the shredder.
   Automobiles must have all fluids drained to the extent practical, and batteries and mercury switches removed.

   Appliances such as refrigerators must be properly depolluted prior to being sent to the shredder infeed area. In some circumstances, appliances and vehicles will be de-polluted on site, pursuant to applicable law, in a specially designated area, prior to being sent to the shredder.
   Items removed/recovered from the de-polluting process including waste oil, diesel/gasoline fuel, batteries, capacitors, etc. are all managed under separate programs per State regulations.

2. *How much material by weight did your facility shred from January 1, 2014, through January 1, 2015? Include the percentage of total materials shredded annually for each of the following: vehicles, appliances, and other forms of scrap metal.*

   A total weight of approximately 75,000 MT of material was shredded for the year 2014.

   Annual percentages of material are as follows:

Vehicles:	52.34%
Appliances/Tin:	30.10%
Other/Misc:	17.56%

3. *What type of shredder (e.g., the model, brand and its horsepower) is used by your facility?*

   Shredder is manufactured by The Shredder Company. Model #124-SXS Mega Shredder
   6,000 Horse Power

4. *Is your facility's shredder equipped with an Air Pollution Control Device(APCD)?*

Yes. The shredder is controlled by a two-stage air pollution control system (APCS). Both the shredder and the APCS are included in permits to operate (S-1256-7-2 and S-1256-3-10) issued by the San Joaquin Valley Air Pollution Control District.

APCS Stage One

Shredder overhead, multi-hood exhaust system that captures particulate matter (PM) and volatile organic compounds (VOC's) and sends those emissions through the next stage.

APCS Stage Two

Dust/Mist Collector - Custom made, Model No. TAME-40K-2008, dual parallel compartments designed to capture oils, PM and moisture present in the gas stream.

Two-inch thick poly pad (coarse PM, and oils control)
HS Aluminum Filters (additional moisture control)
Moisture Separator Cell (PM and microscopic water molecules filtration)
DP-40 Synthetic PM Filters (additional PM filtration at MERV 8)
Very Plus (Total Filtration Solutions) High Efficiency PM Filters (additional PM filtration at MERV 15)

How else does your facility control any particulate emissions throughout the facility?

Bakersfield employs a number of measures to control particulate matter emissions, as follows:

Material stacking areas are swept periodically throughout the day, as necessary. The sweeping is performed with a mechanical broom. During operations, the mechanical broom is used to maintain the outer boundary of the intake piles by pushing material on the edge of the piles back toward the center of the pile.

A TYMCO PM-10 compliant sweeper is used to clean-up the entrances and driveways in the yard on a regular basis, as necessary throughout the day Water is applied to the yard haul roads and piles of materials throughout the day with a water truck, as necessary.

Track out is monitored and managed in accordance to the San Joaquin Valley Air Pollution Control District Regulation VIII.

District's guidance for relevant source category is followed, as applicable.

The Metals Recovery Plant (MRP) is equipped with dust collectors to control particulate matter emissions during the non-ferrous metals recovery process, as necessary.

5. *Provide a copy of all permits and other forms of authorization issued to your facility by any governmental entity related to metal shredding activities.*

   Bakersfield holds San Joaquin Valley Air Pollution Control District permits to operate the shredder and air pollution control system (1256-7-2) and the MRP (1256-3-10).

   The facility also holds a CAR permit and an NOI issued by the State Water Resources Control Board. Copies of permits are provided in attachment 2.

6. *Describe the ferrous metals separation process, including how shredded material is sent to the ferrous metals separation process, the type of magnet used, if any*

   The shredder feed materials, including automobiles and appliances, are loaded onto the conveyor using grapple cranes and front-end loaders and are conveyed into the hooded shredding chamber (vented to the Air Pollution Control System).

   The shredder shreds the cars and scrap metal materials into fist sized pieces. (Everything exits the shredder chamber through eight-inch square grate openings.) This stream of material collectively is called "Aggregate". All shredded Aggregate exits the shredder onto a shaker table, which then transfers the materials to a single conveyor belt. That single flow of Aggregate is split into two equal streams of material and continues through two parallel processing lines. Each stream is run over a first drum magnet (SGM Drum Magnet, Model TMR-60"/98" 60 inch diameter by 98 inch wide). The magnetic fraction, which primarily consists of steel and iron materials, is conveyed via a short length shaker table to a second identical SGM drum magnet, which further separates the magnetic fraction from the non-magnetic fraction. The two non-magnetic fractions are combined onto a conveyer which runs under a 36 inch diameter by 48 inch wide magnetic tail pulley to recover residual magnetic steel and returns that steel to the larger SGM drum magnets via a conveyer.

   The non-magnetic aggregate contains non-magnetic metals such as aluminum, copper, zinc and stainless steel. After the magnetic separation process, the Aggregate is conveyed to the concrete paved Aggregate staging area prior to being fed into the MRP.

   …..and under what circumstances would materials exiting the ferrous metals separation process be reintroduced.

   The MRP process screens out oversized Aggregate material (+ 5 inches), which is then returned to the shredder in-feed area for re-shredding.

   Materials that have accumulated on and under the conveyor belts and picking stations and related equipment described above are returned to the shredder in-feed for re-shredding.

Also, indicate if your facility recovers ferrous metals from any material that is not shredded at your facility. If so, please describe that process and a site map of where activities occur when applicable.

The Bakersfield facility receives all types of scrap metal, including prepared and unprepared materials that are not shredded at the facility. The prepared materials, including HMS (Heavy Melt Steel) and P&S (Plate and Structural) are received and stockpiled for shipment to the SA Terminal Island facility or directly loaded into overseas shipping containers or shipped to domestic markets. The unprepared materials are sheared or cut in the areas designated for those activities on the site map. The facility operates a portable hydraulic "alligator" type shear mounted on a back-hoe type tractor which is used to shear longer pieces of steel into lengths typically under 5 feet.
Scrap materials that are too heavy to be cut by the shear are directed to a designated torch cutting area. After processing to reduce the size and length of the scrap metal, the material is loaded into trucks using an electro-magnet attached to a crane.

Please include representative pictures of the ferrous recovery process and a site map of where activities occur when applicable.

- Site Map (See Attachment 3)
- Magnet Photos (See Attachment 4)

7. *Is the shredded material ever stored onsite before ferrous metal recovery occurs? If so, on average how much and for how long is it stored, how is it stored (e.g., on a paved surface), and where in the facility is it stored?*

   No, shredder output is always processed in-line after it leaves the shredder. Material may temporarily be located on a conveyance system in the event of an emergency shut-down; however, it is not stored in the system.

8. *If ferrous metals recovery does not occur onsite, please respond to the following questions:*

   How much shredded material is stored onsite?
   How long is shredded material stored onsite?
   How is the shredded material stored (e.g., on paved ground)?
   Where in the facility is the shredded material stored?
   Where is the shredded material sent (please include addresses)?

   Not Applicable.

9. *Describe the nonferrous metals separation process at your facility, if any. Describe how aggregate (i.e., the shredded material remaining after ferrous metals separation) is introduced into that process, the type of system(s) used, where in your facility it occurs, and under what circumstances would materials exiting nonferrous metals separation processes be reintroduced.*

   Aggregate materials exiting the shredder go through the ferrous recovery stage, described above in question #6, and then are transferred by a conveyor directly to the aggregate staging area. From this staging area, the aggregate material is loaded onto a track feeder that meters the flow of the aggregate into the MRP plant.

   The MRP uses a series of trommels and shaker screens to initially separate the aggregate into three different fractions based on size.

   Each of these size fractions continues through the MRP, which utilizes three primary types of technology to separate and recover non-ferrous materials, as well as conventional magnets for the recovery of residual ferrous materials.

   The three primary technologies used for the recovery of non-ferrous metals include:

   1. Eddy- current magnetic separators for most aluminum, zinc and copper materials
   2. Sensors (air actuated) for stainless and copper wire
   3. Density separators for fine copper materials

   ……and under what circumstances would materials exiting nonferrous metals separation processes be reintroduced.

   Materials that accumulate under or on the equipment are in-progress materials and are routinely returned to the infeed area using front-end loaders and skid-steer type tractors. Any recovered product that does not meet a quality standard is returned to the aggregate in-feed area for re-processing. There are several product streams that require a second pass through the MRP.

   Also indicate if your facility recovers nonferrous metals from any material that is not shredded at your facility. Please provide a site map of where activities occur.

   The facility receives typical non-ferrous materials like aluminum and copper that is sorted and segregated into salable products, not associated with the shredder or MRP. The facility does not receive any previously shredded material from another location for non-ferrous recovery through the MRP.

10. *Is aggregate ever stored onsite prior to or during the nonferrous metals separation process? If so, how much is stored and for how long? Identify where in your facility it is stored.*

    Yes, aggregate is staged on a concrete paved area. (As designated on the site map)

    The amount of aggregate on site ranges from 300 to 800 tons, which equates to 3 to 10 days of production.

11. *If nonferrous metals recovery does not occur onsite, please respond to the following questions:*

    Not Applicable.

    - How much aggregate is stored onsite?
    - How long is aggregate store onsite?
    - How is the aggregate stored (e.g., on paved ground)?
    - Where in the facility is the aggregate stored?
    - Where is the aggregate sent (please include addresses)?
    - Describe the offsite transportation and if any Department of Transportation (DOT) requirements are followed.

12. *Describe how your facility chemically treats metal shredder waste. For the purposes of this document only, "metal shredder waste" shall mean the material remaining after metal recovery is complete. Include how metal shredder waste not chemically treated is sent to the treatment process, how screening is conducted, the types of equipment used to perform the chemical treatment, chemical formulas and doses, and the sampling and analysis performed on the chemically treated metal shredder waste to ensure adequate treatment.*

    Treatment of aggregate that has been fully processed for non-ferrous metals occurs in-line at the end of the non-ferrous metals recovery process. Residual materials from all of the various non-ferrous recovery steps as previously described are combined on a single, scaled (weigh belt) conveyor which delivers material to the treatment auger. A proprietary silicate-phosphate liquid is applied first. Silicate-phosphate is drawn from a tote into a foamer/tank where it is blended with a 9 – 13x volume of water. This solution is pumped from the foamer tank and is combined with the metal shredder waste in the auger chamber. The auger blends and pushes the treated material toward the cement feeds. The proprietary, non-hydraulic cement is formulated to reduce the leachability of metals. The incoming weigh belt scale is used to control the by-weight cement allocation, 9.0 – 10.0%, at the treatment auger. Cement is fed into the auger chamber from adjacent silos and applied to the material in the remaining length of the auger chamber, approximately five (5) meters, before being deposited onto the outgoing conveyor. The auger mixes and blends the material with the cement and silicate phosphate solution. The resident time in the auger is approximately sixty seconds. Fully treated material is then passed under a magnet for final ferrous metal recovery and then conveyed to a stacking conveyor. The treated aggregate (TASR) is then loaded into end dumps and then transported to the receiving landfill.

    Treated metal shredder waste is sampled from the TASR staging area. Multiple grab samples, of 200 – 500 grams/each, are taken from random locations from the surface and accessible depths of the stored treated waste, per shift. These are added to a one (1)-gallon plastic bag during or following each shift of a production run; defined as consecutive or near-consecutive days during which the non-ferrous recovery plant is operated and metal shredder waste is treated. The resulting composite sample is coned and quartered before being submitted to the receiving laboratory. Analysis of this composite sample includes analysis of volatile organic compounds (VOCs) via EPA method 8260B, poly-chlorinated biphenyls (PCBs) via EPA method 8082, and

soluble cadmium, chromium, copper, lead, mercury, nickel and zinc via the Waste Extraction Test (WET). One such composite sample is analyzed per month.

The Bakersfield facility is participating in an ongoing MSR Treatability Study that is evaluating the effectiveness of the treatment process and will serve as a basis for uniform, statewide treatment standards appropriate to TASR.

13. *Do landfills, regional water quality control boards, or other regulating authority impose any requirements on treated metal shredder waste sent for disposal or use as Alternative Daily Cover (ADC)? If so, what are the requirements?*

There are reporting and sampling and analysis requirements specified by the Waste Discharge Requirements (WDRs) of receiving landfills. These WDRs apply to all treated auto shredder residue (TASR) deposited at the landfill, regardless of whether or not it is put to beneficial reuse.

The landfill is required to record the quantity of TASR deposited each month and the number of loads deposited from each generator. The landfill must also report the TASR laboratory analysis results provided by the generator, in addition to those from the landfill's own monitoring.

Analysis of TASR samples include analysis of volatile organic compounds via EPA method 8260B, polychlorinated biphenyls via EPA method 8082, and soluble cadmium, chromium, copper, lead, mercury, nickel and zinc via the Waste Extraction Test (WET). Results are reported to the receiving landfill quarterly and upon request.

14. *Is untreated metal shredder waste stored onsite before disposal? If so, how much and for how long is it stored, how is it stored and where on the facility is it stored?*

There is no untreated shredder waste stored on-site. At the conclusion of the non-ferrous recovery process, processed aggregate is conveyed directly to the treatment process and treated in-line as discussed above.

15. *Is treated metal shredder waste stored onsite before disposal? If so, how much and for how long is it stored, how is it stored and where on the facility is it stored?*

TASR is staged for shipment near the MRP plant on a concrete floor. There is typically 100-300 tons of TASR on site at any one time, which is approximately three days' worth of production.

16. *How much treated metal shredder waste, if any, was transported offsite in the calendar year January 1, 2014, through January 1, 2015? List all destinations with addresses.*

    From January 1st, 2014 to January 1st, 2015, the facility shipped 24,567 tons of treated metal shredder waste to:

    H.M. Holloway, Inc.
    Office address:
    2019 Westwind Drive, STE B
    Bakersfield, CA 93301-3030

    Landfill Facility address:
    13850 Holloway Rd, Lost Hills, CA 93249

17. *Describe the offsite transportation of metal shredder wastes. Are there any DOT requirements followed during transportation?*

    Treated metal shredder waste is transported on a non-hazardous waste manifest. Material is loaded into end dumps and a tarpaulin is placed over the exposed surface. The transportation activity is conducted in compliance with the US Department of Transportation regulations and the Federal Motor Carrier Safety Administration (49 CFR Parts 300-399).

DTSC QUESTIONNAIRE
METAL SHREDDING FACILITIES
SA RECYCLING ANAHEIM FACILITY
3200 E. Frontera Street, Anaheim, CA 92806

1. *Describe your facility's scrap metal acceptance policy, and describe all materials you bring into your facility for shredding, metals recovery, or both.*

   The SA Recycling material acceptance policy is contained in the attached document titled "Supplier Source Control Procedure" (revised 3/27/15). (See Attachment 1)

   The facility receives every type of metal material including:

   Automobiles, consumer and industrial appliances, manufacturing scrap, curbside collection scrap, demolition scrap, consumer/homeowner scrap, industrial scrap. The facility receives scrap from industrial accounts, including materials from other scrap metal recycling facilities. All materials received meet the definition of "scrap metal" under title 22, CCR, section 66260.10.

   The "Supplier Source Control Procedure" document contains a Prohibited Materials List which details the types of materials that are not accepted at the shredder. Automobiles must have all fluids drained to the extent practical, and batteries and mercury switches removed. Appliances such as refrigerators must be properly depolluted prior to being sent to the shredder infeed area. In some circumstances, appliances and vehicles will be de-polluted on site, pursuant to applicable law, in a specially designated area, prior to being sent to the shredder. Items removed/recovered from the de-polluting process including waste oil, diesel/gasoline fuel, batteries, capacitors etc. are all managed under separate programs per State regulations.

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2. *How much material by weight did your facility shred from January 1, 2014, through January 1, 2015? Include the percentage of total materials shredded annually for each of the following: vehicles, appliances, and other forms of scrap metal.*

   A total weight of approximately 225,000 MT of material was shredded for the year 2014.

   Annual percentages of material are as follows:

Vehicles:	39.25%
Appliances/Tin:	34.63%
Other/Misc:	26.11%

3. *What type of shredder (e.g., the model, brand and its horsepower) is used by your facility?*

   Shredder is manufactured by The Shredder Company. Model #124-SXS Mega Shredder
   7,000 Horse Power

4. *Is your facility's shredder equipped with an Air Pollution Control Device (APCD)?*

Yes. The shredder is controlled by a five-stage air pollution control system (APCS), which has a permit to construct (A/N 495678, attached) issued by the South Coast Air Quality Management District. The permit to operate is pending until a final compliance source test approval is granted by the SCAQMD.

APCS Stage One

Shredder overhead, multi-hood exhaust system that captures 90% of all particulate matter (PM) and volatile organic compounds (VOC's) and send those emissions through the second stage.

APCS Stage Two

Dust/Mist Collector - Custom designed and manufactured, Model No. TAME-40K-2008, dual parallel compartments designed to capture oils, PM and moisture present in the gas stream. VOC's are not controlled at this stage and are carried into stage three and four, and are abated in stage five, in the RTO.

- Mist Eliminating Wall manufactured by AAF International (initial moisture control)
- Two –inch thick poly pad (coarse PM, and oils control)
- HS Aluminum Filters (additional moisture control)
- Drop Safe Rigid Pocket Bag Filters (PM and microscopic water molecules filtration)*
- DP-40 Synthetic PM Filters (additional PM filtration at MERV 8)*
- HydroVee, High Efficiency PM Filters (additional PM filtration at MERV 15)*

*All PM filters in the TAME Unit indicated by an asterisk above will be removed if the Donaldson Baghouse listed below is in operation. The SCAQMD has directed additional PM testing of the Donaldson Baghouse, without PM filters in the TAME Unit. Additional PM testing will be completed by August 2015.

APCS Stage Three

This stage is a PM control stage that uses a 484-RF Donaldson Baghouse. This unit is a continuous duty dust collector with 484 oleophobic, bag-style filters designed to handle upwards of 100,000 SCFM applications with heavy dust loads.

APCS Stage Four

40K SCFM Regenerative Thermal Oxidizer (RTO). The 40K SCFM RTO, Model No. RETOX 40.0 RTO095, was manufactured by CECO-ADWEST Technologies.

APCS Stage Five

HEE Environmental Chemical Scrubber – The vertical, counter-current chemical scrubber neutralizes the exhaust from the RTO.

How else does your facility control any particulate emissions throughout the facility?

Anaheim employs a number of measures to control particulate matter emissions as follows:

- The shredding chamber is enclosed by a large hood.
- The ferrous magnet system is enclosed within a building.
- The entire Metals Recovery Plant (MRP) operation, from receipt of aggregate via conveyer through non-ferrous and ferrous recovery operations to loading out TASR in trucks, is conducted within an enclosed structure.

Material stacking areas are swept periodically throughout the day, as necessary. The sweeping is performed with a mechanical broom. During operations, the mechanical broom is used to maintain the outer boundary of the intake piles of feedstock material by pushing material on the edge of the piles back toward the center of the pile.

A TYMCO sweeper is used to clean-up the entrances and driveways on a regular basis, as necessary throughout the day. Water is applied to the yard haul roads and piles of materials throughout the day with a water truck, as necessary.

The entire facility is concrete paved and is designed to collect/divert all residual process water to an on-site waste water treatment facility, where the water is recycled for re-use on-site.

In addition to being completely enclosed in a building, the MRP is equipped with dust collectors to control particulate matter during the non-ferrous metals recovery process. The MRP uses a series of pulse-jet type dust collectors on all of its cyclones to control particulate emissions.

5. *Provide a copy of all permits and other forms of authorization issued to your facility by any governmental entity related to metal shredding activities.*

   Anaheim holds SCAQMD permits to construct/operate the shredder (Permit to Construct/Modify No. 502884), the MRP (G16984), and the shredder APCS (Permit to Construct No. 495678). The facility also holds a CAR permit and an NOI issued by the State Water Resources Control Board. Copies of permits are provided in attachment 2.

6. *Describe the ferrous metals separation process, including how shredded material is sent to the ferrous metals separation process, the type of magnet used, if any,*

   The shredder feed materials, including automobiles and appliances, are loaded onto the conveyor using grapple cranes and front-end loaders and are conveyed into the hooded shredding chamber (vented to the Air Pollution Control System).

   The shredder shreds the cars and scrap metal materials into fist sized pieces. (All shredded material must exit the shredder chamber through eight inch square grate openings). This stream of material collectively is called “Aggregate”.

All shredded Aggregate exits the shredder onto a shaker table, which then transfers the materials to a single conveyor belt. That single flow of Aggregate is split into two equal streams of material and continues through two parallel processing lines. Each stream is run over a first drum magnet (SGM Drum Magnet, Model TMR-60”/98” 60 inch diameter by 98 inch wide). The magnetic fraction, which primarily consists of steel and iron materials, is conveyed via a short length shaker table to a second identical SGM drum magnet, which further separates the magnetic fraction from the non-magnetic fraction. The two non-magnetic fractions are combined onto a conveyer which runs under a 36 inch diameter by 48 inch wide magnetic tail pulley to recover residual magnetic steel and returns that steel to the larger SGM drum magnets via a conveyer.

The non-magnetic Aggregate contains non-magnetic metals such as aluminum, copper, zinc and stainless steel. After the magnetic separation process, the Aggregate is conveyed to the enclosed MRP building where it is staged prior to being fed into the MRP.

…and under what circumstances would materials exiting the ferrous metals separation process be reintroduced?

The MRP process screens out oversized material (+ 5 inches) which can be returned to the shredder in-feed area for re-shredding.

Materials that have accumulated on and under the conveyor belts and picking stations and related equipment described above are returned to the shredder in-feed for re-shredding.

Also, indicate if your facility recovers ferrous metals from any material that is not shredded at your facility. If so, please describe that process and a site map of where activities occur when applicable.

The Anaheim facility receives all types of scrap metal, including prepared and unprepared materials that are not shredded at the facility. The prepared materials, including HMS (Heavy Melt Steel) and P&S (Plate and Structural) are received and stockpiled for shipment to the SA Terminal Island facility or loaded directly into overseas shipping containers or shipped to other domestic markets. The unprepared materials are sheared or cut in the areas designated for those activities on the site map. The facility operates a portable hydraulic “alligator” type shear mounted on a back-hoe type tractor which is used to size longer pieces of steel into lengths typically under 5 feet.

Scrap materials that are too heavy to be cut by the shear are directed to a designated torch cutting area. After processing to reduce the size and length of the scrap metal, the material is loaded into trucks using an electro-magnet attached to a crane.

Please include representative pictures of the ferrous recovery process and a site map of where activities occur when applicable.

- Site Map (See Attachment 3)
- Magnet Photos (See Attachment 4)

7. *Is the shredded material ever stored onsite before ferrous metal recovery occurs? If so, on average how much and for how long is it stored, how is it stored (e.g., on a paved surface), and where in the facility is it stored?*

   No, shredder output is always processed in-line after it leaves the shredder. Material may temporarily be located on a conveyance system in the event of an emergency shut-down; however, it is not stored in the system.

8. *If ferrous metals recovery does not occur onsite, please respond to the following questions:*

   How much shredded material is stored onsite?
   How long is shredded material stored onsite?
   How is the shredded material stored (e.g., on paved ground)?
   Where in the facility is the shredded material stored?
   Where is the shredded material sent (please include addresses)?

   Not-applicable

9. *Describe the nonferrous metals separation process at your facility, if any. Describe how aggregate (i.e., the shredded material remaining after ferrous metals separation) is introduced into that process, the type of system(s) used, where in your facility it occurs,*

   Aggregate materials exiting the shredder go through the ferrous recovery stage, described above in question #6, and then are transferred by a conveyor directly to the aggregate staging area within the 85,000 square foot MRP building (enclosed, covered, concrete floor). From this staging area, the aggregate material is loaded onto a track feeder that meters the flow of the aggregate into the MRP.

   The MRP uses a series of trommels, shaker screens, and water tanks to initially separate the aggregate into different fractions based on size and density.

   Each of these fractions continues through the MRP, which utilizes three primary types of technology to separate and recover non-ferrous materials, as well as conventional magnets to recover residual ferrous materials.

   The three primary technologies used for non-ferrous metal recovery include:

   1. Eddy- current magnetic separators for most aluminum, zinc and copper materials
   2. Sensors (air actuated) for stainless and copper wire
   3. Density separators for fine copper materials

   ……and under what circumstances would materials exiting nonferrous metals separation processes be reintroduced.

   Materials that accumulate under or on the equipment are in-progress materials and are routinely returned to the infeed area using front-end loaders and skid-steer type tractors.

Any recovered product that does not meet a quality standard is returned to the aggregate in-feed area for re-processing. There are several product streams that require a second pass through the MRP.

Also indicate if your facility recovers nonferrous metals from any material that is not shredded at your facility. Please provide a site map of where activities occur.

The facility receives typical non-ferrous materials like aluminum and copper that is sorted and segregated into salable products, not associated with the shredder or MRP. The facility does not receive any previously shredded material from another location for non-ferrous recovery through the MRP.

10. *Is aggregate ever stored onsite prior to or during the nonferrous metals separation process? If so, how much is stored and for how long? Identify where in your facility it is stored.*

    Yes, aggregate is staged within the MRP Building. (As designated on the site map)

    The amount of aggregate on site ranges from 500 to 1,500 tons, which equates to 3 to 5 days of production.

11. *If nonferrous metals recovery does not occur onsite, please respond to the following questions:*

    Not Applicable

    - *How much aggregate is stored onsite?*
    - *How long is aggregate store onsite?*
    - *How is the aggregate stored (e.g., on paved ground)?*
    - *Where in the facility is the aggregate stored?*
    - *Where is the aggregate sent (please include addresses)?*
    - *Describe the offsite transportation and if any Department of Transportation (DOT) requirements are followed.*

12. *Describe how your facility chemically treats metal shredder waste. For the purposes of this document only, "metal shredder waste" shall mean the material remaining after metal recovery is complete. Include how metal shredder waste not chemically treated is sent to the treatment process, how screening is conducted, the types of equipment used to perform the chemical treatment, chemical formulas and doses, and the sampling and analysis performed on the chemically treated metal shredder waste to ensure adequate treatment.*

    Treatment of aggregate that has been fully processed for recovery of non-ferrous metals occurs in-line at the end of the non-ferrous metals recovery process. Residual materials from all of the various non-ferrous recovery steps as previously described are combined on a single, scaled (weigh belt) conveyor which delivers material to the treatment auger. A proprietary silicate-phosphate liquid is applied first. Silicate-phosphate is drawn from a tote into a foamer/tank

where it is blended with a 9 – 13x volume of water. This solution is pumped from the foamer tank and is combined with the metal shredder waste in the auger chamber. The auger blends and pushes the treated material toward the cement feeds. The proprietary, non-hydraulic cement is formulated to reduce the leachability of metals. The incoming weigh belt scale is used to control the by-weight cement allocation, 9.0 – 10.0%, at the treatment auger. Cement is fed into the auger chamber from adjacent silos and applied to the material in the remaining length of the auger chamber, approximately five (5) meters, before being deposited onto the outgoing conveyor. The auger mixes and blends the material along with the cement and silicate phosphate solution. The residence time in the auger is approximately sixty seconds. Fully treated material is then passed under a magnet for final ferrous metal recovery and then conveyed to a stacking conveyor, all within the enclosed MRP building. The treated aggregate (TASR) is then loaded into end dumps (all within the MRP building) and then transported to the receiving landfill.

Sampling of the treated metal shredder waste occurs approximately six (6) meters from the exit of the treatment auger chamber. Samples are taken manually from the conveyor and added to a composite, shift sample, each half-hour. Samples from a given week are combined - mixed, coned and quartered – before being submitted to the receiving laboratory for analysis of volatile organic compounds (VOCs) via EPA method 8260B, poly-chlorinated biphenyls (PCBs) via EPA method 8082, and soluble cadmium, chromium, copper, lead, mercury, nickel and zinc via the Waste Extraction Test (WET). One such weekly composite sample is analyzed per month.

The Anaheim facility is participating in an ongoing MSR Treatability Study that is evaluating the effectiveness of the treatment process and will serve as a basis for uniform, statewide treatment standards appropriate to TASR.

13. *Do landfills, regional water quality control boards, or other regulating authority impose any requirements on treated metal shredder waste sent for disposal or use as Alternative Daily Cover (ADC)? If so, what are the requirements?*

TASR is shipped to two landfills: Chiquita Canyon Landfill in Castaic CA, and Simi Valley Landfill in Simi CA. Both landfills operate under the jurisdiction of the Los Angeles Regional Quality Control Board. There are sampling and analysis and reporting requirements specified by the Waste Discharge Requirements (WDRs) of the receiving landfills for treated auto shredder residue (TASR) regardless of whether it is employed as alternative daily cover (ADC) or disposed of as waste. SA's understanding is that essentially all of the TASR received at both of these landfills is used as ADC.

The landfill is required to record the quantity of TASR deposited each month and the number of loads deposited from each generator. The landfill must report the TASR laboratory analysis results provided by the generator, in addition to those from the landfill's own monitoring per the WDR's.

Per the WDR's the analysis of TASR samples include analysis of volatile organic compounds via EPA method 8260B, polychlorinated biphenyls via EPA method 8082, and soluble cadmium, chromium, copper, lead, mercury, nickel and zinc via the Waste Extraction Test (WET).

The WDR's for Simi Valley Landfill also specify the sampling procedure and SA has adopted this procedure, as described above. Composite samples of TASR are collected daily; one (1)-pound sample each half-hour per shift. Samples from a given week are combined – mixed, coned and quartered – before being submitted to the receiving laboratory. One weekly composite sample, prepared as described, is submitted per month for the above-mentioned analysis.

Additionally, Simi Valley Landfill requires that one such sample, per quarter, be analyzed for the solubility of the full suite of "CAM-17" metals using the Synthetic Precipitation Leaching Procedure (EPA method 1312).

14. *Is untreated metal shredder waste stored onsite before disposal? If so, how much and for how long is it stored, how is it stored and where on the facility is it stored?*

    There is no untreated shredder waste stored on-site. At the conclusion of the non-ferrous recovery process, fully processed aggregate is conveyed directly to the treatment process and treated in-line as discussed above.

15. *Is treated metal shredder waste stored onsite before disposal? If so, how much and for how long is it stored, how is it stored and where on the facility is it stored?*

    TASR is staged for shipment in the MRP building under a roof on a concrete floor. There is typically 500-1,000 tons of TASR on site at any one time, which is approximately three or four days' worth of production.

16. *How much treated metal shredder waste, if any, was transported offsite in the calendar year January 1, 2014, through January 1, 2015? List all destinations with addresses.*

    From January 1st, 2014 to January 1st, 2015, the facility shipped 87,093 tons of treated metal shredder waste to two (2) landfills:

    - Simi Valley Landfill
      2801 Madera Rd
      Simi Valley, CA 93065

    - Chiquita Canyon Landfill
      29201 Henry Mayo Drive
      Castaic, CA 91384

    21,988 tons of treated metal shredder waste shipped to Chiquita Canyon Landfill.

    65,105 tons of treated metal shredder waste shipped to Simi Valley Landfill.

17. *Describe the offsite transportation of metal shredder wastes. Are there any DOT requirements followed during transportation?*

    Treated metal shredder waste is transported on a non-hazardous waste manifest. Material is loaded into end dumps and a tarpaulin placed over the exposed surface. The transportation activity is conducted in compliance with the US Department of Transportation regulations and the Federal Motor Carrier Safety Administration (49 CFR Parts 300-399).

Ecology Auto Parts, Inc.'s Responses to DTSC's Questionnaire to Metal Shredding Facilities Dated May 8, 2015

Question 1. Describe your facility's scrap metal acceptance policy and describe all materials you bring into your facility for shredding, metals recovery, or both.

Answer 1. Ecology Auto Parts, Inc. ("Ecology") accepts various types of materials for shredding, including vehicles, appliances and tin, and other forms of scrap metal. However, Ecology does *not* accept the following materials at its shredder facility:

- dross, slag, or dust containing lead;
- electrical transformers;
- unattached oil filters or oil-contaminated products;
- asbestos;
- sealed or crushed drums, or pails with lids (unless thoroughly cleaned and opened on one end);
- compressed gas cylinders;
- magnesium borings, turnings, grindings, or fines;
- steel, zirconium, or non-ferrous turnings or borings that contain oil;
- radioactive substances or wastes;
- munitions scrap of any kind;
- mercury or mercury switches;
- wood, concrete, unattached tires, paint, cathode ray tubes in equipment, or other non-metallic waste debris;
- infectious waste;
- storage tanks or batteries;
- railcars with fiberglass insulation.

In most instances, un-screened automobile bodies (i.e., auto bodies that have not been de-polluted) are *not* accepted directly at Ecology's shredder facility; that is, they have been pre-screened (de-polluted) at a scrap vehicle yard before delivery to the shredder facility and had the following items removed beforehand (or otherwise, such items will be removed by Ecology):

- automotive fluids drained, including gasoline, oil, and antifreeze;
- refrigerants collected for recycling;
- all mercury-containing materials, such as light switches, anti-lock braking system (ABS) components, and televisions.

Other sources of scrap metal material are screened in the scale area of the facility in the customers' presence. All rejected materials are retained by the customers.

Question 2. How much material by weight did your facility shred from January 1, 2014, through January 1,2015? Include the percentage of total materials shredded annually for each of the following: vehicles, appliances, and other forms of scrap metal.

Answer 2. During the fourth quarter of 2014, Ecology averaged approximately 22,000 tons of shredded materials per month. During that same period, the percentage breakdown per month of materials shredded averaged as follows:

- Vehicles - 35%
- Appliances and tin _, 56%
- Other forms of metal --, 9%

These percentages tend to be consistent from quarter to quarter.

Question 3. What type of shredder (e.g., the model, brand, and its horse power) is used by your facility?

Answer 3. Ecology uses the following type of shredder:

- Model: Hammer Mill (dimensions: 96 in. x 104 in.)
- Brand: Metso
- Horse Power: 6000

Question 4. Is your facility's shredder equipped with an Air Pollution Control Device (APCD)? How else does your facility control any particulate emissions throughout the facility?

Answer 4. Yes, Ecology's shredder is equipped with multiple Air Pollution Control Devices, including a HEPA-equipped mechanical filtration system for ultra-fine particulate control, as well as a regenerative thermal oxidizer (RTO) for volatile organic compound (VOC)-control. Ecology also uses spray nozzles inside of the mill-box during the shredding process.

Ecology has implemented multiple dust-control and fugitive emissions-control measures throughout the facility. The entire shredding area, including the receiving and stockpile areas, is completely paved, and all incoming and outgoing trucks are tarped. Ecology employs a full-time mechanical street sweeper for continuous cleaning throughout the day, and the shredder area is swept again at night once operations are completed for that day. Ecology uses a 40-foot high overhead, remote-controlled water cannon and a Dust Boss to spray down the shredder area and stockpile. Ecology also uses a water truck to wash down specific areas when needed.

Question 5. Provide a copy of all permits and other forms of authorization issued to your facility by any governmental entity related to metal shredding activities.

Answer 5. Ecology is attaching copies of the following permits and authorizations as they relate to its metal shredding activities:

- South Coast Air Quality Management District "Permit to Operate" for the shredder system;
- South Coast Air Quality Management District "Permit" for the regenerative thermal oxidiz.er and auto body shredding (among other listed permitted activities, e.g. storage and dispensing of gasoline);
- *San Bernardino County CUPA "Annual Permit";
- *State Water Resources Control Board "Notice of Intent" listing the waste discharge identification number (WDID) under the General Industrial Storm Water Permit;

- Cal. EPA Department of Toxic Substances Control "Appliance Recycler Certification" listing the Cal. EPA identification number;
- Department of Toxic Substances Control letter dated August I, 2005 giving confirmation of non-hazardous waste classification;
- Department of Toxic Substances Control Declassification letter dated September 24, 1987 (originally issued to Clean Steel);
- **Colton Fire Department Permit.

*** Pacific Rail Industries is a dba of Ecology Auto Parts, Inc.**

**** Pacific Rail Dismantling Services, Inc. is a wholly owned subsidiary of Ecology Auto Parts, Inc.**

Question 6. Describe the ferrous metals separation process, including how shredded material is sent to the ferrous metals separation process, the type of magnet used, if any, and under what circumstances would materials exiting the ferrous metals separation process be reintroduced. Also indicate if your facility recovers ferrous metals from any material that is not shredded at your facility. If so, please describe that process. Please include representative pictures of the ferrous recovery process and a site map of where activities occur when applicable.

Answer 6. After materials are shredded, they are sent by conveyor to a pan feeder that delivers the materials to a Steinert (brand) drum magnet. At that point, the shredder output falls onto a second conveyor, which delivers the steel to a second feeder, which in turn transfers the steel to a second drum magnet for more cleaning. A third conveyor brings the steel underneath a "Z-box" cyclone, which functions as a large vacuum to pull out the light non-metallic material. Thereafter, the steel travels to a picking station where employees, by hand, pull out the rubber and any other remaining debris. A fourth conveyor then brings the steel to a finished stockpile. Photos of the shredder box, the drum magnets, and "Z-box" cyclone are included.

Ecology does not recover any ferrous metals from other shredder facilities. Occasionally, Ecology will receive a heavy piece of steel that cannot be shredded due to its size. In those instances, the steel is processed in a separate area of the facility by using a hydraulic shear.

Question 7. Is the shredded material ever stored onsite before ferrous metal recovery occurs? If so, on average how much and for how long is it stored, how is it stored (e.g., on a paved surface), -and where in the facility is it stored?

Answer 7. No, the shredded material is not stored onsite before performing ferrous metal recovery.

Question 8. If ferrous metals recovery does not occur onsite, please respond to the following questions:

- How much shredded material is stored onsite?
- How long is shredded material stored onsite?
- How is the shredded material stored (e.g., on paved ground)?
- Where in the facility is the shredded material stored?
- Where is the shredded material sent (please include addresses)?

Answer 8. Not applicable, because ferrous metal recovery *does* occur onsite.

Question 9. Describe the nonferrous metals separation process at your facility, if any. Describe how aggregate (i.e., the shredded material remaining after ferrous metals separation) is introduced into that process, the type of system(s) used, where in your facility it occurs, and under what circumstances would materials exiting nonferrous metals separation processes be reintroduced. Also indicate if your facility recovers nonferrous metals from any material that is not shredded at your facility. Please provide a site map of where activities occur.

Answer 9. Not applicable, because nonferrous metals separation does *not* occur at this facility. See Answer 11 below.

Question 10. Is aggregate ever stored onsite prior to or during the nonferrous metals separation process? If so, how much is stored and for how long? Identify where in your facility it is stored.

Answer 10. See Answer 11 below, although nonferrous metals separation does *not* occur at this facility.

Question 11. If nonferrous metals recovery does not occur onsite, please respond to the following questions:

- How much aggregate is stored onsite?
- How long is aggregate stored onsite?
- How is the aggregate stored (e.g., on paved ground)?
- Where in the facility is the aggregate stored?
- Where is the aggregate sent (please include addresses)?
- Describe the offsite transportation and if any Department of Transportation (DOT) requirements are followed.

Answer 11. Ecology does not perform nonferrous metals recovery onsite.

- Ecology temporarily stages anywhere from zero tons up to approximately 800 tons of aggregate onsite.
- The aggregate may be staged onsite for up to approximately two days.
- The aggregate is staged underneath a three-sided steel building (receiving bay). The building has a 12-inch thick concrete floor, with a half-inch, solid steel plate above it. Any water that may drain from the aggregate travels to a floor drain, where it is pumped to a one-million gallon tank for reuse in the shredding process.
- The receiving bay is located approximately 150-feet north of the drum magnets.
- The aggregate is sent to Ecology's Arizona facility for nonferrous recovery, which is located at 59260 Highway 72, Salome, Arizona, 85348.
- The aggregate is trucked by Ecology employees in Ecology-owned trailers. Ecology hauls the aggregate primarily in end-dump trailers, which are tarped and have rubber seals on their back doors. The aggregate is *not* handled or held at any interim location during transit. Ecology complies with all applicable DOT requirements.

Question 12. Describe how your facility chemically treats metal shredder waste. For the purposes of this document only, "metal shredder waste" shall mean the material remaining after metal recovery is complete. Include how metal shredder waste not chemically treated is sent to the treatment process, how screening is conducted, the types of equipment used to perform the

chemical treatment, chemical formulas and doses, and the sampling and analysis performed on the chemically treated metal shredder waste to ensure adequate treatment.

Answer 12. Not applicable. See Answer 11 above.

Question 13. Do landfills, regional water quality control boards, or other regulating authority impose any requirements on treated metal shredder waste sent for disposal or use as Alternative Daily Cover (ADC)? If so, what are the requirements?

Answer 13. Not applicable. See Answer 11 above.

Question 14. Is untreated metal shredder waste stored onsite prior to treatment? If so, how much and for how long is it stored, how is it stored and where on the facility is it stored?

Answer 14. Not applicable. See Answer 11 above.

Question 15. Is treated metal shredder waste stored onsite before disposal? If so, how much and for how long is it stored, how is it stored and where on the facility is it stored?

Answer 15. Not applicable. See Answer 11 above.

Question 16. How much treated metal shredder waste, if any, was transported offsite in the calendar year January 1,2014, through January 1,2015? List all destinations with addresses.

Answer 16. Not applicable. See Answer 11 above.

Question 17. Describe the offsite transportation of metal shredder wastes. Are there any DOT requirements followed during transportation?

Answer 17. Not applicable. See Answer 11 above.

APPENDIX B: COMBINED LANDFILL QUESTIONNAIRES

RECEIVED AUG 0 3 2015

WASTE MANAGEMENT

Altamont Landfill & Resource Recovery Facility
10840 Altamont Pass Road, Livermore, CA 94551

July 27, 2015

Mr. Rick Brausch
Policy and Program Support Division
Hazardous Waste Management Program
Department of Toxic Substances Control
1001 I Street, 23rd Floor
P.O. Box 8006
Sacramento, California 95812-0806

Re: Information Request for Implementation of Senate Bill (SB) 1249 (Hill, Chapter 756, Statutes of 2014)

Dear Mr. Brausch:

This letter is in response to your letter dated May 20, 2015 regarding the management of metal shredder waste that occurs at Waste Management of Alameda County, Inc.'s (WMAC) Altamont Landfill & Resource Recovery Facility (ALRRF) in Livermore, California.

The following questions are those that you requested be answered in the questionnaire attached to your original letter.

1. *Please provide the policy that applies to the acceptance of metal shredder waste.*

   WMAC Response: Metal shredder waste is allowed through ALRRF's Waste Discharge Requirements (WDR). The language that addresses metal shredder waste in the WDR (Findings 16 and 17) is attached.

2. *How much metal shredder waste by weight did your facility accept from January 1, 2014, through January 1, 2015? Please include the name and address of each metal shredding facility that sent the metal shredder waste and how much they sent during the calendar year.*

   WMAC Response: ALRRF accepts metal shredder waste from two companies:

   Sims Metal Management
   699 Seaport Ave.

Redwood City, CA, 94063
63,505.78 tons accepted 1/1/14-1/1/15

Schnitzer Steel
1101 Embarcadero West
Oakland, CA, 94607
99,897.19 tons accepted 1/1/14-1/1/15

3. *What percentage of metal shredder waste was used as Alternative Daily Cover (ADC)?*

WMAC Response: 100% of metal shredder waste was used as ADC.

4. a. *How much metal shredder waste is stored onsite prior to its use as ADC?*

WMAC Response: ALRRF tries to minimize the amount of stockpiled metal shredder waste by using it as it is received. The amount that is stored onsite varies based on the amount coming in, placement availability, and the classification of the area currently being filled (i.e., Class II or Class III). At times, the stockpile size may grow to up to 300 tons, but this is not the norm.

b. How long is it stored?

WMAC Response: ALRRF tries to use metal shredder waste as it is received. It is normally used within two weeks of receipt but may be stored longer based on operational needs.

c. How is it stored?

WMAC Response: It is stored in the Class II unit (Fill Area 1, Unit 2).

d. Where in the facility is it stored? Please provide a site map of the location.

WMAC Response: Metal shredder waste is stored in the landfill footprint, in the Class II unit. Stockpiles move based on the location of the active fill area. See attached map. The Class II unit is Fill Area 1, Unit 2.

5. *Please answer the following questions (5.A.—5.D.) pertaining to metal shredder waste accepted at your facility but not used as ADC:*

a. How much metal shredder waste is stored onsite prior to its use as ADC?

b. How long is it stored?

c. How is it stored (e.g., on a paved surface)?

d. Where in the facility is it stored? Please provide a site map of the location

WMAC Response: N/A. All metal shredder waste at ALRRF is used as ADC.

6. *Do the regional water quality control boards or other regulating authorities impose any requirements on your facility concerning metal shredder wastes? If so, what are those requirements?*

   WMAC Response: The WDR referenced in question #1 above is attached. Findings 16 and 17 address metal shredder waste.

7. *Provide a copy of all permits and other forms of documented authorization issued to your facility by any governmental entity related to metal shredder waste management activities, and a copy of any data your facility may have regarding the toxicity characteristics of metal shredder waste.*

   WMAC Response: The WDR referenced in questions #1 and #6 above is attached. ALRRF's Solid Waste Facility Permit (SWFP) is attached. Section 7, page 15, of ALRRF's Joint Technical Document (JTD) addressing metal shredder waste is attached. Metal shredder waste generators provide PCB data for every 1000 tons of metal shredder waste disposed of.

8. *Are other management requirements followed by your facility for metal shredder waste when accepting, handling, storing and ultimately disposing of or using metal shredder waste as ADC? If so, please describe those requirements.*

   WMAC Response: Metal shredder waste is generally placed on semi-flat surfaces and interior slopes. It is applied with a minimum compacted thickness layer of six inches and average compacted thickness of less than 24 inches. A D6 dozer performs application as needed. To maximize efficiency and facilitate its timely use in cover operations, metal shredder waste is initially unloaded near the active disposal area.

   Metal shredder waste is also used as an extender for solidification of liquid or semi-solid waste (i.e., waste containing less than 50% solids) and dewatered sewage or water treatment sludge prior. The liquid/semi-solid waste is mixed with the metal shredder waste in a clay-lined pit or solidification basin in the Class II unit until the combined material is greater than 50% solids by volume. The solidified waste is then loaded by the excavator into a dump truck and transported to the active face. At the active face, the ADC material is spread using bulldozers.

If you have any questions regarding the content of this report, please contact me at (925) 455-7305.

Sincerely,

Sarah Fockler
Environmental Protection Specialist

Altamont Landfill and Resource Recovery Facility

Attachments:
Attachment A – ALRRF WDR
Attachment B – Site Map
Attachment C –ALRRF SWFP
Attachment D – ALRRF JTD

Attachment A

ALRRF WDR

15. The Discharger accepts for disposal and discharges wastes containing greater than one percent (>1%) friable asbestos to the landfill units. These wastes are classified as 'hazardous' under CCR title 22. However, these wastes do not pose a threat to groundwater quality and Section 25143.7 of California's Health and Safety Code permits their disposal in any landfill that has WDRs that specifically permit the discharge, provided that the wastes are handled and disposed of in accordance with applicable statutes and regulations.

16. The State Water Resources Control Board adopted Resolution No. 87-22 on 19 March 1987. This Resolution allows the discharge of shredder wastes to Class III landfills where WDRs allow such disposal.

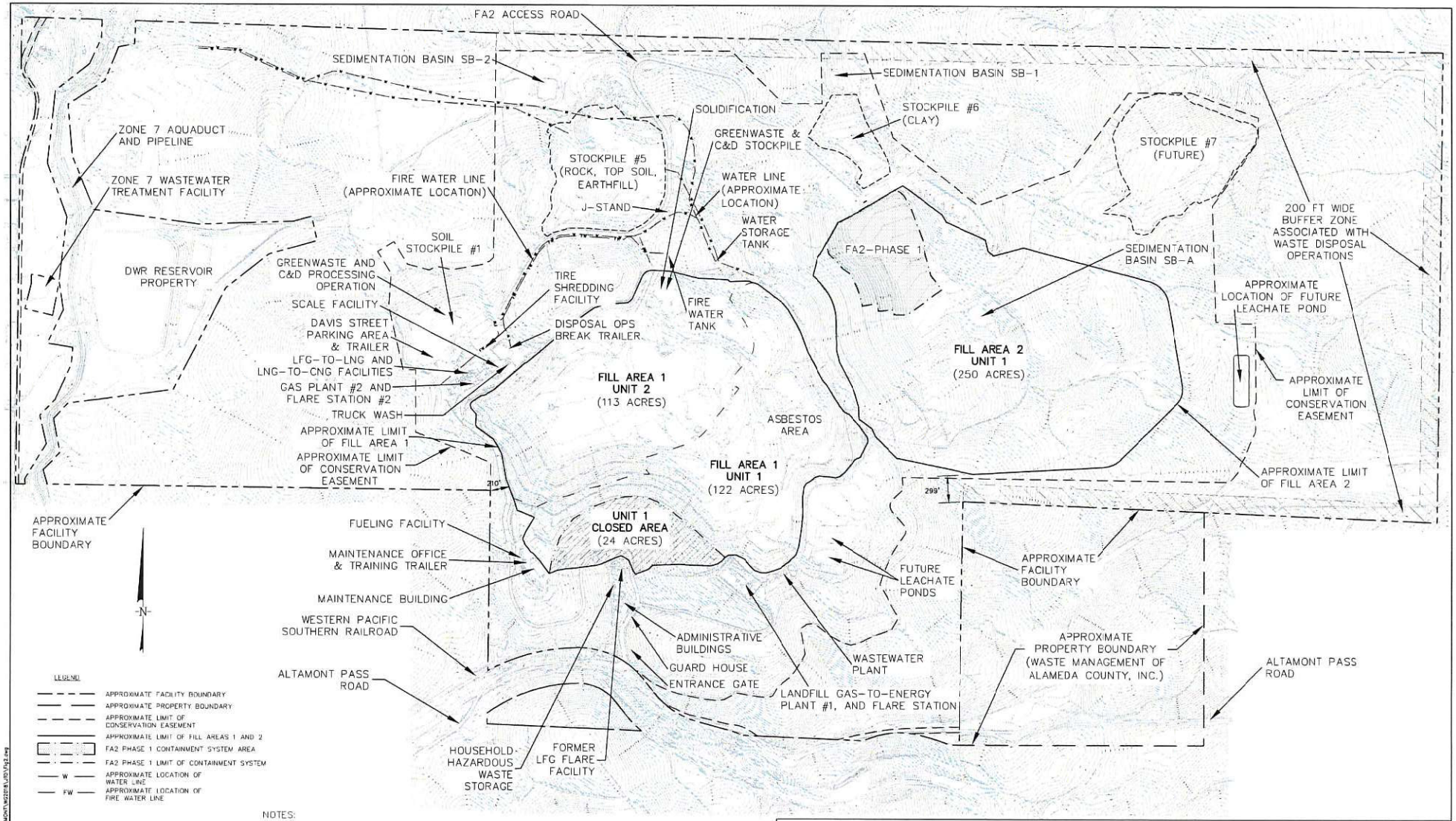
17. Treated (stabilized) auto shredder waste (TASW) is any non-recyclable waste from the shredding of automobile bodies (from which batteries, mufflers, mercury switches, and exhaust pipes have been removed), household appliances, and sheet metal. The Discharger proposed to continue to discharge TASW in the top lift of Fill Area 1, Unit 1 where it will not be exposed to acidic leachate. The Discharger also proposes to continue to use TASW as alternative daily cover, beneficial reuse material, or to dispose of it in all the applicable Class II landfill areas. In the past, TASW has been discharged at the landfill under a waiver from the Department of Toxic Substances Control (DTSC), and at the Class III unit, pursuant to Resolution No. 87-22. DTSC's waiver is currently under review and may be rescinded due to new data and information indicating it should be managed as a hazardous waste due to increasingly high concentrations of toxic metals, and concerns about the long-term effectiveness of the stabilization treatment process. If DTSC makes the determination that TASW is a special hazardous waste and requires management at a Class I facility, this Order prohibits the discharge of auto shredder waste (treated or untreated) at the Altamont Landfill.

18. The Discharger proposes to discharge treated wood waste at the landfill. CCR title 22 defines "Treated wood" to mean wood that has been treated with a chemical preservative for purposes of protecting the wood against attacks from insects, microorganisms, fungi, and other environmental conditions that can lead to decay of the wood and the chemical preservative is registered pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. Sec. 136 and following). This may include but is not limited to waste wood that has been treated with chromated copper arsenate (CCA), pentachlorophenol, creosote, acid copper chromate (ACC), ammoniacal copper arsenate (ACA), ammoniacal copper zinc arsenate (ACZA), or chromated zinc chloride (CZC).

19. Findings and specifications in these WDRs apply only to treated wood waste that is a hazardous waste, solely due to the presence of a preservative in the wood, and is not subject to regulation as a hazardous waste under the federal act. Treated wood that is not a hazardous waste can be handled as C&D debris or

Attachment B

Site Map



NOTES:

1. SITE TOPOGRAPHY PROVIDED BY MILLER CREEK AERIAL MAPPING, LLC. AERIAL PHOTO DATED 31 DECEMBER 2014. AS THE SITE IS AN ACTIVE LANDFILL, TOPOGRAPHY MAY HAVE CHANGED SINCE THE SURVEY DATE SHOWN.

2. THE HORIZONTAL COORDINATES ARE BASED ON CALIFORNIA STATE PLANE COORDINATE SYSTEM ZONE 3, NAD27. THE VERTICAL DATUM IS BASED ON NAVD 1929.

Geosyntec consultants

SITE PLAN AND 2014 TOPOGRAPHY
ALTAMONT LANDFILL & RESOURCE RECOVERY FACILITY
ALAMEDA COUNTY, CALIFORNIA

FIGURE NO.	2
PROJECT NO.	WG2018
DATE:	JULY 2015

R 005274

Attachment C

ALRRF SWFP

SOLID WASTE FACILITY PERMIT

1. Facility/Permit Number:	
	01-AA-0009

2. Name and Street Address of Facility:	3. Name and Mailing Address of Operator:	4. Name and Mailing Address of Owner:
Altamont Landfill and Resource Recovery Facility 10840 Altamont Pass Road, Livermore CA 94551	Waste Management of Alameda County 172 98th Avenue Oakland, CA 94503	Waste Management of Alameda County 172 98th Avenue Oakland, CA 94503

5. Specifications:

a. Permitted Operations:

- ☐ Composting Facility (mixed wastes)
- ☐ Composting Facility (yard waste)
- ☒ Landfill Disposal Site
- ☐ Material Recovery Facility
- ☐ Processing Facility
- ☐ Transfer Station
- ☐ Transformation Facility
- ☐ Other:

b. Permitted Hours of Operation: (Receipt of Refuse/Waste) **24 hours**
(Ancillary Operations/Facility Operation Hours) **24 hours**
(Public Hours) **Monday through Friday 6 a.m. to 6 p.m.**

c. Permitted Tons per Operating Day: 11,150 Tons per Day for Disposal

d. Permitted Traffic Volume: 557 Refuse Vehicles per Day

e. Key Design Parameters (Detailed parameters are shown on site plans bearing LEA and CIWMB validations):

	Total	Disposal	Transfer	MRF	Composting	Transformation
Permitted Area (in acres)	2,170	472	N/A	N/A	N/A	N/A
Design Capacity		87.1 million tons 124.4 million cubic yard	N/A	N/A	N/A	N/A
Max. Elevation (Ft. MSL)		1200 feet				
Max. Depth (Ft. BGS)		540 feet				
Estimated Closure Date		2025				

Upon a significant change in design or operation from that described herein, this permit is subject to revocation or suspension. The stipulated permit findings and conditions are integral parts of this permit & supersede the conditions of any previously issued permit.

6. Approval:

Ariu Levi
Director, Environmental Health

Approving Officer Signature

7. Enforcement Agency Name and Address:

Alameda County Environmental Health
Office of Solid/Medical Waste Management

1131 Harbor Bay Parkway
Alameda, CA 94502

8. Received by CIWMB:	9. CIWMB Concurrence Date:	10. Permit Issued Date:
07/18/2005	08/16/2005	08/22/2005
11A. Next Permit Review Due Date:	**11B. Permit Transfer Date:**	**11C. Permit Review Date:**
08/22/2015		08/20/2010

SOLID WASTE FACILITY PERMIT

Facility Number: 01-AA-0009

12. Legal Description of Facility:

The legal description of this facility is contained in page 2-4 of the Joint Technical Document dated September 15, 2004, Revised on 1 April 7, 2005.

13. Findings:

a. This permit is consistent with the Alameda County Integrated Waste Management Plan, which was approved by the CIWMB on December 12, 2000. The location of the facility is identified in the Countywide Siting Element, pursuant to Public Resources Code (PRC), Section 50001(a).

b. This permit is consistent with the standards adopted by the CIWMB, pursuant to PRC 44010.

c. The design and operation of the facility is consistent with the State Minimum Standards for Solid Waste Handling and Disposal as determined by the enforcement agency, pursuant to PRC 44009.

d. The Alameda County Fire Department has determined that the facility is in conformance with applicable fire standards, pursuant to PRC, 44151.

e. An EIR was filed with the State Clearinghouse (SCH #1992083047) and certified by the Board of Supervisors on March 9, 2000. The EIR describes and supports the design and operation, which will be authorized by the issuance of this permit. A Notice of Determination was filed with the State Clearinghouse on March 9, 2000.

f. The EIR consists of the EIR dated September 29,1995, the Response to Comments Addendum dated March 29, 1996 and the Revised Final EIR dated January 2000.

g. The Alameda County Planning Department has determined that the facility expansion is compatible with surrounding land use through the approval of Conditional Use Permit C-5512.

14. Prohibitions:

The permittee is prohibited from accepting the following wastes:

Hazardous, radioactive, medical (as defined in Chapter 6.1, Division 20 of the Health and Safety Code), liquid, designated, or other wastes requiring special treatment or handling, except as identified in the Report of Facility Information and approved amendments thereto and as approved by the enforcement agency and other federal, state, and local agencies.

15. The following documents describe and/or restrict the operation of this facility:

	Date		Date
Report of Disposal Site Information Revised	Sept. 15,2004 April 7 2005	Preliminary Closure and Postclosure Maintenance Plan	pending
Waste Discharge Requirements Order No. R5-2002-0119	June 7,2002	Closure Financial Assurance Documentation	pending
BAAQMD Permit to Operate #A2066	Feb. 1, 2005	Operating Liability Certification	pending
EIR (SCH #1992083047)	March 9, 2000	Land Use and/or Conditional Use Permit	March 9, 2000
EPA Major Facility Review Permit Administered by BAAQMD pursuant to Federal Title V	Dec. 1, 2003	NPDES No. 0083763	June 7, 2002
Alameda County Waste Management Authority Resolution No. 2000-10	May 24, 2000		

SOLID WASTE FACILITY PERMIT

Facility Number: 01-AA-0009

16. Self Monitoring

The owner/operator shall submit all self monitoring programs to the Enforcement Agency within 30 days of the end of the reporting period

	Program	Reporting Frequency
a.	The types and quantities (in tons) of waste, including separated or commingled recyclables, entering the facility per day.	Monthly*
b.	The number of refuse vehicles using the facility per day.	Monthly*
c.	Results of the hazardous waste load checking program, including the quantities and types of hazardous wastes, medical wastes or otherwise prohibited wastes found in the waste stream and the disposition of these materials.	Available on site
d.	Copies of all written complaints regarding this facility and the operator's actions taken to resolve these complaints.	Quarterly*
e.	Results of the perimeter landfill gas migration monitoring program.	Quarterly*
f.	Remaining site capacity with aerial surveys.	Annual by June 30
g.	Annual mitigation monitoring program report.	Annually
h.	Type, source and quantity of alternative daily cover materials received.	Available on site

*All reports with monthly or quarterly frequency shall be due on the last day of the month following the reporting period.

SOLID WASTE FACILITY PERMIT

Facility Number:
01-AA-0009

17. Enforcement Agency (EA) Conditions:

a. The operator shall comply with all State Minimum Standards for solid waste handling and disposal as specified in Title 27, California Code of Regulations.

b. The operator shall maintain a log of special/unusual occurrences. This log shall include, but is not limited to, fires, explosions, the discharge and disposition of hazardous or unpermitted wastes, and significant injuries, accidents or property damage. Each log entry shall be accompanied by a summary of any actions taken by the operator to mitigate the occurrence. The log shall be available to site personnel and the EA at all times.

c. Additional information concerning the design and operation of the facility shall be furnished upon request and within the time frame specified by the EA.

d. The maximum permitted daily tonnage for this facility is 11,150 disposal tons per day, and the facility shall not receive more than this amount without a revision of this permit.

e. This permit is subject to review by the EA and may be suspended, revoked, or revised at any time for sufficient cause.

f. The EA reserves the right to suspend or modify waste receiving and handling operations when deemed necessary due to an emergency, a potential health hazard, or the creation of a public nuisance.

g. Any change that would cause the design or operation of the facility not to conform to the terms and conditions of this permit is prohibited. Such a change may be considered a significant change, requiring a permit revision. In no case shall the operator implement any change without first submitting a written notice of the proposed change, in the form of an RFI amendment, to the EA at least 150 days in advance of the change.

h. A copy of this permit shall be maintained at the facility.

i. Daily cover will be applied in an ongoing process during the "working day" which is up to 6.5 days long. No area of waste is to be exposed that will not be receiving waste or cover within 24 hours. At the end of the working day, the entire site is to be covered with at least 6 inches of soil or approved ADC.

j. Covering of friable asbestos containing waste must begin within one hour of receipt of the final load of the day pursuant to the Asbestos Management Plan for the facility in the JTD.

k. Operator shall implement all components of the litter control program as described in the JTD. The EA may require revisions to the program and implementation of additional control mechanisms if the facility is continuously in violation of State Minimum Standards for litter control.

Attachment D

ALRRF JTD

the working face, processed green material shall comply with a grain size specification by volume of 95% less than 6 inches. Alternative processing and grain size specification requirements may be approved by the EA if the EA determines that the alternative meets the performance requirements of ¶(a)(2) and (a)(3) of this section and the CIWMB concurs."

Section 20690(b)(3)(C) restricts the use of processed green material *"... to a minimum compacted thickness of 6 inches and average compacted thickness of less than or equal to 12 inches..."* Section 20690(b)(3)(D) requires that *"... processed green material placed as cover shall not be exposed for more than 21 days."*

In accordance with Alameda County Ordinance 2008-01, the ALRRF no longer uses processed green waste materials as ADC.

Green waste material may be used as erosion protection in accordance with Alameda County Ordinance 2008-01.

Processed C&D Wastes

Section 20690(b)(9) of Title 27 allows for use of processed C&D waste, as well as the fines derived from processing of such materials, as ADC. The ALRRF accepts for use as ADC material screened from the C&D processing line at the Davis Street Transfer Station Material Recovery Facility. This screened material is less than 6 in. in diameter with average grain size around 1 in. It consists mainly of ground plant material that is commingled with the C&D wastes from construction work as well as soil, sand, and small amounts of wood products.

This material is typically used as ADC as an extender in solidification. This material is thought to work well in this process and compacts well to form a good cover material free of voids. The ALRRF may use this material by itself as ADC at some point but would be cognizant of potentially dusty conditions and would implement control mechanisms to ensure safety and compliance.

Treated Auto Shredder Waste (TASW)

Section 20690(b)(6)(B) of Title 27 states that *"... treated auto shredder waste used for alternative daily cover shall be restricted to a minimum compacted thickness of 6 inches and average compacted thickness of less than 24 inches."*

TASW at the ALRRF is utilized in accordance with these requirements. The material is unloaded near the active disposal area to facilitate its use in cover operations in Class II areas.

CHIQUITA CANYON
A Waste Connections Company

July 17, 2015

Mr. Rick Brauson, Chief
Policy and Program Support Division
Hazardous Waste Program

Dear Mr. Brauson:

In response to you letter titled; RE: INFORMATION FOR INPLEMENTATION OF SENATE BILL (SB) 1249 (Hill, Chapter 756, Statutes of 2014), I would like to offer these responses to question 1-8 below for Chiquita Canyon Landfill.

1. Please provide the policy that applies to the acceptance of shredder waste. If no such policy exists, describe any practices and procedures used by your facility to accept such waste.
   See attachment #1
2. How much metal shredder waste by weight did your facility accept from January 1, 2014 through January 1, 2015? Please include the name and address of each metal shredding facility that sent the metal shredder waste and how much they sent during the calendar year.
   60,350.68 tons total.
   - SA Recycling LLC. 901 New Dock, San Pedro, CA 93731. 38,225.74 tons
   - SA Recycling LLC. 3200 E. Frontera St. Anaheim, CA. 92806. 22,124.94 tons
3. What percentage of metal shredder waste was used as Alternative Daily Cover (ADC)?
   100%
4. Please answer the following questions (4.A. – 4.D.) pertaining to metal shredder waste accepted at your facility and used as ADC:
   a. How much metal shredder waste is stored onsite prior to its use as ADC?
      We generally do not store this material because the daily amount we get is usually less than or equal to our daily cover need. If we do store some it is typically only 1 or 2 days worth.

   b. How long is it stored?
      About one or two days.

   c. How is it stored (e.g., on a paved surface)?
      Near the working face of the landfill to facilitate its use the next day. The

material is placed on an already filled portion of the landfill which is underlain by a composite liner and leachate collection and removal system.

d. Where in the facility is it stored? Please provide a site map of the location. The working face moves around the landfill as the fill sequence progresses so the material is not ever really stored in the same location, therefore no map is provided.

5. Please answer the following questions (5.A. – 5.D.) pertaining to metal shredder waste accepted at your facility but not used as ADC: N/A see answer on number 3.
   a. How much metal shredder waste is stored onsite prior to its use as ADC?
   b. How long is it stored?
   c. How is it stored (e.g., on a paved surface)?
   d. Where in the facility is it stored? Please provide a site map of the location.

6. Do the regional water quality control board or other regulating authorization impose any requirement on your facility concerning metal shredder waste? If so, what are those requirements? You may exclude any permits or other forms of documented authorizations answered in question 7, below.
   Cal Recycle has requirements governing the thickness of ADC in Title 27.The Los Angeles Regional Water Quality Control Board specified the testing requirements for acceptance of metal shredder waste in the landfills Waste Discharge Requirements.

7. Provide a copy of all permits and other forms of documented authorization issued to your facility by any governmental entity related to metal shredder waste management activities, and a copy of any data your facility may have regarding the toxicity characteristics of metal shredder waste. See attachment 2

8. Are other management requirements followed by your facility for metal shredder waste when accepting, handling, storing and ultimately disposing of or using metal shredder waste as ADC? If so, please describe those requirements. N/A

Please call me with any question at 661-371-9214 or email at steveca@wasteconnections.com

Sincerely

Steve Cassulo
District Manager
Chiquita Canyon Landfill

Cc:
Mr. Christopher Cho
Staff Attorney
Office of Legal Affairs
DTSC
1001 I Street, 23rd Floor
PO Box 806
Sacramento, CA. 95812-0806

Ms. Valetti Lang, Chief
Research and Policy Development Branch
Policy and Program Support Division
Hazardous Waste Program
DTSC
1001 I Street, 11rd Floor
PO Box 806
Sacramento, CA. 95812-0806

Mr. Kevin Sanchez
Senior Environmental Scientist (Specialist)
Research and Policy Development Branch
Policy and Program Support Division
Hazardous Waste Program
DTSC
1001 I Street, 11rd Floor
PO Box 806
Sacramento, CA. 95812-0806

Attachment 1

10.0 COVER AND BENEFICIAL USE

10.1 Cover Materials
27 CCR 21600(b)(6)(A)

Soil cover, consisting of excavated on-site soil and soil delivered to the landfill, is placed and compacted as required by 27 CCR 21600(b)(6), 20680, and 20700. Standards for cover are followed as described in 27 CCR 20705. This requires 6 inches of compacted daily soil cover and 1 foot of compacted intermediate soil cover to be placed on the working face, and the top and sideslopes, respectively, of each advancing lift. Cover materials are graded and compacted to: (1) prevent ponding of surface water over wastes, (2) direct runoff from the active waste area, and (3) minimize potential erosion.

On-site cover soil will be excavated from one of the excavation cells or borrow areas (Drawing B-2, Appendix B).

The Saugus Formation accounts for 80 percent of bedrock exposure and is as much as 1,800 feet thick above the Pico Formation within the site boundaries. It is composed mainly of fine- to medium-grain sandstone with 10 to 50 percent fines. Lenticular discontinuous beds of conglomerate lie within the sandstone. Highly plastic mudstone lenses have also been identified.

The Pico Formation, exposed at the extreme northern portion of the site, consists of cemented sandstone with interbedded conglomerate and siltstone. This formation, which is generally more resistant to weathering than the Saugus Formation, accounts for the steep cliffs to the north. The upper 200 to 300 feet of this formation may also contain soft siltstone and mudstone.

Excavation will take place as described in Section 6.3. Table 5 provides the estimated soil required for daily and intermediate cover.

10.2 Alternative Daily Cover
27 CCR 21600(b)(6)(B), 21600(b)(6)(C)

Waste is delivered to CCL in transfer trucks, collection trucks, and various other vehicles by commercial haulers, contract haulers, and the general public. The landfill is constructed using the area fill method. In general, waste is placed in 10- to 30-foot-thick lifts, and compacted in 2-foot-thick layers with typical working face slopes of 4:1 and maximum working face slopes of about 3:1. The size and shape of the working face varies daily depending on the specific geometry of where on the site the active filling is taking place. During the day, the size of the working face also varies. To control odors and blowing litter, the working face is kept as small as practical by placing ADC during the operating day. For example, in order to safely accommodate the truck traffic during the busiest time of day, the working face is at its largest. During slower periods of the day, daily cover may be placed on the working face to minimize the

size of the active face and to efficiently use the landfill's equipment and operator resources. Over the course of a typical day the total area requiring daily cover is about 60,000 sf (200 feet by 300 feet).

Daily cover is placed at the end of the operating day. However, as described above, daily cover may be placed over portions of the active area at various times during the operating day. At a time when the facility operates 24-hours per day, Monday through Saturday, daily cover is placed and compacted at least once during the 24-hour period and on Saturday at the end of the operating day.

ADC may be utilized consistent with 27 CCR 20690. ADC includes any material pre-approved in 27 CCR 20690: geosynthetic materials, foam, processed green material, ash and cement kiln dust materials, treated auto shredder waste, contaminated sediment, dredge spoils, foundry sands, energy resource exploration and production waste, compost materials, construction and demolition wastes, shredded tires, and spray applied cementitious products. Other materials may be approved as ADC by the EA based on a successful demonstration project consistent with 27 CCR 20690 .

ADC is used consistent with the requirements contained in 27 CCR 20690. Currently, CCL uses treated auto shredder waste as the primary material for ADC. Depending on the daily flow of materials, CCL also uses ground green waste, processed construction and demolition wastes, and energy resource exploration and production wastes as ADC. Should a change in the type of ADC be needed, CCL will notify the EA. If the quantity of ADC materials received exceeds the daily requirements, the excess ADC materials are stockpiled for future use.

10.3 Intermediate Cover
27 CCR 21600(b)(6)(D)

Consistent with 27 CCR 21600(b)(6)(C), 20680, and 20700, a minimum 1 foot of compacted intermediate soil cover is placed on the top and sideslopes of each advancing lift. At all times, intermediate cover is placed and compacted as landfilling progresses to minimize areas exposed to precipitation and to reduce blowing litter. Intermediate soil cover is usually placed and compacted on areas where additional waste disposal cells are not to be constructed for extended periods of time, and therefore must resist erosion for a longer period of time than daily cover. Waste disposal areas not receiving wastes for more than 180 days will also be covered with 1 foot of soil. Soil for intermediate cover is obtained from on-site excavations or soil stockpiles. Clean import soil received at CCL may also be used for intermediate cover. Soil is transported to the area to receive intermediate cover by scrapers. The scrapers will unload the soil while traversing across the area to receive intermediate cover. Compactors or dozers will then spread and compact the soil to a minimum thickness of 1 foot.

In addition, landfill operations include compacting and covering the waste with these soils, thereby significantly reducing the potential escape of odors, emergence of flies, and progress of fires. Combined

LACFCD-owned Sediment Placement Sites (SPSs), but some is also taken to landfills for disposal or beneficial on-site use.

The LACFCD completed a report analyzing soil samples at seven of the most active SPSs, located across the County of Los Angeles. The soil in these SPSs is representative of the sediment removed from the County's dams and debris basins. The analysis indicates that constituents in the soil samples are well below threshold levels for all contaminants specified in Order No. R4-2011-0052. Therefore, this material or similar material from other sediment and debris basins will not be profiled at CCL.

Acceptable wastes are defined in WDR Order No. 98-086 (A. Acceptable Materials) as follows:

> *2... certain nonhazardous solid wastes and inert solid wastes, as described in Section 20220(a) and Section 20230 of Title 27.*
> *3... all putrescible and nonputrescible solid, semi-solid and liquid wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, manure, vegetable or animal solid and semi-solid wastes, and other discarded waste (whether of solid and semi-solid consistency); provided that such wastes do not contain wastes which must be managed as hazardous wastes, or wastes which contain soluble pollutants in concentrations which exceed applicable water quality objectives, or could cause degradation to waters of the State (i.e., designated waste).*

1.4.2 Wastes That Require Profiling

CCL is authorized to accept various types of Special Wastes. Special Wastes are defined in Title 22, CCR as a hazardous waste which meets all of the following criteria and requirements:

> It is a solid, a water-based sludge or a water-based slurry of which the solid constituents are substantially insoluble in water;
> It is a hazardous waste only because it contains a persistent or bioaccumulative substance at a solubilized and extractable concentration exceeding its Soluble Threshold Limit Concentration (STLC), or at a total concentration exceeding its Total Threshold Limit Concentration (TTLC), except that:
> - It shall contain no persistent or bioaccumulative listed substances at a solubilized and extractable concentration in milligrams per kilogram of waste exceeding the TTLC value for the substance; and
> - It shall contain no persistent or bioaccumulative inorganic substance at a concentration equal to or exceeding the TTLC value of the substance.

For purposes of this WAP, Special Wastes are wastes that require analysis and testing (profiling) prior to acceptance due to their component make-up. Special Waste acceptance procedures, documentation, and reporting are discussed in sections 2.0 and 3.0.

Acceptable wastes that require profiling or that can only be accepted through special Orders from

the RWQCB are defined in WDR Order No. 98-086 (A. Acceptable Materials) as follows:

> *4. Treated auto shredder waste may be disposed provided that it is nonhazardous pursuant to Title 22, California Code of Regulations.*
> *5. The landfill will accept waste for disposal as deemed acceptable at this class of facility by the Regional Board through Orders or regulations.*

Examples of materials that fall under the special Order category are Treated Wood Waste (Order No. R4-2006-0007) and Contaminated Soil (Order No. R4-2011-0052).

1.5 Prohibited Wastes

CCL is a Class III waste disposal facility that operates under the requirements of WDRs (Order No. 98-086) and Conditional Use Permit No. 89-081(5). In accordance with the provisions of these two permits, CCL does not accept:

1) Hazardous wastes which are wastes that fall into the hazardous category based on criteria contained in the Title 22, CCR;
2) Designated wastes as defined in Section 13173 of the California Water Code as either:
   a) Hazardous waste that has been granted a variance from hazardous waste management requirements pursuant to §25143 of the Health and Safety Code; or
   b) Non-hazardous waste that consists of, or contains, pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations exceeding applicable water quality objectives or that could reasonably be expected to affect beneficial uses of the waters of the state as contained in the appropriate state water quality control plan.

There are no quantitative values or concentrations associated with the definition of Designated Waste. To address this issue, CCL conducted site-specific modeling to determine the acceptable threshold concentrations for specific chemicals below which the water quality objectives for the site would be met. The methodology is provided in Appendix B and further discussed in Section 2.2.2.

The WDRs Order No. 98-086 (B. Unacceptable Materials) states the following regarding unacceptable materials:

> *1. No hazardous wastes, designated wastes, or special wastes, such as liquids, oils, waxes, tars, soaps, solvents, or readily water-soluble solids, such as salts, borax, lye, caustic, or acids shall be disposed of at this waste management facility.*
> *2. No semi-solid wastes shall be disposed of at this waste management facility, except as noted above. Semi-solid waste means waste containing less than 50 percent solids, as described in Section 20200 of Title 27.*
> *3. No materials which are of a toxic nature, such as insecticides, poisons, or radioactive materials, shall be disposed of at this waste management facility.*

4. No infectious materials or hospital or laboratory wastes, except those authorized for disposal to land by official agencies charged with control of plant, animal, and human disease, shall be disposed of at this waste management facility.
5. No pesticide containers shall be disposed of at this waste management facility, unless they are rendered nonhazardous by triple rinsing. Otherwise, they must be hauled off site to a legal point of disposal.
6. No septic tank or chemical toilet wastes shall be disposed of at this waste management facility.

The Conditional Use Permit No. 89-081(5) (Conditions of Approval Item 9.a) states the following:

Liquid or hazardous waste or radioactive waste/material shall not be accepted. Should such prohibited waste be nevertheless received at the landfill, it shall be handled and disposed of as provided in Condition 26. The term "liquid waste" as used herein includes non-hazardous sludges meeting the requirements contained in Title 23, Chapter 15 of the California Code of Regulations for disposal in a Class III landfill. The landfill shall not accept sludge or sludge components at any time.

1.6 Load-Checking Program

A load-checking program was developed to screen incoming loads for the presence of prohibited wastes. The load-checking program includes signs to notify landfill customers of acceptable and unacceptable materials, visual inspections at the scale house, inspection at the landfill working face, and physical inspections of random loads.

During inspections, observations are made for prohibited wastes. Designated, trained personnel identify the nature of materials received in a load, and whether they are regulated wastes. Visual inspections are performed daily by trained personnel stationed at the scale house and at the working face of the landfill during waste disposal hours to observe for the disposal of prohibited wastes. The load-checking program (Appendix C of the Joint Technical Document [JTD]) also includes requirements for record keeping, personnel training and monitoring, and for notifying the appropriate regulatory agencies if a regulated or hazardous waste is discovered in a waste load.

The load-checking program also includes a prequalification check for Special Wastes that is conducted at the waste source, before transport to the disposal facility. In general, the pre-qualification program is directed at industrial waste streams.

2.0 SPECIAL WASTE ACCEPTANCE PROCEDURES

The following describes the procedures for acceptance of wastes that require prequalification and profiling.

Attachment 2

V. MONITORING OF ONSITE USE OF WATER

A. If water purged from the wells and leachate removed from the site's leachate collection and removal systems were used onsite in accordance with Provision F of this Regional Board's Order No. 98-086, the discharger shall analyze constituents listed in Provision F.6 and Provision F.7 of Order No. 98-086 and submit the data in the semi-annual monitoring report.

VI. MONITORING OF TREATED AUTO SHREDDER WASTE

A. Treated auto shredder waste (TASW) samples from Hugo Neu-Proler Company or future TASW generators shall be sampled and analyzed according to the Waste Extraction Test procedure described in Title 22, California Code of Regulations, Section 66261.126, Appendix II (Metals) and Appendix II-Table 4 (PCBs), for the following constituents:

Constituent	Unit	Analysis
STLC		
Cadmium and/or cadmium compounds	mg/L	Monthly
Chromium and/or chromium compounds	mg/L	Monthly
Copper and/or copper compounds	mg/L	Monthly
Lead and/or lead compounds	mg/L	Monthly
Mercury and/or mercury compounds	mg/L	Monthly
Nickel and/or nickel compounds	mg/L	Monthly
Zinc and/or zinc compounds	mg/L	Monthly
TTLC		
Polychlorinated biphenyls (PCBs)	mg/Kg	Monthly

B. Shredder waste samples from each source shall also be analyzed once per month for volatile organic compounds using EPA Method 8240. A grab sample shall be randomly obtained from the sampler for this analysis and immediately sealed in an appropriate container.

C. Composite samples of the waste stream from each shredder source shall be collected daily according to the following procedure: The waste stream will be cut every half-hour and approximately a one pound sample obtained. At the end of eight hours the sample will be coned, quartered and two samples obtained. The combined samples for one week will be mixed, coned and quartered prior to submission to the laboratory. One weekly composite shall be subjected to the monthly testing. The shredder waste producers may present an alternate procedure for compositing samples for Executive Officer approval.

D. The discharger shall submit copies of all analytical results of TASW deposited with the semi-annual monitoring report.

Ordered By: Dennis A. Dickerson

DENNIS A. DICKERSON
Executive Officer

Date: November 2, 1998

Enviro – Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Date: May 1, 2015

Mr. Todd F. Peterson
SA Recycling Of Anaheim
3200 E. Frontera Street
Anaheim, CA 92806
Tel(714)688-4940 Email:TPeterson@sarecycling.com

Project: **Anaheim HP Weekly 04.13-18.15**
Lab I.D.: **150427-28**

Dear Mr. Peterson:

The **analytical results** for the solid sample, received by our lab on April 27, 2015, are attached. The sample was received intact, accompanying chain of custody.

Enviro-Chem appreciates the opportunity to provide you and your company this and other services. Please do not hesitate to call us if you have any questions.

Sincerely,

Curtis Desilets
Vice President/Program Manager

Andy Wang
Laboratory Manager

Enviro – Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Laboratory Report

CUSTOMER: SA Recycling Of Anaheim
3200 E. Frontera Street, Anaheim, CA 92806
Tel (714) 688-4940 Email:TPeterson@sarecycling.com

PROJECT: Anaheim HP Weekly 04.13-18.15
MATRIX: SOLID
DATE COLLECTED: 04/13-18/15
REPORT TO: MR. TODD F. PETERSON

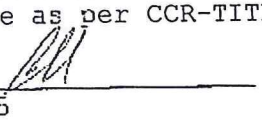
DATE RECEIVED: 04/27/15
DATE EXTRACTED: 04/27/15
DATE ANALYZED: 04/27/15
DATE REPORTED: 05/01/15

SAMPLE I.D.: Anaheim HP Weekly 04.13-18.15 LAB I.D.: 150427-28

PCBs ANALYSIS, EPA 8082
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

PARAMETER	SAMPLE RESULT	PQL	DF
PCB-1016	ND	2.00	1
PCB-1221	ND	2.00	1
PCB-1232	ND	2.00	1
PCB-1242	ND	2.00	1
PCB-1248	ND	2.00	1
PCB-1254	ND	2.00	1
PCB-1260	ND	2.00	1
TOTAL PCBs IN THE SAMPLE*	ND	2.00	1

COMMENTS
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Non-Detected or Below the Actual Detection Limit
* = Sum of the PCB 1016, 1221, 1232, 1242, 1248, 1254 and 1260
*** = The concentration exceeds the TTLC Limit of 50, and the sample is defined as hazardous waste as per CCR-TITLE 22 (if marked)

DATA REVIEWED AND APPROVED BY: 
CAL-DHS ELAP CERTIFICATE No.: 1555

Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Laboratory Report

CUSTOMER: SA Recycling Of Anaheim
3200 E. Frontera Street, Anaheim, CA 92806
Tel(714)688-4940 Email:TPeterson@sarecycling.com

PROJECT: Anaheim HP Weekly 04.13-18.15
MATRIX:SOLID
DATE COLLECTED:04/13-18/15
REPORT TO:MR. TODD F. PETERSON
DATE RECEIVED:04/27/15
DATE ANALYZED:04/28-30/15
DATE REPORTED:05/01/15

SAMPLE I.D.: Anaheim HP Weekly 04.13-18.15 LAB I.D.: 150427-28

SOLUBLE THRESHOLD LIMIT CONCENTRATION (STLC) ANALYSIS
UNIT: mg/L IN THE STLC LEACHATE

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD USED
Cadmium (Cd)	ND	0.05	10	100	1.0	6010B
Chromium Total(Cr)	0.777	0.05	10	2,500	560/5.0@	6010B
Copper (Cu)	13.7	0.1	10	2,500	25	6010B
Lead (Pb)	4.27	0.05	10	1,000	50.0*	6010B
Mercury (Hg)	ND	0.02	1	20	0.2	7470A
Nickel (Ni)	ND	0.25	10	2,000	20	6010B
Zinc (Zn)	28.3	0.05	10	5,000	250	6010B

COMMENTS:
mg/L = Milligram per Liter = PPM
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Below Actual Detection Limit or non-detected
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
@ = Must meet the TCLP limit/chromium (5.0 mg/L in TCLP leachate)
* = The STLC-Lead Limit for SA Recycling is 50 mg/L instead of 5 mg/L
** = TCLP Chromium required (if marked)
*** = The concentration exceeds the STLC Limit, and the sample is defined as hazardous waste as per CAL-TITLE 22 (if marked)

Data Reviewed and Approved by: _____
CAL-DHS ELAP CERTIFICATE No.: 1555

Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Laboratory Report

CUSTOMER: SA Recycling Of Anaheim
3200 E. Frontera Street, Anaheim, CA 92806
Tel(714)688-4940 Email:TPeterson@sarecycling.com

PROJECT: Anaheim HP Weekly 04.13-18.15
MATRIX:SOLID
DATE COLLECTED:04/13-18/15
REPORT TO:MR. TODD F. PETERSON
DATE RECEIVED:04/27/15
DATE ANALYZED:04/27/15
DATE REPORTED:05/01/15

SAMPLE I.D.: Anaheim HP Weekly 04.13-18.15 LAB I.D.: 150427-28

ANALYSIS: VOLATILE ORGANICS, EPA METHOD 5030B/8260B, PAGE 1 OF 2
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

PARAMETER	SAMPLE RESULT	PQL X500
ACETONE	ND	0.020
BENZENE	ND	0.005
BROMOBENZENE	ND	0.005
BROMOCHLOROMETHANE	ND	0.005
BROMODICHLOROMETHANE	ND	0.005
BROMOFORM	ND	0.005
BROMOMETHANE	ND	0.005
2-BUTANONE (MEK)	ND	0.020
N-BUTYLBENZENE	ND	0.005
SEC-BUTYLBENZENE	ND	0.005
TERT-BUTYLBENZENE	ND	0.005
CARBON DISULFIDE	ND	0.010
CARBON TETRACHLORIDE	ND	0.005
CHLOROBENZENE	ND	0.005
CHLOROETHANE	ND	0.005
CHLOROFORM	ND	0.005
CHLOROMETHANE	ND	0.005
2-CHLOROTOLUENE	ND	0.005
4-CHLOROTOLUENE	ND	0.005
DIBROMOCHLOROMETHANE	ND	0.005
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.005
1,2-DIBROMOETHANE	ND	0.005
DIBROMOMETHANE	ND	0.005
1,2-DICHLOROBENZENE	ND	0.005
1,3-DICHLOROBENZENE	ND	0.005
1,4-DICHLOROBENZENE	ND	0.005
DICHLORODIFLUOROMETHANE	ND	0.005
1,1-DICHLOROETHANE	ND	0.005
1,2-DICHLOROETHANE	ND	0.005
1,1-DICHLOROETHENE	ND	0.005
CIS-1,2-DICHLOROETHENE	ND	0.005
TRANS-1,2-DICHLOROETHENE	ND	0.005
1,2-DICHLOROPROPANE	ND	0.005

----- TO BE CONTINUED ON PAGE #2 -----

DATA REVIEWED AND APPROVED BY:

Enviro – Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Laboratory Report

CUSTOMER: SA Recycling Of Anaheim
3200 E. Frontera Street, Anaheim, CA 92806
Tel(714)688-4940 Email:TPeterson@sarecycling.com

PROJECT: Anaheim HP Weekly 04.13-18.15
MATRIX:SOLID — DATE RECEIVED:04/27/15
DATE COLLECTED:04/13-18/15 — DATE ANALYZED:04/27/15
REPORT TO:MR. TODD F. PETERSON — DATE REPORTED:05/01/15

SAMPLE I.D.: Anaheim HP Weekly 04.13-18.15 LAB I.D.: 150427-28

ANALYSIS: VOLATILE ORGANICS, EPA METHOD 5030B/8260B, PAGE 2 OF 2
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

PARAMETER	SAMPLE RESULT	PQL X500
1,3-DICHLOROPROPANE	ND	0.005
2,2-DICHLOROPROPANE	ND	0.005
1,1-DICHLOROPROPENE	ND	0.005
CIS-1,3-DICHLOROPROPENE	ND	0.005
TRANS-1,3-DICHLOROPROPENE	ND	0.005
ETHYLBENZENE	ND	0.005
2-HEXANONE	ND	0.020
HEXACHLOROBUTADIENE	ND	0.005
ISOPROPYLBENZENE	ND	0.005
4-ISOPROPYLTOLUENE	ND	0.005
4-METHYL-2-PENTANONE (MIBK)	ND	0.020
METHYL tert-BUTYL ETHER (MTBE)	ND	0.005
METHYLENE CHLORIDE	ND	0.010
NAPHTHALENE	ND	0.005
N-PROPYLBENZENE	ND	0.005
STYRENE	ND	0.005
1,1,1,2-TETRACHLOROETHANE	ND	0.005
1,1,2,2-TETRACHLOROETHANE	ND	0.005
TETRACHLOROETHENE (PCE)	ND	0.005
TOLUENE	ND	0.005
1,2,3-TRICHLOROBENZENE	ND	0.005
1,2,4-TRICHLOROBENZENE	ND	0.005
1,1,1-TRICHLOROETHANE	ND	0.005
1,1,2-TRICHLOROETHANE	ND	0.005
TRICHLOROETHENE (TCE)	ND	0.005
TRICHLOROFLUOROMETHANE	9.28	0.005
1,2,3-TRICHLOROPROPANE	ND	0.005
1,2,4-TRIMETHYLBENZENE	ND	0.005
1,3,5-TRIMETHYLBENZENE	ND	0.005
VINYL CHLORIDE	ND	0.005
M/P-XYLENE	ND	0.010
O-XYLENE	ND	0.005

COMMENTS PQL = PRACTICAL QUANTITATION LIMIT
ND = NON-DETECTED OR BELOW THE PQL
DATA REVIEWED AND APPROVED BY:
CAL-DHS CERTIFICATE # 1555

Enviro-Chem, Inc. Laboratories
1214 E. Lexington Avenue,
Pomona, CA 91766
Tel: (909) 590-5905 Fax: (909) 590-5907
CA-DHS ELAP CERTIFICATE #1555

Turnaround Time
0 Same Day
0 24 Hours
0 48 Hours
0 72 Hours
0 1 Week (Standard)
Other:

Misc./PO#
PO# 4057409

SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	No. OF CONTAINERS	TEMPERATURE	PRESERVATION	Analysis Required	COMMENTS
Aerojet WP weekly 04.13-18.15	150427-28	04-13-15		Soil	1	Dry		x x x	

Company Name: SA, Aerojet
Address:
City/State/Zip:
Project Contact: T.F. Peck & Sons
Tel: 714.764.2241
Fax/Email: tpeck@sanalytical.com
Sampler's Signature:
Project Name/ID: Aerojet WP weekly 04.13-18.15

Relinquished by:
Relinquished by:
Relinquished by:

Received by:
Received by:
Received by:

Date & Time: 4/27/15 1500
Date & Time:
Date & Time:

Instructions for Sample Storage After Analysis:
O Dispose of O Return to Client X Store (30 Days)
O Other:

CHAIN OF CUSTODY RECORD

WHITE WITH SAMPLE • YELLOW TO CLIENT

Date: 4/27/15

Page 1 of 1

No. 5117 P. 1
Apr. 27. 2015 1:11PM

R 005299

Enviro-Chem, Inc. Laboratories
1214 E. Lexington Avenue,
Pomona, CA 91766
Tel: (909) 590-5905 Fax: (909) 590-5907
CA-DHS ELAP CERTIFICATE #1555

Turnaround Time
0 Same Day
0 24 Hours
0 48 Hours
0 72 Hours
X 1 Week (Standard)
Other:

SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	No. OF CONTAINERS	TEMPERATURE	PRESERVATION	PCBs	VOCs	5 Title 22 Metals								Misc./PO#	COMMENTS
								Analysis Required											
Anaheim HP	15027-2814	4/13	18:15	Solid	1		None	x	x	x								PO# 4067409	
weekly 04.13-18.15					bag														

Company Name: SA; Anaheim
Address:
City/State/Zip:
Project Contact: T.T. Peterson
Tel: 714.764.2241
Fax/Email: tpeterson@sawaterlaw.com
Sampler's Signature:
Project Name/ID: Anaheim HP weekly 04.13-18.15

Relinquished by:	Received by:	Date & Time: 4/27/15 1210
Relinquished by:	Received by:	Date & Time:
Relinquished by:	Received by:	Date & Time:

Instructions for Sample Storage After Analysis:
O Dispose of O Return to Client X Store (30 Days)
O Other:

R 005300

CHAIN OF CUSTODY RECORD

Date: 4/27/15

WHITE WITH SAMPLE • YELLOW TO CLIENT

Enviro – Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Date: May 28, 2015

Mr. Todd F. Peterson
SA Recycling Of Anaheim
3200 E. Frontera Street
Anaheim, CA 92806
Tel(714)688-4940
E-mail: TPeterson@sarecycling.com

Project: **Anaheim HP Weekly 05.04-09.15**
Lab I.D.: **150522-16**

Dear Mr. Peterson:

The **Analysis results** for the solid sample, received by our lab on May 22, 2015, are attached. The sample was received intact, accompanying chain of custody.

Enviro-Chem appreciates the opportunity to provide you and your company this and other services. Please do not hesitate to call us if you have any questions.

Sincerely,

Curtis Desilets
Vice President/Program Manager

for Andy Wang
Laboratory Manager

Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Laboratory Report

CUSTOMER: SA Recycling Of Anaheim
3200 E. Frontera Street,
Anaheim, CA 92806
Tel(714)688-4940 E-mail: TPeterson@sarecycling.com

PROJECT: Anaheim HP Weekly 05.04-09.15

MATRIX: SOLID
DATE COLLECTED: 05/04-09/15
REPORT TO: MR. TODD F. PETERSON

DATE RECEIVED: 05/22/15
DATE EXTRACTED: 05/26/15
DATE ANALYZED: 05/26/15
DATE REPORTED: 05/28/15

SAMPLE I.D.: Anaheim HP Weekly 05.04-09.15
LAB I.D.: 150522-16

PCBs ANALYSIS, EPA 8082
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

PARAMETER	SAMPLE RESULT	PQL	DF
PCB-1016	ND	2.00	1
PCB-1221	ND	2.00	1
PCB-1232	ND	2.00	1
PCB-1242	8.16	2.00	1
PCB-1248	ND	2.00	1
PCB-1254	ND	2.00	1
PCB-1260	ND	2.00	1
TOTAL PCBs IN THE SAMPLE*	8.16	2.00	1

COMMENTS
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Non-Detected or Below the Actual Detection Limit
* = Sum of the PCB 1016, 1221, 1232, 1242, 1248, 1254 and 1260
*** = The concentration exceeds the TTLC Limit of 50, and the sample is defined as hazardous waste as per CCR-TITLE 22 (if marked)

DATA REVIEWED AND APPROVED BY:
CAL-DHS ELAP CERTIFICATE No.: 1555

Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Laboratory Report

CUSTOMER: SA Recycling Of Anaheim
3200 E. Frontera Street
Anaheim, CA 92806
Tel(714)688-4940 E-mail: TPeterson@sarecycling.com

PROJECT: Anaheim HP Weekly 05.04-09.15
MATRIX: SOLID
DATE COLLECTED: 05/04-09/15
REPORT TO: MR. TODD F. PETERSON

DATE RECEIVED: 05/22/15
DATE ANALYZED: 05/22/15
DATE REPORTED: 05/28/15

SAMPLE I.D.: Anaheim HP Weekly 05.04-09.15
LAB I.D.: 150522-16

ANALYSIS: VOLATILE ORGANICS, EPA METHOD 5030B/8260B, PAGE 1 OF 2
UNIT: MG/KG = MILLIGRAM PER KILOGRAM = PPM

PARAMETER	SAMPLE RESULT	PQL X250
ACETONE	ND	0.020
BENZENE	ND	0.005
BROMOBENZENE	ND	0.005
BROMOCHLOROMETHANE	ND	0.005
BROMODICHLOROMETHANE	ND	0.005
BROMOFORM	ND	0.005
BROMOMETHANE	ND	0.005
2-BUTANONE (MEK)	ND	0.020
N-BUTYLBENZENE	ND	0.005
SEC-BUTYLBENZENE	ND	0.005
TERT-BUTYLBENZENE	ND	0.005
CARBON DISULFIDE	ND	0.010
CARBON TETRACHLORIDE	ND	0.005
CHLOROBENZENE	ND	0.005
CHLOROETHANE	ND	0.005
CHLOROFORM	ND	0.005
CHLOROMETHANE	ND	0.005
2-CHLOROTOLUENE	ND	0.005
4-CHLOROTOLUENE	ND	0.005
DIBROMOCHLOROMETHANE	ND	0.005
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.005
1,2-DIBROMOETHANE	ND	0.005
DIBROMOMETHANE	ND	0.005
1,2-DICHLOROBENZENE	ND	0.005
1,3-DICHLOROBENZENE	ND	0.005
1,4-DICHLOROBENZENE	ND	0.005
DICHLORODIFLUOROMETHANE	ND	0.005
1,1-DICHLOROETHANE	ND	0.005
1,2-DICHLOROETHANE	ND	0.005
1,1-DICHLOROETHENE	ND	0.005
CIS-1,2-DICHLOROETHENE	ND	0.005
TRANS-1,2-DICHLOROETHENE	ND	0.005
1,2-DICHLOROPROPANE	ND	0.005

----- TO BE CONTINUED ON PAGE #2 -----

DATA REVIEWED AND APPROVED BY: _____

Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Laboratory Report

CUSTOMER: SA Recycling Of Anaheim
3200 E. Frontera Street
Anaheim, CA 92806
Tel(714)688-4940 E-mail: TPeterson@sarecycling.com

PROJECT: Anaheim HP Weekly 05.04-09.15
MATRIX: SOLID
DATE COLLECTED: 05/04-09/15
REPORT TO: MR. TODD F. PETERSON

DATE RECEIVED: 05/22/15
DATE ANALYZED: 05/22/15
DATE REPORTED: 05/28/15

SAMPLE I.D.: Anaheim HP Weekly 05.04-09.15
LAB I.D.: 150522-16

ANALYSIS: VOLATILE ORGANICS, EPA METHOD 5030B/8260B, PAGE 2 OF 2
UNIT: MG/KG = MILLIGRAM PER KILOGRAM = PPM

PARAMETER	SAMPLE RESULT	PQL X250
1,3-DICHLOROPROPANE	ND	0.005
2,2-DICHLOROPROPANE	ND	0.005
1,1-DICHLOROPROPENE	ND	0.005
CIS-1,3-DICHLOROPROPENE	ND	0.005
TRANS-1,3-DICHLOROPROPENE	ND	0.005
ETHYLBENZENE	ND	0.005
2-HEXANONE	ND	0.020
HEXACHLOROBUTADIENE	ND	0.005
ISOPROPYLBENZENE	ND	0.005
4-ISOPROPYLTOLUENE	ND	0.005
4-METHYL-2-PENTANONE (MIBK)	ND	0.020
METHYL tert-BUTYL ETHER (MTBE)	ND	0.005
METHYLENE CHLORIDE	ND	0.010
NAPHTHALENE	ND	0.005
N-PROPYLBENZENE	ND	0.005
STYRENE	ND	0.005
1,1,1,2-TETRACHLOROETHANE	ND	0.005
1,1,2,2-TETRACHLOROETHANE	ND	0.005
TETRACHLOROETHENE (PCE)	ND	0.005
TOLUENE	ND	0.005
1,2,3-TRICHLOROBENZENE	ND	0.005
1,2,4-TRICHLOROBENZENE	ND	0.005
1,1,1-TRICHLOROETHANE	ND	0.005
1,1,2-TRICHLOROETHANE	ND	0.005
TRICHLOROETHENE (TCE)	ND	0.005
TRICHLOROFLUOROMETHANE	24.1	0.005
1,2,3-TRICHLOROPROPANE	ND	0.005
1,2,4-TRIMETHYLBENZENE	ND	0.005
1,3,5-TRIMETHYLBENZENE	ND	0.005
VINYL CHLORIDE	ND	0.005
M/P-XYLENE	ND	0.010
O-XYLENE	ND	0.005

COMMENTS PQL = PRACTICAL QUANTITATION LIMIT
ND = NON-DETECTED OR BELOW THE PQL
DATA REVIEWED AND APPROVED BY:
CAL-DHS CERTIFICATE # 1555

Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Laboratory Report

CUSTOMER: SA Recycling Of Anaheim
3200 E. Frontera Street
Anaheim, CA 92806
Tel(714)688-4940 E-mail: TPeterson@sarecycling.com

PROJECT: Anaheim HP Weekly 05.04-09.15
MATRIX: SOLID
DATE COLLECTED: 05/04-09/15
REPORT TO: MR. TODD F. PETERSON

DATE RECEIVED: 05/22/15
DATE ANALYZED: 05/24-26/15
DATE REPORTED: 05/28/15

SAMPLE I.D.: Anaheim HP Weekly 05.04-09.15
LAB I.D.: 150522-16

SOLUBLE THRESHOLD LIMIT CONCENTRATION (STLC) ANALYSIS
UNIT: mg/L IN THE STLC LEACHATE

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD USED
Cadmium (Cd)	ND	0.05	10	100	1.0	6010B
Chromium Total(Cr)	0.697	0.05	10	2,500	560/5.0@	6010B
Copper (Cu)	11.7	0.1	10	2,500	25	6010B
Lead (Pb)	5.39	0.05	10	1,000	50.0*	6010B
Mercury (Hg)	ND	0.02	1	20	0.2	7470A
Nickel (Ni)	ND	0.25	10	2,000	20	6010B
Zinc (Zn)	47.2	0.05	10	5,000	250	6010B

COMMENTS:
MG/L = Milligram per Liter = PPM
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Below Actual Detection Limit or non-detected
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
@ = Must meet the TCLP limit/chromium (5.0 mg/L in TCLP leachate)
* = The STLC-Lead Limit for SA Recycling is 50 mg/L instead of 5 mg/L
** = TCLP Chromium required (if marked)
*** = The concentration exceeds the STLC Limit, and the sample is defined as hazardous waste as per CAL-TITLE 22 (if marked)

Data Reviewed and Approved by: _____
CAL-DHS ELAP CERTIFICATE No.: 1555

Enviro-Chem, Inc. Laboratories
1214 E. Lexington Avenue,
Pomona, CA 91766
Tel: (909) 590-5905 Fax: (909) 590-5907
CA-DHS ELAP CERTIFICATE #1555

Turnaround Time
0 Same Day
0 24 Hours
0 48 Hours
☒ 72 Hours
0 1 Week (Standard)
Other:

RUSH

Misc./PO#
PO # 4057409

SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	No. OF CONTAINERS	TEMPERATURE	PRESERVATION	Analysis Required									COMMENTS
Anaheim WP weekly 05-04-09	15	15052216	05-04-15	Solid	1			x	x	x							
					1 x bag												

Company Name: SA. Anaheim
Address:
City/State/Zip:
Project Contact: T-F. Peterson
Tel: 714.764.2241
Fax/Email: tpeterson@jaycycling.com
Sampler's Signature:
Project Name/ID: Anaheim WP weekly 05-04-09-15

Relinquished by:	Received by:	Date & Time: 5/22/15 1113	Instructions for Sample Storage After Analysis:
Relinquished by:	Received by:	Date & Time:	O Dispose of O Return to Client O Store (30 Days)
Relinquished by:	Received by:	Date & Time:	O Other:

R 005306

CHAIN OF CUSTODY RECORD

Date: _____

WHITE WITH SAMPLE • YELLOW TO CLIENT

Page _____ of _____

Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Date: April 23, 2015

Mr. Todd F. Peterson
SA Recycling Of Los Angeles
901 New Dock Street
San Pedro, CA 90731
Tel(714)688-4940 Email:TPeterson@sarecycling.com

Project: **TI HP Weekly 04.05-11.15**
Lab I.D.: **150421-20**

Dear Mr. Peterson:

The **analytical results** for the solid sample, received by our lab on April 21, 2015, are attached. The sample was received intact, accompanying chain of custody.

Enviro-Chem appreciates the opportunity to provide you and your company this and other services. Please do not hesitate to call us if you have any questions.

Sincerely,

Curtis Desilets
Vice President/Program Manager

Andy Wang
Laboratory Manager

Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Laboratory Report

CUSTOMER: SA Recycling Of Los Angeles
901 New Dock Street, San Pedro, CA 90731
Tel(714)688-4940 Email:TPeterson@sarecycling.com

PROJECT: TI HP Weekly 04.05-11.15
MATRIX:SOLID
DATE COLLECTED:04/05-11/15
REPORT TO:MR. TODD F. PETERSON

DATE RECEIVED:04/21/15
DATE EXTRACTED:04/21/15
DATE ANALYZED:04/21/15
DATE REPORTED:04/23/15

SAMPLE I.D.: TI HP Weekly 04.05-11.15 LAB I.D.: 150421-20

PCBs ANALYSIS, EPA 8082
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

PARAMETER	SAMPLE RESULT	PQL	DF
PCB-1016	ND	2.00	1
PCB-1221	ND	2.00	1
PCB-1232	ND	2.00	1
PCB-1242	4.92	2.00	1
PCB-1248	ND	2.00	1
PCB-1254	ND	2.00	1
PCB-1260	ND	2.00	1
TOTAL PCBs IN THE SAMPLE*	4.92	2.00	1

COMMENTS
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Non-Detected or Below the PQL
* = Sum of the PCB 1016, 1221, 1232, 1242, 1248, 1254 and 1260
*** = The concentration exceeds the TTLC Limit of 50, and the sample is defined as hazardous waste as per CCR-TITLE 22 (if marked)

DATA REVIEWED AND APPROVED BY: _____
CAL-DHS ELAP CERTIFICATE No.: 1555

Enviro – Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Laboratory Report

CUSTOMER: SA Recycling Of Los Angeles
901 New Dock Street, San Pedro, CA 90731
Tel(714)688-4940 Email:TPeterson@sarecycling.com

PROJECT: TI HP Weekly 04.05-11.15
MATRIX:SOLID
DATE COLLECTED:04/05-11/15
REPORT TO:MR. TODD F. PETERSON
DATE RECEIVED:04/21/15
DATE ANALYZED:04/21-23/15
DATE REPORTED:04/23/15

SAMPLE I.D.: TI HP Weekly 04.05-11.15 LAB I.D.: 150421-20

SOLUBLE THRESHOLD LIMIT CONCENTRATION (STLC) ANALYSIS
UNIT: mg/L IN THE STLC LEACHATE

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD USED
Cadmium (Cd)	ND	0.05	10	100	1.0	6010B
Chromium Total(Cr)	1.52	0.05	10	2,500	560/5.0@	6010B
Copper (Cu)	12.8	0.1	10	2,500	25	6010B
Lead (Pb)	2.09	0.05	10	1,000	50.0*	6010B
Mercury (Hg)	ND	0.01	1	20	0.2	7470A
Nickel (Ni)	ND	0.25	10	2,000	20	6010B
Zinc (Zn)	19.3	0.05	10	5,000	250	6010B

COMMENTS:
mg/L = Milligram per Liter = PPM
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Below Actual Detection Limit or non-detected
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
@ = Must meet the TCLP limit/chromium (5.0 Mg/L in TCLP leachate)
* = The STLC-Lead Limit for SA Recycling is 50 Mg/L instead of 5 Mg/L
** = TCLP Chromium required (if marked)
*** = The concentration exceeds the STLC Limit, and the sample is defined as hazardous waste as per CAL-TITLE 22 (if marked)

Data Reviewed and Approved by: _____
CAL-DHS ELAP CERTIFICATE No.: 1555

Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Laboratory Report

CUSTOMER: SA Recycling Of Los Angeles
901 New Dock Street, San Pedro, CA 90731
Tel(714)688-4940 Email:TPeterson@sarecycling.com

PROJECT: TI HP Weekly 04.05-11.15
MATRIX:SOLID
DATE COLLECTED:04/05-11/15
REPORT TO:MR. TODD F. PETERSON
DATE RECEIVED:04/21/15
DATE ANALYZED:04/21/15
DATE REPORTED:04/23/15

SAMPLE I.D.: TI HP Weekly 04.05-11.15 LAB I.D.: 150421-20

ANALYSIS: VOLATILE ORGANICS, EPA METHOD 5030B/8260B, PAGE 1 OF 2
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

PARAMETER	SAMPLE RESULT	PQL X1000
ACETONE	ND	0.020
BENZENE	ND	0.005
BROMOBENZENE	ND	0.005
BROMOCHLOROMETHANE	ND	0.005
BROMODICHLOROMETHANE	ND	0.005
BROMOFORM	ND	0.005
BROMOMETHANE	ND	0.005
2-BUTANONE (MEK)	ND	0.020
N-BUTYLBENZENE	ND	0.005
SEC-BUTYLBENZENE	ND	0.005
TERT-BUTYLBENZENE	ND	0.005
CARBON DISULFIDE	ND	0.010
CARBON TETRACHLORIDE	ND	0.005
CHLOROBENZENE	ND	0.005
CHLOROETHANE	ND	0.005
CHLOROFORM	ND	0.005
CHLOROMETHANE	ND	0.005
2-CHLOROTOLUENE	ND	0.005
4-CHLOROTOLUENE	ND	0.005
DIBROMOCHLOROMETHANE	ND	0.005
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.005
1,2-DIBROMOETHANE	ND	0.005
DIBROMOMETHANE	ND	0.005
1,2-DICHLOROBENZENE	ND	0.005
1,3-DICHLOROBENZENE	ND	0.005
1,4-DICHLOROBENZENE	ND	0.005
DICHLORODIFLUOROMETHANE	ND	0.005
1,1-DICHLOROETHANE	ND	0.005
1,2-DICHLOROETHANE	ND	0.005
1,1-DICHLOROETHENE	ND	0.005
CIS-1,2-DICHLOROETHENE	ND	0.005
TRANS-1,2-DICHLOROETHENE	ND	0.005
1,2-DICHLOROPROPANE	ND	0.005

----- TO BE CONTINUED ON PAGE #2 -----

DATA REVIEWED AND APPROVED BY:

Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Laboratory Report

CUSTOMER: SA Recycling Of Los Angeles
901 New Dock Street, San Pedro, CA 90731
Tel(714)688-4940 Email:TPeterson@sarecycling.com

PROJECT: TI HP Weekly 04.05-11.15
MATRIX:SOLID
DATE COLLECTED:04/05-11/15
REPORT TO:MR. TODD F. PETERSON
DATE RECEIVED:04/21/15
DATE ANALYZED:04/21/15
DATE REPORTED:04/23/15

SAMPLE I.D.: TI HP Weekly 04.05-11.15 LAB I.D.: 150421-20

ANALYSIS: VOLATILE ORGANICS, EPA METHOD 5030B/8260B, PAGE 2 OF 2
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

PARAMETER	SAMPLE RESULT	PQL X1000
1,3-DICHLOROPROPANE	ND	0.005
2,2-DICHLOROPROPANE	ND	0.005
1,1-DICHLOROPROPENE	ND	0.005
CIS-1,3-DICHLOROPROPENE	ND	0.005
TRANS-1,3-DICHLOROPROPENE	ND	0.005
ETHYLBENZENE	ND	0.005
2-HEXANONE	ND	0.020
HEXACHLOROBUTADIENE	ND	0.005
ISOPROPYLBENZENE	ND	0.005
4-ISOPROPYLTOLUENE	ND	0.005
4-METHYL-2-PENTANONE (MIBK)	ND	0.020
METHYL tert-BUTYL ETHER (MTBE)	ND	0.005
METHYLENE CHLORIDE	ND	0.010
NAPHTHALENE	ND	0.005
N-PROPYLBENZENE	ND	0.005
STYRENE	ND	0.005
1,1,1,2-TETRACHLOROETHANE	ND	0.005
1,1,2,2-TETRACHLOROETHANE	ND	0.005
TETRACHLOROETHENE (PCE)	ND	0.005
TOLUENE	ND	0.005
1,2,3-TRICHLOROBENZENE	ND	0.005
1,2,4-TRICHLOROBENZENE	ND	0.005
1,1,1-TRICHLOROETHANE	ND	0.005
1,1,2-TRICHLOROETHANE	ND	0.005
TRICHLOROETHENE (TCE)	ND	0.005
TRICHLOROFLUOROMETHANE	180	0.005
1,2,3-TRICHLOROPROPANE	ND	0.005
1,2,4-TRIMETHYLBENZENE	ND	0.005
1,3,5-TRIMETHYLBENZENE	ND	0.005
VINYL CHLORIDE	ND	0.005
M/P-XYLENE	ND	0.010
O-XYLENE	ND	0.005

COMMENTS PQL = PRACTICAL QUANTITATION LIMIT
ND = NON-DETECTED OR BELOW THE PQL
DATA REVIEWED AND APPROVED BY:
CAL-DHS CERTIFICATE # 1555

Enviro-Chem, Inc. Laboratories
1214 E. Lexington Avenue,
Pomona, CA 91766
Tel: (909) 590-5905 Fax: (909) 590-5907
CA-DHS ELAP CERTIFICATE #1555

Turnaround Time
O Same Day
O 24 Hours
~~X~~ 48 Hours
O 72 Hours
O 1 Week (Standard)
Other: THURSDAY

Misc./PO#
PO# 4053199

SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	No. OF CONTAINERS	TEMPERATURE	PRESERVATION	Analysis Required									COMMENTS
TI HP weekly 04.05-11.15	1504[illegible]-20	04.05-11.15		SOLID	1 jar			X	X	X							

Analysis Required: PAHs; VOCs; STLC: Cd, Cr, Co, Ni, Pb, Zn, V

Company Name: SA.TI	Project Contact: T.F. Peterson	Sampler's Signature:	
Address:	Tel: 714.764.2241	Project Name/ID: TI HP weekly 04.05-11.15	
City/State/Zip:	Fax/Email: tpeterson@sarecycling.com		

Relinquished by:	Received by:	Date & Time: 9/21/11 @ 1500	Instructions for Sample Storage After Analysis:
Relinquished by:	Received by:	Date & Time:	O Dispose of O Return to Client X Store (30 Days)
Relinquished by:	Received by:	Date & Time:	O Other:

CHAIN OF CUSTODY RECORD

Date: 9/21/11

WHITE WITH SAMPLE • YELLOW TO CLIENT

R-005312

Enviro – Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Date: June 5, 2015

Mr. Todd F. Peterson
SA Recycling Of Los Angeles
901 New Dock Street
San Pedro, CA 90731
Tel(714)688-4940
E-mail: TPeterson@sarecycling.com

Project: **TI HP Weekly 05.17-23.15**
Lab I.D.: **150602-22**

Dear Mr. Peterson:

The **Analysis results** for the solid sample, received by our lab on June 2, 2015 are attached. The sample was received intact, accompanying chain of custody.

Enviro-Chem appreciates the opportunity to provide you and your company this and other services. Please do not hesitate to call us if you have any questions.

Sincerely,

Curtis Desilets
Vice President/Program Manager

Andy Wang
Laboratory Manager

Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Laboratory Report

CUSTOMER: SA Recycling Of Los Angeles
901 New Dock Street, San Pedro, CA 90731
Tel(714)688-4940
E-mail: TPeterson@sarecycling.com
PROJECT: TI HP Weekly 05.17-23.15

MATRIX:SOLID
DATE COLLECTED:05/17-23/15
REPORT TO:MR. TODD F. PETERSON

DATE RECEIVED:06/02/15
DATE EXTRACTED:06/03/15
DATE ANALYZED:06/03/15
DATE REPORTED:06/05/15

SAMPLE I.D.: TI HP Weekly 05.17-23.15 LAB I.D.: 150602-22

PCBs ANALYSIS, EPA 8082
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

PARAMETER	SAMPLE RESULT	PQL	DF
PCB-1016	ND	2.00	1
PCB-1221	ND	2.00	1
PCB-1232	ND	2.00	1
PCB-1242	11.6	2.00	1
PCB-1248	ND	2.00	1
PCB-1254	ND	2.00	1
PCB-1260	ND	2.00	1
TOTAL PCBs IN THE SAMPLE*	11.6	2.00	1

COMMENTS
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Non-Detected or Below the PQL
* = Sum of the PCB 1016, 1221, 1232, 1242, 1248, 1254 and 1260
*** = The concentration exceeds the TTLC Limit of 50, and the sample is defined as hazardous waste as per CCR-TITLE 22 (if marked)

DATA REVIEWED AND APPROVED BY: _____
CAL-DHS ELAP CERTIFICATE No.: 1555

Enviro – Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Laboratory Report

CUSTOMER: SA Recycling Of Los Angeles
901 New Dock Street, San Pedro, CA 90731
Tel(714)688-4940
E-mail: TPeterson@sarecycling.com

PROJECT: TI HP Weekly 05.17-23.15
MATRIX:SOLID — DATE RECEIVED:06/02/15
DATE COLLECTED:05/17-23/15 — DATE ANALYZED:06/02-04/15
REPORT TO:MR. TODD F. PETERSON — DATE REPORTED:06/05/15

SAMPLE I.D.: TI HP Weekly 05.17-23.15 LAB I.D.: 150602-22

SOLUBLE THRESHOLD LIMIT CONCENTRATION (STLC) ANALYSIS
UNIT: MG/L IN THE STLC LEACHATE

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD USED
Cadmium (Cd)	ND	0.05	1	100	1.0	6010B
Chromium Total(Cr)	0.992	0.05	1	2,500	560/5.0@	6010B
Copper (Cu)	14.0	0.1	1	2,500	25	6010B
Lead (Pb)	2.62	0.05	1	1,000	50.0*	6010B
Mercury (Hg)	ND	0.02	1	20	0.2	7470A
Nickel (Ni)	ND	0.25	1	2,000	20	6010B
Zinc (Zn)	23.0	0.05	1	5,000	250	6010B

COMMENTS:
MG/L = Milligram per Liter = PPM
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Below Actual Detection Limit or non-detected
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
@ = Must meet the TCLP limit/chromium (5.0 Mg/L in TCLP leachate)
* = The STLC-Lead Limit for SA Recycling is 50 Mg/L instead of 5 Mg/L
** = TCLP Chromium required (if marked)
*** = The concentration exceeds the STLC Limit, and the sample is defined as hazardous waste as per CAL-TITLE 22 (if marked)

Data Reviewed and Approved by: _____
CAL-DHS ELAP CERTIFICATE No.: 1555

Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Laboratory Report

CUSTOMER: SA Recycling Of Los Angeles
901 New Dock Street, San Pedro, CA 90731
Tel (714) 688-4940
E-mail: TPeterson@sarecycling.com

PROJECT: TI HP Weekly 05.17-23.15
MATRIX: SOLID
DATE COLLECTED: 05/17-23/15
REPORT TO: MR. TODD F. PETERSON

DATE RECEIVED: 06/02/15
DATE ANALYZED: 06/02/15
DATE REPORTED: 06/05/15

SAMPLE I.D.: TI HP Weekly 05.17-23.15 LAB I.D.: 150602-22

ANALYSIS: VOLATILE ORGANICS, EPA METHOD 5030B/8260B, PAGE 1 OF 2
UNIT: MG/KG = MILLIGRAM PER KILOGRAM = PPM

PARAMETER	SAMPLE RESULT	PQL X250
ACETONE	ND	0.020
BENZENE	ND	0.005
BROMOBENZENE	ND	0.005
BROMOCHLOROMETHANE	ND	0.005
BROMODICHLOROMETHANE	ND	0.005
BROMOFORM	ND	0.005
BROMOMETHANE	ND	0.005
2-BUTANONE (MEK)	ND	0.020
N-BUTYLBENZENE	ND	0.005
SEC-BUTYLBENZENE	ND	0.005
TERT-BUTYLBENZENE	ND	0.005
CARBON DISULFIDE	ND	0.010
CARBON TETRACHLORIDE	ND	0.005
CHLOROBENZENE	ND	0.005
CHLOROETHANE	ND	0.005
CHLOROFORM	ND	0.005
CHLOROMETHANE	ND	0.005
2-CHLOROTOLUENE	ND	0.005
4-CHLOROTOLUENE	ND	0.005
DIBROMOCHLOROMETHANE	ND	0.005
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.005
1,2-DIBROMOETHANE	ND	0.005
DIBROMOMETHANE	ND	0.005
1,2-DICHLOROBENZENE	ND	0.005
1,3-DICHLOROBENZENE	ND	0.005
1,4-DICHLOROBENZENE	ND	0.005
DICHLORODIFLUOROMETHANE	ND	0.005
1,1-DICHLOROETHANE	ND	0.005
1,2-DICHLOROETHANE	ND	0.005
1,1-DICHLOROETHENE	ND	0.005
CIS-1,2-DICHLOROETHENE	ND	0.005
TRANS-1,2-DICHLOROETHENE	ND	0.005
1,2-DICHLOROPROPANE	ND	0.005

----- TO BE CONTINUED ON PAGE #2 -----

DATA REVIEWED AND APPROVED BY: _____

Enviro – Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Laboratory Report

CUSTOMER: SA Recycling Of Los Angeles
901 New Dock Street, San Pedro, CA 90731
Tel (714) 688-4940
E-mail: TPeterson@sarecycling.com

PROJECT: TI HP Weekly 05.17-23.15
MATRIX: SOLID
DATE COLLECTED: 05/17-23/15
REPORT TO: MR. TODD F. PETERSON
DATE RECEIVED: 06/02/15
DATE ANALYZED: 06/02/15
DATE REPORTED: 06/05/15

SAMPLE I.D.: TI HP Weekly 05.17-23.15 LAB I.D.: 150602-22

ANALYSIS: VOLATILE ORGANICS, EPA METHOD 5030B/8260B, PAGE 2 OF 2
UNIT: MG/KG = MILLIGRAM PER KILOGRAM = PPM

PARAMETER	SAMPLE RESULT	PQL X250
1,3-DICHLOROPROPANE	ND	0.005
2,2-DICHLOROPROPANE	ND	0.005
1,1-DICHLOROPROPENE	ND	0.005
CIS-1,3-DICHLOROPROPENE	ND	0.005
TRANS-1,3-DICHLOROPROPENE	ND	0.005
ETHYLBENZENE	ND	0.005
2-HEXANONE	ND	0.020
HEXACHLOROBUTADIENE	ND	0.005
ISOPROPYLBENZENE	ND	0.005
4-ISOPROPYLTOLUENE	ND	0.005
4-METHYL-2-PENTANONE (MIBK)	ND	0.020
METHYL tert-BUTYL ETHER (MTBE)	ND	0.005
METHYLENE CHLORIDE	ND	0.010
NAPHTHALENE	ND	0.005
N-PROPYLBENZENE	ND	0.005
STYRENE	2.50	0.005
1,1,1,2-TETRACHLOROETHANE	ND	0.005
1,1,2,2-TETRACHLOROETHANE	ND	0.005
TETRACHLOROETHENE (PCE)	ND	0.005
TOLUENE	ND	0.005
1,2,3-TRICHLOROBENZENE	ND	0.005
1,2,4-TRICHLOROBENZENE	ND	0.005
1,1,1-TRICHLOROETHANE	ND	0.005
1,1,2-TRICHLOROETHANE	ND	0.005
TRICHLOROETHENE (TCE)	ND	0.005
TRICHLOROFLUOROMETHANE	24.0	0.005
1,2,3-TRICHLOROPROPANE	ND	0.005
1,2,4-TRIMETHYLBENZENE	ND	0.005
1,3,5-TRIMETHYLBENZENE	ND	0.005
VINYL CHLORIDE	ND	0.005
M/P-XYLENE	ND	0.010
O-XYLENE	ND	0.005

COMMENTS PQL = PRACTICAL QUANTITATION LIMIT
ND = NON-DETECTED OR BELOW THE PQL
DATA REVIEWED AND APPROVED BY:
CAL-DHS CERTIFICATE # 1555

R 005318

Enviro-Chem, Inc. Laboratories
1214 E. Lexington Avenue,
Pomona, CA 91766
Tel: (909) 590-5905 Fax: (909) 590-5907
CA-DHS ELAP CERTIFICATE #1555

Turnaround Time
0 Same Day
0 24 Hours
0 48 Hours
✕ 72 Hours
0 1 Week (Standard)
Other:

RUSH

Misc./PO#
PO# 405199

SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	No. OF CONTAINERS	TEMPERATURE	PRESERVATION	Analysis Required: PCBs	VOCs	STLC Cd, Cr, Pb, Ni, Zn								COMMENTS
TI HP weekly 05.17-23.15	150602-22	05.17-23.15		solid	1 bag			x	x	x								

Company Name: SA, TI
Address:
City/State/Zip:

Project Contact: T.F. Peterson
Tel: 714.964.2241
Fax/Email: tpeterson@sanitycleaning.com

Sampler's Signature:
Project Name/ID: TI HP weekly 05.17-23.15

Relinquished by:
Relinquished by:
Relinquished by:

Received by:
Received by:
Received by:

Date & Time: 6/2/15 1221
Date & Time:
Date & Time:

Instructions for Sample Storage After Analysis:
O Dispose of O Return to Client O Store (30 Days)
O Other:

CHAIN OF CUSTODY RECORD

WHITE WITH SAMPLE · YELLOW TO CLIENT

Date: _____

Page _____ of _____

Dear Mr. Sanchez,

In accordance with the Department of Toxic Substances Control's letter and questionnaire dated 20 May 2015, responses to the questions are as follows:

1. Please provide the policy that applies to the acceptance of metal shredder waste. If no such policy exists, describe any practices and procedures used by your facility to accept such waste.
   Forward is permitted to accept treated auto shredder waste in accordance with requirements set forth in the Solid Waste Facility Permit 39-AA-0015, Waste Discharge Requirements Order No. R5-2014-0006, and Joint Technical Document (April 2014 – Amended June 2014).
2. How much metal shredder waste by weight did your facility accept from January 1, 2014, through January 1, 2015? Please include the name and address of each metal shredding facility that sent the metal shredder waste and how much they sent during the calendar year.
   There was no treated auto shredder waste accepted between 1 January 2014 and 1 January 2015.
3. What percentage of metal shredder waste was used as Alternative Daily Cover (ADC)?
   N/A
4. Please answer the following questions (4.A. – 4.D.) pertaining to metal shredder waste accepted at your facility and used as ADC:
   A. How much metal shredder waste is stored onsite prior to its use as ADC?
   B. How long is it stored?
   C. How is it stored (e.g., on a paved surface)?
   D. Where in the facility is it stored? Please provide a site map of the location.

   N/A
5. Please answer the following questions (5.A. – 5.D.) pertaining to metal shredder waste accepted at your facility but not used as ADC:
   A. How much metal shredder waste is stored onsite prior to its use as ADC?
   B. How long is it stored?
   C. How is it stored (e.g., on a paved surface)?
   D. Where in the facility is it stored? Please provide a site map of the location.

   N/A
6. Do the regional water quality control boards or other regulating authorities impose any requirements on your facility concerning metal shredder waste? If so, what are those requirements? You may exclude any permits or other forms of documented authorizations answered in question 7, below.
   The Regional Water Quality Control Board does not have any requirements other than auto shredder waste must be placed in a Subtitle D cell.
7. Provide a copy of all permits and other forms of documented authorization issued to your facility by any governmental entity related to metal shredder waste management activities, and a copy of any data your facility may have regarding the toxicity characteristics of metal shredder waste.
   See attached Solid Waste Facility Permit 39-AA-0015, Waste Discharge Requirements Order No. R5-2014-0006, and excerpt from Joint Technical Document (April 2014 – Amended June 2014) describing use of treated auto shredder waste as ADC.
8. Are other management requirements followed by your facility for metal shredder waste when accepting, handling, storing and ultimately disposing of or using metal shredder waste as ADC? If so, please describe those requirements.
   N/A

Thank you very much for your time, and please do not hesitate to contact me with any questions.

Kindest regards,

Erin

We'll handle it from here.™

Erin Fanning Environmental Manager

9999 South Austin Road, Manteca, CA 95336
e efanning@republicservices.com
o 209-982-4298
f 209-982-1009
w republicservices.com

QUESTIONNAIRE
SOLID WASTE DISPOSAL FACILITIES MANAGING METAL SHREDDER WASTE
May 20, 2015

1. Please provide the policy that applies to the acceptance of metal shredder waste. If no such policy exists, describe any practices and procedures used by your facility to accept such waste.

(A) Holloway receives treated auto shredder waste (predominately non-metallic solid material including plastic, broken glass, rubber, foam, soil, and fabric). All trucks delivering approved waste streams are weighed loaded and unloaded, at the mine headquarters compound. Each truck load is accompanied with a weigh ticket and material manifest from the generator. All records or copies are available for inspection at the Holloway office, at 2019 Westwind Drive Suite B, Bakersfield, California 93310 with copies being kept at the Landfill headquarters office, adjacent to the Landfill. Tonnage by material type and generator are and will be tabulated each month, at the Landfill headquarters office.

The waste material is spread in rows in designated areas of the disposal pit floor for processing. The waste is then either blended with stockpiled soil overburden in a minimum 1:1 ratio by volume of soil to waste, and spread and compacted into 1-2 foot thick lifts, or is spread in a monolayer lift of 6 inches to 1 foot thick, and then covered with an equivalent thickness of stockpiled soil overburden and compacted, or is spread in monolayer lifts of 1-2 foot thick and covered with an equivalent thickness of stockpiled soil overburden and compacted. All waste stream blending, spreading and initial compaction is accomplished by Michigan 210 self-loaders. Michigan 380B bulldozers are also used for compaction.

Note that prior to the acceptance of Treated Automobile Shredder Waste (TAS) to any approved Pit, representative samples of waste from sources are analyzed by the generator and then by Holloway for Inorganic Persistent, Bioaccumulative Toxic Substances, Polychlorinated Biphenyls (PCBs) and Volatile Organic Compounds (VOCs). Generators that have received a letter from the Department of Toxic Substances Control in accordance with Section 66260.200(f) of Title 22 CCR, can manage TAS as a nonhazardous waste. This characterization of nonhazardous waste is further classified as "designated" waste in accordance with Section 2522(a)(2) of Title 23, CCR.

2. How much metal shredder waste by weight did your facility accept from January 1, 2014, through January 1, 2015? Please include the name and address of each metal shredding facility that sent the metal shredder waste and how much they sent during the calendar year.

(A) 24,396.48 tons delivered from SA Recycling, 2411 North Glassell St. Orange, CA. 92865

3. What percentage of metal shredder waste was used as Alternative Daily Cover (ADC)?

(A) All auto shedder waste delivered was buried in Holloway landfill, zero tonnage delivered was used for daily cover.

The only cover material used that has been and will be used in the Holloway Landfill operation is

on-site native soils that have been stockpiled during the mining operations. At present, Holloway does not intend to use any Alternate Daily Cover (ADC) material.

4. Please answer the following questions (4.A.–4.D.) pertaining to metal shredder waste accepted at your facility and used as ADC:

   A. How much metal shredder waste is stored onsite prior to its use as ADC?

      (A) None

   B. How long is it stored?

      (A) N/A

   C. How is it stored (e.g., on a paved surface)?

      (A) N/A

   D. Where in the facility is it stored? Please provide a site map of the location.

      (A) N/A

5. Please answer the following questions (5.A. – 5.D.) pertaining to metal shredder waste accepted at your facility but not used as ADC:

   A. How much metal shredder waste is stored onsite prior to its use as ADC?

      (A) N/A, see process description question No. 1

   B. How long is it stored?

      (A) N/A see process description question No. 1

   C. How is it stored (e.g., on a paved surface)?

      (A) N/A see process description question No. 1

   D. Where in the facility is it stored? Please provide a site map of the location.

      (A) N/A see process description question No. 1

6. Do the regional water quality control boards or other regulating authorities impose any requirements on your facility concerning metal shredder waste? If so, what are those requirements? You may exclude any permits or other forms of documented authorizations answered in question 7, below.

   (A) Please see permits provides for question No. 7

7. Provide a copy of all permits and other forms of documented authorization issued to your facility by any governmental entity related to metal shredder waste management activities, and a copy of any data your facility may have regarding the toxicity characteristics of metal shredder waste.

   (A) Please see attached permits for the Holloway landfill facility.

8. Are other management requirements followed by your facility for metal shredder waste when accepting, handling, storing and ultimately disposing of or using metal shredder waste as ADC? If so, please describe those requirements. (A) None that I am aware.

F om Ratto, Diana
To Jaschke, Tony (LEA/CTSC)
Cc Ca Rio , Judith; Ratto, Diana; Gal v, Ha ey; Wood, Mel ssa
Subject Questionna e SWD Managing Metal Sh redde Waste (T reated Auto Sh r)
Date Monday, June 01, 2015 3:36:25 PM
Attachments image001.jpg
image002.png

SWPPP Alon ossi Trave s.pdf
ITD ADC Waste Types ... pdf
VR ADC Cal fornia Comm ercial ... 01-AA-0033 dated 4-29-2014.pdf

---

HI Kevin

Per our conversation on Friday May 29 2015 regarding the Metal Shredder Waste which we call (Treated Auto Shredder Waste) TASW.

Vasco Road Landfill Practice and Procedures:

1) Treated auto shredder waste is mixed with Bio-Solid sludge and used for alternative daily cover. Vasco LF has to cover the active face daily per SWFP.

2) /1/14-1/1/2015 total received from only one Customer – Schnitzer Steel 94 969.92 tons

3) 00% is used for daily cover. It is our primary material source of covering out our daily active working face area.

4) A.) We stockpile the TASW near the active face
   B.) Normally within a week the stockpile is depleted
   C.) On soil/concrete deck
   D.) TASW is only stockpiled near the active working face; which moves da ly.

5) A.) TASW not stored on site. (Only used for ADC)\
   B.) NA
   C.) NA
   D.) NA

6) Regional Water Quality Control Board does not have special requirements other than (Auto-shredder waste must be in a Sub-Title D cell)

7) SWFP/ITD Attached

8) None (See attached Permit)

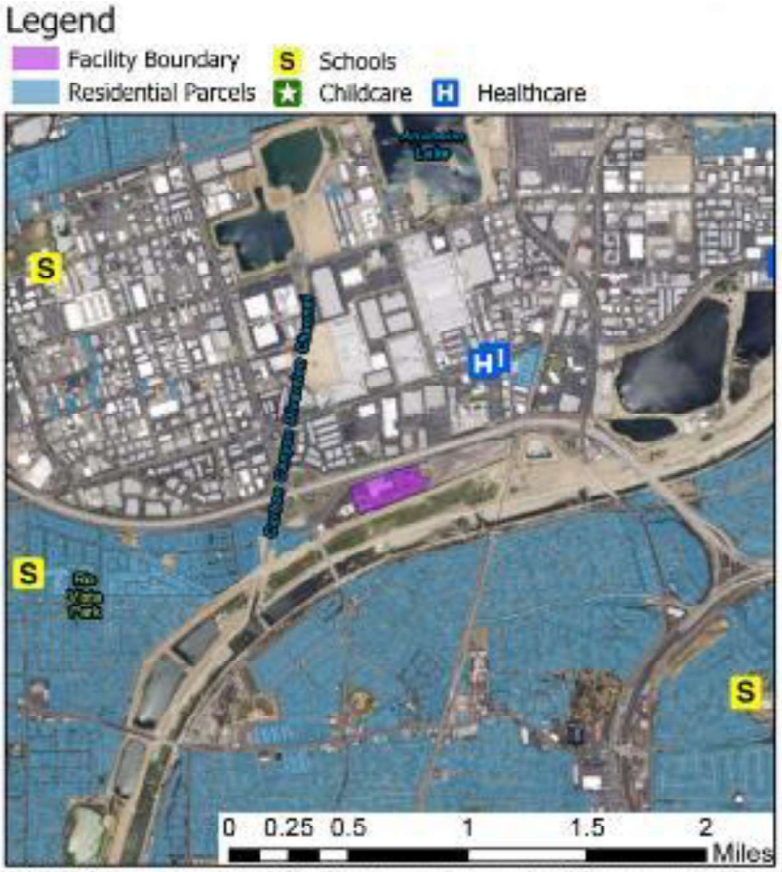
Should you have any further questions please feel free to contact me.

Thank you

Diana Ratto Operations Manager
001 North Vasco Road Livermore CA 9 551
e DRatto@r sou ce Recovery.com
o 925- 53-3620
c 925-360-3991
w Republic Service .com

APPENDIX C: GIS IMAGES OF METAL SHREDDING FACILITIES AND LANDFILLS

SA Anaheim



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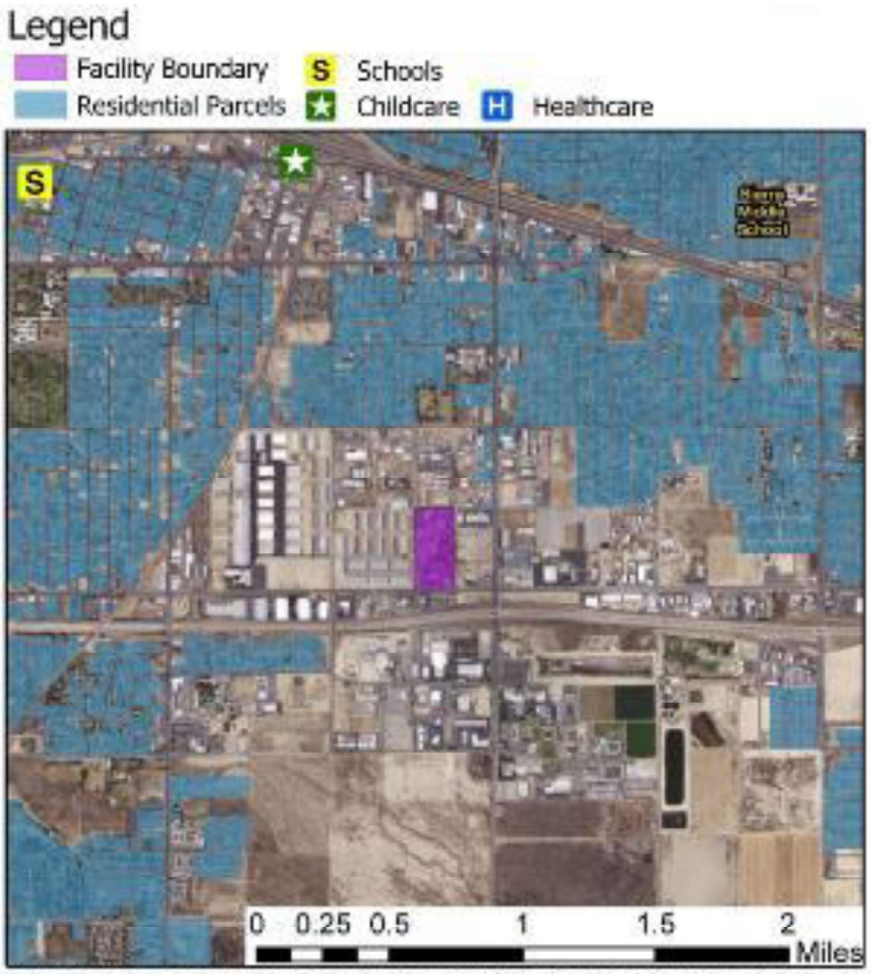
SA Bakersfield



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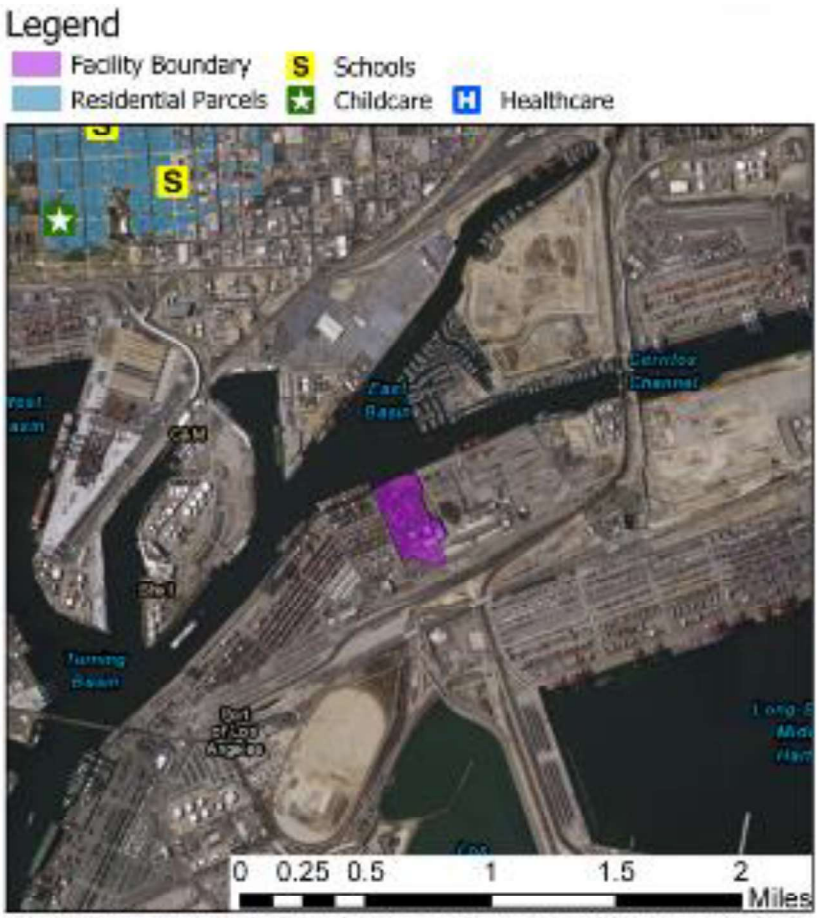
SA Terminal Island



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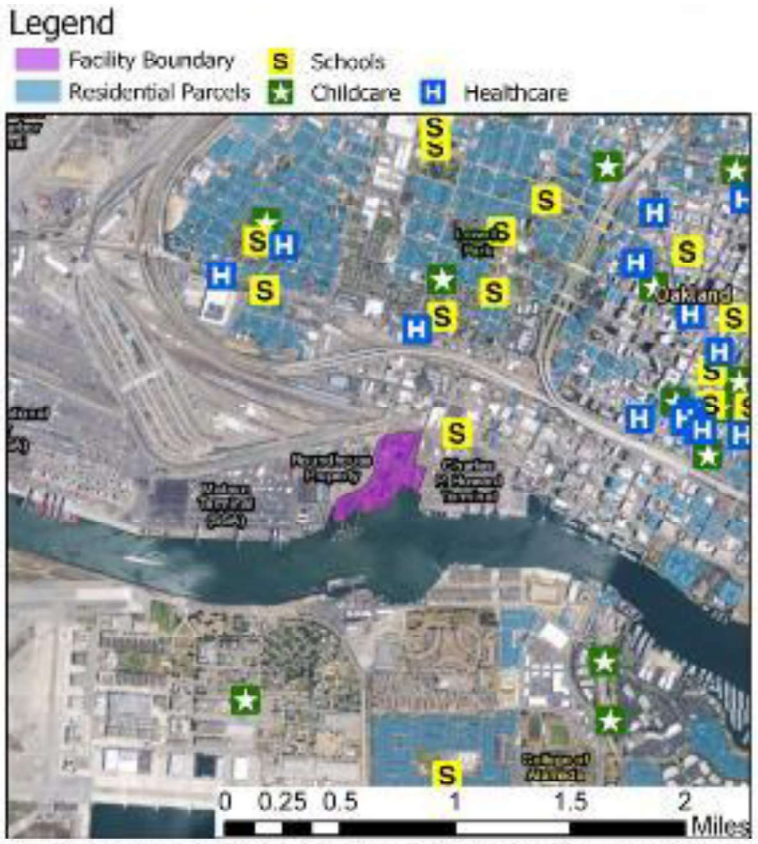
Schnitzer



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Sims

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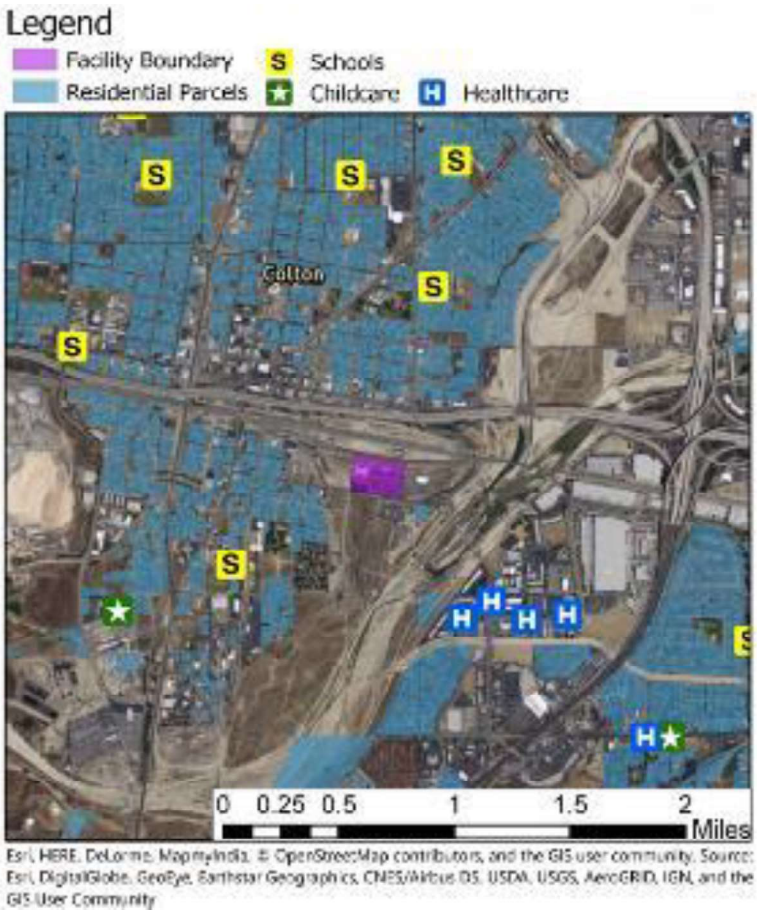
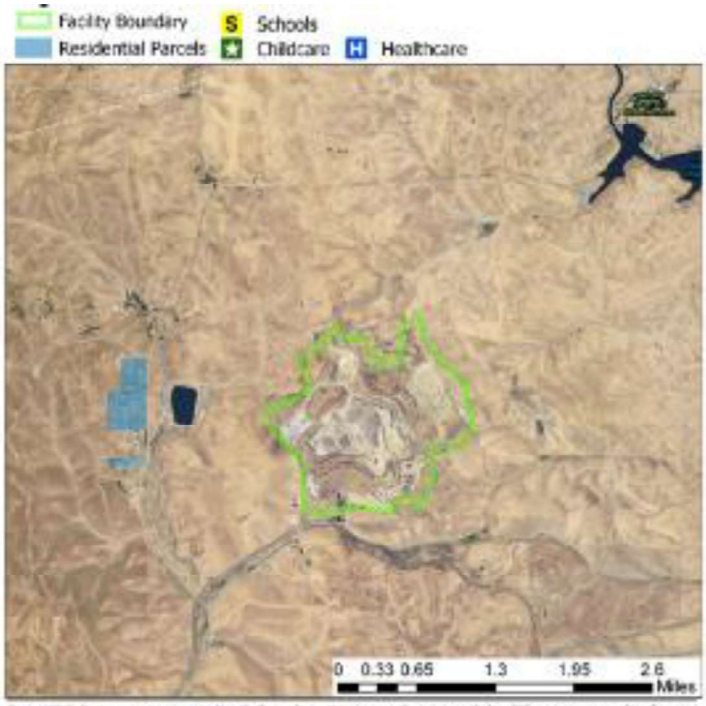

Legend
Facility Boundary
Residential Parcels
Schools
Childcare
Healthcare
Colton
0 0.25 0.5 1 1.5 2
Miles
Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community. Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

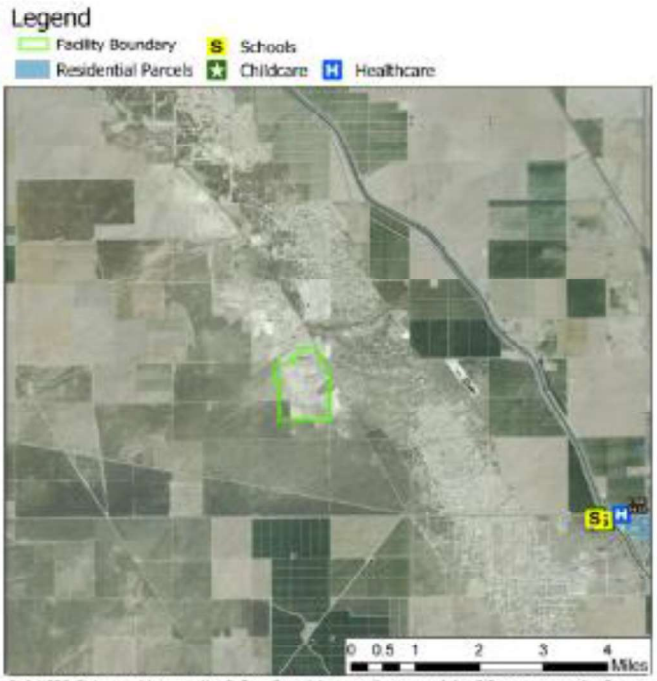
Ecology

Altamont Landfill



Chiquita Canyon Landfill

HM Holloway Surface Mine and Landfill



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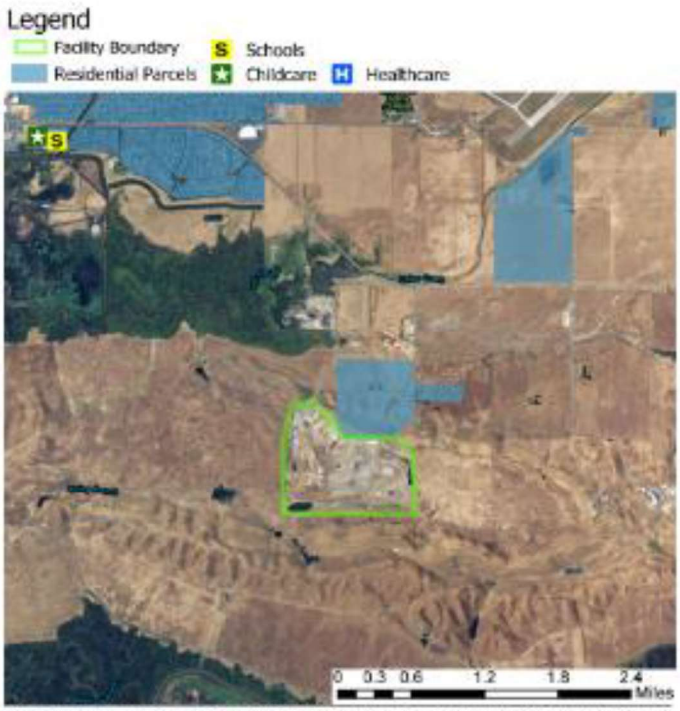
Potrero Hills Landfill



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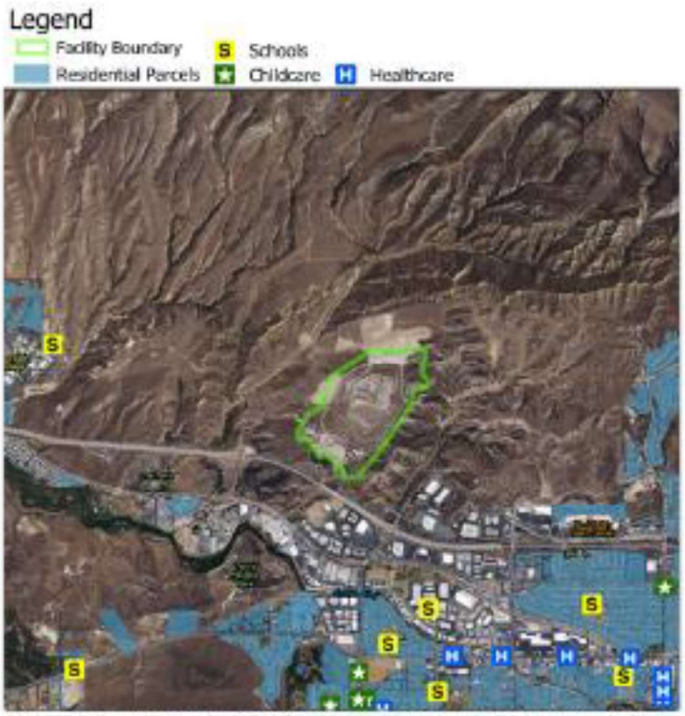
Simi Valley Landfill



Vasco Road Landfill

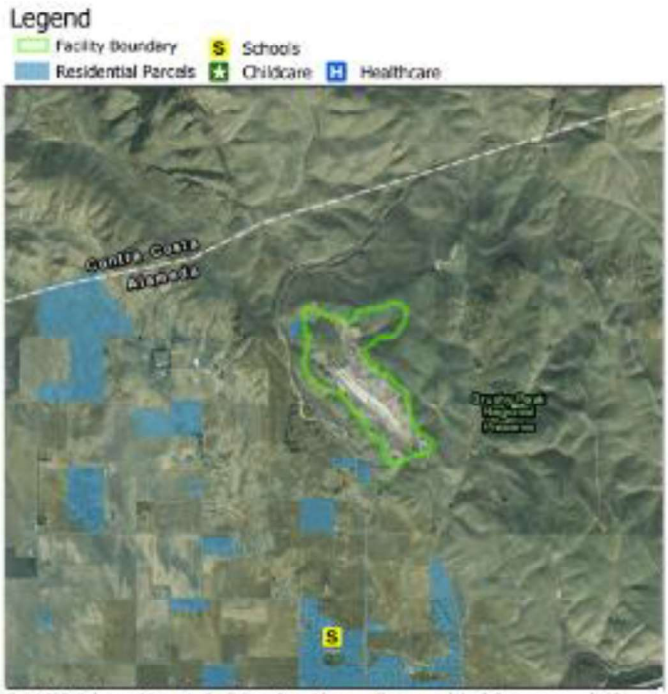


Exhibit 3

LOCAL // HOUSTON

Danger in air near metal recyclers

Metal recyclers emit carcinogenic pollutant

Ingrid Lobet

Dec. 29, 2012 | Updated: Jan. 9, 2013 2:54 p.m.

Photo: Ingrid Lobet

The calls to the city of Houston's 311 help line came in the early morning and the middle of the night - complaints of red smoke, yellow smoke, explosions, fire, a child having trouble breathing.

Reports like these - 189 of them over the last five years - led Houston air authorities to discover a previously unrecognized and dangerous source of air pollution: metal recyclers and car crushers,

The smoke comes from cutting metal with torches and from fire when vehicle gas tanks aren't drained properly. Explosions can occur when propane tanks are fed into the maw of the crushers.

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Descriptions of shattering noise, cracked walls and smoke were significant enough that the city had to "dedicate a good amount of effort responding to these complaints," said Arturo Blanco, chief of the city's Bureau of Pollution Control and Prevention.

Interactive Map: Find out where some of Houston's metal recycling plants are located

Subsequent testing outside five Houston metal recycling operations found dangerous levels of hexavalent chromium. Chrome VI, as it's also called, is a high priority for air experts.

"People were complaining about smoke, and it turns out there were carcinogenic metals," said Loren Raun, an environmental statistician at Rice University. "And we found them only around these facilities, not in other areas we tested, not even in other industrial areas of the city."

New pollution source

When inhaled, hexavalent chromium is deposited in the lungs, can penetrate cells and cause free radicals, which damage DNA, ultimately causing lung cancer. When California gained the authority to regulate air pollution hazards in the 1980s, hexavalent chromium shared top priority, along with benzene. The state considers Chrome VI one of the most potent carcinogens known.

was a sideline industry – recycling – is becoming central to manufacturing.

Many of the minerals that make the screens, toys and cars used every day are finite in the Earth's crust. Others are simply expensive. For every material – aluminum, lead, steel, sulfur, mercury – there is a point where it's cheaper or safer to recover it from our garbage than to mine or forge it fresh.

Sometimes, that comes with a price.

"When you weld or cut, you are vaporizing metal," said Don Richner, an industrial hygienist and analytical chemist also with the Bureau of Pollution Control and Prevention. "All the missing metal is vapor in the air."

Houston appears to be the first to examine metal emissions from the industry, and in so doing may have flagged a national problem. The Environmental Protection Agency does not regulate the facilities, though there are now 6,000 of them in the United States, according to Joe Pickard, chief economist with the Institute of Scrap Recycling Industries Inc.

Assessing the risk

For Houston, the complaints began in older neighborhoods like Magnolia Park and Manchester, though researchers would later find surprising results even in the Washington Avenue area, where few people complained.

The city team initially measured particles. Some scrap yards had no appreciable emissions. But enough did that researchers felt they had to do more. With little in guidance available from other jurisdictions, they decided to create a scoring tool to help compare risk among processors.

Richner and colleagues scored each metal recycler based on several questions: how close it was to dense neighborhoods, how many complaints it had received, how many violations, and whether the operator used torches to cut metal.

has reduced torch-cutting at the plant by 85 percent and taken a number of steps to reduce airborne particles. The city says the company's efforts are significant.

After this initial scoring, the city took a deeper look at the smoke and particles emanating from some of the recycling yards. Raun, who also is a senior environmental analyst with the city, chose five midsize metal recyclers in different neighborhoods. They also tested air at 10 locations with no metal processors, so as not to blame the industry for contaminants that might be widespread in Houston's air.

changeable breezes, subtracting for the time the wind would be blowing pollution away. They determined that people living near these facilities would still have an increased risk of developing cancer.

Depending on the yard, they estimated there would be between 7 and 600 extra cancers per million people, the latter a risk 600 times higher than what is acceptable to federal health scientists. Among these five plants, a small sample of all those in the city, the highest cancer risk was estimated outside the Cronimet metal processor in Harrisburg/Magnolia Park and Allied Alloys in South Park.

David Porco, vice president of quality and administration at Cronimet Corp., based in Aliquippa, Pa., said Houston air officials shared their findings with him, and the company already has instructed managers at its Houston yard to reduce burning while it looks into options for capturing the metals, such as a bag house.

"We're taking a proactive approach. We want to make sure we limit emissions that come from the facility," Porco said.

Allied Alloys said in a statement that it "is proud of our history of commitment to the environment and the safety of our workers and the communities in which we operate. We believe that our positive net impact is defined by the re-purposing of thousands of tons of metal that does not further deplete our natural resources."

Chrome was in the air outside all five of the plants where the Bureau of Pollution Control and Prevention sampled: Cronimet, Allied Alloys, Holmes Road, Spectrum Metal Recycling, and Rose Metal Processing off Washington Avenue.

Agency records show the Texas Commission on Environmental Quality also has become aware of potential problems associated with shredding and torch-cutting metals. Neighbors of metals plants across Texas have called in complaints 300 times in the last five years, a Chronicle analysis shows.

A single Houston recycler, Texas Port Recycling in the Manchester neighborhood, had 41 fires and explosions over the four-month period from Oct. 12, 2007, to Feb. 6, 2008, according to state

Since the time of those fires, Texas Port Recycling also has taken steps to reduce emissions and explosions, and Richner said the city has not detected levels of concern outside the plant. Residents, however, say they believe frequent smoke in the neighborhood and explosions are coming from Texas Port Recycling. The company did not respond to requests for comment.

Rose Metal Processing also did not respond. Spectrum Metal Recycling declined to comment.

"We want the recyclers here. We don't want them to move out. But maybe they've been flying under the radar," said Blanco, director of the Bureau of Pollution Control and Prevention.

Richner, the industrial hygienist, said he's concerned not only for residents near the recycling operations but also for the people who work cutting metal inside.

"Metals typically have coatings. Sometimes those coatings are lead paint. Who is telling these people: 'This could be lead paint, this could be cadmium, this could be chromium'?" he asked.

Inside the plants, he said, "some people are not wearing personal protective equipment and they are cutting metal. My concern is: Are they getting the health and safety training they deserve? I don't know."

In the neighborhoods alongside the plants, there are indications the calls to the city's 311 line may be only the tip of the iceberg.

In Manchester, several neighbors who said they've never complained to the city noted that smoke and loud noises are still an almost daily occurrence.

Neighbors fearful

And in one of the oldest historically Hispanic neighborhoods in the city, Magnolia Park, on the edge of another metal yard, pieces of carburetor thunder into a listing barge on Brays Bayou. A few feet away, Amanda Martinez and her husband clean metallic dust off their patio. "I have pulmonary hypertension. I worry what I'm breathing," she said.

Ginny Norton said there is frequent smoke around the quiet home her parents bought long ago. And there are explosions. "I'm afraid this little house is going to shatter and fall on my head," she said.

said, when a wave of ruined vehicles was coming in from Louisiana after Hurricane Katrina.

In 2009, the Derichebourg plant signed a compliance agreement with the city, which found it had a problem with smoke, fire and explosions.

Manager Philippe Leonard points out that the company has purchased a slow shredder that can prevent gas tank fires when vendors fail to remove the tanks. It put in watering systems and paving to eliminate dust and spent $4 million on a 40-foot wall with sound insulation. "We have done everything we can for our neighbors," he said.

The changes made at Derichebourg may come to be regarded as industry standards.

In the meantime, said Blanco, whose pollution agency is part of the department of Health and Human Services, there are unaddressed health issues. "We are promoting wellness. We're promoting excellent health, but we're not making the connection."

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Exhibit 4

Chron
https://www.chron.com/news/article/Metal-Recycling-Companies-Grow-But-Questions-4152230.php

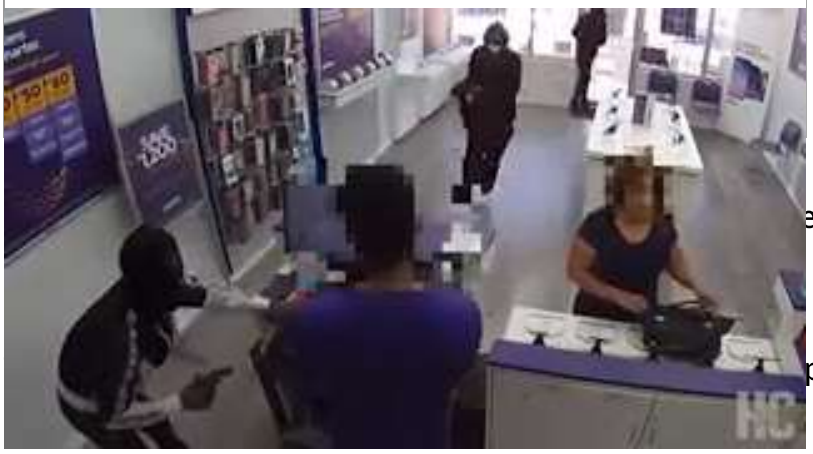
Metal Recycling Companies Grow, But Questions Raised

By Ingrid Lobet **Updated 9:32 pm CST, Sunday, December 30, 2012**

Experts with Houston's small environment department were startled to find a well-known carcinogen in the air outside each of five metal recycling plants they tested. The compound, chrome VI, appears to get into the air when workers at some yards use torches to break down large metal parts into smaller ones.

Health experts have long known this could happen with some kinds of arc welding, but the city of Houston, using equipment it couldn't have afforded without grants from the Houston Endowment, appears to be the first to discover it can also happen in metal recycling. The study has flagged a problem that could exist nationwide.

Recommended Video



The city decided to test the air after numerous neighborhood complaints--not about chrome, but about dust, smoke, and noise

es have already taken steps to

proximately 6000 such plants

The map below shows some where some are located in Houston.

Read more: Danger in air near metal recyclers

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Exhibit 5

Hexavalent Chromium

Hexavalent Chromium Menu

Overview

Hexavalent chromium [Cr(VI)] is one of the valence states (+6) of the element chromium. It is usually produced by an industrial process. Cr(VI) is known to cause cancer. In addition, it targets the respiratory system, kidneys, liver, skin and eyes. Chromium metal is added to alloy steel to increase hardenability and corrosion resistance. A major source of worker exposure to Cr(VI) occurs during "hot work" such as welding on stainless steel and other alloy steels containing chromium metal. Cr(VI) compounds may be used as pigments in dyes, paints, inks, and plastics. It also may be used as an anticorrosive agent added to paints, primers, and other surface coatings. The Cr(VI) compound chromic acid is used to electroplate chromium onto metal parts to provide a decorative or protective coating.

Who is exposed to hexavalent chromium?

Many workers in a variety of occupations are potentially exposed to Cr(VI) in the United States. Workplace exposures occur mainly in the following areas:

- Welding and other types of "hot work" on stainless steel and other metals that contain chromium
- Use of pigments, spray paints and coatings
- Operating chrome plating baths

Where is exposure to hexavalent chromium occurring?

Industrial processes that involve chromium can result in worker exposure to toxic hexavalent chromium. OSHA provides a publicly available Chemical Exposure Health Database which includes industrial hygiene sample results from OSHA inspections. This database does not include worksite inspection sample results from many of the 26 States that operated OSHA-approved State Plans or OSHA consultation visits. This data provides a snapshot of industry sectors and business subcategories where levels of airborne Cr(VI) have been found. The industry profile tables in this website are based on Cr(VI) air samples taken during OSHA inspections from 2006 to 2009. While the tables represent only a small fraction of the total number of companies in their respective industries, the results can provide insight into where workplace Cr(VI) exposure is occurring in the United States.

Standards

Requirements to protect workers from Cr(VI) exposure are addressed in specific OSHA standards for general industry, shipyard employment, and

Enforcement

Highlights OSHA directives (instruction to OSHA staff) and letters of interpretation (official letters of interpretation of the standards) related to hexavalent

construction.

chromium.

Health Effects

Discusses the adverse health effects associated with Cr(VI).

More »

Exposure and Controls

Provides information on exposure limits and analytical methods used to evaluate hexavalent chromium exposure.

More »

Additional Resources

Provides links and references to additional resources related to hexavalent chromium.

More »

Workers' Rights

Workers have the right to:

- Working conditions that do not pose a risk of serious harm.
- Receive information and training (in a language and vocabulary the worker understands) about workplace hazards, methods to prevent them, and the OSHA standards that apply to their workplace.
- Review records of work-related injuries and illnesses.
- File a complaint asking OSHA to inspect their workplace if they believe there is a serious hazard or that their employer is not following OSHA's rules. OSHA will keep all identities confidential.
- Exercise their rights under the law without retaliation, including reporting an injury or raising health and safety concerns with their employer or OSHA. If a worker has been retaliated against for using their rights, they must file a complaint with OSHA as soon as possible, but no later than 30 days.

For additional information, see OSHA's Workers page.

How to Contact OSHA

Under the Occupational Safety and Health Act of 1970, employers are responsible for providing safe and healthful workplaces for their employees. OSHA's role is to ensure these conditions for America's working men and women by setting and enforcing standards, and providing training, education and assistance. For more information, visit www.osha.gov or call OSHA at 1-800-321-OSHA (6742), TTY 1-877-889-5627.

Highlights

- Controlling Exposure to Hexavalent Chromium in Aerospace and Air Transport Painting. OSHA Fact Sheet (Publication 3650), (2013).
- Hexavalent Chromium Hazards in Bridge Painting. OSHA Fact Sheet (Publication 3649), (2013).
- Controlling Hexavalent Chromium Exposures during Electroplating. OSHA Fact Sheet (Publication 3648), (2013).
- Controlling Hazardous Fume and Gases during Welding. OSHA Fact Sheet (Publication 3647), (2013).

- Small Entity Compliance Guide for the Hexavalent Chromium Standards. OSHA Fact Sheet, (Publication 3320), (2006).

R 005350

Related Safety and Health Topics

- Chromium
- Toxic Metals

UNITED STATES
DEPARTMENT OF LABOR

Occupational Safety and Health Administration
200 Constitution Ave NW
Washington, DC 20210
800-321-6742 (OSHA)
TTY
www.OSHA.gov

Exhibit 6

OSHA

Occupational Safety and Health Administration

www.osha.gov

Small Entity Compliance Guide for the Hexavalent Chromium Standards

OSHA 3320-10N 2006

Employers are responsible for providing a safe and healthful workplace for their employees. OSHA's role is to assure the safety and health of America's employees by setting and enforcing standards; providing training, outreach and education; establishing partnerships; and encouraging continual improvement in workplace safety and health.

This handbook provides a general overview of a particular topic related to OSHA standards. It does not alter or determine compliance responsibilities in OSHA standards or the *Occupational Safety and Health Act of 1970*. Because interpretations and enforcement policy may change over time, you should consult current OSHA administrative interpretations and decisions by the Occupational Safety and Health Review Commission and the Courts for additional guidance on OSHA compliance requirements.

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This information is available to sensory impaired individuals upon request. Voice phone: (202) 693-1999; teletypewriter (TTY) number: (877) 889-5627.

Small Entity Compliance Guide
for the
Hexavalent Chromium Standards

Occupational Safety and Health Administration
U.S. Department of Labor

OSHA 3320-10N
2006

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Cover photo: An employee welds a stainless steel flange using a tungsten inert gas (TIG) welding process (courtesy Bath Iron Works).

Introduction

This guide is intended to help small businesses comply with the Occupational Safety and Health Administration's (OSHA) Hexavalent Chromium (Cr(VI)) standards. Employees exposed to Cr(VI) are at increased risk of developing serious adverse health effects including lung cancer, asthma and damage to the nasal passages and skin. This guide describes the steps that employers are required to take to protect employees from the hazards associated with exposure to Cr(VI).

This document provides guidance only, and does not alter or determine compliance responsibilities, which are set forth in OSHA standards and the *Occupational Safety and Health Act*. This guide does not replace the official Hexavalent Chromium standards, which are contained in Appendix I of this document. The employer must refer to the appropriate standard to ensure that they are in compliance. Moreover, because interpretations and enforcement policy may change over time, for additional guidance on OSHA compliance requirements the reader should consult current administrative interpretations and decisions by the Occupational Safety and Health Review Commission and the courts.

In 24 states and two territories, OSHA standards are enforced by the state agency responsible for the OSHA-approved State Plan. These states and territories are: Alaska, Arizona, California, Connecticut, Hawaii, Indiana, Iowa, Kentucky, Maryland, Michigan, Minnesota, Nevada, New Jersey, New Mexico, New York, North Carolina, Oregon, Puerto Rico, South Carolina, Tennessee, Utah, Vermont, Virgin Islands, Virginia, Washington, and Wyoming. Connecticut, New Jersey, New York, and the Virgin Islands operate OSHA-approved State Plans limited in scope to state and local government employees. State Plans must adopt and enforce standards that are either identical to or at least as effective as the federal standards. They must also extend the coverage of their standards to state and local government employees.

HOW TO USE THIS GUIDE

The guide is divided into sections that correspond to the major provisions of the Cr(VI) standards. Each section follows the same organization as the corresponding paragraph of the standards, providing more detail than the standards to help employers better understand the requirements. For example, the Scope section explains which employers are covered by the standards and describes the exceptions to coverage of the standards. The employer may consult a section that is of particular interest, or may proceed through the sections in sequence to gain a better understanding of the standards in their entirety. A section describing additional OSHA resources available to assist employers is also included.

The Cr(VI) standards for general industry (29 CFR 1910.1026), shipyards (29 CFR 1915.1026), and construction (29 CFR 1926.1126) are included in Appendix I. Appendix II presents information on industry operations and processes associated with exposure to Cr(VI) to assist employers in identifying Cr(VI) exposures in their workplaces. Appendix III contains listings of OSHA Area and Regional offices; the addresses and phone numbers of state agencies that administer OSHA-approved State Plans; and the addresses and phone numbers of OSHA Consultation Service offices.

WHERE TO GO FOR ADDITIONAL ASSISTANCE

For additional assistance in complying with the Cr(VI) standards, contact the nearest OSHA Area Office. If you are unable to contact the OSHA Area Office, you can contact the appropriate OSHA Regional Office for information or assistance. If you are located in a state that operates an OSHA-approved State Plan, you may contact the responsible state agency for information and assistance. See Appendix III for the addresses and phone numbers of these offices.

The OSHA Consultation Service is another important resource for additional assistance. The service is largely funded by OSHA and is delivered by state governments using well-trained professional staff. Primarily intended for smaller businesses, the consultation program is free of charge to employers and is completely separate from the OSHA inspection effort. The consultation services do not issue citations or propose penalties. Additional information on the OSHA Consultation Service, as well as other sources of help from OSHA, can be found in the OSHA assistance section of the guide.

Scope

The standards apply to all occupational exposures to Cr(VI), with only limited exceptions. OSHA has separate standards for Cr(VI) exposures in general industry, shipyards, and construction. Most of the requirements are the same for all sectors. Where there are differences, they will be explained in this guide.

Cr(VI) is present in many different compounds that have a variety of industrial applications. Examples of major industrial uses of Cr(VI) compounds include: chromate pigments in dyes, paints, inks, and plastics; chromates added as anticorrosive agents to paints, primers, and other surface coatings; and chromic acid electroplated onto metal parts to provide a decorative or protective coating. Examples of Cr(VI) compounds include:

- ammonium dichromate ($(NH_4)_2Cr_2O_7$);
- calcium chromate ($CaCrO_4$);
- chromium trioxide or chromic acid (CrO_3);
- lead chromate ($PbCrO_4$);
- potassium chromate (K_2CrO_4);
- potassium dichromate ($K_2Cr_2O_7$);
- sodium chromate (Na_2CrO_4);
- strontium chromate ($SrCrO_4$); and
- zinc chromate ($ZnCrO_4$).

Employers can consult their suppliers or examine material safety data sheets (MSDSs) to identify Cr(VI)-containing materials that are present in the workplace.

Cr(VI) can also be formed when performing "hot work" such as welding on stainless steel, melting chromium metal, or heating refractory bricks in kilns. In these situations the chromium is not originally hexavalent, but the high temperatures involved in the process result in oxidation that converts the chromium to a hexavalent state. Appendix II of this document presents a more extensive description of the industry operations and processes that are typically associated with Cr(VI) exposure.

The Cr(VI) standards do not apply in three situations: Exposures that occur in the application of pesticides; exposures to portland cement; and where the employer has objective data demonstrating that Cr(VI) concentrations cannot exceed 0.5 micrograms per cubic meter of air as an 8-hour time-weighted average under any expected conditions of use.

APPLICATION OF PESTICIDES

The standards do not cover exposures to Cr(VI) that occur in the application of pesticides. Some Cr(VI)-containing chemicals, such as chromated copper arsenate (CCA) and acid copper chromate (ACC), are used for wood treatment and are regulated by the Environmental Protection Agency (EPA) as pesticides. OSHA does not regulate where another federal agency, such as EPA, enforces occupational safety and health standards.

The exemption pertains only to the application of pesticides and not to the manufacture of Cr(VI)-containing pesticides, which is covered by the standards. The use of wood treated with pesticides containing Cr(VI) is also covered by the standards.

PORTLAND CEMENT

The standards do not cover exposure to Cr(VI) in portland cement. Trace amounts of Cr(VI) are usually present in portland cement. However, the concentration of Cr(VI) is so low that employee exposures to Cr(VI) from working with portland cement are typically well below the action level.

Employers should be aware that other standards are in place to protect employees exposed to portland cement. OSHA has a permissible exposure limit for portland cement (see 29 CFR 1910.1000 for general industry; 29 CFR 1915.1000 for shipyards; 29 CFR 1926.55 for construction). Appropriate personal protective equipment must be provided and used when working with portland cement (see 29 CFR 1910.132 for general industry; 29 CFR 1915.152 for shipyards; 29 CFR 1926.95 for construction). Adequate washing facilities must also be provided in all sectors (see 29 CFR 1910.141(d) for general industry and shipyards; 29 CFR 1926.51(f) for construction). In addition, OSHA's Hazard Communication standard (29 CFR 1910.1200) requires training for all employees potentially exposed to hazardous chemicals, including portland cement.

WHERE EXPOSURES CANNOT EXCEED 0.5 µg/m³

An exemption from the standards is provided for employers who have objective data demonstrating that a material containing chromium or a specific process, operation, or activity involving chromium cannot release dusts, fumes, or mists of Cr(VI) in concentrations at or above 0.5 micrograms per cubic meter of air (0.5 $\mu g/m^3$) as an 8-hour time-weighted average (TWA) under any expected conditions of use. When using the phrase "any expected conditions of use," OSHA is referring to any situation that can reasonably be foreseen by the employer. The meaning of the term "objective data" is discussed in the following section.

This exception for situations where exposures are not likely to present significant risk to employees allows employers to focus their resources on exposures of greater occupational health concern.

Definitions

Definitions are included in the standards to describe the meaning of a number of terms used. Some of these terms are further explained as follows:

Action level is defined as an airborne concentration of 2.5 micrograms of Cr(VI) per cubic meter of air (2.5 $\mu g/m^3$) calculated as an 8-hour time-weighted average (TWA) (i.e., employee exposures to Cr(VI) average 2.5 $\mu g/m^3$ over an eight-hour time period). Exposures at or above the action level trigger certain requirements for exposure monitoring and medical surveillance.

Chromium (VI) [Hexavalent chromium or Cr(VI)] means chromium with a valence of positive six, in any form or chemical compound in which it occurs. This term includes Cr(VI) in all states of matter, in any solution or other mixture, even if it is encapsulated by another substance. The term also includes Cr(VI) when it is created by an industrial process, such as when welding on stainless steel generates Cr(VI) fume.

Emergency means any occurrence that results, or is likely to result, in an uncontrolled release of Cr(VI). Such an occurrence may be the result of equipment failure, rupture of containers, or failure of control equipment. To constitute an emergency, the exposure must be unexpected and significant. If an incidental release of Cr(VI) can be controlled at the time of the release by employees in the immediate release area, or by maintenance personnel, it is not considered an emergency. For example, a minor spill that can be cleaned up by an employee with minimal airborne or dermal exposure to Cr(VI) would not be considered an emergency. Instances that do constitute an emergency trigger requirements for medical surveillance and the use of respiratory protection.

Employee exposure means exposure to Cr(VI) that would occur if the employee were not using a respirator. Thus, exposure levels should be determined outside of the respirator for those employees wearing a respirator.

Historical monitoring data is data from Cr(VI) exposure monitoring conducted prior to May 30, 2006 (the effective date of this Cr(VI) standard). In order for an employer to rely upon historical data, the data must have been obtained during work operations conducted under workplace conditions that closely resemble the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations. Historical monitoring data must also comply with confidence and accuracy requirements specified in the exposure determination section of the standard.

Objective data means information, other than employee monitoring, that demonstrates the expected employee exposure to Cr(VI) associated with a particular product or material or a specific process, operation, or activity. Information that can serve as objective data includes, but is not limited to, air monitoring data from industry-wide surveys; data collected by a trade association from its members; or calculations based on the composition or chemical and physical properties of a material. Use of objective data is discussed in the exposure determination section under the "performance-oriented" option.

Physician or other licensed health care professional [PLHCP] is an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required by the medical surveillance provisions of this standard.

Regulated area means an area, demarcated by the employer, where an employee's exposure to airborne concentrations of Cr(VI) exceeds, or can reasonably be expected to exceed, the PEL. The employer has the responsibility to determine and demarcate the boundaries of the regulated area. OSHA has not included requirements for regulated areas in construction or shipyard workplaces.

Permissible Exposure Limit (PEL)

The standards establish an 8-hour time-weighted average exposure limit of 5 micrograms of Cr(VI) per cubic meter of air (5 µg/m^3). This means that over the course of any 8-hour work shift, the average exposure to Cr(VI) cannot exceed 5 µg/m^3.

Calculation of Time-Weighted Average Exposures

Both the PEL and the action level are expressed as time-weighted average (TWA) exposures. TWA measurements account for variable exposure levels over the course of a work shift, averaging periods of higher and lower exposures. The TWA exposure for an 8-hour work shift is computed using a simple formula:

$$TWA = (C_a T_a + C_b T_b + \ldots C_n T_n) \div 8$$

Where:
TWA is the time-weighted average exposure for the work shift;
C is the concentration during any period of time (T) where the concentration remains constant; and
T is the duration in hours of the exposure at the concentration (C).

For example, assume that an employee is subject to the following exposure to Cr(VI):

Two hours exposure at 10 µg/m^3
Two hours exposure at 5 µg/m^3
Four hours exposure at 1 µg/m^3

Substituting this information in the formula, we have:

$$(2 \times 10 + 2 \times 5 + 4 \times 1) \div 8 = 4.25 \text{ µg/m}^3$$

Since 4.25 µg/m^3 is more than 2.5 µg/m^3, the action level has been exceeded. However, as 4.25 µg/m^3 is less than 5 µg/m^3, the PEL has not been exceeded.

Exposure Determination

Employers must determine the 8-hour time-weighted average exposure to Cr(VI) for each employee exposed to Cr(VI). This assessment allows the employer to identify and prevent overexposures; collect exposure data so that proper control methods can be selected; and evaluate the effectiveness of those methods. An accurate exposure determination also provides important information concerning occupational Cr(VI) exposures to the physician or other licensed health care professional who performs medical examinations on employees. Employers can choose between two options for performing exposure determinations: a scheduled monitoring option, or a performance-oriented option. In addition, employers must comply with certain requirements regarding employee notification of the results of the exposure determination, accuracy of measurement methods, and observation of monitoring.

SCHEDULED MONITORING OPTION

Employers who select the scheduled monitoring option must conduct initial exposure monitoring to determine employee exposure to Cr(VI). This monitoring is performed by sampling the air within the employee's breathing zone. Monitoring must represent the employee's time-weighted average exposure to airborne Cr(VI) over an 8-hour workday.

Employers must accurately characterize the exposure to Cr(VI) for each employee. In some cases, this will entail monitoring all exposed employees. In other cases, monitoring "representative" employees is sufficient. Representative exposure sampling is permitted when a number of employees perform essentially the same job under the same conditions. For such situations, it may be sufficient to monitor a fraction of these employees in order to obtain data that are "representative" of the remaining employees. Representative personal sampling for employees engaged in similar work involving similar Cr(VI) exposures is achieved by monitoring the employee(s) reasonably expected to have the highest Cr(VI) exposures. For example, this may involve monitoring the Cr(VI) exposure of the employee closest to an exposure source. This exposure result may then be attributed to the remaining employees in the group. Monitoring must accurately characterize exposures on each shift, for each job classification, and in each work area.

Requirements for periodic monitoring depend on the results of initial monitoring. If the initial monitoring indicates that employee exposures are below the action level, no further monitoring is required unless changes in the workplace may result in new or additional exposures. If the initial monitoring reveals employee exposures to be at or above the action level but at or below the PEL, the employer must perform periodic monitoring at least every six months. If the initial monitoring reveals employee exposures to be above the PEL, the employer must perform periodic monitoring at least every three months.

If periodic monitoring results indicate that employee exposures have fallen below the action level, and those results are confirmed by consecutive measurements taken at least seven days apart, the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring. Similarly, after initial monitoring shows exposures above the PEL, if periodic measurements indicate that exposures are at or below the PEL but are at or above the action level, the employer may reduce the frequency of the monitoring to at least every six months.

Employers must perform additional monitoring when workplace changes may result in new or additional exposures to Cr(VI). These changes include alterations in the production process, raw materials, equipment, personnel, work practices, or control methods used in the workplace. For example, if an employer has conducted monitoring for an electroplating operation while using fume suppressants, and the use of fume suppressants is discontinued, then additional monitoring would be necessary to determine employee exposures under the modified conditions. In addition, there may be other situations which can result in new or additional exposures to Cr(VI) which are unique to an employer's work situation. For instance, a welder may move from an open, outdoor location to an enclosed or confined space. Even though the task performed and materials used may remain constant, the changed environment could reasonably be expected to result in higher exposures to Cr(VI). In these special situations, OSHA requires the employer to perform additional monitoring whenever the employer has any reason to believe that a change has occurred which may result in new or additional exposures to Cr(VI). Additional monitoring is not

required simply because a change has been made, if the change is not reasonably expected to result in new or additional exposures to Cr(VI). For example, monitoring may be conducted in an establishment when welding was performed on steel with 15% chromium content. If the establishment switches to a steel with 10% chromium content without changing any other aspect of the work operation, then additional exposures to Cr(VI) would not reasonably be expected, and additional monitoring would not be required.

PERFORMANCE-ORIENTED OPTION

The performance-oriented option allows the employer to determine the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data (i.e., data obtained from initial and periodic Cr(VI) monitoring), historical monitoring data, or objective data sufficient to accurately characterize employee exposure to Cr(VI). This option is intended to allow employers flexibility in assessing the Cr(VI) exposures of their employees. Where the employer elects to follow this option, the exposure determination must be performed prior to the time the work operation commences and must provide the same degree of assurance that employee exposures have been correctly characterized as air monitoring would. The employer is expected to reevaluate employee exposures when there is any change in the production process, raw materials, equipment, personnel, work practices, or control methods that may result in new or additional exposures to Cr(VI).

EMPLOYEE NOTIFICATION

Employers must notify each affected employee if the exposure determination indicates that their exposure to Cr(VI) exceeds the PEL. "Affected employees" are all employees considered to be exposed above the PEL, including those employees who are not actually subject to personal monitoring, but who are represented by an employee who is sampled. Affected employees also include employees whose exposures have been deemed to be above the PEL on the basis of historical or objective data. The employer must either notify each affected employee in writing or post the determination results in an appropriate location accessible to all affected employees (e.g., a bulletin board accessible to all employees). In addition, the written notification must describe the corrective action(s) being taken by the employer to reduce the employee's exposure to or below the PEL (e.g., use of respirators or the engineering controls that will be implemented).

The general industry standard requires employers to notify employees within 15 working days from when monitoring results are received (or when the exposure determination is made for those following the performance-oriented option). In construction and shipyards, employers must notify each affected employee as soon as possible but not more than 5 working days later. A shorter time period for notification is mandated in construction and shipyards because of the often short duration of operations and employment in particular locations in these sectors.

ACCURACY OF MEASUREMENTS

The standard does not specify a particular method of sampling and analysis that must be used to measure employee exposures to Cr(VI). The employer may use any method as long as it meets certain accuracy requirements. Many laboratories presently have methods to measure Cr(VI) at the action level with at least the required degree of accuracy. One example of an acceptable method of monitoring and analysis is OSHA method ID215, which is a fully validated analytical method used by OSHA to measure Cr(VI) exposures.

OBSERVATION OF MONITORING

Employers must provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to Cr(VI) required by this standard. When observation of monitoring requires entry into an area where the use of protective clothing or equipment is required, the employer must provide the observer with these items, and assure that the observer uses them and complies with all other safety and health procedures.

Regulated Areas

The Cr(VI) standard for general industry includes requirements for regulated areas. The purpose of a regulated area is to ensure that employees are aware of the presence of Cr(VI) at levels above the PEL, and to limit Cr(VI) exposure to as few employees as possible by requiring the employer to mark areas where employee exposure is likely to exceed the PEL and limit access to these areas to authorized persons. The standard includes provisions for establishment of regulated areas; demarcation of regulated areas; and access to regulated areas. The requirements are not included in the standards for construction or shipyards because they are considered generally impracticable in these environments.

ESTABLISHMENT

Employers must establish regulated areas wherever an employee's exposure to Cr(VI) is, or can reasonably be expected to be, in excess of the PEL. Information obtained during the exposure determination can be used along with reasonable judgment to determine where regulated areas are required, and to establish the boundaries of regulated areas.

DEMARCATION

Regulated areas must be distinguished from the rest of the workplace in a manner that adequately establishes and alerts employees of the boundaries of the regulated area. The standard does not specify how employers are to demarcate regulated areas. Warning signs, barricades, lines and textured flooring, or other methods may be appropriate. Whatever methods are chosen must effectively warn employees not to enter the area unless they are authorized, and then only if they are using proper protective equipment, such as respirators.

ACCESS

Employers must limit access to regulated areas. The only individuals allowed access to a regulated area are:

- Persons authorized by the employer and required by work duties to be present in the regulated area (this may include maintenance and repair personnel, management, quality control engineers, or other personnel if job duties require their presence in the regulated area);
- Any person entering the area as a designated representative of employees to observe Cr(VI) exposure monitoring; or
- Any person authorized by the *Occupational Safety and Health Act* or regulations issued under it to be in a regulated area (e.g., OSHA enforcement personnel).

Methods of Compliance

Employers must use engineering and work practice controls as the primary means to reduce and maintain employee exposures to Cr(VI) to or below the PEL, unless the employer can demonstrate that such control measures are not feasible. Engineering controls include:

- Substitution (e.g., using a less toxic material instead of Cr(VI), or substituting a process that results in lower exposures for another type of process that results in higher exposures);
- Isolation (e.g., enclosing the source of exposure, or placing a barrier between employees and the source of exposure); and
- Ventilation (e.g., local exhaust systems that capture airborne Cr(VI) near its source and remove it from the workplace, or general ventilation that dilutes Cr(VI) concentrations by circulating large quantities of air – a local exhaust system is generally preferred to dilution ventilation because it provides a cleaner and healthier work environment).

Work practice controls involve adjustments in the way a task is performed. In many cases, work practice controls complement engineering controls in providing employee protection. For example, periodic inspection and maintenance of control equipment such as ventilation systems is an important work practice control. Frequently, equipment which is in disrepair will not perform normally. If equipment is routinely inspected, maintained, and repaired or replaced before failure is likely, there is less chance that hazardous exposures will occur.

Employees must know the way to perform their job tasks in order to minimize their exposure to Cr(VI) and to maximize the effectiveness of control measures. For example, if an exhaust hood is designed to provide local ventilation and an employee performs a task that generates Cr(VI) aerosols away from the exhaust hood, the control measure will be of no use. Good supervision further ensures that proper work practices are carried out by employees.

Employees' exposures can also be controlled by scheduling operations with the highest exposures at a time when the fewest employees are present. For example, routine cleanup operations that involve Cr(VI) releases might be performed at night or at times when the usual production staff is not present.

If feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, the employer must use them to reduce the exposure to the lowest level achievable. Respirators must then be used to reduce employee exposure to or below the PEL. The standards require primary reliance on engineering and work practice controls because they are generally reliable, provide consistent protection to a large number of employees, can be monitored, and can efficiently remove Cr(VI) from the workplace. Although an important method of protecting employees, effective use of respirators is more difficult to achieve. Use of respirators in the workplace also presents other safety and health concerns due to the physiological burdens on employees using respirators, and limitations on auditory, visual, and odor sensations.

There are two exceptions to the general requirement for primary use of engineering and work practice controls to reduce employee exposure to within permissible limits. The first exception applies to the painting of aircraft or large aircraft parts (e.g., the interior or exterior of whole aircraft, aircraft wings or tail sections, or comparably sized aircraft parts) in the aerospace industry. When such painting is performed, the employer must use engineering and work practice controls to reduce employee Cr(VI) exposures to or below 25 $\mu g/m^3$ unless the employer can demonstrate that such controls are not feasible. Use of respirators is then required to limit exposures to or below the PEL.

The second exception to the general requirement for primary reliance on engineering and work practice controls applies where employers do not have employee exposures above the PEL for 30 or more days per year (12 consecutive months) from a particular process or task. Thus, if a particular process or task results in employee exposures to Cr(VI) that exceed the PEL on 29 or fewer days during any 12 consecutive months, the employer is allowed to use any combination of controls, including respirators alone, to achieve the PEL. The burden of proof is on the employer to demonstrate that a process or task will not cause employee exposures to remain above the PEL for 30 or more days per year. Historical data, objective data, or exposure monitoring data may be used for this purpose. Other information, such as production orders showing that processes involving Cr(VI) exposures are conducted on fewer than 30 days per year, may also be used.

Employers are not permitted to rotate employees to different jobs as a means of achieving compliance with the PEL. However, there is no general prohibition on employee rotation. Employers may rotate employees for other reasons, such as to provide cross-training on different tasks or to allow employees to alternate physically demanding tasks with less strenuous activities.

Respiratory Protection

When engineering and work practice controls cannot reduce employee exposure to Cr(VI) to within the PEL, employers must provide employees with respirators. Specifically, respirators are required during:

- Periods necessary to install or implement feasible engineering and work practice controls;
- Work operations, such as maintenance and repair activities, for which engineering and work practice controls are not feasible;
- Work operations for which an employer has implemented all feasible engineering and work practice controls and such controls are not sufficient to reduce exposures to or below the PEL;
- Work operations where employees are exposed above the PEL for fewer than 30 days per year, and the employer has elected not to implement engineering and work practice controls to achieve the PEL; or
- Emergencies (i.e., uncontrolled releases of Cr(VI) that result in significant and unexpected exposures; see definition of "Emergency" at pg. 5).

Where respirator use is required, the employer must establish a respiratory protection program in accordance with OSHA's Respiratory Protection standard (29 CFR 1910.134). The respiratory protection program addresses procedures for properly selecting and using respirators in the workplace. OSHA has prepared a separate Small Entity Compliance Guide for the Respiratory Protection standard (available at http://www.osha.gov/pls/publications/pubindex.list#118) which provides additional information on the requirements of that standard.

Protective Work Clothing and Equipment

Employers must provide appropriate protective clothing and equipment wherever skin or eye contact with Cr(VI) is likely to present a hazard to employees. The employer is also required to ensure that employees use the clothing and equipment provided, and follow a number of specified practices to ensure that protective clothing and equipment is used and handled in a manner that is protective of employee health.

Protective work clothing and equipment is only that clothing and equipment that serves to protect employees from Cr(VI) hazards. Other clothing, work uniforms, tools or other apparatus that do not serve to protect employees from Cr(VI) hazards are not considered protective clothing and equipment under the standards.

PROVISION AND USE

In order to provide appropriate protective work clothing and equipment, the employer should assess the workplace to identify areas where a hazard is present or is likely to be present from skin or eye contact with Cr(VI). The employer should exercise common sense and use appropriate expertise in assessing hazards. A walk-through survey of the workplace is recommended to identify sources of employee Cr(VI) exposure. A review of workplace injury and illness records is also recommended. Information obtained during this process provides a basis for evaluating potential hazards. Exposures must be evaluated on a case-by-case basis, taking into account factors such as the acidity or alkalinity of the Cr(VI)-containing compound or mixture as well as the magnitude and duration of exposure.

Where a hazard is identified, the employer must select the clothing and equipment needed to protect employees from Cr(VI) hazards. The type of protective clothing and equipment needed to protect employees from Cr(VI) hazards will depend on the potential for exposure and the conditions of use in the workplace. Examples of protective clothing and equipment that may be necessary include, but are not limited to, gloves, aprons, coveralls, foot coverings, and goggles.

The employer must exercise reasonable judgment in selecting the appropriate clothing and equipment to use to protect employees from hazards associated with Cr(VI) exposures. In some instances gloves may be all that is necessary to effectively protect an employee from hazardous Cr(VI) exposure. In other situations, such as when an employee is performing abrasive blasting on a structure covered with Cr(VI)-

containing paint, more extensive measures such as coveralls, head coverings, and goggles may be needed. The chemical and physical properties of the compound or mixture may also influence the choice of clothing and equipment to use. For example, a chrome plater may require an apron, gloves, and goggles to protect against possible splashes of chromic acid that could result in both Cr(VI) exposure and chemical burns. Other factors such as the size, flexibility, and cut and tear resistance of clothing and equipment should be considered in the selection process as well.

OSHA has issued a booklet, *Personal Protective Equipment* (OSHA Publication 3151, available at http://www. osha.gov/Publications/osha3151.pdf), that provides more information on assessment of workplace hazards and selection of appropriate protective clothing and equipment, as well as other factors related to the use of these items.

Employers must provide the clothing and equipment at no cost to the employee. Where protective clothing and equipment is required, the employer must ensure that it is used in the workplace.

REMOVAL AND STORAGE

The employer must ensure that employees remove protective clothing and equipment that has become contaminated with Cr(VI) at the end of their work shift or when they complete their tasks involving Cr(VI) exposure, whichever comes first. For example, if employees perform work tasks involving Cr(VI) exposure for the first two hours of a shift, and then perform tasks that do not involve Cr(VI) exposure for the remainder of the shift, they must remove their protective clothing after the exposure period (in this case, after the first two hours of the shift). If, however, employees are performing tasks involving Cr(VI) exposure intermittently throughout the day, or if employees are exposed to other contaminants where protective clothing and equipment are needed, they may wear the clothing and equipment until the completion of their shift. This requirement is intended to limit the duration of employees' exposure, and to prevent contamination from Cr(VI) residues on protective clothing reaching areas of the workplace where exposures would not otherwise occur.

The employer must not allow any employee to remove contaminated protective clothing or equipment from the workplace, except for those employees whose job it is to launder, clean, maintain, or dispose of the clothing or equipment. This requirement is intended to ensure that clothing contaminated with Cr(VI) is not carried to employees' cars and homes, which would increase the employee's exposure as well as exposing other individuals to Cr(VI) hazards.

When contaminated protective clothing or equipment is removed for laundering, cleaning, maintenance, or disposal, it must be stored and transported in sealed, impermeable bags or other closed, impermeable containers. Bags or containers of contaminated protective clothing or equipment that are removed for laundering, cleaning, maintenance, or disposal must be labeled in accordance with the requirements of OSHA's Hazard Communication standard (29 CFR 1910.1200). In general, the Hazard Communication standard requires that each container of hazardous chemicals leaving the workplace include a label that indicates the identity of the hazardous chemicals in the container, appropriate hazard warnings, and the name and address of a responsible party who can provide additional information on the hazardous chemicals. Use of impermeable containers and proper labeling practices serve to minimize contamination of the workplace and ensure that employees who later handle these items are protected.

CLEANING AND REPLACEMENT

The employer must clean, launder, repair and replace protective clothing and equipment as necessary to ensure that the effectiveness of the clothing and equipment is maintained. This requirement is intended to ensure that clothing and equipment continues to serve its intended purpose of protecting employees. The standards do not specify how often clothing and equipment must be cleaned, repaired, or replaced. The appropriate time intervals may vary widely based on the types of clothing and equipment used, Cr(VI) exposures, and other circumstances in the workplace. The obligation of the employer is to keep the clothing and equipment in the condition necessary to perform its protective functions.

Removal of Cr(VI) from protective clothing and equipment by blowing, shaking, or any other means that disperses Cr(VI) into the air or onto an employee's body is prohibited. Such actions would result in increased risk to employees from unnecessary exposure to airborne Cr(VI) as well as possible skin contact.

The employer must inform any person who launders or cleans protective clothing or equipment con-

taminated with Cr(VI) of the potentially harmful effects of Cr(VI) exposure, and that the clothing and equipment should be laundered or cleaned in a manner that minimizes skin or eye contact with Cr(VI) and prevents exposure to Cr(VI) in excess of the PEL. This requirement is intended to ensure that employees who clean or launder Cr(VI)-contaminated items are aware of the associated hazards so that they can take appropriate protective measures. The hazard warnings required on labels for containers of Cr(VI)-contaminated clothing and equipment, required by OSHA's Hazard Communication standard, are sufficient to indicate the potentially harmful effects of Cr(VI). An additional statement (i.e., a statement indicating that the clothing and equipment should be handled in a manner that minimizes skin or eye contact with Cr(VI) and effectively prevents exposure to Cr(VI) in excess of the PEL) could be added to the label to fulfill this requirement. The employer is not expected to specify particular work practices that must be followed to achieve these objectives.

The employer is responsible for ensuring that protective work clothes and equipment are cleaned and properly disposed of. The employer should also conduct inspections and, when necessary, repair or replace protective work clothing and equipment to ensure its effectiveness.

Hygiene Areas and Practices

Employers must provide adequate hygiene facilities and ensure that employees comply with basic hygiene practices that serve to minimize exposure to Cr(VI). The standards include requirements for change rooms and washing facilities, ensuring that Cr(VI) exposure in eating and drinking areas is minimized, and a prohibition on certain practices that may contribute to Cr(VI) exposure.

CHANGE ROOMS

Where employees must change out of their street clothes to use protective clothing and equipment required by the standard, change rooms must be provided. The change rooms must be equipped with separate storage facilities (e.g., lockers) for protective clothing and equipment and for street clothes, and these facilities must prevent contamination of street clothes. Preventing contamination of street clothing limits exposures that would otherwise occur after the work shift ends, and avoids potential contamination of employees' cars and homes. Change rooms also provide privacy to employees while they change their clothes.

Change rooms are only required where removal of street clothes is necessary. For example, in a workplace where gloves are the only protective clothing used, change rooms are not necessary. Similarly, if disposable protective clothing can be effectively worn over street clothes, change rooms would not be required.

WASHING FACILITIES

Readily accessible washing facilities capable of removing Cr(VI) from the skin must be provided where skin contact with Cr(VI) occurs. Washing facilities must conform with OSHA's existing sanitation requirements (29 CFR 1910.141 for general industry; 29 CFR 1926.51 for construction). The employer must ensure that affected employees use these facilities when necessary. Also, the employer must ensure that employees who have skin contact with Cr(VI) wash their hands and faces at the end of the work shift and prior to eating, drinking, smoking, chewing tobacco or gum, applying cosmetics, or using the toilet. Washing diminishes the period of time that Cr(VI) is in contact with the skin, removes any residual Cr(VI) contamination, and protects against further exposure.

EATING AND DRINKING AREAS

Whenever an employer allows employees to consume food or beverages at a worksite where Cr(VI) is present, the employer must ensure that eating and drinking areas and surfaces are maintained as free as practicable of Cr(VI). Employers are also required to ensure that employees do not enter eating and drinking areas wearing Cr(VI)-contaminated protective clothing or equipment, unless the protective clothing or equipment is properly cleaned beforehand. The employer may use any method to remove surface Cr(VI) from clothing and equipment, as long

as that method does not disperse Cr(VI) into the air or onto an employee's body. For example, a HEPA-filtered vacuum may be used to remove Cr(VI) contamination from an employee's clothing prior to entering the eating and drinking area.

PROHIBITED ACTIVITIES

The standards prohibit certain activities that are likely to result in unnecessary Cr(VI) exposures. The employer must ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in regulated areas, or in areas where skin or eye contact with Cr(VI) occurs. Products associated with these activities, such as food or cigarettes, must not be carried into or stored in regulated areas or areas where skin or eye contact with Cr(VI) occurs.

Housekeeping

The Cr(VI) standard for general industry includes requirements for housekeeping measures. Proper housekeeping measures are important, where practicable, because they minimize additional sources of exposure to Cr(VI) that engineering controls are generally not designed to address. The standard includes provisions addressing general housekeeping requirements; cleaning methods; and disposal of materials contaminated with Cr(VI). These requirements are not included in the standards for construction or shipyards because they are considered generally impracticable in these environments.

GENERAL REQUIREMENTS

Employers must ensure that:

- All surfaces are maintained as free as practicable of accumulations of Cr(VI); and
- All spills and releases of Cr(VI)-containing material are cleaned up promptly.

Cr(VI) deposited on ledges, equipment, floors, and other surfaces should be removed as soon as practicable to prevent it from becoming airborne and to minimize the likelihood that skin contact will occur. Spills should be rapidly contained and cleaned up without delay.

CLEANING METHODS

Surfaces contaminated with Cr(VI) must be cleaned by HEPA-filtered vacuuming or other methods that minimize exposure to Cr(VI). Other acceptable cleaning methods include wet methods, such as wet sweeping or wet scrubbing. Dry methods (e.g., dry shoveling, dry sweeping, and dry brushing) are generally prohibited because of the potential for dispersal of Cr(VI) into the air. Employers are only allowed to use dry methods in cases where HEPA-filtered vacuuming or other methods that minimize the likelihood of exposure to Cr(VI) have been tried and found not to be effective.

Use of compressed air for cleaning surfaces is also generally inappropriate because of the potential for dispersal of Cr(VI) into the air. Compressed air must not be used for cleaning surfaces unless it is used in conjunction with a ventilation system designed to capture the dust cloud, or if no alternative method is feasible.

Cleaning equipment must be handled in a manner that minimizes the reentry of Cr(VI) into the workplace. HEPA-filtered vacuum equipment must be cleaned and maintained carefully to avoid unnecessary exposures to Cr(VI). Filters must be changed when needed, and the contents of the bags must be disposed of properly to avoid unnecessary Cr(VI) exposures.

DISPOSAL OF CONTAMINATED MATERIALS

Waste, scrap, debris, and any other materials contaminated with Cr(VI) that are consigned for disposal must be disposed of in sealed, impermeable bags or other closed, impermeable containers. For example, the employer may wrap a pallet in plastic to create an impermeable barrier between employees and the Cr(VI) contaminated waste, scrap or debris. Another example would be to use a sealed barrel. Bags or containers of waste, scrap, debris, and any other materials contaminated with Cr(VI) that are consigned for disposal must be labeled in accordance with the requirements of OSHA's Hazard Communication standard (29 CFR 1910.1200).

Medical Surveillance

The intent of medical surveillance is to determine, where reasonably possible, if an individual can be exposed to the Cr(VI) present in his or her workplace without experiencing adverse health effects; to identify Cr(VI)-related adverse health effects when they do occur so that appropriate intervention measures can be taken; and to determine an employee's fitness to use personal protective equipment such as respirators. The standards specify which employees must be offered medical surveillance; when medical examinations must be offered; the contents of the examination; information that the employer must provide to the physician or other licensed health care professional (PLHCP) who performs the examination; and the contents of the written medical opinion that the employer must obtain from the PLHCP.

All medical examinations and procedures required by the standards must be performed by or under the supervision of a PLHCP. Medical surveillance must be provided at no cost to employees, and at a reasonable time and place. If participation requires travel away from the worksite, the employer must bear the cost. Employees must be paid for time spent taking medical examinations, including travel time.

EMPLOYEES PROVIDED MEDICAL SURVEILLANCE

Medical surveillance must be provided to employees who are:

- Exposed to Cr(VI) at or above the action level (2.5 µg/m^3 Cr(VI) as an 8-hour time-weighted average) for 30 or more days a year;
- Experiencing signs or symptoms of the adverse health effects associated with Cr(VI) exposure (e.g., blistering lesions, redness or itchiness of exposed skin, shortness of breath or wheezing that worsens at work, nosebleeds, a whistling sound while inhaling or exhaling); or
- Exposed in an emergency (i.e., an uncontrolled release of Cr(VI) that results in significant and unexpected exposures; see definition of "Emergency" at pg. 5).

FREQUENCY OF MEDICAL EXAMINATIONS

Medical examinations must be provided:

- Within 30 days after initial assignment to a job involving Cr(VI) exposure, unless the employee has received an examination that meets the requirements of the standard within the last 12 months;
- Annually;
- Within 30 days after a PLHCP's written medical opinion recommends an additional examination;
- Whenever an employee shows signs or symptoms of the adverse health effects associated with Cr(VI) exposure;
- Within 30 days after exposure during an emergency which results in an uncontrolled release of Cr(VI); or
- At the termination of employment, unless the last examination provided was less than six months prior to the date of termination.

CONTENTS OF THE EXAMINATION

A medical examination provided under the standard consists of:

- A medical and work history which focuses on: the employee's past, present, and anticipated future exposure to Cr(VI); any history of respiratory system dysfunction; any history of asthma, dermatitis, skin ulceration, or nasal septum perforation; and smoking status and history;
- A physical examination of the skin and respiratory tract; and
- Any additional tests that the examining PLHCP considers to be appropriate for that individual.

The standards do not specify specific tests or procedures that must be provided to all employees. Rather, the information obtained from the medical and work history along with the physical examination of the skin and respiratory tract (the main targets of Cr(VI) toxicity) allow the PLHCPs to use their medical expertise to determine what tests, if any, are warranted.

INFORMATION PROVIDED TO THE PLHCP

The employer must ensure that the PLHCP has a copy of the Cr(VI) standard, and must provide the PLHCP with:

- A description of the affected employee's former, current, and anticipated duties as they relate to Cr(VI) exposure;
- Information on the employee's former, current, and anticipated Cr(VI) exposure levels;
- A description of any personal protective equipment used or to be used by the employee, including when and for how long the employee has used that equipment; and

- Information from records of employment-related medical examinations previously provided to the affected employee.

THE WRITTEN MEDICAL OPINION

The employer must obtain a written medical opinion from the PLHCP for each medical examination performed. The written medical opinion must be obtained within 30 days of the examination, and must contain:

- The PLHCP's opinion as to whether the employee has any detected medical condition(s) that would place the employee at increased risk of material impairment to health from further exposure to Cr(VI);
- Any recommended limitations on the employee's exposure to Cr(VI) or on the use of personal protective equipment such as respirators; and
- A statement that the PLHCP has explained to the employee the results of the medical examination, including any medical conditions related to Cr(VI) exposure that require further evaluation or treatment, and any special provisions for use of protective clothing or equipment.

The PLHCP must not reveal to the employer any specific findings or diagnoses that are not related to workplace Cr(VI) exposure. The employer is required to provide a copy of the written medical opinion to the examined employee within two weeks after receiving it.

Communication of Cr(VI) Hazards to Employees

To protect against illnesses and injuries from Cr(VI) exposures, it is critically important that employees recognize the hazards associated with exposure to Cr(VI) and understand the measures they can take to protect themselves. OSHA's Hazard Communication standard (29 CFR 1910.1200) establishes requirements for employers to provide employees with information on hazardous chemicals such as Cr(VI) through comprehensive chemical hazard communication programs that include material safety data sheets (MSDSs), labels, and employee training. Employers must follow the requirements of the Hazard Communication standard with regard to employees exposed to Cr(VI). These requirements include informing employees of any operations in their work area where Cr(VI) is present and training employees on:

- The methods that may be used to detect Cr(VI) in the work area:
- The hazards of Cr(VI); and
- Measures employees can take to protect themselves from these hazards (e.g., appropriate work practices, emergency procedures, and protective equipment to be used).

In addition, the Cr(VI) standards require the employer to provide information and training sufficient to ensure that employees exposed to Cr(VI) can demonstrate knowledge of:

- The requirements of the Cr(VI) standard; and
- The medical surveillance program required by the standard, including recognition of the signs and symptoms of adverse health effects that may result from Cr(VI) exposure.

The employer must also make a copy of the Cr(VI) standard available without cost to all affected employees.

The standards do not specify how training is to be provided. Classroom instruction, video presentations, informal discussions, written materials, or other methods may be appropriate. The employer may select whatever methods are most effective in a specific workplace. Similarly, the standards do not require employers to provide additional training at periodic intervals. Training must be provided as often as is necessary to ensure that employees are aware of the Cr(VI) hazards in their workplace and understand the protective measures available to them.

Recordkeeping

Accurate records can demonstrate employer compliance with the standard, and can assist in diagnosing and identifying workplace-related illnesses. Therefore, employers are required to maintain records of employee Cr(VI) exposures (including air monitoring data, historical monitoring data, and objective data) as well as records of medical surveillance provided under the standard.

AIR MONITORING DATA

Employers must keep an accurate record of all air monitoring performed to comply with the standard. The record must indicate:

- The date of the measurement for each sample taken;
- The operation involving exposure to Cr(VI) that was monitored;
- Sampling and analytical methods used and evidence of their accuracy;
- The number, duration, and results of samples taken;
- The type of personal protective equipment used (e.g., type of respirators worn); and
- The name, social security number, and job classification of all employees represented by the monitoring, specifying which employees were actually monitored.

HISTORICAL MONITORING DATA

When an employer relies on historical monitoring data to determine employee exposures to Cr(VI), an accurate record of the historical monitoring data must be maintained. The record must show:

- That the data were collected using methods that meet the accuracy requirements of the standard (i.e., the method of monitoring and analysis used must measure Cr(VI) to within an accuracy of ± 25% and to within a statistical confidence level of 95%);
- That the processes and work practices, the characteristics of the Cr(VI)-containing material being handled, and the environmental conditions at the time the data were obtained are the same as those on the job for which exposure is being determined; and
- Any other data relevant to the operations, materials, processing, and employee exposures.

OBJECTIVE DATA

When an employer relies on objective data to comply with the Cr(VI) standard, an accurate record of the objective data must be maintained. The record must indicate:

- The chromium-containing material in question;
- The source of the objective data;
- The testing protocol and results of testing, or analysis of the material for the release of Cr(VI);
- A description of the process, operation, or activity and how the data support the determination; and
- Any other data relevant to the process, operation, activity, material, or employee exposures.

MEDICAL SURVEILLANCE

The employer must maintain an accurate record for each employee provided medical surveillance under the standard. The record must include the following information about the employee:

- Name and social security number;
- A copy of the PLHCP's written opinions; and
- A copy of the information that the employer was required to provide to the PLHCP (i.e., a description of the employee's duties as they relate to occupational Cr(VI) exposure; the employee's Cr(VI) exposure levels; a description of the personal protective equipment used by the employee; and information from previous employment-related medical examinations).

Exposure and medical records must be maintained and made available to employees and their representatives. A separate OSHA standard (29 CFR 1910.1020, Access to Employee Exposure and Medical Records) addresses requirements for maintaining these records. In general, exposure records must be kept for at least 30 years, and medical records must be kept for the duration of employment plus 30 years. It is necessary to keep these records for extended periods because cancer often cannot be detected until 20 or more years after exposure, and exposure and medical records can assist in diagnosing and identifying the cause of disease.

Dates

Employers with 20 or more employees must comply with the requirements of the standards (except the requirements for use of engineering controls) by November 27, 2006. Employers with 19 or fewer employees must comply with the requirements of the standards (except the requirements for use of engineering controls) by May 30, 2007. During the time prior to these compliance dates, employers should take steps to ensure that they are able to meet the requirements of the standards by the start-up dates. Initial exposure assessments should be completed, respiratory protection programs should be established where necessary, appropriate respirators should be obtained, regulated areas should be established where required, appropriate protective work clothing and equipment should be acquired, arrangements should be made for provision of medical surveillance, and other measures necessary to comply with the provisions of the standards should be taken. All requirements of the standards (except those for engineering controls) will be enforced as of the specified dates.

Engineering controls required by the standards must be in place by May 31, 2010. This date applies to all employers, regardless of size. This additional time for implementation of engineering controls is allotted to allow sufficient time for the process of designing, obtaining, and installing equipment and adopting new work methods.

OSHA Assistance

OSHA can provide extensive help through a variety of programs, including technical assistance about effective safety and health programs, state plans, workplace consultations, voluntary protection programs, strategic partnerships, training and education, and more. An overall commitment to workplace safety and health can add value to your business, to your workplace and to your life.

SAFETY AND HEALTH PROGRAM MANAGEMENT GUIDELINES

Effective management of employee safety and health protection is a decisive factor in reducing the extent and severity of work-related injuries and illnesses and their related costs. In fact, an effective safety and health program forms the basis of good employee protection and can save time and money (about $4 for every dollar spent) and increase productivity and reduce employee injuries, illnesses and related workers' compensation costs.

To assist employers and employees in developing effective safety and health programs, OSHA published recommended *Safety and Health Program Management Guidelines* (54 *Federal Register* (16): 3904-3916, January 26, 1989). These voluntary guidelines apply to all places of employment covered by OSHA.

The guidelines identify four general elements critical to the development of a successful safety and health management program:

- Management leadership and employee involvement.
- Work analysis.
- Hazard prevention and control.
- Safety and health training.

The guidelines recommend specific actions, under each of these general elements, to achieve an effective safety and health program. The *Federal Register* notice is available online at www.osha.gov

STATE PROGRAMS

The Occupational Safety and Health Act of 1970 (*OSH Act*) encourages states to develop and operate their own job safety and health plans. OSHA approves and monitors these plans. Twenty-four states, Puerto Rico and the Virgin Islands currently operate approved state plans: 22 cover both private and public (state and local government) employment; the Connecticut, New Jersey, New York and Virgin Islands plans cover the public sector only. States and territories with their own OSHA-approved occupational safety and health plans must adopt standards identical to, or at least as effective as, the Federal standards.

CONSULTATION SERVICES

Consultation assistance is available on request to employers who want help in establishing and maintaining a safe and healthful workplace. Largely funded by OSHA, the service is provided at no cost to the employer. Primarily developed for smaller employers with more hazardous operations, the consultation service is delivered by state governments employing professional safety and health consultants. Comprehensive assistance includes an appraisal of all mechanical systems, work practices and occupational safety and health hazards of the workplace and all aspects of the employer's present job safety and health program. In addition, the service offers assistance to employers in developing and implementing an effective safety and health program. No penalties are proposed or citations issued for hazards identified by the consultant. OSHA provides consultation assistance to the employer with the assurance that his or her name and firm and any information about the workplace will not be routinely reported to OSHA enforcement staff.

Under the consultation program, certain exemplary employers may request participation in OSHA's Safety and Health Achievement Recognition Program (SHARP). Eligibility for participation in SHARP includes receiving a comprehensive consultation visit, demonstrating exemplary achievements in workplace safety and health by abating all identified hazards and developing an excellent safety and health program.

Employers accepted into SHARP may receive an exemption from programmed inspections (not complaint or accident investigation inspections) for a period of one year. For more information concerning consultation assistance, see the OSHA website at www.osha.gov

VOLUNTARY PROTECTION PROGRAMS (VPP)

Voluntary Protection Programs and on-site consultation services, when coupled with an effective enforcement program, expand employee protection to help meet the goals of the *OSH Act*. The three levels of VPP are Star, Merit, and Demonstration designed to

recognize outstanding achievements by companies that have successfully incorporated comprehensive safety and health programs into their total management system. The VPPs motivate others to achieve excellent safety and health results in the same outstanding way as they establish a cooperative relationship between employers, employees and OSHA.

For additional information on VPP and how to apply, contact the OSHA regional offices listed in Appendix III. B.

STRATEGIC PARTNERSHIP PROGRAM

OSHA's Strategic Partnership Program, the newest member of OSHA's cooperative programs, helps encourage, assist and recognize the efforts of partners to eliminate serious workplace hazards and achieve a high level of employee safety and health. Whereas OSHA's Consultation Program and VPP entail one-on-one relationships between OSHA and individual worksites, most strategic partnerships seek to have a broader impact by building cooperative relationships with groups of employers and employees. These partnerships are voluntary, cooperative relationships between OSHA, employers, employee representatives and others (e.g., trade unions, trade and professional associations, universities and other government agencies).

For more information on this and other cooperative programs, contact your nearest OSHA office, or visit OSHA's website at www.osha.gov

ALLIANCE PROGRAMS

The Alliance Program enables organizations committed to workplace safety and health to collaborate with OSHA to prevent injuries and illnesses in the workplace. OSHA and the Alliance participants work together to reach out to, educate and lead the nation's employers and their employees in improving and advancing workplace safety and health.

Groups that can form an Alliance with OSHA include employers, labor unions, trade or professional groups, educational institutions and government agencies. In some cases, organizations may be building on existing relationships with OSHA that were developed through other cooperative programs.

There are few formal program requirements for Alliances and the agreements do not include an enforcement component. However, OSHA and the participating organizations must define, implement and meet a set of short- and long-term goals that fall into three categories: training and education; outreach and communication; and promoting the national dialogue on workplace safety and health.

OSHA TRAINING AND EDUCATION

OSHA area offices offer a variety of information services, such as compliance assistance, technical advice, publications, audiovisual aids and speakers for special engagements. OSHA's Training Institute in Arlington Heights, IL, provides basic and advanced courses in safety and health for Federal and state compliance officers, state consultants, Federal agency personnel, and private sector employers, employees and their representatives.

The OSHA Training Institute also has established OSHA Training Institute Education Centers to address the increased demand for its courses from the private sector and from other Federal agencies. These centers are nonprofit colleges, universities and other organizations that have been selected after a competition for participation in the program.

OSHA also provides funds to nonprofit organizations, through grants, to conduct workplace training and education in subjects where OSHA believes there is a lack of workplace training. Grants are awarded annually. Grant recipients are expected to contribute 20 percent of the total grant cost.

For more information on grants, training and education, contact the OSHA Training Institute, Office of Training and Education, 2020 South Arlington Heights Road, Arlington Heights, IL 60005, (847) 297-4810 or see "Outreach" on OSHA's website at www.osha.gov. For further information on any OSHA program, contact your nearest OSHA area or regional office listed at the end of this publication.

INFORMATION AVAILABLE ELECTRONICALLY

OSHA has a variety of materials and tools available on its website at www.osha.gov. These include *e-Tools* such as *Expert Advisors, Electronic Compliance Assistance Tools (e-cats), Technical Links*; regulations, directives and publications; videos and other information for employers and employees. OSHA's software programs and compliance assistance tools walk you through challenging safety and health issues and common problems to find the best solutions for your workplace.

A wide variety of OSHA materials, including standards, interpretations, directives, and more, can be purchased on CD-ROM from the U.S. Government Printing Office, Superintendent of Documents, phone toll-free (866) 512-1800.

OSHA PUBLICATIONS

OSHA has an extensive publications program. For a listing of free or sales items, visit OSHA's website at www.osha.gov or contact the OSHA Publications Office, U.S. Department of Labor, 200 Constitution Avenue, NW, N-3101, Washington, DC 20210. Telephone (202) 693-1888 or fax to (202) 693-2498.

CONTACTING OSHA

To report an emergency, file a complaint or seek OSHA advice, assistance or products, call (800) 321-OSHA or contact your nearest OSHA regional or area office listed in Appendix III. The teletypewriter (TTY) number is (877) 889-5627.

You can also file a complaint online and obtain more information on OSHA Federal and state programs by visiting OSHA's website at www.osha.gov

Appendix I: OSHA Cr(VI) Standards

GENERAL INDUSTRY STANDARD

§1910.1026 Chromium (VI)

(a) SCOPE.

(1) This standard applies to occupational exposures to chromium (VI) in all forms and compounds in general industry, except:

(2) Exposures that occur in the application of pesticides regulated by the Environmental Protection Agency or another Federal government agency (e.g., the treatment of wood with preservatives);

(3) Exposures to portland cement; or

(4) Where the employer has objective data demonstrating that a material containing chromium or a specific process, operation, or activity involving chromium cannot release dusts, fumes, or mists of chromium (VI) in concentrations at or above 0.5 $\mu g/m^3$ as an 8-hour time-weighted average (TWA) under any expected conditions of use.

(b) DEFINITIONS.

For the purposes of this section the following definitions apply:

Action level means a concentration of airborne chromium (VI) of 2.5 micrograms per cubic meter of air (2.5 $\mu g/m^3$) calculated as an 8-hour time-weighted average (TWA).

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

Chromium (VI) [hexavalent chromium or Cr(VI)] means chromium with a valence of positive six, in any form and in any compound.

Director means the Director of the National Institute for Occupational Safety and Health (NIOSH), U.S. Department of Health and Human Services, or designee.

Emergency means any occurrence that results, or is likely to result, in an uncontrolled release of chromium (VI). If an incidental release of chromium (VI) can be controlled at the time of release by employees in the immediate release area, or by maintenance personnel, it is not an emergency.

Employee exposure means the exposure to airborne chromium (VI) that would occur if the employee were not using a respirator.

High-efficiency particulate air [HEPA] filter means a filter that is at least 99.97 percent efficient in removing mono-dispersed particles of 0.3 micrometers in diameter or larger.

Historical monitoring data means data from chromium (VI) monitoring conducted prior to May 30, 2006, obtained during work operations conducted under workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

Objective data means information such as air monitoring data from industry-wide surveys or calculations based on the composition or chemical and physical properties of a substance demonstrating the employee exposure to chromium (VI) associated with a particular product or material or a specific process, operation, or activity. The data must reflect workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

Physician or other licensed health care professional [PLHCP] is an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required by paragraph (k) of this section.

Regulated area means an area, demarcated by the employer, where an employee's exposure to airborne concentrations of chromium (VI) exceeds, or can reasonably be expected to exceed, the PEL.

This section means this 1910.1026 chromium (VI) standard.

(c) PERMISSIBLE EXPOSURE LIMIT (PEL).

The employer shall ensure that no employee is exposed to an airborne concentration of chromium (VI) in excess of 5 micrograms per cubic meter of air (5 $\mu g/m^3$), calculated as an 8-hour time-weighted average (TWA).

(d) EXPOSURE DETERMINATION.

(1) General. Each employer who has a workplace or work operation covered by this section shall determine the 8-hour TWA exposure for each employee

exposed to chromium (VI). This determination shall be made in accordance with either paragraph (d)(2) or paragraph (d)(3) of this section.

(2) Scheduled monitoring option.

(i) The employer shall perform initial monitoring to determine the 8-hour TWA exposure for each employee on the basis of a sufficient number of personal breathing zone air samples to accurately characterize full shift exposure on each shift, for each job classification, in each work area. Where an employer does representative sampling instead of sampling all employees in order to meet this requirement, the employer shall sample the employee(s) expected to have the highest chromium (VI) exposures.

(ii) If initial monitoring indicates that employee exposures are below the action level, the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring.

(iii) If monitoring reveals employee exposures to be at or above the action level, the employer shall perform periodic monitoring at least every six months.

(iv) If monitoring reveals employee exposures to be above the PEL, the employer shall perform periodic monitoring at least every three months.

(v) If periodic monitoring indicates that employee exposures are below the action level, and the result is confirmed by the result of another monitoring taken at least seven days later, the employer may discontinue the monitoring for those employees whose exposures are represented by such monitoring.

(vi) The employer shall perform additional monitoring when there has been any change in the production process, raw materials, equipment, personnel, work practices, or control methods that may result in new or additional exposures to chromium (VI), or when the employer has any reason to believe that new or additional exposures have occurred.

(3) Performance-oriented option. The employer shall determine the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data, historical monitoring data, or objective data sufficient to accurately characterize employee exposure to chromium (VI).

(4) Employee notification of determination results.

(i) Where the exposure determination indicates that employee exposure exceeds the PEL, within 15 working days the employer shall either post the results in an appropriate location that is accessible to all affected employees or shall notify each affected employee individually in writing of the results.

(ii) Whenever the exposure determination indicates that employee exposure is above the PEL, the employer shall describe in the written notification the corrective action being taken to reduce employee exposure to or below the PEL.

(5) Accuracy of measurement. Where air monitoring is performed to comply with the requirements of this section, the employer shall use a method of monitoring and analysis that can measure chromium (VI) to within an accuracy of plus or minus 25 percent (+/- 25%) and can produce accurate measurements to within a statistical confidence level of 95 percent for airborne concentrations at or above the action level.

(6) Observation of monitoring.

(i) Where air monitoring is performed to comply with the requirements of this section, the employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to chromium (VI).

(ii) When observation of monitoring requires entry into an area where the use of protective clothing or equipment is required, the employer shall provide the observer with clothing and equipment and shall assure that the observer uses such clothing and equipment and complies with all other applicable safety and health procedures.

(e) REGULATED AREAS.

(1) Establishment. The employer shall establish a regulated area wherever an employee's exposure to airborne concentrations of chromium (VI) is, or can reasonably be expected to be, in excess of the PEL.

(2) Demarcation. The employer shall ensure that regulated areas are demarcated from the rest of the workplace in a manner that adequately establishes and alerts employees of the boundaries of the regulated area.

(3) Access. The employer shall limit access to regulated areas to:

(i) Persons authorized by the employer and required by work duties to be present in the regulated area;

(ii) Any person entering such an area as a designated representative of employees for the purpose of exercising the right to observe monitoring procedures under paragraph (d) of this section; or

(iii) Any person authorized by the *Occupational Safety and Health Act* or regulations issued under it to be in a regulated area.

(f) METHODS OF COMPLIANCE.

(1) Engineering and work practice controls.

(i) Except as permitted in paragraph (f)(1)(ii) and paragraph (f)(1)(iii) of this section, the employer shall use engineering and work practice controls to reduce and maintain employee exposure to chromium (VI) to or below the PEL unless the employer can demonstrate that such controls are not feasible. Wherever feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, the employer shall use them to reduce employee exposure to the lowest levels achievable, and shall supplement them by the use of respiratory protection that complies with the requirements of paragraph (g) of this section.

(ii) Where painting of aircraft or large aircraft parts is performed in the aerospace industry, the employer shall use engineering and work practice controls to reduce and maintain employee exposure to chromium (VI) to or below 25 $\mu g/m^3$ unless the employer can demonstrate that such controls are not feasible. The employer shall supplement such engineering and work practice controls with the use of respiratory protection that complies with the requirements of paragraph (g) of this section to achieve the PEL.

(iii) Where the employer can demonstrate that a process or task does not result in any employee exposure to chromium (VI) above the PEL for 30 or more days per year (12 consecutive months), the requirement to implement engineering and work practice controls to achieve the PEL does not apply to that process or task.

(2) Prohibition of rotation. The employer shall not rotate employees to different jobs to achieve compliance with the PEL.

(g) RESPIRATORY PROTECTION.

(1) General. The employer shall provide respiratory protection for employees during:

(i) Periods necessary to install or implement feasible engineering and work practice controls;

(ii) Work operations, such as maintenance and repair activities, for which engineering and work practice controls are not feasible;

(iii) Work operations for which an employer has implemented all feasible engineering and work practice controls and such controls are not sufficient to reduce exposures to or below the PEL;

(iv) Work operations where employees are exposed above the PEL for fewer than 30 days per year, and the employer has elected not to implement engineering and work practice controls to achieve the PEL; or

(v) Emergencies.

(2) Respiratory protection program. Where respirator use is required by this section, the employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134.

(h) PROTECTIVE WORK CLOTHING AND EQUIPMENT.

(1) Provision and use. Where a hazard is present or is likely to be present from skin or eye contact with chromium (VI), the employer shall provide appropriate personal protective clothing and equipment at no cost to employees, and shall ensure that employees use such clothing and equipment.

(2) Removal and storage.

(i) The employer shall ensure that employees remove all protective clothing and equipment contaminated with chromium (VI) at the end of the work shift or at the completion of their tasks involving chromium (VI) exposure, whichever comes first.

(ii) The employer shall ensure that no employee removes chromium (VI)-contaminated protective clothing or equipment from the workplace, except for those employees whose job it is to launder, clean, maintain, or dispose of such clothing or equipment.

(iii) When contaminated protective clothing or equipment is removed for laundering, cleaning, maintenance, or disposal, the employer shall ensure that it is stored and transported in sealed, impermeable bags or other closed, impermeable containers.

(iv) Bags or containers of contaminated protective clothing or equipment that are removed from change rooms for laundering, cleaning, maintenance, or disposal shall be labeled in accordance with the requirements of the Hazard Communication standard, (29 CFR 1910.1200).

(3) Cleaning and replacement.

(i) The employer shall clean, launder, repair and replace all protective clothing and equipment required by this section as needed to maintain its effectiveness.

(ii) The employer shall prohibit the removal of chromium (VI) from protective clothing and equipment by blowing, shaking, or any other means that disperses chromium (VI) into the air or onto an employee's body.

(iii) The employer shall inform any person who launders or cleans protective clothing or equipment

contaminated with chromium (VI) of the potentially harmful effects of exposure to chromium (VI) and that the clothing and equipment should be laundered or cleaned in a manner that minimizes skin or eye contact with chromium (VI) and effectively prevents the release of airborne chromium (VI) in excess of the PEL.

(i) HYGIENE AREAS AND PRACTICES.

(1) General. Where protective clothing and equipment is required, the employer shall provide change rooms in conformance with 29 CFR 1910.141. Where skin contact with chromium (VI) occurs, the employer shall provide washing facilities in conformance with 29 CFR 1910.141. Eating and drinking areas provided by the employer shall also be in conformance with §1910.141.

(2) Change rooms. The employer shall assure that change rooms are equipped with separate storage facilities for protective clothing and equipment and for street clothes, and that these facilities prevent cross-contamination.

(3) Washing facilities.

(i) The employer shall provide readily accessible washing facilities capable of removing chromium (VI) from the skin, and shall ensure that affected employees use these facilities when necessary.

(ii) The employer shall ensure that employees who have skin contact with chromium (VI) wash their hands and faces at the end of the work shift and prior to eating, drinking, smoking, chewing tobacco or gum, applying cosmetics, or using the toilet.

(4) Eating and drinking areas.

(i) Whenever the employer allows employees to consume food or beverages at a worksite where chromium (VI) is present, the employer shall ensure that eating and drinking areas and surfaces are maintained as free as practicable of chromium (VI).

(ii) The employer shall ensure that employees do not enter eating and drinking areas with protective work clothing or equipment unless surface chromium (VI) has been removed from the clothing and equipment by methods that do not disperse chromium (VI) into the air or onto an employee's body.

(5) Prohibited activities. The employer shall ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in regulated areas, or in areas where skin or eye contact with chromium (VI) occurs; or carry the products associated with these activities, or store such products in these areas.

(j) HOUSEKEEPING.

(1) General. The employer shall ensure that:

(i) All surfaces are maintained as free as practicable of accumulations of chromium (VI).

(ii) All spills and releases of chromium (VI) containing material are cleaned up promptly.

(2) Cleaning methods.

(i) The employer shall ensure that surfaces contaminated with chromium (VI) are cleaned by HEPA-filter vacuuming or other methods that minimize the likelihood of exposure to chromium (VI).

(ii) Dry shoveling, dry sweeping, and dry brushing may be used only where HEPA-filtered vacuuming or other methods that minimize the likelihood of exposure to chromium (VI) have been tried and found not to be effective.

(iii) The employer shall not allow compressed air to be used to remove chromium (VI) from any surface unless:

(A) The compressed air is used in conjunction with a ventilation system designed to capture the dust cloud created by the compressed air; or

(B) No alternative method is feasible.

(iv) The employer shall ensure that cleaning equipment is handled in a manner that minimizes the reentry of chromium (VI) into the workplace.

(3) Disposal. The employer shall ensure that:

(i) Waste, scrap, debris, and any other materials contaminated with chromium (VI) and consigned for disposal are collected and disposed of in sealed, impermeable bags or other closed, impermeable containers.

(ii) Bags or containers of waste, scrap, debris, and any other materials contaminated with chromium (VI) that are consigned for disposal are labeled in accordance with the requirements of the Hazard Communication standard (29 CFR 1910.1200).

(k) MEDICAL SURVEILLANCE.

(1) General.

(i) The employer shall make medical surveillance available at no cost to the employee, and at a reasonable time and place, for all employees:

(A) Who are or may be occupationally exposed to chromium (VI) at or above the action level for 30 or more days a year;

(B) Experiencing signs or symptoms of the adverse health effects associated with chromium (VI) exposure; or

(C) Exposed in an emergency.

(ii) The employer shall assure that all medical examinations and procedures required by this section are performed by or under the supervision of a PLHCP.

(2) Frequency. The employer shall provide a medical examination:

(i) Within 30 days after initial assignment, unless the employee has received a chromium (VI) related medical examination that meets the requirements of this paragraph within the last twelve months;

(ii) Annually;

(iii) Within 30 days after a PLHCP's written medical opinion recommends an additional examination;

(iv) Whenever an employee shows signs or symptoms of the adverse health effects associated with chromium (VI) exposure;

(v) Within 30 days after exposure during an emergency which results in an uncontrolled release of chromium (VI); or

(vi) At the termination of employment, unless the last examination that satisfied the requirements of paragraph (k) of this section was less than six months prior to the date of termination.

(3) Contents of examination. A medical examination consists of:

(i) A medical and work history, with emphasis on: past, present, and anticipated future exposure to chromium (VI); any history of respiratory system dysfunction; any history of asthma, dermatitis, skin ulceration, or nasal septum perforation; and smoking status and history;

(ii) A physical examination of the skin and respiratory tract; and

(iii) Any additional tests deemed appropriate by the examining PLHCP.

(4) Information provided to the PLHCP. The employer shall ensure that the examining PLHCP has a copy of this standard, and shall provide the following information:

(i) A description of the affected employee's former, current, and anticipated duties as they relate to the employee's occupational exposure to chromium (VI);

(ii) The employee's former, current, and anticipated levels of occupational exposure to chromium (VI);

(iii) A description of any personal protective equipment used or to be used by the employee, including when and for how long the employee has used that equipment; and

(iv) Information from records of employment-related medical examinations previously provided to the affected employee, currently within the control of the employer.

(5) PLHCP's written medical opinion.

(i) The employer shall obtain a written medical opinion from the PLHCP, within 30 days for each medical examination performed on each employee, which contains:

(A) The PLHCP's opinion as to whether the employee has any detected medical condition(s) that would place the employee at increased risk of material impairment to health from further exposure to chromium (VI);

(B) Any recommended limitations upon the employee's exposure to chromium (VI) or upon the use of personal protective equipment such as respirators;

(C) A statement that the PLHCP has explained to the employee the results of the medical examination, including any medical conditions related to chromium (VI) exposure that require further evaluation or treatment, and any special provisions for use of protective clothing or equipment.

(ii) The PLHCP shall not reveal to the employer specific findings or diagnoses unrelated to occupational exposure to chromium (VI).

(iii) The employer shall provide a copy of the PLHCP's written medical opinion to the examined employee within two weeks after receiving it.

(l) COMMUNICATION OF CHROMIUM (VI) HAZARDS TO EMPLOYEES.

(1) General. In addition to the requirements of the Hazard Communication standard (29 CFR 1910.1200), employers shall comply with the following requirements.

(2) Employee information and training.

(i) The employer shall ensure that each employee can demonstrate knowledge of at least the following:

(A) The contents of this section; and

(B) The purpose and a description of the medical surveillance program required by paragraph (k) of this section.

(ii) The employer shall make a copy of this section readily available without cost to all affected employees.

(m) RECORDKEEPING.

(1) Air monitoring data.

(i) The employer shall maintain an accurate record of all air monitoring conducted to comply with the requirements of this section.

(ii) This record shall include at least the following information:

(A) The date of measurement for each sample taken;

(B) The operation involving exposure to chromium (VI) that is being monitored;

(C) Sampling and analytical methods used and evidence of their accuracy;

(D) Number, duration, and the results of samples taken;

(E) Type of personal protective equipment, such as respirators worn; and

(F) Name, social security number, and job classification of all employees represented by the monitoring, indicating which employees were actually monitored.

(iii) The employer shall ensure that exposure records are maintained and made available in accordance with 29 CFR 1910.1020.

(2) Historical monitoring data.

(i) Where the employer has relied on historical monitoring data to determine exposure to chromium (VI), the employer shall establish and maintain an accurate record of the historical monitoring data relied upon.

(ii) The record shall include information that reflects the following conditions:

(A) The data were collected using methods that meet the accuracy requirements of paragraph (d)(5) of this section;

(B) The processes and work practices that were in use when the historical monitoring data were obtained are essentially the same as those to be used during the job for which exposure is being determined;

(C) The characteristics of the chromium (VI) containing material being handled when the historical monitoring data were obtained are the same as those on the job for which exposure is being determined;

(D) Environmental conditions prevailing when the historical monitoring data were obtained are the same as those on the job for which exposure is being determined; and

(E) Other data relevant to the operations, materials, processing, or employee exposures covered by the exception.

(iii) The employer shall ensure that historical exposure records are maintained and made available in accordance with 29 CFR 1910.1020.

(3) Objective data.

(i) The employer shall maintain an accurate record of all objective data relied upon to comply with the requirements of this section.

(ii) This record shall include at least the following information:

(A) The chromium containing material in question;

(B) The source of the objective data;

(C) The testing protocol and results of testing, or analysis of the material for the release of chromium (VI);

(D) A description of the process, operation, or activity and how the data support the determination; and

(E) Other data relevant to the process, operation, activity, material, or employee exposures.

(iii) The employer shall ensure that objective data are maintained and made available in accordance with 29 CFR 1910.1020.

(4) Medical surveillance.

(i) The employer shall establish and maintain an accurate record for each employee covered by medical surveillance under paragraph (k) of this section.

(ii) The record shall include the following information about the employee:

(A) Name and social security number;

(B) A copy of the PLHCP's written opinions;

(C) A copy of the information provided to the PLHCP as required by paragraph (k)(4) of this section.

(iii) The employer shall ensure that medical records are maintained and made available in accordance with 29 CFR 1910.1020.

(n) DATES.

(1) For employers with 20 or more employees, all obligations of this section, except engineering controls required by paragraph (f) of this section, commence November 27, 2006.

(2) For employers with 19 or fewer employees, all obligations of this section, except engineering controls required by paragraph (f) of this section, commence May 30, 2007.

(3) For all employers, engineering controls required by paragraph (f) of this section shall be implemented no later than May 31, 2010.

SHIPYARDS STANDARD

§1915.1026 Chromium (VI)

(a) SCOPE.

(1) This standard applies to occupational exposures to chromium (VI) in all forms and compounds in shipyards, marine terminals, and longshoring, except:

(2) Exposures that occur in the application of pesticides regulated by the Environmental Protection Agency or another Federal government agency (e.g., the treatment of wood with preservatives);

(3) Exposures to portland cement; or

(4) Where the employer has objective data demonstrating that a material containing chromium or a specific process, operation, or activity involving chromium cannot release dusts, fumes, or mists of chromium (VI) in concentrations at or above 0.5 $\mu g/m^3$ as an 8-hour time-weighted average (TWA) under any expected conditions of use.

(b) DEFINITIONS.

For the purposes of this section the following definitions apply:

Action level means a concentration of airborne chromium (VI) of 2.5 micrograms per cubic meter of air (2.5 $\mu g/m^3$) calculated as an 8-hour time-weighted average (TWA).

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

Chromium (VI) [hexavalent chromium or Cr(VI)] means chromium with a valence of positive six, in any form and in any compound.

Director means the Director of the National Institute for Occupational Safety and Health (NIOSH), U.S. Department of Health and Human Services, or designee.

Emergency means any occurrence that results, or is likely to result, in an uncontrolled release of chromium (VI). If an incidental release of chromium (VI) can be controlled at the time of release by employees in the immediate release area, or by maintenance personnel, it is not an emergency.

Employee exposure means the exposure to airborne chromium (VI) that would occur if the employee were not using a respirator.

High-efficiency particulate air [HEPA] filter means a filter that is at least 99.97 percent efficient in removing mono-dispersed particles of 0.3 micrometers in diameter or larger.

Historical monitoring data means data from chromium (VI) monitoring conducted prior to May 30, 2006, obtained during work operations conducted under workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

Objective data means information such as air monitoring data from industry-wide surveys or calculations based on the composition or chemical and physical properties of a substance demonstrating the employee exposure to chromium (VI) associated with a particular product or material or a specific process, operation, or activity. The data must reflect workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

Physician or other licensed health care professional [PLHCP] is an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required by paragraph (i) of this section.

This section means this 1915.1026 chromium (VI) standard.

(c) PERMISSIBLE EXPOSURE LIMIT (PEL).

The employer shall ensure that no employee is exposed to an airborne concentration of chromium (VI) in excess of 5 micrograms per cubic meter of air (5 $\mu g/m^3$), calculated as an 8-hour time-weighted average (TWA).

(d) EXPOSURE DETERMINATION.

(1) General. Each employer who has a workplace or work operation covered by this section shall determine the 8-hour TWA exposure for each employee exposed to chromium (VI). This determination shall be made in accordance with either paragraph (d)(2) or paragraph (d)(3) of this section.

(2) Scheduled monitoring option.

(i) The employer shall perform initial monitoring to determine the 8-hour TWA exposure for each employee on the basis of a sufficient number of personal breathing zone air samples to accurately characterize full shift exposure on each shift, for each job classification, in each work area. Where an employer does

representative sampling instead of sampling all employees in order to meet this requirement, the employer shall sample the employee(s) expected to have the highest chromium (VI) exposures.

(ii) If initial monitoring indicates that employee exposures are below the action level, the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring.

(iii) If monitoring reveals employee exposures to be at or above the action level, the employer shall perform periodic monitoring at least every six months.

(iv) If monitoring reveals employee exposures to be above the PEL, the employer shall perform periodic monitoring at least every three months.

(v) If periodic monitoring indicates that employee exposures are below the action level, and the result is confirmed by the result of another monitoring taken at least seven days later, the employer may discontinue the monitoring for those employees whose exposures are represented by such monitoring.

(vi) The employer shall perform additional monitoring when there has been any change in the production process, raw materials, equipment, personnel, work practices, or control methods that may result in new or additional exposures to chromium (VI), or when the employer has any reason to believe that new or additional exposures have occurred.

(3) Performance-oriented option. The employer shall determine the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data, historical monitoring data, or objective data sufficient to accurately characterize employee exposure to chromium (VI).

(4) Employee notification of determination results.

(i) Where the exposure determination indicates that employee exposure exceeds the PEL, as soon as possible but not more than 5 working days later the employer shall either post the results in an appropriate location that is accessible to all affected employees or shall notify each affected employee individually in writing of the results.

(ii) Whenever the exposure determination indicates that employee exposure is above the PEL, the employer shall describe in the written notification the corrective action being taken to reduce employee exposure to or below the PEL.

(5) Accuracy of measurement. Where air monitoring is performed to comply with the requirements of this section, the employer shall use a method of monitoring and analysis that can measure chromium (VI) to within an accuracy of plus or minus 25 percent (+/- 25%) and can produce accurate measurements to within a statistical confidence level of 95 percent for airborne concentrations at or above the action level.

(6) Observation of monitoring.

(i) Where air monitoring is performed to comply with the requirements of this section, the employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to chromium (VI).

(ii) When observation of monitoring requires entry into an area where the use of protective clothing or equipment is required, the employer shall provide the observer with clothing and equipment and shall assure that the observer uses such clothing and equipment and complies with all other applicable safety and health procedures.

(e) METHODS OF COMPLIANCE.

(1) Engineering and work practice controls.

(i) Except as permitted in paragraph (e)(1)(ii) of this section, the employer shall use engineering and work practice controls to reduce and maintain employee exposure to chromium (VI) to or below the PEL unless the employer can demonstrate that such controls are not feasible. Wherever feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, the employer shall use them to reduce employee exposure to the lowest levels achievable, and shall supplement them by the use of respiratory protection that complies with the requirements of paragraph (f) of this section.

(ii) Where the employer can demonstrate that a process or task does not result in any employee exposure to chromium (VI) above the PEL for 30 or more days per year (12 consecutive months), the requirement to implement engineering and work practice controls to achieve the PEL does not apply to that process or task.

(2) Prohibition of rotation. The employer shall not rotate employees to different jobs to achieve compliance with the PEL.

(f) RESPIRATORY PROTECTION.

(1) General. The employer shall provide respiratory protection for employees during:

(i) Periods necessary to install or implement feasible engineering and work practice controls;

(ii) Work operations, such as maintenance and repair activities, for which engineering and work practice controls are not feasible;

(iii) Work operations for which an employer has implemented all feasible engineering and work practice controls and such controls are not sufficient to reduce exposures to or below the PEL;

(iv) Work operations where employees are exposed above the PEL for fewer than 30 days per year, and the employer has elected not to implement engineering and work practice controls to achieve the PEL; or

(v) Emergencies.

(2) Respiratory protection program. Where respirator use is required by this section, the employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134.

(g) PROTECTIVE WORK CLOTHING AND EQUIPMENT.

(1) Provision and use. Where a hazard is present or is likely to be present from skin or eye contact with chromium (VI), the employer shall provide appropriate personal protective clothing and equipment at no cost to employees, and shall ensure that employees use such clothing and equipment.

(2) Removal and storage.

(i) The employer shall ensure that employees remove all protective clothing and equipment contaminated with chromium (VI) at the end of the work shift or at the completion of their tasks involving chromium (VI) exposure, whichever comes first.

(ii) The employer shall ensure that no employee removes chromium (VI)-contaminated protective clothing or equipment from the workplace, except for those employees whose job it is to launder, clean, maintain, or dispose of such clothing or equipment.

(iii) When contaminated protective clothing or equipment is removed for laundering, cleaning, maintenance, or disposal, the employer shall ensure that it is stored and transported in sealed, impermeable bags or other closed, impermeable containers.

(iv) Bags or containers of contaminated protective clothing or equipment that are removed from change rooms for laundering, cleaning, maintenance, or disposal shall be labeled in accordance with the requirements of the Hazard Communication standard (29 CFR 1910.1200).

(3) Cleaning and replacement.

(i) The employer shall clean, launder, repair and replace all protective clothing and equipment required by this section as needed to maintain its effectiveness.

(ii) The employer shall prohibit the removal of chromium (VI) from protective clothing and equipment by blowing, shaking, or any other means that disperses chromium (VI) into the air or onto an employee's body.

(iii) The employer shall inform any person who launders or cleans protective clothing or equipment contaminated with chromium (VI) of the potentially harmful effects of exposure to chromium (VI) and that the clothing and equipment should be laundered or cleaned in a manner that minimizes skin or eye contact with chromium (VI) and effectively prevents the release of airborne chromium (VI) in excess of the PEL.

(h) HYGIENE AREAS AND PRACTICES.

(1) General. Where protective clothing and equipment is required, the employer shall provide change rooms in conformance with 29 CFR 1910.141. Where skin contact with chromium (VI) occurs, the employer shall provide washing facilities in conformance with 29 CFR 1915.97. Eating and drinking areas provided by the employer shall also be in conformance with §1915.97.

(2) Change rooms. The employer shall assure that change rooms are equipped with separate storage facilities for protective clothing and equipment and for street clothes, and that these facilities prevent cross-contamination.

(3) Washing facilities.

(i) The employer shall provide readily accessible washing facilities capable of removing chromium (VI) from the skin, and shall ensure that affected employees use these facilities when necessary.

(ii) The employer shall ensure that employees who have skin contact with chromium (VI) wash their hands and faces at the end of the work shift and prior to eating, drinking, smoking, chewing tobacco or gum, applying cosmetics, or using the toilet.

(4) Eating and drinking areas.

(i) Whenever the employer allows employees to consume food or beverages at a worksite where chromium (VI) is present, the employer shall ensure that eating and drinking areas and surfaces are maintained as free as practicable of chromium (VI).

(ii) The employer shall ensure that employees do not enter eating and drinking areas with protective work clothing or equipment unless surface chromium (VI) has been removed from the clothing and equip-

ment by methods that do not disperse chromium (VI) into the air or onto an employee's body.

(5) Prohibited activities. The employer shall ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in areas where skin or eye contact with chromium (VI) occurs; or carry the products associated with these activities, or store such products in these areas.

(i) MEDICAL SURVEILLANCE.

(1) General.

(i) The employer shall make medical surveillance available at no cost to the employee, and at a reasonable time and place, for all employees:

(A) Who are or may be occupationally exposed to chromium (VI) at or above the action level for 30 or more days a year;

(B) Experiencing signs or symptoms of the adverse health effects associated with chromium (VI) exposure; or

(C) Exposed in an emergency.

(ii) The employer shall assure that all medical examinations and procedures required by this section are performed by or under the supervision of a PLHCP.

(2) Frequency. The employer shall provide a medical examination:

(i) Within 30 days after initial assignment, unless the employee has received a chromium (VI) related medical examination that meets the requirements of this paragraph within the last twelve months;

(ii) Annually;

(iii) Within 30 days after a PLHCP's written medical opinion recommends an additional examination;

(iv) Whenever an employee shows signs or symptoms of the adverse health effects associated with chromium (VI) exposure;

(v) Within 30 days after exposure during an emergency which results in an uncontrolled release of chromium (VI); or

(vi) At the termination of employment, unless the last examination that satisfied the requirements of paragraph (i) of this section was less than six months prior to the date of termination.

(3) Contents of examination. A medical examination consists of:

(i) A medical and work history, with emphasis on: past, present, and anticipated future exposure to chromium (VI); any history of respiratory system dysfunction; any history of asthma, dermatitis, skin ulceration, or nasal septum perforation; and smoking status and history;

(ii) A physical examination of the skin and respiratory tract; and

(iii) Any additional tests deemed appropriate by the examining PLHCP.

(4) Information provided to the PLHCP. The employer shall ensure that the examining PLHCP has a copy of this standard, and shall provide the following information:

(i) A description of the affected employee's former, current, and anticipated duties as they relate to the employee's occupational exposure to chromium (VI);

(ii) The employee's former, current, and anticipated levels of occupational exposure to chromium (VI);

(iii) A description of any personal protective equipment used or to be used by the employee, including when and for how long the employee has used that equipment; and

(iv) Information from records of employment-related medical examinations previously provided to the affected employee, currently within the control of the employer.

(5) PLHCP's written medical opinion.

(i) The employer shall obtain a written medical opinion from the PLHCP, within 30 days for each medical examination performed on each employee, which contains:

(A) The PLHCP's opinion as to whether the employee has any detected medical condition(s) that would place the employee at increased risk of material impairment to health from further exposure to chromium (VI);

(B) Any recommended limitations upon the employee's exposure to chromium (VI) or upon the use of personal protective equipment such as respirators;

(C) A statement that the PLHCP has explained to the employee the results of the medical examination, including any medical conditions related to chromium (VI) exposure that require further evaluation or treatment, and any special provisions for use of protective clothing or equipment.

(ii) The PLHCP shall not reveal to the employer specific findings or diagnoses unrelated to occupational exposure to chromium (VI).

(iii) The employer shall provide a copy of the PLHCP's written medical opinion to the examined employee within two weeks after receiving it.

(j) COMMUNICATION OF CHROMIUM (VI) HAZARDS TO EMPLOYEES.

(1) General. In addition to the requirements of the Hazard Communication standard (29 CFR 1910.1200) employers shall comply with the following requirements.

(2) Employee information and training.

(i) The employer shall ensure that each employee can demonstrate knowledge of at least the following:

(A) The contents of this section; and

(B) The purpose and a description of the medical surveillance program required by paragraph (i) of this section.

(ii) The employer shall make a copy of this section readily available without cost to all affected employees.

(k) RECORDKEEPING.

(1) Air monitoring data.

(i) The employer shall maintain an accurate record of all air monitoring conducted to comply with the requirements of this section.

(ii) This record shall include at least the following information:

(A) The date of measurement for each sample taken;

(b) The operation involving exposure to chromium (VI) that is being monitored;

(C) Sampling and analytical methods used and evidence of their accuracy;

(D) Number, duration, and the results of samples taken;

(E) Type of personal protective equipment, such as respirators worn; and

(F) Name, social security number, and job classification of all employees represented by the monitoring, indicating which employees were actually monitored.

(iii) The employer shall ensure that exposure records are maintained and made available in accordance with 29 CFR 1910.1020.

(2) Historical monitoring data.

(i) Where the employer has relied on historical monitoring data to determine exposure to chromium (VI), the employer shall establish and maintain an accurate record of the historical monitoring data relied upon.

(ii) The record shall include information that reflects the following conditions:

(A) The data were collected using methods that meet the accuracy requirements of paragraph (d)(5) of this section;

(B) The processes and work practices that were in use when the historical monitoring data were obtained are essentially the same as those to be used during the job for which exposure is being determined;

(C) The characteristics of the chromium (VI) containing material being handled when the historical monitoring data were obtained are the same as those on the job for which exposure is being determined;

(D) Environmental conditions prevailing when the historical monitoring data were obtained are the same as those on the job for which exposure is being determined; and

(E) Other data relevant to the operations, materials, processing, or employee exposures covered by the exception.

(iii) The employer shall ensure that historical exposure records are maintained and made available in accordance with 29 CFR 1910.1020.

(3) Objective data.

(i) The employer shall maintain an accurate record of all objective data relied upon to comply with the requirements of this section.

(ii) This record shall include at least the following information:

(A) The chromium containing material in question;

(B) The source of the objective data;

(C) The testing protocol and results of testing, or analysis of the material for the release of chromium (VI);

(D) A description of the process, operation, or activity and how the data support the determination; and

(E) Other data relevant to the process, operation, activity, material, or employee exposures.

(iii) The employer shall ensure that objective data are maintained and made available in accordance with 29 CFR 1910.1020.

(4) Medical surveillance.

(i) The employer shall establish and maintain an accurate record for each employee covered by medical surveillance under paragraph (i) of this section.

(ii) The record shall include the following information about the employee:

(A) Name and social security number;

(B) A copy of the PLHCP's written opinions;

(C) A copy of the information provided to the PLHCP as required by paragraph (i)(4) of this section.

(iii) The employer shall ensure that medical records are maintained and made available in accordance with 29 CFR 1910.1020.

(l) DATES.

(1) For employers with 20 or more employees, all obligations of this section, except engineering controls required by paragraph (e) of this section, commence November 27, 2006.

(2) For employers with 19 or fewer employees, all obligations of this section, except engineering controls required by paragraph (e) of this section, commence May 30, 2007.

(3) For all employers, engineering controls required by paragraph (e) of this section shall be implemented no later than May 31, 2010.

CONSTRUCTION STANDARD

§1926.1126 Chromium (VI)

(a) SCOPE.

(1) This standard applies to occupational exposures to chromium (VI) in all forms and compounds in construction, except:

(2) Exposures that occur in the application of pesticides regulated by the Environmental Protection Agency or another Federal government agency (e.g., the treatment of wood with preservatives);

(3) Exposures to portland cement; or

(4) Where the employer has objective data demonstrating that a material containing chromium or a specific process, operation, or activity involving chromium cannot release dusts, fumes, or mists of chromium (VI) in concentrations at or above 0.5 $\mu g/m^3$ as an 8-hour time-weighted average (TWA) under any expected conditions of use.

(b) DEFINITIONS.

For the purposes of this section the following definitions apply:

Action level means a concentration of airborne chromium (VI) of 2.5 micrograms per cubic meter of air (2.5 $\mu g/m^3$) calculated as an 8-hour time-weighted average (TWA).

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

Chromium (VI) [hexavalent chromium or Cr(VI)] means chromium with a valence of positive six, in any form and in any compound.

Director means the Director of the National Institute for Occupational Safety and Health (NIOSH), U.S. Department of Health and Human Services, or designee.

Emergency means any occurrence that results, or is likely to result, in an uncontrolled release of chromium (VI). If an incidental release of chromium (VI) can be controlled at the time of release by employees in the immediate release area, or by maintenance personnel, it is not an emergency.

Employee exposure means the exposure to airborne chromium (VI) that would occur if the employee were not using a respirator.

High-efficiency particulate air [HEPA] filter means a filter that is at least 99.97 percent efficient in removing mono-dispersed particles of 0.3 micrometers in diameter or larger.

Historical monitoring data means data from chromium (VI) monitoring conducted prior to May 30, 2006, obtained during work operations conducted under workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

Objective data means information such as air monitoring data from industry-wide surveys or calculations based on the composition or chemical and physical properties of a substance demonstrating the employee exposure to chromium (VI) associated with a particular product or material or a specific process, operation, or activity. The data must reflect workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

Physician or other licensed health care professional [PLHCP] is an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required by paragraph (i) of this section.

This section means this 1926.1126 chromium (VI) standard.

(c) PERMISSIBLE EXPOSURE LIMIT (PEL).

The employer shall ensure that no employee is exposed to an airborne concentration of chromium (VI) in excess of 5 micrograms per cubic meter of air (5 $\mu g/m^3$), calculated as an 8-hour time-weighted average (TWA).

(d) EXPOSURE DETERMINATION.

(1) General. Each employer who has a workplace or work operation covered by this section shall determine the 8-hour TWA exposure for each employee exposed to chromium (VI). This determination shall be made in accordance with either paragraph (d)(2) or paragraph (d)(3) of this section.

(2) Scheduled monitoring option.

(i) The employer shall perform initial monitoring to determine the 8-hour TWA exposure for each employee on the basis of a sufficient number of personal breathing zone air samples to accurately characterize full shift exposure on each shift, for each job classifi-

cation, in each work area. Where an employer does representative sampling instead of sampling all employees in order to meet this requirement, the employer shall sample the employee(s) expected to have the highest chromium (VI) exposures.

(ii) If initial monitoring indicates that employee exposures are below the action level, the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring.

(iii) If monitoring reveals employee exposures to be at or above the action level, the employer shall perform periodic monitoring at least every six months.

(iv) If monitoring reveals employee exposures to be above the PEL, the employer shall perform periodic monitoring at least every three months.

(v) If periodic monitoring indicates that employee exposures are below the action level, and the result is confirmed by the result of another monitoring taken at least seven days later, the employer may discontinue the monitoring for those employees whose exposures are represented by such monitoring.

(vi) The employer shall perform additional monitoring when there has been any change in the production process, raw materials, equipment, personnel, work practices, or control methods that may result in new or additional exposures to chromium (VI), or when the employer has any reason to believe that new or additional exposures have occurred.

(3) Performance-oriented option. The employer shall determine the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data, historical monitoring data, or objective data sufficient to accurately characterize employee exposure to chromium (VI).

(4) Employee notification of determination results.

(i) Where the exposure determination indicates that employee exposure exceeds the PEL, as soon as possible but not more than 5 working days later the employer shall either post the results in an appropriate location that is accessible to all affected employees or shall notify each affected employee individually in writing of the results.

(ii) Whenever the exposure determination indicates that employee exposure is above the PEL, the employer shall describe in the written notification the corrective action being taken to reduce employee exposure to or below the PEL.

(5) Accuracy of measurement. Where air monitoring is performed to comply with the requirements of this section, the employer shall use a method of monitoring and analysis that can measure chromium (VI) to within an accuracy of plus or minus 25 percent (+/- 25%) and can produce accurate measurements to within a statistical confidence level of 95 percent for airborne concentrations at or above the action level.

(6) Observation of monitoring.

(i) Where air monitoring is performed to comply with the requirements of this section, the employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to chromium (VI).

(ii) When observation of monitoring requires entry into an area where the use of protective clothing or equipment is required, the employer shall provide the observer with clothing and equipment and shall assure that the observer uses such clothing and equipment and complies with all other applicable safety and health procedures.

(e) METHODS OF COMPLIANCE.

(1) Engineering and work practice controls.

(i) Except as permitted in paragraph (e)(1)(ii) of this section, the employer shall use engineering and work practice controls to reduce and maintain employee exposure to chromium (VI) to or below the PEL unless the employer can demonstrate that such controls are not feasible. Wherever feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, the employer shall use them to reduce employee exposure to the lowest levels achievable, and shall supplement them by the use of respiratory protection that complies with the requirements of paragraph (f) of this section.

(ii) Where the employer can demonstrate that a process or task does not result in any employee exposure to chromium (VI) above the PEL for 30 or more days per year (12 consecutive months), the requirement to implement engineering and work practice controls to achieve the PEL does not apply to that process or task.

(2) Prohibition of rotation. The employer shall not rotate employees to different jobs to achieve compliance with the PEL.

(f) RESPIRATORY PROTECTION.

(1) General. The employer shall provide respiratory protection for employees during:

(i) Periods necessary to install or implement feasible engineering and work practice controls;

(ii) Work operations, such as maintenance and repair activities, for which engineering and work practice controls are not feasible;

(iii) Work operations for which an employer has implemented all feasible engineering and work practice controls and such controls are not sufficient to reduce exposures to or below the PEL;

(iv) Work operations where employees are exposed above the PEL for fewer than 30 days per year, and the employer has elected not to implement engineering and work practice controls to achieve the PEL; or

(v) Emergencies.

(2) Respiratory protection program. Where respirator use is required by this section, the employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134.

(g) PROTECTIVE WORK CLOTHING AND EQUIPMENT.

(1) Provision and use. Where a hazard is present or is likely to be present from skin or eye contact with chromium (VI), the employer shall provide appropriate personal protective clothing and equipment at no cost to employees, and shall ensure that employees use such clothing and equipment.

(2) Removal and storage.

(i) The employer shall ensure that employees remove all protective clothing and equipment contaminated with chromium (VI) at the end of the work shift or at the completion of their tasks involving chromium (VI) exposure, whichever comes first.

(ii) The employer shall ensure that no employee removes chromium (VI)-contaminated protective clothing or equipment from the workplace, except for those employees whose job it is to launder, clean, maintain, or dispose of such clothing or equipment.

(iii) When contaminated protective clothing or equipment is removed for laundering, cleaning, maintenance, or disposal, the employer shall ensure that it is stored and transported in sealed, impermeable bags or other closed, impermeable containers.

(iv) Bags or containers of contaminated protective clothing or equipment that are removed from change rooms for laundering, cleaning, maintenance, or disposal shall be labeled in accordance with the requirements of the Hazard Communication standard (29 CFR 1910.1200).

(3) Cleaning and replacement.

(i) The employer shall clean, launder, repair and replace all protective clothing and equipment required by this section as needed to maintain its effectiveness.

(ii) The employer shall prohibit the removal of chromium (VI) from protective clothing and equipment by blowing, shaking, or any other means that disperses chromium (VI) into the air or onto an employee's body.

(iii) The employer shall inform any person who launders or cleans protective clothing or equipment contaminated with chromium (VI) of the potentially harmful effects of exposure to chromium (VI) and that the clothing and equipment should be laundered or cleaned in a manner that minimizes skin or eye contact with chromium (VI) and effectively prevents the release of airborne chromium (VI) in excess of the PEL.

(h) HYGIENE AREAS AND PRACTICES.

(1) General. Where protective clothing and equipment is required, the employer shall provide change rooms in conformance with 29 CFR 1926.51. Where skin contact with chromium (VI) occurs, the employer shall provide washing facilities in conformance with 29 CFR 1926.51. Eating and drinking areas provided by the employer shall also be in conformance with §1926.51.

(2) Change rooms. The employer shall assure that change rooms are equipped with separate storage facilities for protective clothing and equipment and for street clothes, and that these facilities prevent cross-contamination.

(3) Washing facilities.

(i) The employer shall provide readily accessible washing facilities capable of removing chromium (VI) from the skin, and shall ensure that affected employees use these facilities when necessary.

(ii) The employer shall ensure that employees who have skin contact with chromium (VI) wash their hands and faces at the end of the work shift and prior to eating, drinking, smoking, chewing tobacco or gum, applying cosmetics, or using the toilet.

(4) Eating and drinking areas.

(i) Whenever the employer allows employees to consume food or beverages at a worksite where chromium (VI) is present, the employer shall ensure that eating and drinking areas and surfaces are maintained as free as practicable of chromium (VI).

(ii) The employer shall ensure that employees do not enter eating and drinking areas with protective work clothing or equipment unless surface chromium (VI) has been removed from the clothing and equip-

ment by methods that do not disperse chromium (VI) into the air or onto an employee's body.

(5) Prohibited activities. The employer shall ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in areas where skin or eye contact with chromium (VI) occurs; or carry the products associated with these activities, or store such products in these areas.

(i) MEDICAL SURVEILLANCE.

(1) General.

(i) The employer shall make medical surveillance available at no cost to the employee, and at a reasonable time and place, for all employees:

(A) Who are or may be occupationally exposed to chromium (VI) at or above the action level for 30 or more days a year;

(B) Experiencing signs or symptoms of the adverse health effects associated with chromium (VI) exposure; or

(C) Exposed in an emergency.

(ii) The employer shall assure that all medical examinations and procedures required by this section are performed by or under the supervision of a PLHCP.

(2) Frequency. The employer shall provide a medical examination:

(i) Within 30 days after initial assignment, unless the employee has received a chromium (VI) related medical examination that meets the requirements of this paragraph within the last twelve months;

(ii) Annually;

(iii) Within 30 days after a PLHCP's written medical opinion recommends an additional examination;

(iv) Whenever an employee shows signs or symptoms of the adverse health effects associated with chromium (VI) exposure;

(v) Within 30 days after exposure during an emergency which results in an uncontrolled release of chromium (VI); or

(vi) At the termination of employment, unless the last examination that satisfied the requirements of paragraph (i) of this section was less than six months prior to the date of termination.

(3) Contents of examination. A medical examination consists of:

(i) A medical and work history, with emphasis on: past, present, and anticipated future exposure to chromium (VI); any history of respiratory system dysfunction; any history of asthma, dermatitis, skin ulceration, or nasal septum perforation; and smoking status and history;

(ii) A physical examination of the skin and respiratory tract; and

(iii) Any additional tests deemed appropriate by the examining PLHCP.

(4) Information provided to the PLHCP. The employer shall ensure that the examining PLHCP has a copy of this standard, and shall provide the following information:

(i) A description of the affected employee's former, current, and anticipated duties as they relate to the employee's occupational exposure to chromium (VI);

(ii) The employee's former, current, and anticipated levels of occupational exposure to chromium (VI);

(iii) A description of any personal protective equipment used or to be used by the employee, including when and for how long the employee has used that equipment; and

(iv) Information from records of employment-related medical examinations previously provided to the affected employee, currently within the control of the employer.

(5) PLHCP's written medical opinion.

(i) The employer shall obtain a written medical opinion from the PLHCP, within 30 days for each medical examination performed on each employee, which contains:

(A) The PLHCP's opinion as to whether the employee has any detected medical condition(s) that would place the employee at increased risk of material impairment to health from further exposure to chromium (VI);

(B) Any recommended limitations upon the employee's exposure to chromium (VI) or upon the use of personal protective equipment such as respirators;

(C) A statement that the PLHCP has explained to the employee the results of the medical examination, including any medical conditions related to chromium (VI) exposure that require further evaluation or treatment, and any special provisions for use of protective clothing or equipment.

(ii) The PLHCP shall not reveal to the employer specific findings or diagnoses unrelated to occupational exposure to chromium (VI).

(iii) The employer shall provide a copy of the PLHCP's written medical opinion to the examined employee within two weeks after receiving it.

(j) COMMUNICATION OF CHROMIUM (VI) HAZARDS TO EMPLOYEES.

(1) General. In addition to the requirements of the Hazard Communication standard (29 CFR 1910.1200) employers shall comply with the following requirements.

(2) Employee information and training.

(i) The employer shall ensure that each employee can demonstrate knowledge of at least the following:

(A) The contents of this section; and

(B) The purpose and a description of the medical surveillance program required by paragraph (i) of this section.

(ii) The employer shall make a copy of this section readily available without cost to all affected employees.

(k) RECORDKEEPING.

(1) Air monitoring data.

(i) The employer shall maintain an accurate record of all air monitoring conducted to comply with the requirements of this section.

(ii) This record shall include at least the following information:

(A) The date of measurement for each sample taken;

(B) The operation involving exposure to chromium (VI) that is being monitored;

(C) Sampling and analytical methods used and evidence of their accuracy;

(D) Number, duration, and the results of samples taken;

(E) Type of personal protective equipment, such as respirators worn; and

(F) Name, social security number, and job classification of all employees represented by the monitoring, indicating which employees were actually monitored.

(iii) The employer shall ensure that exposure records are maintained and made available in accordance with 29 CFR 1910.1020.

(2) Historical monitoring data.

(i) Where the employer has relied on historical monitoring data to determine exposure to chromium (VI), the employer shall establish and maintain an accurate record of the historical monitoring data relied upon.

(ii) The record shall include information that reflects the following conditions:

(A) The data were collected using methods that meet the accuracy requirements of paragraph (d)(5) of this section;

(B) The processes and work practices that were in use when the historical monitoring data were obtained are essentially the same as those to be used during the job for which exposure is being determined;

(C) The characteristics of the chromium (VI) containing material being handled when the historical monitoring data were obtained are the same as those on the job for which exposure is being determined;

(D) Environmental conditions prevailing when the historical monitoring data were obtained are the same as those on the job for which exposure is being determined; and

(E) Other data relevant to the operations, materials, processing, or employee exposures covered by the exception.

(iii) The employer shall ensure that historical exposure records are maintained and made available in accordance with 29 CFR 1910.1020.

(3) Objective data.

(i) The employer shall maintain an accurate record of all objective data relied upon to comply with the requirements of this section.

(ii) This record shall include at least the following information:

(A) The chromium containing material in question;

(B) The source of the objective data;

(C) The testing protocol and results of testing, or analysis of the material for the release of chromium (VI);

(D) A description of the process, operation, or activity and how the data support the determination; and

(E) Other data relevant to the process, operation, activity, material, or employee exposures.

(iii) The employer shall ensure that objective data are maintained and made available in accordance with 29 CFR 1910.1020.

(4) Medical surveillance.

(i) The employer shall establish and maintain an accurate record for each employee covered by medical surveillance under paragraph (i) of this section.

(ii) The record shall include the following informa-

tion about the employee:

(A) Name and social security number;

(B) A copy of the PLHCP's written opinions;

(C) A copy of the information provided to the PLHCP as required by paragraph (i)(4) of this section.

(iii) The employer shall ensure that medical records are maintained and made available in accordance with 29 CFR 1910.1020.

(l) DATES.

(1) For employers with 20 or more employees, all obligations of this section, except engineering controls required by paragraph (e) of this section, commence November 27, 2006.

(2) For employers with 19 or fewer employees, all obligations of this section, except engineering controls required by paragraph (e) of this section, commence May 30, 2007.

(3) For all employers, engineering controls required by paragraph (e) of this section shall be implemented no later than May 31, 2010.

Appendix II: Industry Operations or Processes Associated with Occupational Exposure to Cr(VI)

This appendix identifies industry operations or processes associated with occupational exposure to Cr(VI). For each of these sectors, a brief description of potential sources of Cr(VI) exposure is presented.

ELECTROPLATING

Exposures to Cr(VI) can occur in hard chrome plating, decorative chrome plating, and anodizing operations. Cr(VI) exposures can also occur in chromium conversion coating operations. Chromium conversion is not an electroplating process but often takes place in electroplating shops.

Employee exposures to Cr(VI) during chrome electroplating and chromium conversion coating operations occur as a result of the formation of chromate-containing mists and aerosols that are released from the chromate/chromic acid bath. Mists and aerosols containing Cr(VI) are released from hydrogen bubbles that form and burst during the electroplating process. They may also be released when platers add or remove parts from the bath. Helpers may also be exposed to Cr(VI) when adding chemical agents to the bath or when disposing of chromate-containing wastewater.

WELDING

Exposures to Cr(VI) can occur when welding or cutting operations are performed on stainless steel, other metals containing Cr(VI), or surfaces coated with Cr(VI) paint. Welding on carbon steel in confined or enclosed spaces may also result in Cr(VI) exposures.

Employee exposure to Cr(VI) is expected to increase as the chromium content of the base material increases. Therefore, one would expect that exposures would tend to be higher for welding on stainless steel (10 to 24% chromium) versus welding on carbon steel (generally 3% chromium or less). However, there are other factors that can greatly affect exposures to Cr(VI) during welding operations. These factors include: the type of welding process used [Flux Cored Arc Welding (FCAW), Shielded Metal Arc Welding (SMAW), and Gas Metal Arc Welding (GMAW) generate the highest fume levels while Tungsten Inert Gas (TIG) and Submerged Arc Welding (SAW) generate lower levels]; the environment where welding is taking place (exposures are lower in open spaces versus confined or other enclosed spaces); and the composition of the filler metal, flux material or shielding gas used, which can affect the amount of fume generated. Other factors can also influence the amount of fume generated. For example, increasing the welding current and voltage tend to increase the amount of welding fume generated.

In carbon steel welding, most exposures to Cr(VI) are usually well below the PEL due to the low percentage of chromium metal in carbon steel. Ninety percent (90%) of the carbon steel produced has only trace amounts of chromium. Ten percent (10%) of the carbon steel produced contains up to 3% chromium. Carbon steel welders in confined spaces may experience elevated Cr(VI) exposures, though most exposures will be below the PEL.

Welding a stanchion (Photo courtesy of Bath Iron Works).

PAINTING

Paints and coatings that contain Cr(VI) are applied to a wide variety of structures and products. Cr(VI) paints and coatings are also removed from structures and products in many situations. Both of these scenarios may result in employee exposure to Cr(VI).

Aerospace

In the aerospace industry, employees may be exposed to Cr(VI) during painting of aircraft (exterior or interior) or aircraft parts, and during removal of chromate-based coatings. The primary Cr(VI)-containing product used is strontium chromate primer, which is used as a corrosion inhibitor on metal surfaces (particularly alu-

minum). To a lesser extent, zinc chromate is used in primers for corrosion protection for some products. Employees may be exposed to Cr(VI)-containing aerosols during spray painting. Spray painters may also be exposed during abrasive blasting, sanding, and grinding tasks. Assemblers may be exposed to Cr(VI) when performing drilling, grinding, and sanding tasks.

Automotive

Cr(VI)-containing paints and primers are used in some automotive refinishing facilities. Lead chromate pigments are also still used in some top coats and pretreatments, and Cr(VI) coatings are still widely used for corrosion control in the undercoat. Spray painters and technicians can be exposed to Cr(VI) when performing surface preparation tasks such as sanding, grinding, and abrasive blasting as well as during spray painting activities.

Coil Coating

Coil coating is the application of surface coatings containing Cr(VI) to the surface of metal coil. In this process, a coil (roll) of uncoated sheet metal is coated on one or both sides. The coated metal strip is then nor-mally rewound into a coil and packaged for shipment or further processing. Coil coating tasks that can result in exposure to Cr(VI) include coating transfer, coating machine operation, metal feeding operations, roll-winding operations, and maintenance operations. Maintenance personnel have the potential for dermal exposure when handling the coil coatings. Operators can be exposed to Cr(VI) while performing tasks for maintaining the viscosity of the coating, maintaining the desired coating thickness, and cleaning of the rollers.

Construction and Shipyards

Prior to the 1970s, exposed steel surfaces such as bridges, water towers, and industrial buildings were often painted with Cr(VI) primers and paints colored with chromate-based pigments. During the late 1970s and early 1980s, the use of Cr(VI) compounds for these applications began to decline. Cr(VI)-containing paints and coatings are now used very rarely in the construction industry. Similarly, Cr(VI) paints and primers were once commonly used on ships and other marine vessels but are now used infrequently.

Cr(VI) exposures can occur when removing old paint by abrasive blasting (or infrequently by sanding, chipping, or grinding) from structures or vessels that have been previously painted with Cr(VI)-containing paints or primers. Exposures can also occur in those limited situations where spray painting of Cr(VI)-containing primers and paints still occurs and during cleanup activities.

Traffic Painting

Cr(VI)-containing paints are also used in some traffic painting operations. There are two types of traffic painting operations: road striping and painting of roadside curbs and traffic islands. Both involve the use of Cr(VI)-containing paint that is diluted with toluene (as necessary) during painting operations. Employees are potentially exposed to Cr(VI) during this mixing task. Painting of roadside curbs and traffic islands typically involves use of a hand-held spray line, which also involves potential Cr(VI) exposure.

PRODUCERS OF CHROMATES AND RELATED CHEMICALS FROM CHROMITE ORE

This industry includes facilities that produce sodium chromate/sodium dichromate (SDC) and other related compounds from chromite ore. Employees are exposed during production of SDC and other related compounds because all of the compounds produced are Cr(VI) compounds. Process operators, packaging employees, and maintenance employees have the greatest potential Cr(VI) exposure.

CHROMATE PIGMENT PRODUCERS

This industry includes facilities that produce chromium pigments from Cr(VI) compounds such as sodium chromate and sodium bichromate. Employees who are potentially exposed to Cr(VI) include those who perform drying, blending, or packaging operations; strike tank operators; maintenance employees; laborers; laboratory technicians; wastewater treatment operators; managers and supervisors; proprietary process operators; and dispersion operators.

The highest exposures to Cr(VI) occur when employees handle chromate materials in the dry form, which can generate airborne particles. The activities that have the potential for the highest exposures are drying, blending, and packaging. Maintenance employees are exposed to residual dust that deposits on process equipment as well as elevated background Cr(VI) levels in the process area. Wastewater treatment operators are exposed during collection of system samples and are also exposed to elevated back-

ground Cr(VI) levels. Proprietary process operators are exposed to Cr(VI) from inhaling the dried material that accumulates on conveyor surfaces. Strike tank operators are subject to increased background levels of exposure from Cr(VI) generated during other processes.

CHROMATED COPPER ARSENATE (CCA) PRODUCERS

This industry includes facilities that produce chromated copper arsenate (CCA), which is used as a wood preservative. The activities with the potential for highest exposures are dumping drums of chromic acid (flakes) into a reactor and rinsing the inside of rail tank cars after chromic acid is unloaded. Employees may also be exposed to residual dust that settles on surfaces in warehouse areas.

CHROMIUM CATALYST PRODUCERS

Exposures to Cr(VI) in chromium catalyst production occur as a result of using Cr(VI)-based raw materials (e.g., sodium bichromate), intermediate products (e.g., sodium chromate), and final products (e.g., ammonium dichromate, cadmium chromate, calcium dichromate, chromyl chloride, copper chromate, copper dichromate, magnesium dichromate, nickel chromate, silver chromate, tetramin copper (II) chromate). Employees potentially exposed to Cr(VI) include warehouse operators, maintenance personnel, screening operators, quality control inspectors, dry-mix operators, process control operators, control room operators, forming operators, team leaders, and floor persons.

Wet processors are potentially exposed to Cr(VI)-containing dust and mist while mixing chemicals to form a precipitate known as "striking", while removing filter cake from a filter press, when loading and operating a dryer, and while adding Cr(VI)-containing raw materials as a dry solid or liquid solution to a mixing tank. Dry process operators are potentially exposed to Cr(VI) when loading the calciner, when operating the forming machines, and when operating the catalyst tablet forming machines. Dry mixing operators are potentially exposed to Cr(VI) during the manual transfer of Cr(VI)-containing raw materials. Screening operators are exposed to dust as they manually load the screening machine hoppers and stand next to the flat deck screen as the catalyst product is screened. Solid waste handlers have the potential for exposure to Cr(VI) dust as they load and handle plastic bags with Cr(VI) contaminated waste.

PAINT AND COATINGS PRODUCERS

Cr(VI) exposures in the paint and coatings production industry result from the use of chromate pigments. Exposure to Cr(VI) is primarily from contact with dry chromate pigment powders. Exposures are expected to be lower at paint and coating production plants that receive the chromate pigments in slurry form (i.e., in 300 gallon tote tanks or 30-55 gallon drums).

The three primary categories of employees exposed to Cr(VI) are batch makers, packagers, and shippers/receivers. Batch makers have the highest potential exposures while opening bags of chromate pigment, handling the bags, and dumping the material. Shippers/receivers can also be exposed while handling bags containing pigments.

PRINTING AND INK PRODUCERS

In the past, lead chromate pigments were commonly used in the manufacture of some printing inks. The pigments used include chrome yellow, chrome orange, and molybdate orange. Currently, lead chromate pigments are seldom used in printing inks. Screenprinting ink production is the only sector of this industry that uses chromate-based inks. Lead chromate ink is used primarily for silk-screen printing on outdoor billboards, posters and signs. Lead chromate ink is also used in fabric silk screening applications.

The primary exposures in this industry occur when dry lead chromate pigments are weighed and added to the mixer. The batch mixing operation has the potential for the highest Cr(VI) exposures. Batch weighers are exposed to Cr(VI) while weighing the Cr(VI)-containing pigments, adding ingredients to the mixer, mixing the product, and disposing of the empty bags. Airborne exposures to mill operators, utility employees, and maintenance employees are greatly reduced because by the time they get involved in the process the pigments are no longer in powder form.

PLASTIC COLORANT PRODUCERS AND USERS

This industry includes firms that produce Cr(VI)-containing colorants for use in plastics and companies that use dry Cr(VI)-containing pigments or pigment blends in the manufacture of plastic products. Employees who are potentially exposed to Cr(VI) include dry color handlers, wet mill operators, dry color blenders/packagers, and production supervisors.

Employee exposures to Cr(VI) in the plastic colorant producers and users industry occur when employees handle chromate materials in the dry form,

which generates fine airborne dust particles. The highest exposures occur in the production activities that involve blending and packaging of Cr(VI)-containing dry color colorants (single pigments or pigment blends).

PLATING MIXTURE PRODUCERS

This industry produces plating mixtures to be used in the electroplating process. Cr(VI) exposures in this industry arise from the use of chromic acid as a primary ingredient in the production of plating mixtures. Plating mixtures are formulated as powders or crystals and are sold to facilities in the metal finishing industry. Employees in the industry that are potentially exposed to Cr(VI) include:

- Mixer/blender operators- dry chrome process
- Mixer/blender operators- liquid chrome process
- Laboratory chemists

FERROCHROMIUM PRODUCERS

This industry uses ferrochromium to produce stainless and heat resisting steels, welding rods, and corrosion-resistant high strength materials (i.e., superalloys). Ferrochromium is produced in high and low carbon forms. High carbon ferrochromium contains 50% to 70% chromium and 4% to 10% carbon. Low carbon ferrochromium contains 65% to 75% chromium and less than 1% carbon.

Many employees in this industry are potentially exposed to Cr(VI) including leach operators, ager operators, lower cell room operators, cell assemblers, cell operators, plate hookers, plate strippers, and mill operators. Leach operators are primarily exposed to Cr(VI) that escapes when the hatch of the anolyte reduction solution tank is opened to collect samples and when making adjustments to the anolyte-reduction process equipment. Ager operators are primarily exposed to Cr(VI) through collection of samples from the ager tanks, and through exposure to chromium solution mist that escapes from open-top ager tanks. Cell assemblers, cell operators, and plate hookers are exposed to Cr(VI) from the anolyte solution mist that escapes from the cell surface area that is not covered or controlled by existing local exhaust ventilation (LEV). The lower cell room operator is exposed to background levels of Cr(VI) that escape from the electrolytic cells during normal operation, and during cell-cleaning operations. Plate strippers are exposed to background levels of Cr(VI) from the chromic acid bath due to their close proximity to the plate stripping station.

STEEL MILLS

In this industry, chromium is used in steels as an alloying agent to improve hardness and resistance to corrosion, tarnish, rust, extreme temperature, bacterial buildup and wear. Cr(VI) alloys are added to the furnace just before tapping, or to the ladle as the molten metal is tapped.

The primary sources of Cr(VI) in this industry include chromium fumes from furnace operations, tapping, and teeming (pouring), and chromium-containing particulates from surface conditioning operations. Background Cr(VI) levels in the steel mill contribute to the low exposures of many employees (e.g., rolling mill operators, continuous casting operators) who do not have direct contact with molten metal or significant dust-emitting sources. Employees in the iron and steel producing industry who are potentially exposed to Cr(VI) include raw material handlers, furnace operators, furnace helper/laborers, crane operators, continuous-casting operators, rolling mill operators, steel conditioning operators, and welders.

IRON AND STEEL FOUNDRIES

This industry includes companies that produce cast metal products from steel and other metals and metal alloys. The primary source of Cr(VI) exposures in iron and steel foundries is the Cr(VI) fumes generated when chromium is melted as part of the pour or when grinding or welding the finished part. These exposures occur during the following operations:

- Furnace operation activities (e.g., making alloy additions, removing slag, tapping furnaces into ladles, pouring molten metal into molds)
- Torch cutting and gouging
- Welding

Employees in the iron and steel foundry industry who are potentially exposed to Cr(VI) include molders, furnace operators, crane operators, pourers, shake-out and abrasive blasting operators, torch cutter/gougers, welders, grinding operators, and laborers. Furnace operators, crane operators, molders, pourers and laborers are exposed to background Cr(VI) from electric arc furnace operation, pouring, grinding and welding. Grinder operators are exposed to Cr(VI) containing fume and dust that is generated in the grinding process and escapes capture by the ventilation system.

Filling molds in a foundry (Photo courtesy of the National Institute for Occupational Safety and Health (NIOSH)).

CHROMIUM DYE PRODUCERS

Cr(VI) is used in the production of several different dyes to improve wash fastness, allowing the color of the dyed wool not to change, bleed or stain other fabrics during textile processing, wear, or washing. Exposure to Cr(VI) in the dye production process may occur when bags of chromic acid flakes or other chromate chemicals are emptied into vessels to be mixed with other chemicals, and during packaging. Employees such as color makers, drying/blending/packaging operators, maintenance employees, laborers, laboratory technicians, wastewater treatment operators, and managers/supervisors are potentially exposed to Cr(VI). The highest employee exposures to Cr(VI) in the chromate dye production industry occur when employees handle chromate materials in the dry form such as drying, blending, and packaging, which generates fine airborne dust particles.

CHROMIUM SULFATE PRODUCERS

Chromium sulfate is primarily used in chrome leather tanning. While chromium sulfate is a trivalent chromium (Cr(III)) compound, employee exposures occur because it is made by reducing sodium bichromate and chromate (two Cr(VI) compounds). Chromate sulfate production can result in exposures to Cr(VI) from processes that include the reduction of sodium bichromate with organic compounds such as molasses or sugar in the presence of sulfuric acid, and the reduction of sodium bichromate with sulfur dioxide. Employees who are exposed to Cr(VI) include reactor operators and railcar operators.

CHEMICAL DISTRIBUTORS

Chemical distributors purchase or import chemicals in bulk and re-sell the chemicals to various chemical manufacturers or industries for use in their operations. The two major Cr(VI) compounds that are sold by chemical distributors are sodium dichromate and chromic acid.

Employees may be exposed to Cr(VI) during the storage, handling, transportation, and disposal of Cr(VI) compounds. Exposures to Cr(VI) during chemical distribution occur when bags containing chromium chemicals are being repackaged. A slight potential for exposure to Cr(VI) exists during transportation of Cr(VI) compounds; chromate dust accumulated on the bags may be disturbed, creating a potential for exposure to Cr(VI).

TEXTILE DYEING

This industry includes companies involved in the dyeing of textile fabrics. Sources of Cr(VI) in textile dyeing include Cr(VI)-containing dyes and use of chromates as mordants. Blenders, dyers, and maintenance employees may be exposed to Cr(VI).

PRINTING

This industry includes companies that use Cr(VI)-containing inks in their printing processes. The Cr(VI)-based inks are colored inks containing pigments from lead chromate or lead molybdate. The majority of exposures to Cr(VI) occur in commercial screen printing. Printers, mixers, and shippers are potentially exposed to Cr(VI).

PRODUCERS OF GLASS PRODUCTS

This industry includes the producers of colored glass and other glass products such as fiberglass continuous glass filaments. The raw materials which are used for colored glass production contain Cr(VI). Cr(VI) is not used as an ingredient in other glass products, but the refractories in the furnaces used in glass production may contain trivalent chromium (Cr(III)). During heating, the Cr(III) is oxidized to Cr(VI), resulting in potential employee exposure to Cr(VI) at these plants.

In colored glass production, lab employees, batch mixers, and furnace employees are potentially exposed to Cr(VI). For other glass production, employees who are potentially exposed to Cr(VI) include batch operators, furnace operators, electrostatic precipitator/baghouse operators, forehearth operators, hot end repair operators, and furnace rebuild operators.