pillsbury

Pillsbury Winthrop Shaw Pittman LLP
50 Fremont Street | San Francisco, CA 94105-2228 | tel 415.983.1000 | fax 415.983.1200
MAILING ADDRESS: P. O. Box 7880 | San Francisco, CA 94120-7880

Margaret Rosegay
tel 415.983.1305
margaret.rosegay@pillsburylaw.com

February 2, 2009

VIA COURIER

Colleen Heck, Esq.
Office of Legal Affairs
Department of Toxic Substances Control
P.O. Box 806
Sacramento, CA 95812-0806

Re: Auto Shredder Industry Information Submittal

Dear Ms. Heck:

This letter is submitted on behalf of the California auto shredders in furtherance of the ongoing informal dialogue with the Department of Toxic Substances Control ("Department") concerning the regulatory status of auto shredder residue. Of particular concern are the requirements pertaining to the treatment and disposal of this material. The specific issue under review is whether there is a substantial basis for altering the regulatory status quo that has been in place for over 20 years. The auto shredder industry has agreed to engage in this discussion with the Department without prejudice to or waiver of its claims that, if any changes are to be made in the status quo, the Department must proceed in accordance with the Administrative Procedure Act ("APA") and the California Environmental Quality Act ("CEQA"), consistent with the shredders' rights of due process and other environmental and procedural safeguards.

For the past two decades, the Department and its predecessor agency the Department of Health Services have allowed treated auto shredder residue to be managed as a nonhazardous waste in California, under certain prescribed conditions. Management of this material as nonhazardous is consistent with the regulatory classification assigned to this material by the U. S. Environmental Protection Agency and by every other state in the country, even without the treatment required in California. The California regulatory framework has been predicated on "declassification" letters issued to the shredders in the late 1980's and early 1990's under regulations that are still in effect. In accordance with these regulations, the Department found that treated

auto shredder residue possesses mitigating physical and chemical characteristics which render the waste insignificant as a hazard to human health and the environment. 22 Cal. Code Regs., § 66260.200(f); former § 66305(e).[1] While there is some variation within the industry, "treated auto shredder residue" consists of a mixture of treated "fines" (the smaller fractions of the residue) and untreated oversize (the larger fractions of the residue).

In a companion Policy and Procedure 88-6, the Department recognized that the in-line treatment of auto shredder residue is conducted as part of, and prior to completion of, the metals separation process and as such is not subject to the requirement to obtain a permit from the Department. As discussed below, the treatment process has evolved and improved since it was first developed in the mid-1980's, but is still an integral part of the metals separation process. The factual basis for the Department's prior determination that hazardous waste treatment permits are not required is unchanged, and there has been no change in the law that would subject in-line treatment of this intermediate manufacturing process material to the Department's permit requirements. As discussed below, the industry strongly disagrees with the Department's position that "aggregate" (i.e., shredded feedstock from which only ferrous metals have been removed by magnetic separation) is a waste or a hazardous waste. Aggregate contains large quantities of highly valuable nonferrous metals, and

---

[1] The Department's declassification of shredder waste occurred against a legislative backdrop in which it was recognized that requiring auto shredder waste to be disposed of in Class 1 landfills would be prohibitively expensive and could drive a useful and necessary business out of state. Senate Comm. on Toxics & Pub. Safety Mgmt., Bill Analysis Worksheet (SB 976) (Cal. Apr. 2, 1985). In fact, over the course of three years, the Legislature passed several bills designed to facilitate the disposal of auto shredder waste at in local Class 3 landfills. While most of these laws have expired by their own terms, HSC § 25143.6 still requires regional water quality control boards in certain regions to designate "at least one landfill in [the] region which is authorized to accept and dispose of shredder waste in accordance with State Water Resources Control Board Resolution No. 87-22." The Department's plan to abruptly repeal the shredders' declassification letters is contrary to the legislative intent underlying this section of the statute.

it is processed through a variety of specialized separation processes in order to collect these metals.

Prior to issuance of the declassification letters, millions of tons of untreated auto shredder residue were deposited in California landfills without any known adverse environmental or human health effects. To this day, the industry is unaware of any adverse impacts associated with the management of treated or untreated auto shredder residue as a nonhazardous waste. The Department has not provided any evidence that supports a contrary conclusion. It is our understanding, based on the brief presentation made to the shredders on October 29, 2008, that some Department staff believe the concentrations of certain heavy metals are increasing in the treated residue such that management of the material as a nonhazardous waste is no longer appropriate. More specifically, the Department asserts that heavy metals in the waste may leach into groundwater beneath the Class 2 or Class 3 landfills that have accepted auto shredder residue for disposal or for use as alternative daily cover ("ADC"), and that landfill workers are being exposed to dangerous levels of metals (primarily zinc) when handling treated auto shredder residue, presumably through inhalation of dust.

The information provided below and in the attachments to this letter refutes these assertions and demonstrates that these claims are not supported by substantial evidence. As no other rationale has been provided for the proposed repeal of the declassification letters and Policy and Procedure 88-6, the Department has no factual basis for proceeding with the proposed action, irrespective of the due process and other environmental and procedural considerations that have been raised and that are discussed in further detail in this letter.

In a prior e-mail communication, you indicated that the shredders would have until February 2, 2009 to demonstrate that the current regulatory framework for auto shredder residue is, in fact, protective of human health and the environment, and that the Department's proposal to repeal the declassification letters and Policy and Procedure 88-6 is unwarranted. This letters presents multiple lines of evidence which individually and collectively support these conclusions. Continued management of auto shredder residue in accordance with the current regulatory framework remains an environmentally safe and effective regulatory strategy for this high volume, very low hazard waste.

The shredders have worked diligently to compile the information presented in this letter. Due to the sheer volume of information being provided — much of which had to be obtained through California Public Records Act requests submitted to the Department and to a number of regional water quality control boards — earlier

submittal of this information was not possible. Further, certain additional tasks are still being completed and will be submitted in a supplement to this letter. Where possible, we have provided preliminary conclusions of this ongoing work. We reiterate that the initial burden of producing substantial evidence of the need to alter the regulatory status quo should have been borne by the Department. In the absence of a *prima facie* showing by the Department, the shredders have stepped forward, on a voluntary basis, and compiled information that demonstrates convincingly that maintenance of the status quo is appropriate from a legal, technical and policy perspective.

This submittal responds first to the Department's stated reasons for proposing to repeal the declassification letters and related Policy and Procedure. As discussed below, none of these concerns is supported by available evidence. Following this discussion, we address a host of other legal and policy considerations, all of which support maintenance of the status quo.

I. Review of Groundwater Monitoring and Leachate Data from Landfills

In response to the Department's assertion and other reported claims that disposal of treated auto shredder residue in Class 2 and Class 3 landfills poses a threat to underlying groundwater, we obtained copies of the groundwater and leachate monitoring reports from 2006-2008 for the landfills that have accepted large volumes of shredder residue for disposal or use as ADC. These reports have been organized by landfill and submitted with this letter. See accompanying binders containing Attachments 1 through 57. Please note that these binders include a number of CD's containing reports that were already available in electronic format; other reports were obtained in hard copy. We have also included a variety of other types of landfill reports that we believe are relevant to evaluation of auto shredder residue in a landfill setting. These include storm water reports, a leachate surface impoundment clean closure report, and Alternative Daily Cover Demonstration Project Reports.

Based on our review of the data and other anecdotal information provided by the landfills themselves, we are unaware of any circumstance in which auto shredder waste has been found to be adversely affecting leachate or groundwater quality. Indeed, some of the landfills, including one in the state of Arizona, received untreated auto shredder residue for decades, well before implementation of the treatment process. The Arizona landfill reported that it had no leachate problems.

At the shredders' request, personnel at Waste Management, Inc. recently compiled data and summary statistics for trace metals in leachate specifically associated with two California facilities that generate leachate in landfill cells used for the disposal of

treated auto shredder residue. The analysis compared leachate from these cells (i.e., leachate that is potentially affected by shredder residue) with leachate from landfill disposal operations that do not handle shredder residue. The specific metals that were analyzed included cadmium, copper, chromium, lead, mercury, nickel, and zinc.[2] The leachate from these facilities is collected and treated without release into the environment.

As shown on Table 1 (see tables at end of letter),[3] concentrations of chromium, lead, and nickel were determined to be, on average, appreciably higher in the non-shredder residue affected leachate than in the leachate potentially affected by shredder residue. Cadmium and mercury were essentially at the same concentrations in both types of leachate. This indicates that the treated auto shredder residue is not appreciably contributing to elevated concentrations of these metals.

Mean and median concentrations of copper and zinc were higher in the leachate potentially affected by shredder waste, although the maximum concentration of both metals occurred in the non-shredder residue leachate. Waste Management personnel reported that these higher average concentrations were not of concern from a risk standpoint, particularly when compared to the applicable Maximum Contaminant Levels ("MCLs"). MCLs are drinking water standards and are very stringent criteria not intended for comparison with landfill leachate. The MCL for zinc is 5000 ug/l, whereas the mean concentration of zinc in the leachate is only 437 ug/l (an order of magnitude below the MCL). The MCL for copper is 1,300 ug/l, whereas the mean concentration of copper in the leachate is only 53 ug/l (more than an order of magnitude below the MCL).[4] The maximum concentration values of both zinc and copper in leachate that came into contact with treated auto shredder residue were also below their respective MCLs.

---

[2] Four discrete leachate collection locations have been sampled at the two Waste Management facilities for several years. The dataset is comprised of approximately 17 individual samples for each of the seven metals. These data were compared to a reference dataset of municipal solid waste ("MSW") leachate that has **not** been in contact with treated auto shredder residue. The reference/background dataset is robust and includes 20 years of data with over 3000 data points at eight facilities that accepted MSW waste in California.

[3] Table 1 was prepared by Waste Management, Inc. and is enclosed with this letter without alteration.

[4] There is no primary MCL for copper. The secondary MCL for copper is essentially for aesthetic purposes and is not health-based.

A similar leachate evaluation was conducted by Republic Services at its Southwest Regional Landfill in Arizona. This landfill has received untreated auto shredder residue for disposal for at least the last 20 years. The results of this leachate evaluation, which covered the years 2001-2006, are included in Attachment 57. According to Republic, these data do not reflect any problem with the leachate at this facility.

Waste Management also provided us with a copy of a Stormwater Runoff Monitoring Report for a study that was conducted at the Altamont Landfill from May 1995 through January 1997. A copy of this report is provided in Attachment 45. In this study, the quality of stormwater runoff from areas where treated auto shredder residue and contaminated soils were used as cover material was compared to runoff from areas that were not affected by these cover materials. The cover materials were found not to be the source of any constituents of concern in the runoff, and there were no statistically significant differences between the runoff from the two areas. In the case of zinc, the concentration in the runoff from the non-cover-affected areas was found to be higher than in the cover-affected areas. It should be noted that the allowable soluble zinc concentration in treated auto shredder residue used as ADC is 200 mg/L. See Attachment 45, Table 1.

Following the temporary suspension of auto shredder waste disposal activity in the San Francisco Bay Region after a fire at the Vasco Road Landfill in Livermore, California (Alameda County),[5] the Regional Board lifted the prohibition and reported that it was unaware of any groundwater problems resulting from the receipt of auto shredder residue in local landfills within its jurisdiction. A copy of the Regional Board's January 12, 2005 letter is included in Attachment 58. While the Central Valley, Los Angeles and Santa Ana regions have not had occasion to issue comparable memoranda, the reissuance of Waste Discharge Requirements for the landfills in these regions, without any prohibitions or further restrictions on disposal or use of auto shredder residue as ADC, is tantamount to the "no impact" finding made by the San Francisco Regional Board.

---

[5] The fire occurred in 2004 in stockpiles of treated auto shredder residue that were believed to have been mixed with biosolids and other types of wastes and debris. The companies that generated the shredder residue challenged the sampling results obtained by the Regional Water Quality Control Board based on the non-representativeness of the samples.

Based on all of the foregoing, there is no evidence that disposal of treated auto shredder residue, or use of this material as ADC, in Class 2 or Class 3 landfills poses any threat to water quality.

II. Compliance with OSHA Permissible Exposure Limits and Other Worker Health and Safety Standards

Turning to the Department's second major contention, there is no evidence that employees at landfills authorized to receive auto shredder residue are exposed to chemical compounds and physical agents above permissible exposure levels ("PELs") established by the California Department of Occupational Safety and Health ("CalOSHA")[6] or above the reference levels (known as threshold limit values or "TLVs") set by the American Conference of Governmental Industrial Hygienists ("ACGIH").[7] This conclusion is based on a review of available industrial hygiene surveys conducted to evaluate the types of exposures experienced by employees working with shredder residue, both at shredder facilities and at landfills. These studies have universally found that all shredder residue-related exposures are either below laboratory detection limits or orders of magnitude below PELs or TLVs. See, e.g., *Treated Auto Shredder Waste Alternative Daily Cover Demonstration Project Final Report, Altamont Landfill and Resource Recovery Facility*, July 1997 (Attachment 46).

---

[6] Pursuant to the California Occupational Safety and Health Act of 1973, CalOSHA has enacted regulations establishing requirements for controlling employee exposure to airborne contaminants at all places of employment in the state. Cal. Lab. Code, § 6300 et seq.; see, e.g., 8 Cal. Code of Regs., §§ 5139, 5155, 5207, 5208, 5216. Table AC -1, found in section 5155, lists PELs for airborne contaminants to which nearly all workers may be exposed daily during a 40-hour workweek for a working lifetime without adverse effect. Generally, CalOSHA's PELs are identical to the PELs listed in the Federal Occupational Safety and Health Standards (29 C.F.R. Part 1910, Subpart Z).

[7] TLVs refer to airborne concentrations of substances and represent conditions under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse effect. TLVs are based on the best available information from industrial experience, from experimental human and animal studies and, when possible, from a combination of all three. TLVs are not mandatory Federal or State employee exposure standards but generally reflect the most current professional recommendations concerning employee exposures for specific substances. Leidel, Busch, Lynch, NIOSH Occupational Exposure Sampling Strategy Manual, Publication # 77-173, 7-8 (1977).

Landfill Monitoring Results

Table 2, entitled "Results of Full Shift Personal Air Monitoring of Employee Exposures to Treated Auto Shredder Residue at H. M. Holloway, Inc., Lost Hills Quarry, Lost Hills, California" (see tables at end of letter) is a compilation of air monitoring results obtained by an industrial hygiene evaluation of employee exposures during treated auto shredder residue backfill operations at the Lost Hills Gypsum Quarry in Lost Hills, California. The evaluation was performed on December 3 and 4, 2008. All exposures were below their corresponding CalOSHA PELs and ACGIH TLVs (and, in most cases, several orders of magnitude below these levels).

The sampling strategy was designed to sample the air in the breathing zone of an employee actively handling treated residue over two separate eight-hour periods on consecutive days. The employee was chosen in a manner consistent with NIOSH guidance, i.e., the "employee believed to have the greatest exposure" (also known as the "maximum risk employee").[8]

For this sampling event, approximately 600 tons of representative treated auto shredder residue was relocated from stockpiles to the backfill area of the quarry and graded to a minimum thickness of approximately 6 inches and a maximum thickness of 24 inches. Fill soil was then transported from an alternate location within the quarry and used to cover the shredder residue to an approximate thickness of 12 inches. The stockpile was moved utilizing diesel-powered scraper equipment. The scraper was then repeatedly driven over the backfilled material until it achieved the desired degree of compaction. The employee chosen to be sampled spent his entire 8-hour shift working with the shredder residue and operating the scraper. For purposes of this industrial hygiene evaluation, this worker was the maximum risk employee.

---

[8] NIOSH is the federal agency responsible for conducting research and making recommendations for the prevention of work-related injury and illness. NIOSH compiles the NIOSH Manual of Analytical Methods ("NMAM"). NMAM is a collection of methods for sampling and analysis of contaminants in workplace air and in the blood and urine of workers who are occupationally exposed. These methods have been developed or adapted by NIOSH or its partners and have been evaluated according to established experimental protocols and performance criteria. The industrial hygiene evaluations summarized in this document were all performed in accordance with published NIOSH methods.

Sample results indicated that personal exposure to 22 metals analyzed using NIOSH analytical method 7300 were several orders of magnitude below the CalOSHA PELs and the ACGIH TLVs. Personal exposures to total particulate, analyzed using NIOSH analytical method 0500, were an order of magnitude below both the CalOSHA PELs and the ACGIH TLVs. Personal exposures to polychlorinated biphenyls, analyzed using NIOSH analytical method 5503, were below the laboratory's limit of detection. Likewise, employee exposures to mercury vapors, using NIOSH analytical method 6009, were found to be below the laboratory detection limit.

Monitoring Results at the Point of Generation

Table 3, entitled "Results of Full Shift Monitoring at Metals Separation/Auto Shredder Residue Generation Facilities" (see tables at end of letter) is a compilation of air monitoring results obtained by industrial hygiene evaluations of employee exposures at metal recycling operations. Data was gathered at two different facilities at two different times. The first evaluation was conducted on February 15, 2007. The second evaluation was conducted on June 14, 2007.

For the first sampling event (designated as Samples 1 - 12), the sampling strategy chosen was consistent with NIOSH recommendations for situations where a "maximum risk employee" cannot be selected with reasonable certainty.[9] Personal samples were collected from sampling pumps carried by six employees during normal shift operations. Six general air samples were collected from samplers placed at fixed locations within the shredder facility. Sampled employees spent their shift performing typical work tasks as pickers, crane operators, magnet area workers, and non-ferrous loaders.

For the second sampling event (designated as Sample 13), personal samples were collected from sampling pumps carried by two employees. Samples were collected while employees conducted metals sorting at a non-ferrous metal separation plant. Sampled employees were working in an area where the highest exposures to ambient particulates and respirable dust would normally be expected. Results were compiled and the maximum tested values reported (with the exception of total dust and respirable dust, for which all results were reported).

---

[9] NIOSH Occupational Exposure Sampling Strategy Manual, Publication # 77-173, 34-35 (1977).

In each case, personal exposures to metals, analyzed using NIOSH analytical method 7300, were found to be below the laboratory detection limits, with the exception of extremely low concentrations of copper, magnesium, manganese and zinc. For all metals, concentrations were orders of magnitude below the CalOSHA PELs and the ACGIH TLVs. Likewise, personal exposures to total particulates and respirable dust were also below the laboratory detection limit or significantly below both the CalOSHA PELs and ACGIH TLVs.

The second sampling event also evaluated employee exposures to selected VOCs. Table 4, entitled "VOC Results of Full Shift Monitoring at Metals Separation/Auto Shredder Residue Generation Facilities (see tables at end of letter) is a compilation of these results. All VOC exposures were reported in the parts per billion ("ppb") range and were several orders of magnitude below CalOSHA PELs.

In addition to the studies described above, several of the auto shredders perform routine industrial hygiene surveys of the workplace, and each has reported anecdotally that all regulated substances, as well as respirable dust, are very significantly below any applicable threshold.

Accordingly, all available evidence demonstrates that employee exposures at landfill operations where treated auto shredder residue is stockpiled, backfilled, graded and covered are well below CalOSHA PELs and ACGIH TLVs. Likewise, there is no evidence that employee exposures at the point of generation, i.e., metal shredding, sorting and recycling facilities, exceed CalOSHA PELs or ACGIH TLVs. In fact, the data indicate that, in most cases, employee exposures are orders of magnitude less than the corresponding PEL or TLV for chemical substances and physical agents. This is true whether evaluating exposures to employees working in close proximity to the source materials (before the auto shredder residue is treated) or those who are exposed to treated residue, both on-site and at landfills. Based on the foregoing, the Department's assertion that disposal or use of treated auto shredder residue at solid waste landfills poses an unacceptable risk to employee health or safety cannot be substantiated.

III. Auto Shredder Residue Has Not Changed Materially Since Issuance of the Classification Letters

Auto shredder residue is a very heterogeneous material, the exact components and contents of which vary over time, depending on the mix of scrap metal available for recycling, the changing nature of products in the marketplace (with a definite emphasis on elimination or reduction in toxicity of these products), process changes and other technical developments within the industry, and changing regulatory

requirements which serve to reduce the potential toxicity of the waste. For example, in the 1980's most vehicles still used leaded gasoline as fuel. The lead content of motor vehicle fuels was reduced beginning in 1977 and was banned altogether in 1996. This has resulted in a gradual, but steady, decrease in the amount of residual lead adsorbed onto the surfaces of automobile parts exposed to gasoline vapors and thus lower levels of lead contamination in shredder feedstocks. Similar decreases in PCB levels have occurred over time since these compounds were banned in 1977.

Today, all automotive fuels, lubricating oil, antifreeze, air conditioning fluids, mercury switches and PCB capacitors must be removed from all vehicles and appliances before they are shredded. In addition, e-waste recycling requirements preclude the shredding of televisions, computers monitors and other CRT devices. The Department has established separate handling requirements for Universal Waste Electronic Devices, and other universal waste regulations govern the management and disposal of batteries and mercury-containing light bulbs. The shredders comply with these requirements and do not process prohibited items.

To ensure that hazardous materials are not accepted at their facilities, all of the auto shredders have rigorous written acceptance policies that prohibit the acceptance of a wide variety of hazardous materials. By way of example, one of the shredders' policies is provided in Attachment 59 and is typical of the programs implemented by other companies. Materials that are routinely excluded from shredder feed include hazardous waste of any kind, transformers, gasoline tanks, batteries and leaded battery cables, lead wheel weights, and mercury switches. These programs are enforced in various ways, including incorporation into supplier agreements, periodic distribution to customers, posting on company websites, and signage at facility entrances. The shredders also conduct frequent inspections at their own facilities, and on incoming loads to identify obvious violations. More detailed inspections are randomly conducted on a certain percentage of incoming loads (load-check programs) as an added precaution. Scrap materials brought to the yards by peddlers and other small volume suppliers are also carefully inspected.

Thus, as a result of these regulatory developments, improvements in metal separation technology and implementation of corporate acceptance policies, treated auto shredder residue currently contains, on average, less than 5% metallic content. As recently as August 2005, in agreeing to transfer the 1987 auto shredder waste reclassification issued to Clean Steel to Pacific Rail Industries, the Department concluded there was "no scientific reason to re-evaluate the waste" since the wastes were "similarly produced" by the two companies. See August 1, 2005 letter from Karl Palmer, Chief, Regulatory and Program Development Branch, DTSC, to Ms. Lynn Delzell, provided in Attachment 60. Significantly, "data quantifying the

physical and chemical composition of [Pacific Rail's shredder residue] were not provided" and were, presumably, considered unnecessary.

Comparison of 2008 Data to Baseline Data. The shredders do not dispute the fact that concentrations of heavy metals will vary over time in shredder residue. The key question is whether these changes have any environmental or human health significance, such that management of the waste as nonhazardous would no longer be appropriate.

When the Department was considering the shredders' applications for declassification in the late 1980's and early 1990's, it was well understood that the total concentrations of certain heavy metals in the waste exceeded or likely exceeded applicable TTLCs. The primary focus of the Department's inquiry was on the concentrations of soluble metals, hence the requirement to treat auto shredder residue using a technology that would render the waste largely insoluble.[10] We are unaware of any comprehensive evaluation conducted by the Department of total heavy metal concentrations in shredder residue (whether treated or untreated), and do not believe that the bar graphs presented by the Department during the October 29, 2008 meeting reveal any "trend" or other statistically reliable indicator of material changes in the waste.

---

[10] In the 1980s, the Department considered auto shredder waste to be only "marginally hazardous." Health & Welfare Agency, Enrolled Bill Report for AB 1542 (Bradley) (Sept. 25, 1987). As reported in a letter from Assemblyman Bill Bradley to Governor Deukmejian on Sept. 16, 1987, "Dr. David Leu of the State Health Department [plainly] acknowledges that fluff is not hazardous in a landfill." In addition, in its Technical Analysis of AB 1542 (Bradley, 1987, codified at HSC § 25143.8), the Department noted that "shredder waste consistently exceeds the soluble threshold limit concentration for lead, zinc, and cadmium and the total threshold limit concentration for lead, zinc, and copper, and, if improperly handled, it could catch fire and give off toxic gases. But because the threat of the waste causing environmental harm when disposed of is low, the waste can be disposed of in a qualified Class III landfill." (emphasis added)).

In an effort to gain a more comprehensive understanding of how auto shredder residue generated today compares with that generated 20 years ago, the industry retained Simmons Consulting to prepare a comprehensive compilation and statistical evaluation of all available TTLC analytical results on auto shredder residue, including treated and untreated material, with particular focus on cadmium, lead, zinc and PCBs. The results of this evaluation are presented in the report provided in Attachment 61. The report contains a graphical presentation of all available analytical results from the so-called "baseline" period (1984-1992) and from later sampling events conducted by the Department and the individual shredders. As can be seen, the mean concentrations of cadmium, lead and PCBs in 2008 are each lower than they were in the baseline period. The mean zinc concentration in the 2008 data set appears to have increased slightly over the baseline data. However, Simmons reports that no statistically significant trends for the means of any of these substances were observed, based on a formal trends analysis conducted in accordance with EPA guidance.

Improvements to Treatment Technology. For more than two decades polysilicate stabilization or similar technologies have been used for the treatment of auto shredder residue. The initial development work began in early 1985 and centered around a proprietary and patented blend of three different viscosity potassium silicates and additives known as K-20 used in combination with a suitable cementitious material. Several years later, a different proprietary polysilicate blend based on a mixture of sodium silicates and additives was developed (MCX-90). Although this system has similar features to the original K-20 product, some aspects of its performance are considered superior to K-20. MCX-90 was approved for use by the Department as an alternative to K-20 in the mid-1990's. Other equivalent proprietary treatment technologies have since been developed and are currently in use.

Contrary to assertions that the treatment process merely provides an external coating on the auto shredder residue, each of the chemical treatment technologies employed by the shredders involves a reaction or penetration into particles of shredder residue, resulting in the formation of metallo-silicates or metasilicates. Cementitious material such as cement, lime, or fly ash is added for the purpose of providing an alkaline activator for this reaction, and not as an encapsulant. Collectively, the shredder industry has invested millions of dollars in the development, engineering, design, testing and application of these chemical treatment technologies, and has a very high degree of confidence in their long-term effectiveness and durability.

Operational Improvements to Treatment System. In some applications, the availability of computerized conveyance systems and computerized dry chemical dispensing units in the non-ferrous metals separation plants has significantly

improved the auto shredder residue treatment process, allowing for more consistent and efficient treatment. For example, a sensor installed on the in-feed conveyor belt can detect the volume (in pounds) of material being fed into the mixing auger. Using this information, a master computer can control the amount of the dry chemical treatment material being dispensed into the auger in real time. The precise amount of dry treatment material can be dispensed from the storage silos by measuring the change in the weight of the silo as material is dispensed. Similar improvements can be made in the application of the liquid chemistry component to the shredder residue, such as the use of water or air pressure to control the amounts added. "Foaming applicators" can be used to improve the consistency of the resulting treatment mixture.

The California shredders maintain that the solubility of auto shredder residue has not increased over time and that, to the contrary, improvements in treatment technology have resulted in actual decreases in soluble concentrations of heavy metals in the material. Isolated exceedances of treatment levels (50 mg/L lead) in discrete samples cannot be used to draw broad conclusions about the characterization of treated shredder residue.

IV. Due Process Considerations

As indicated in our October 31, 2008 letter to the Department, we believe that the declassification letters issued to the California auto shredders in the late 1980's and early 1990's constitute a *de facto* regulation conditionally exempting auto shredder residue from the requirements of the Hazardous Waste Control Law. Though issued to individual automobile shredders, the declassification letters both declare "how a certain class of cases will be decided" and "implement, interpret, or make specific the law enforced or administered by [an agency]" as applied to an entire industrial sector, thereby embodying the two principal characteristics of a regulation identified by the California Supreme Court in the seminal case of Tidewater Marine Western, Inc. v. Bradshaw, 14 Cal. 4th 557 (1996) ("Tidewater"). The similarity of the waste generated by auto shredding operations conducted statewide, the similarity of the analytical data and other technical information submitted by the shredders in support of their separate applications, the similarity of the criteria used to evaluate individual shredder's eligibility for declassification, the similarity of the conditions imposed on the shredders to sustain the declassifications over time, and the evergreen nature of the declassification decisions themselves, all support the inherently regulatory nature of hazardous waste declassification. In short, these letters represent the controlling hazardous waste regulation affecting the entire auto shredder industry in California. As such, any attempt at wholesale or serial repeal of the declassification letters

necessarily triggers the rulemaking requirements of the Administrative Procedure Act ("APA").[11]

The California declassification process is directly comparable to the federal hazardous waste delisting process found at 40 C.F.R. § 260.22. The intrinsically regulatory nature of this process is evident from the fact that delisted RCRA hazardous wastes appear at 40 CFR Part 261, Appendix IX, after a public notice and comment period pursuant to the federal APA (5 U.S.C. § 500, et seq.). The California Health and Safety Code similarly requires the Department to provide public notice whenever the Department proposes "to make a determination that a waste meets one or more of the criteria and guidelines for the identification of hazardous wastes . . . but that it is not necessary to manage the waste as hazardous waste because the waste possesses physical and chemical characteristics that render it insignificant as a hazard to human health, safety, or the environment." Cal. Health & Saf. Code ("HSC"), § 25141.6. The Department must post this public notice on its website and further submit copies of it to the California Environmental Policy Council, the California Integrated Waste Management Board, the State Water Resources Control Board, any person who requests the public notice, and any solid waste enforcement agency or California Regional Water Quality Control Board in a jurisdiction affected by the determination.[12] These procedural similarities demonstrate the Legislature's intent that the Department treat hazardous waste declassifications as regulatory processes

---

[11] At a minimum, any attempt to repeal a declassification letter issued to an individual shredder would be analogous to repeal of a permit to manage auto shredder residue as a nonhazardous waste and as such, subject to an adjudicatory, evidentiary hearing.

[12] The statutory and regulatory history of auto shredder residue demonstrates the significant efforts that went into creating a uniform approach across various responsible agencies. Driven by the Legislature's intervention, the SWRCB and the IWMB adopted enduring policies that permit disposal of such waste in Class 3 landfills. *See* SWRCB Resolution No. 87-22; 27 Cal. Code Regs., § 20690 (permitting the use of treated auto shredder residue as daily cover at Class 3 landfills). The Department's threatened action to unilaterally determine that treated auto shredder waste is a hazardous waste will impact these policies and regulations. Accordingly, these agencies should be consulted before the Department makes a final determination.

subject to the requirements of the APA. See also, Morning Star Co. v. State Board of Equalization, 38 Cal. 4th 324, 335 (2006) (the Department's interpretations of what constitutes a "hazardous material" for purposes of assessment of the annual corporate fee under HSC § 25205.6(a) represented the adoption of "a generally applicable interpretation of a statute" and thus constituted *de facto* regulations, subject to the requirements of the APA).

V. Greenhouse Gas and Other California Environmental Quality Act Considerations

Given the regulatory nature of the Department's proposal to repeal the declassification letters and related Policy and Procedure 88-6 applicable to auto shredder residue, and the inherently discretionary nature of this action, the Department is obligated by law to comply with the requirements of the California Environmental Quality Act before taking any final action to change the status quo. As indicated in our prior letters, numerous adverse environmental impacts will occur if the Department mandates that auto shredder residue must be managed as a hazardous waste. The most obvious of these adverse impacts include:

- A significant increase in greenhouse gas ("GHG") emissions and particulate diesel emissions associated with transporting auto shredder residue long distances for disposal (estimated emission increases are discussed below)

- Rapid consumption of extremely limited Class I disposal capacity in the state's few hazardous waste landfills, necessitating the construction of new landfills, significant expansion of existing landfills or shipment out-of-state

- Congestion and other transportation-related impacts resulting from the inability to back-haul scrap metal in the same trucks used to transport auto shredder residue to local landfills (separate trucks will need to be dispatched to the local landfills to pick up scrap)

- Loss of use of auto shredder residue as ADC in local landfills, and interference with AB 939 compliance strategies by local governments

- Significant disruption of the scrap collection and recycling business in California due to increased fees and costs attendant to reclassification of the residue as a hazardous waste

- Increased abandonment of discarded, wrecked and other end-of-life vehicles and orphan appliances along roadways, in neighborhoods, fields, parking lots

and other public places, where they pose threats to public safety and create public nuisances

- Disruption of major public works and infrastructural projects that depend upon timely removal of steel and other scrap metal from project sites

- Uncontrolled releases of fuel, oil, automotive fluids and other contaminated run-off from abandoned vehicles into storm drains and surface waters

- Incompatibility of shredder operations with local zoning ordinances, and necessity for rezoning, repermitting or relocation of these facilities, some of which are water-dependent

- Accumulation of old appliances and other metallic discards in local landfills and consumption of limited landfill capacity by these bulky items

The shredders retained Camp Dresser & McKee ("CDM") to estimate incremental GHG emissions that would result from having to transport treated auto shredder residue to in-state Class I disposal sites or out-of-state landfills rather than to local nonhazardous waste landfills. CDM assumed for purposes of these calculations that licensed hazardous waste haulers would have to be used for this purpose and that as a consequence the trucks would be required to return empty, rather than backhauling scrap metal collected from the landfills. Additional emissions are thus assumed from the trucks that would have to be dispatched separately to these locations to pick up the scrap. A copy of CDM's report is included in Attachment 62. CDM estimates that incremental GHG emissions resulting from the Department's proposed action would be approximately 33,000 short tons/year at a minimum.

Recent decisions rendered by state trial courts indicate that the potential environmental effects of GHG emissions associated with agency projects are subject to CEQA review.[13] In addition, over the last year, the Governor's Office of Planning

---

[13] See, e.g., Center for Biological Diversity v. City of Perris, consolidated with Coalition for Honest Environmental Evaluation in Perris v. City of Perris (Riverside Cnty. Sup. Ct. Nos. RIC 477632 & 477811 (May 9, 2008)); Center for Biological Diversity v. City of Desert Hot Springs (Riverside Cnty. Sup. Ct. No. RIC 464585 (August 6, 2008)); Environmental Council of Sacramento v. California Department of Transportation (Sacramento Cnty. Sup. Ct. No. 07CS00967 (July 15, 2008)); Westfield v. City of Arcadia (Los Angeles Cnty. Sup. Ct. No. BS108923 (July 23, 2008)); Natural Resources Defense Council, Inc. v. South

(… continued)

and Research ("OPR") has provided guidance on how public agencies should evaluate GHG emissions under CEQA. For instance, OPR issued interim guidance in June 2008 in the form of a Technical Advisory that encourages public agencies to address GHG-related impacts by: (1) identifying and quantifying GHG emissions that could result from a proposed project; (2) determining whether these emissions will significantly impact the environment; and if so, (3) identifying feasible mitigation measures or alternatives to render the impacts insignificant. See "CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review," prepared by OPR (June 19, 2008). The California Air Resources Board has been tasked with developing standards for making determinations of significance for purposes of CEQA.

In addition, on January 9, 2009, OPR released for public comment its highly anticipated "Preliminary Draft CEQA Guideline Amendments for Greenhouse Gas Emission" ("Draft Guideline Amendments"), which supersedes the Technical Advisory. A copy of the draft guidelines are provided in Attachment 63. This guidance was developed pursuant to § 21083.05 of the Public Resources Code, which directs OPR to "prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions" by July 1, 2009. The revised guidelines must be certified or adopted by January 1, 2010. See PRC § 21083.5. Assuming minimal modification, the Draft Guideline Amendments will recommend that lead agencies consider the following elements in assessing potential impacts arising from GHG emissions: (1) the extent to which a project could help or hinder the state's goal of reducing GHG emissions to 1990 levels by the year 2020, as required by AB 32; (2) the extent to which a project may increase the consumption of fuels or other energy resources, especially fossil fuels; and (3) the extent to which a project impacts or contributes to an exceedance of a significance threshold. See Draft Guideline Amendments, § 15064.4(a).

The Draft Guideline Amendments call upon lead agencies to "make a good-faith effort, based on available information, to describe, calculate or estimate the amount of greenhouse gas emissions associated with a project, including emissions associated with energy consumption and vehicular traffic." Id., § 15064.4(b). Even on a qualitative basis, the increase in GHG emissions associated with the thousands of

---

(… continued)

Coast Air Quality Management District (Los Angeles Cnty. Sup. Ct. Case No. BS 110792 (July 29, 2008)).

additional miles of truck traffic that would result from hauling auto shredder residue to alternate landfills would be huge. Moreover, the Draft Guideline Amendments state that the EIR, if required, should consider mitigation measures specific to GHG emissions. See id., § 15126.4(c). The EIR should further "evaluate greenhouse gas emissions associated with a proposed project when those emissions, when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects, may result in a cumulatively considerable impact to the environment that cannot be mitigated to a level of less than significant." Id., § 15130(f).

In sum, the Draft Guideline Amendments clarify the evident obligation of public agencies to consider GHG emissions as part of their decision-making process. More importantly, the Draft Guideline Amendments urge agencies to make these considerations with respect to both direct and indirect emissions and in light of other projects and regional emissions goals. None of these considerations were taken into account by the Department in determining that the declassification letters should be revoked.

Given the foregoing, there can be no doubt that the Department must conduct a comprehensive review of its proposed action and all reasonable alternatives thereto, including the no action alternative, before making a decision to alter the status quo. This is reinforced by OPR's recent release of draft CEQA Guidelines amendments mandating the evaluation of greenhouse gas emission impacts in any project subject to CEQA. A proper CEQA review of this project would demonstrate unequivocally that continued management of auto shredder residue as a nonhazardous waste is protective of human health and the environment and the alternative with the fewest potential impacts. Failure to comply with CEQA is contrary to law and at odds with the highest priorities of the Administration.

VI. Statutory Exclusion for Wastes which are Hazardous Solely Due to Heavy Metals in Excess of TTLCs

As noted above, one of the main reasons articulated by Department staff as a basis for repeal of the declassification letters relates to total zinc concentrations in auto shredder residue. The Department claims that the amount of zinc in the residue has increased over time and that total concentrations now substantially exceed what they were at the time the declassification letters were issued. In support of this argument,

the Department has pointed to a few isolated waste samples in which total zinc concentrations were up to four times the TTLC (5,000 mg/kg).[14] While the shredders disagree with the Department's assertion regarding major changes in the waste stream, and do not believe that isolated sampling results can be relied upon to support sweeping generalizations about this highly heterogeneous and variable material, the California legislature has already spoken to this issue and has determined that certain wastes – such as auto shredder residue – should not be classified as hazardous waste solely because concentrations of heavy metals in the waste exceed TTLCs. HSC § 25141.5(b)(3) provides as follows:

> (A) Except as provided in subparagraph (B), a waste that would be classified as hazardous solely because it exceeds total threshold limit concentrations, as defined in regulations adopted by the department, shall be excluded from classification as a hazardous waste for purposes of disposal in, and is allowed to be disposed in, a disposal unit regulated as a permitted class I, II, or III disposal unit, pursuant to Section 2531 of Title 23, and Sections 20250 and 20260 of Title 27 of the California Code of Regulations, if, prior to disposal, the waste is managed in accordance with the management standards adopted by the department, by regulation, if any, for this specific type of waste.
>
> (B) Subparagraph (A) shall not apply to a hazardous waste that is a liquid, a sludge or sludge-like material, soil, a solid that is friable, powdered, or finely divided, a nonfilterable and nonmillable tarry material, or a waste that contains an organic substance that exceeds the total threshold limit concentration established by the department for that substance.

Auto shredder residue does not fit into any of the categories of waste that are ineligible for this statutory exclusion, i.e., it is not a liquid, sludge or sludge-like material, soil, a solid that is friable, powdered, or finely divided, a nonfilterable and

---

[14] It appears that the samples with the highest concentrations were collected at landfills that accepted auto shredder residue for use as ADC, and there is no quality control information indicating that the samples were not commingled with other materials being managed at the landfill, such as biosolids. At least one landfill is known to use auto shredder residue as a stabilizer for biosolids.

nonmillable tarry material, or a waste that contains an organic substance in excess of a TTLC. Nor has the Department adopted any management standards that are specific to auto shredder residue, other than those specified in the declassification letters, with which the shredders fully comply.

Accordingly, the legislative directive in this section is directly relevant to this matter and bars the Department from repealing the declassification letters based on the total concentration of zinc or any other heavy metal in the residue. To the contrary, section 25141.5(b)(3) evinces a legislative intent that wastes which are hazardous solely because they contain heavy metals in concentrations that exceed the total threshold limit concentrations in section 66261.24 of the Title 22 regulations shall be excluded from classification as hazardous waste for purposes of disposal.[15] The fact that lead typically exceeds the soluble threshold limit concentration (5 mg/L) in treated auto shredder residue is not a disqualifying circumstance given that the Department has expressly declassified treated residue containing up to 50 mg/L soluble lead.

National Research Council Study. It should also be noted that during a prior Administration, the Department undertook an examination of the Waste Extraction Test ("WET") to determine whether it is overly aggressive in determining toxicity of wastes. In particular, the WET was evaluated in terms of whether it reasonably modeled the solubility of material in a landfill environment. As a result of this

---

[15] The Legislature enacted HSC § 25141.5(b)(3) and other related provisions to "reform[] the hazardous waste program by revising a number of state requirements that are at variance with federal requirements." Sen. Rules Com., Off. of Sen. Floor Analyses, 3d reading analysis of Sen. Bill No. 1222 (1995-1996 Reg. Sess.) as amended May 30, 1995, p. 9. The law was intended to "complement and help drive" the Department's internal "Regulatory Structure Update (RSU)" that was undertaken to determine which hazardous waste management standards and program requirements were "unnecessarily cumbersome" and did not "significantly contribute to environmental and public health protection." Assem. Com. on Envtl. Saf. & Toxic Materials, Rep. on Sen. Bill No. 1222 (1995-1996 Reg. Sess.) Aug. 22, 1995. p.16. While the Department never implemented many of the regulatory changes recommended by the RSU, HSC § 25141.5(b)(3) remains good law. The legislative history of the act specifically recognizes that "[a] number of waste streams, if managed properly, do not need to be managed in accordance with the management requirements associated with being designated a hazardous waste." Id. The years of monitoring data collected by disposal facilities that have accepted treated auto shredder residue for purpose of disposal or use as ADC demonstrate that this material can be safely managed in nonhazardous waste facilities.

review, the Department proposed to abandon the WET, in favor of the federal toxicity characteristic leaching procedure ("TCLP"). Subsequently, the National Research Council ("NRC"), whose members are drawn from the councils of the National Academy of Sciences, the National Academy of Engineering and the Institute of Medicine, peer-reviewed the scientific grounds underlying the proposed change and concluded that, after a "commendable experimental evaluation of WET and TCLP," the Department's study supported the TCLP's ability to "provide a suitable basis for evaluating the uncertainties associated with the results of" tests for the leaching qualities of wastes under field conditions. See, National Research Council, *Risk-Based Waste Classification in California,* at p. 105 (1999), provided in Attachment 64. This finding was important because soluble concentrations of heavy metals, as determined by the WET, provided the impetus for the Department's early regulation of auto shredder residue. Auto shredder residue has always been known to contain a number of heavy metals in total concentrations that exceeded pertinent TTLC levels, and this fact was never considered an impediment to declassification of the waste. Significantly, no other state utilizes the WET to classify wastes as hazardous, and shredder residue is not hazardous when analyzed in accordance with the TCLP.

More specifically, the NRC concluded that

> [o]n balance, TCLP gave a better representation of what actually leaches from landfills for most, if not all, elements. . . . WET generally overestimates what leaches out of landfill waste over the lifetime and post-closure period of a landfill, whereas TCLP's results in leaching simulation are more in line with observed leaching behavior.

Id. at 103. NRC took particular note of the Department's finding that WET consistently extracted more of 10 elements than TCLP . . ., with the exception of one mercury result." *Id.* In fact,

> [f]or several waste-element combinations, WET extract concentrations exceeded TCLP extract concentrations by 1 to 2 orders of magnitude . . . leading to significant overprediction of what is actually present in the leachate for many elements . . .*Id.*

In the end, the NRC fell short of recommending that the Department replace the WET with the TCLP because the WET did not result in overprediction of leaching potential for every waste-element combination. Instead, the NRC recommended further study of the TCLP and consideration of alternatives, including the development of a hybrid test or an entirely new test methodology. However, the NRC did conclude that because the TCLP "has nationwide status, use, and acceptability," adoption of the

TCLP as the sole test in California (and corresponding elimination of the WET) offered benefits that none of the other alternatives could offer. *See id.* at 105. Moreover, as evidenced by the above comments, although the NRC did not give an unqualified endorsement of the proposal to rely solely on the TCLP, NRC implicitly recognized that in an either/or situation, "on balance", TCLP offered a superior method. *Id.* at 103.

We understand that the Department ultimately did not move forward on its proposal to switch from the WET to the TCLP. Nevertheless, the fact that the most reputable scientific body in the nation ratified the conclusion that the WET effectively mischaracterizes (overstates) the potential hazards posed by many wastes in a landfill setting is important for purposes of the Department's consideration concerning the regulatory status of auto shredder residue. In short, the test methodology supported by the NRC concludes that shredder residue is nonhazardous for soluble metals and supports maintaining the status quo.

VII. "Aggregate" is In-Process Material, not Waste

Aside from the classification issue, Department representatives have intimated that the Department may take the position that auto shredder aggregate becomes a waste at the point where the initial magnetic separation of ferrous metals is completed. Thereafter — according to staff — any further processing of the aggregate to remove the valuable non-ferrous metals constitutes treatment of a hazardous waste, subject to the full panoply of hazardous waste regulation. This interpretation is inconsistent with substantial legal precedent applicable to in-process materials, and would constitute an unwarranted and unprecedented intrusion into the scrap metal recycling business.

The starting point for this analysis is section 66261.6(3)(B) of the Title 22 regulations, which broadly exempts scrap metal from regulation as a hazardous waste. Without doubt, the raw materials received by the auto shredders (e.g., car bodies, appliances, sheet metal, metallic equipment and fixtures, rebar, beams, and other metallic debris) are not hazardous waste, and the recycling operations conducted by the scrap metal yards, including auto shredding, are not subject to Title 22.[16]

---

[16] Peter Wood expressed a contrary opinion at the meeting on October 29, 2008. We assume his view is not shared by Department management.

Removal of valuable metals from the shredded feedstock is conducted in a series of separation processes designed to remove the maximum amount of useable material. Following the initial magnetic separation of ferrous metal from the shredder output, the remaining non-ferrous aggregate is processed through a variety of separation technologies to remove valuable non-magnetic metals, most notably aluminum and copper. At this stage of the process, the aggregate is most analogous to an "intermediate manufacturing process stream" as defined in HSC section 25116.5, since the shredders have not received full value of the raw material they purchase until non-ferrous metal separation operations are complete. These non-ferrous separation operations are no different in kind from the initial magnetic separation of ferrous metal from the shredder output. Accordingly, there is no legitimate basis for regulation of non-ferrous metal separation operations as hazardous waste management activity.

Even if shredder aggregate were improperly classified as a waste, these non-ferrous metals separation operations would clearly be excluded from regulation under HSC § 25143.2(d)(1). In a January 4, 1999 letter to Mr. George Adams, the Department stated that that: "*if all relevant conditions of the HSC section 25143.2(d)(3) exclusion are met*, . . . shipment (i.e., transportation) of the waste from the point of generation . . . to the point of recycling (i.e., reclamation) of the nonferrous metals in the waste [at a second facility], would qualify for the subject exclusion." (emphasis in original.) A copy of this letter is included in Attachment 65. If off-site separation of non-ferrous metals is eligible for exclusion under HSC § 25143.2(d)(3), then there is no question but that identical on-site separation operations may occur under HSC section 25143.2(d)(1).

The foregoing analysis is consistent with case law interpreting the federal definition of "solid waste," which provides the foundation for much of HSC section 25143.2 In American Mining Congress v. EPA, 824 F2d. 1117 (D.C. Cir. 1987), the Court of Appeals reversed EPA's 1985 definition of solid waste insofar as it purported to impose hazardous waste regulation on residual or secondary materials that were recycled in an ongoing manufacturing or industrial process. The court held that the Congress used the term "discarded" in an ordinary, plain-English manner to mean disposed, thrown away or abandoned. Secondary materials destined for recycling are not discarded. To the contrary, the producer saves them, and rather than abandoning them, the producer will often reclaim them and reuse them as feedstocks. Since recyclable materials — such as secondary materials that would be recycled in a closed-loop industrial process — can be reused, they are not disposed of and are not part of the waste disposal problem and hence they could not be regulated as solid waste.

The Court of Appeals affirmed this ruling in two later recycling cases: Association of Battery Recyclers v. EPA, 208 F3d 1047 (D.C. Cir. 2000) and Safe Food & Fertilizer v. EPA, 350 F.3d 1263 (D.C. Cir. 2003). In Battery Recyclers, the court held that EPA again misconstrued RCRA (as well as the AMC ruling) when, in 1996, the agency designated as solid waste certain secondary materials that would be reclaimed by the mineral processing industry in something other than a closed loop. The court rejected EPA's contention that it could treat secondary materials as discarded (and hence a "solid waste") whenever they leave a production line and are stored for any length of time in advance of the actual recycling activity. Moreover, the Court observed that EPA erred by attempting to regulate a by-product of an industrial process as if it were the by-product of a solid waste. Three years later, in Safe Food & Fertilizer, the Court sustained an EPA rule which provided a broad, conditional regulatory exclusion for certain hazardous secondary materials recycled and used in the production of zinc fertilizers. The AMC and Battery Recyclers decisions clearly stand for the proposition that EPA cannot view as "discarded" secondary materials that are destined for reuse or recycling in a continuous process by the generating industry. The Safe Food & Fertilizer decision takes this a step further and holds there is nothing in RCRA which compels the conclusion that transferring secondary materials to another industry for recycling by that industry is necessarily "discarding" these materials. Indeed, as the court concluded, "firm to firm transfers are hardly good indicia of 'discard' as the term is ordinarily understood." See also, 40 C.F.R. § 261.4(a)(24), 73 Fed. Reg. 64608, 64683 (Oct.30, 2008) (excluding from the definition of solid waste hazardous secondary materials that are transferred out of the control of the generator to another party for the purpose of reclamation. So long as the reclamation "conforms to these conditions, [it] would not involve discard and therefore would not be regulated as solid waste").

As indicated above, RCRA's judicial and administrative precedents clearly hold that by subjecting scrap metal to various processing operations, the valuable materials contained in the non-ferrous aggregate have not been discarded, disposed of or abandoned at any point in the operations. Indeed, these materials are considered a valuable industry commodity. To discard these valuable materials would be irresponsible and wasteful.

VIII. Updated economic impact analysis

In response to the Department's Automobile Shredder Waste Initiative in November 2002, the California auto shredders retained The Clayton Group to prepare a formal evaluation of the economic impacts that would result if treated auto shredder residue were required to be managed as a hazardous waste. This report is already in the Department's possession, but another copy is provided here for purposes of

completeness. See Attachment 66. The Clayton Report reached the following major conclusions:

- The combination of immediate fiscal impacts of up to $1.3 million (per facility) and ongoing increases in operational costs of up to 540% (per facility) that would result from implementation of the Department's recommendations would dramatically impact the economics of automobile shredding in California.

- The Clayton Group was unable to identify an economically viable option for auto shredder waste management and disposal within the framework of the Department's recommendations.

- Implementation of the Department's recommendations would discourage treatment of auto shredder residue and encourage exporting of the material out-of-state.

- Implementation of the Department's recommendations would potentially distort landfill markets and economics in California and neighboring states.

- The loss of net value of scrap car bodies to the dismantler (and to the consumer selling to the dismantler) would hamper the incentive for automobile recycling in California and increase the likelihood that car bodies would be abandoned. Alternatively, dismantlers would elect to seek a net positive rate from out-of-state shredders (not subject to California's hazardous waste requirements), potentially undermining the viability of auto recycling in California.

The auto shredders have retained CDM to update the financial calculations, anticipated costs, economic assumptions, and predicted outcomes contained in the Clayton Report. Although CDM's final report was unable to be completed by the date of this submittal, CDM has concluded, on a preliminary basis, that overall costs that would be incurred due to management of auto shredder residue as a hazardous waste have increased since 2002, thus exacerbating the adverse impacts identified by The Clayton Group. These costs include treatment-related costs, transportation costs, disposal costs, generator costs, infrastructure maintenance expenses, decommissioning and closure costs, containment building costs, hazardous waste permitting costs requirements, and local zoning/hazardous waste facility siting costs and permitting fees. In addition, CDM has recommended that the supply chain between dismantlers and shredders, and relevant profit margins and other economic factors, must be reassessed in light of these costs and process changes, particularly in

view of the prevailing hostile macro-economic environment. Within the last nine months, extreme fluctuations in critical economic factors such as the market price for processed scrap, fuel prices, and demand for steel-related products have occurred, all of which have had a significant adverse impact on the industry.

An update to the Clayton Group report will be submitted to the Department no later than mid-February. This economic information is vital to the legitimacy of any decision the Department makes concerning the regulatory framework applicable to the auto shredder industry in California.

* * * * *

It is our expectation that the Department will thoroughly review the information and other considerations addressed in this letter before making any decision on how to proceed in this matter. To this end, we believe it is necessary and appropriate to schedule a meeting with the Department and staff from other affected agencies to discuss the information submitted with this letter and answer any questions you may have.

Further, please be advised that the shredders reserve the right to supplement this letter with additional data or other information that becomes available after the date of this letter. For example, I received in this morning's mail a large number of additional documents from the Department in response to our Public Records Act request which may warrant further discussion or response. In addition, we understand that the Department is preparing a response to our letters of October 31 and December 12, 2008, including in particular whether the Department supports the views expressed by Mr. Wood in the SF Weekly article published in December.

Please let me know when it would be convenient to meet with the Department and other agency personnel to discuss this matter.

Thank you for your continuing cooperation.

Very truly yours,

Margaret Rosegay

Index of Attachments
Tables 1-4
Attachments 1 - 66

cc: Victoria Bradshaw, Cabinet Secretary and Deputy Chief of Staff
Maureen Gorsen, Director, DTSC
Gale Filter, Deputy Director, Enforcement, DTSC
Dorothy Rice, Executive Director, SWRCB
Peter Wood, DTSC

w/Tables 1-4, Attachments 58, 61 and 62

California Auto Shredder
DTSC Information Submittal
February 2, 2009

Attachment	Description
Kirby Canyon Reports [San Francisco RWQCB]	
1	First Semi-Annual 2006 and Annual 2005 Self-Monitoring Program Report (4/28/06) [ASR000001-ASR000092]
2	2006 Summer/Fall Semi-Annual Period Self-Monitoring Program Report (10/30/06) [ASR000093-ASR000163]
3	First Semi-Annual 2007 Self-Monitoring Program Report (8/14/07) [ASR000164-ASR000212]
4	Second Semi-Annual 2007 Self-Monitoring Program Report (2/13/08) [CD only] [ASR00213]
5	First Semi-Annual 2008 Self-Monitoring Program Report (8/15/08) [CD only] [ASR000214]
6	Technical Report on Stormwater Leachate Management, Leachate Impoundment Leak Detection and Leachate Monitoring (9/14/07) [ASR000215-ASR000320]
7	Clean Closure Sampling and Analytical Testing Results for Leachate Surface Impoundment LSI-1 (December 2008) [ASR000321-ASR000631]
Ox Mountain Reports [San Francisco RWQCB]	
8	Second Semiannual Water-Quality Monitoring Report and 2006 Annual Summary (1/26/07) [includes CD] [ASR000632-ASR000644]
9	Second Semiannual WDR Water-Quality Monitoring Report and 2007 Annual Summary (1/31/08) [includes CD] [ASR000645-ASR001222]
10	First Semiannual 2008 WDR Water-Quality Monitoring Report (July 2008) [CD only] [ASR001223-ASR001224]
11	Final Report – ADC Project – Using TASW (8/23/96) [ASR001225-ASR001325]
Potrero Hills Reports [San Francisco RWQCB]	
12	Annual Water Quality Monitoring Report, 2006 (January 2007) [ASR001326-ASR001434]

Attachment	Description
28	Semi-Annual Groundwater Monitoring Report, First and Second Quarters 2008 (6/25/08) [CD only] [ASR002553]
29	Semi-Annual Groundwater Monitoring Report, Third and Fourth Quarters 2008 (12/19/08) [CD only] [ASR002554]
30	2004 Leachate Sampling Results (1/26/05) [ASR002555-ASR002718]
31	2005 Leachate Sampling Results (1/27/06) [ASR002719-ASR002951]
32	2006 Leachate Sampling Results (2/5/07) [ASR002952-ASR003151]
33	2007 Leachate Sampling Results (1/30/08) [CD only] [ASR003152]
Simi Valley Reports [Los Angeles RWQCB]	
34	2005/2006 Winter/Spring Semiannual and Annual Monitoring Report (4/28/06) [includes CD] [ASR003153-ASR003239]
35	2006 Summer/Fall Semiannual Monitoring Report (10/31/06) [includes CD] [ASR003240-ASR003290]
36	2006/2007 Winter/Spring Semiannual and Annual Monitoring Report (4/30/07) [includes CD] [ASR003291-ASR003362]
37	2007 Summer/Fall Semiannual Monitoring Report (10/31/07) [includes CD] [ASR003363-ASR003416]
38	2007/2008 Winter/Spring Semiannual and Annual Monitoring Report (4/30/08) [includes CD] [ASR003417-ASR003478]
39	2008 Summer/Fall Semiannual Monitoring Report (10/31/08) [includes CD] [ASR003479-ASR003532]
Altamont Reports [Central Valley RWQCB – Sacramento]	
40	First Semiannual 2006 Groundwater Monitoring Report (July 2006) [ASR003533-ASR004862]; and 2005-2006 Annual Report for Storm Water Discharges (6/29/06) [CD only] [ASR004847]
41	Second Semiannual-Annual 2006 Groundwater Monitoring Report (1/12/07) [CD only] [ASR004863]
42	First Semiannual 2007 Groundwater Monitoring Report (7/10/07) [ASR004864-ASR006067]; and 2006-2007 Annual Report for Storm Water Discharges (6/28/07) [CD only] [ASR006057]

Attachment	Description
Southwest Regional Landfill (Arizona)	
57	Annual Leachate Sampling Evaluation [ASR009500-ASR009516]
Other	
58	Letter from Curtis Scott, Regional Water Quality Control Board, San Francisco Bay Region, to Mailing List recipients, re Treated Auto Shredder Waste, Clarification and Revision to Water Board Letter of October 28, 2004 (1/12/05) [ASR009517-ASR009518]
59	Schnitzer Steel Acceptance Policy [ASR009519-ASR009521]
60	Letter from Karl Palmer, Department of Toxic Substances Control, to Lynn Delzell, Cox, Castle & Nicholson LLP, re Transfer of the Clean Steel Nonhazardous Waste Reclassification to Pacific Rail Industries (8/1/05) [ASR009522-ASR009525]
61	Trends in California Auto Shredder Residue Composition prepared by Simmons Consulting (2/2/09) [ASR009526-ASR009533]
62	CDM memorandum from Teresa Raine and Meredith McElmurry to Meg Rosegay, Pillsbury, re Air Emission Associated with Auto Shredder Residue Transportation Scenarios (1/30/09) [ASR009534-ASR009540]
63	State of California, Governor's Office of Planning and Research Preliminary Draft CEQA Guideline Amendments for Greenhouse Gas Emissions and Public Workshop Announcement (1/8/09) [ASR009541-ASR0084]
64	Risk-Based Waste Classification in California [National Research Council] (1999) [ASR010499-ASR010617]
65	Letter from Norman Riley, Department of Toxic Substances Control, to George Adams, Adams Steel, re Regulation of Auto "Shredder Aggregate" Destined for Recycling (1/4/99) [ASR009585-ASR009591]
66	Evaluation of Economic Impacts of Department of Toxic Substances Control Draft Report and Recommendations for Automobile Shredder Waste Management, prepared by Clayton Group Services Inc. (2/27/03) [ASR010618-ASR010663]

Table 1
Trace Metals Summary Statistics for Leachate in Contact With Treated Auto Shredder Waste Versus NON TASW Leachate from California Landfills

Constituent	TASW Leachate	Non-TASW Leachate
Cadmium Mean	ND	0.3
Cadmium Meadian	ND	ND
Cadmium Min	ND	ND
Cadmium Max	ND	28.5
Chromium Mean	5	65.8
Chromium median	ND	24.8
Chromium Min	ND	ND
Chromium Max	31	3080
Copper Mean	53.4	17
Copper Median	20	ND
Copper Min	ND	ND
Copper Max	180	580
Lead Mean	12	36.8
Lead Median	4.8	ND
Lead Min	ND	ND
Lead Max	76	730
Mercury Mean	0	0.1
Mercury Median	ND	ND
Mercury Min	ND	ND
Mercury Max	0.2	2.2
Nickel Mean	52.3	75.8
Nickel Median	ND	57.3
Nickel Min	ND	ND
Nickel Max	600	1740
Zinc Mean	437.6	376.2
Zinc Median	68	37.1
Zinc Min	ND	ND
Zinc Max	2600	91000
** All data are in ug/l		

Table 2
Results of Full Shift Personal Air Monitoring of Employee Exposures to Treated Auto Shredder Residue at H.M. Hollaway, Inc., Lost Hills Quarry, Lost Hills, California

Material	Sample A Personal Air Sample 8-Hour TWA (mg/m3)	Sample B Personal Air Sample 8-Hour TWA (mg/m3)	Field Blank (µg/m3)	CalOSHA 8-Hour PEL-TWA (mg/m3)	ACGIH TLV 8-Hour TLV-TWA (mg/m3)
Aluminum	0.0059	0.0044	<1	10	10 (metal dust)
Arsenic	<.00010	<.00010	<0.1	0.01	0.01 (inorganic compounds)
Barium	<0.0010	<0.0010	<1	0.5	0.5
Beryllium	<0.000052	<0.000051	<0.05	0.0002	0.001
Cadmium	<0.00010	<0.00010	<0.1	0.005	0.002 inhalable
Calcium	0.026	0.021	<10	10 (particulates)	10 (gypsum)
Chromium	<0.00010	<0.00010	0.46	0.5(metal)	0.5 (metal)
Copper	0.00024	0.00013	<0.1	0.1(metal fume)	0.2 (fume)
Iron	0.012	0.0074	1.4	5.0 (oxide fume)	5.0 (oxide fume)
Lead	0.000073	0.000065	<0.05	0.05 (inorganic dust and fume)	0.05 (elemental and inorganic compounds)
Lithium	<0.0010	<0.0010	<1	0.025 (hydride)	0.025 (hydride)
Manganese	0.00018	0.00014	<0.1	0.2 (fume)	0.2 (fume)
Molybdenum	<0.00010	<0.00010	<0.1	3 (respirable) 10 (total)	10 (metal and insoluble compounds)
Nickel	0.0003	0.00018	<0.1	1 (metal)	0.2 (inhalable insoluble compounds)
Phosphorus	<0.0010	<0.0010	<1	0.1 (yellow)	0.1 (yellow)
Silver	<0.00010	<0.00010	<0.1	0.01	0.1
Thallium	<0.00010	<0.00010	<0.1	0.1 (as Ti)	0.1 (as Ti)
Titanium	<0.0010	<0.0010	<1	10 (particulates not otherwise regulated)	10 (dioxide)
Total Particulate	0.4	0.4	<50	10 (total) 5 (respirable)	10 (total) 3 (respirable)
Vanadium	<0.00010	<0.00010	<0.1	0.05 (respirable dust or fume)	0.05 (respirable dust or fume)
Zinc	0.00077	0.00057	<0.1	5.0 (fume)	1.0 (fume)
Zirconium	<0.0031	<0.0031	<3	5	5
Arochlor 1016	<0.0024	<0.0029	<0.1	NA	NA
Arochlor 1221	<0.0024	<0.0029	<0.1	NA	NA
Arochlor 1232	<0.0024	<0.0029	<0.1	NA	NA
Arochlor 1242	<0.0024	<0.0029	<0.1	1	1

Table 2
Results of Full Shift Personal Air Monitoring of Employee Exposures to Treated Auto Shredder Residue at H.M. Hollaway, Inc., Lost Hills Quarry, Lost Hills, California

Material	Sample A Personal Air Sample 8-Hour TWA (mg/m3)	Sample B Personal Air Sample 8-Hour TWA (mg/m3)	Field Blank (µg/m3)	CalOSHA 8-Hour PEL-TWA (mg/m3)	ACGIH TLV 8-Hour TLV-TWA (mg/m3)
Arochlor 1248	<0.0024	<0.0029	<0.1	NA	NA
Arochlor 1254	<0.0024	<0.0029	<0.1	0.5	0.5
Arochlor 1260	<0.0024	<0.0029	<0.1	NA	NA
Mercury	<0.0011	<0.0013	<0.05	0.01 (alkyl compounds as Hg) 0.025 (metallic and inorganic compounds as Hg	0.01 (alkyl compounds as Hg) 0.025 (metallic and inorganic compounds as Hg

Table 3
Results of Full Shift Monitoring at metals separation/ASR generation facilities

mple Two rsonal Air Hour TWA mg/m3)	Sample Three General Air 8-Hour TWA (mg/m3)	Sample Four Personal Air 8-Hour TWA (mg/m3)	Sample Five Personal Air 8-Hour TWA (mg/m3)	Sample Six Personal Air 8-Hour TWA (mg/m3)	Sample Seven General Air 8-Hour TWA (mg/m3)	Sample Eight General Air 8-Hour TWA (mg/m3)	Sample Nine General Air 8-Hour TWA (mg/m3)	Sample Ten General Air 8-Hour TWA (mg/m3)	Sample Eleven General Air 8-Hour TWA (mg/m3)	Sample Twelve Personal Air 8-Hour TWA (mg/m3)	Samples One - Twelve Field Blank (µg/m3)	Sample Thirteen Personal Air Maximum Tested Values 8-Hour TWA (mg/m3)	CalOSHA 8-Hour PEL-TWA (mg/m3)	ACGIH TLV 8-Hour TLV-TWA (mg/m3)
<0.011	<0.012	<0.012	<0.011	<0.012	<0.011	<0.012	<0.012	<0.012	<0.012	<0.012	<0.005		0.5	0.1
<0.0045	<0.0047	<0.0048	<0.0044	<0.0047	<0.0043	<0.0050	<0.0049	<0.0050	<0.0049	<0.0047	<0.002	<0.00042	0.01	0.01 (inorganic compounds)
<0.0022	<0.0023	<0.0024	<0.0022	<0.0024	<0.0021	<0.0025	<0.0024	<0.0025	<0.0024	<0.0024	<0.001		0.5	0.5
<0.00045	<0.00047	<0.00048	<0.00044	<0.00047	<0.00043	<0.0005	<0.00049	<0.0005	<0.00049	<0.00047	<0.0002		0.0002	0.001
<0.011	<0.012	<0.012	<0.011	<0.012	<0.011	<0.012	<0.012	<0.012	<0.012	<0.012	<0.0005	<0.005	0.005	0.002 inhalable
<0.0022	<0.0023	<0.0024	<0.0022	<0.0024	<0.0021	<0.0025	<0.0024	<0.0025	<0.0024	<0.0024	<0.001	<0.005	0.5(metal)	0.5 (metal)
<0.0045	<0.0047	<0.0048	<0.0044	<0.0047	<0.0043	<0.0050	<0.0049	<0.0050	<0.0049	<0.0047	<0.002		0.02	0.02
<0.0022	<0.0023	<0.0024	<0.0022	<0.0024	<0.0021	<0.0025	<0.0024	<0.0025	<0.0024	<0.0024	<0.001	0.002	0.1(metal fume)	0.2 (fume)
0.045	0.14	0.017	0.053	0.025	0.015	0.0055	0.028	<0.0050	0.0054	0.033	<0.002		5.0 (oxide fume)	5.0 (oxide fume)
<0.0090	<0.0094	<0.0095	<0.0089	<0.0094	<0.0086	<0.0099	<0.0098	<0.0099	<0.0098	<0.0095	<0.004	<0.00025	0.05 (inorganic dust and fume)	0.05 (elemental and inorganic compounds)
0.0039	0.021	0.0043	0.0047	0.0028	<0.0021	<0.0025	0.003	<0.0025	<0.0024	0.0034	<0.001		10	10
<0.0011	0.0019	<0.0012	<0.0011	<0.0012	<0.0011	<0.0012	<0.0012	<0.0012	<0.0012	<0.012	<0.0005		0.2 (fume)	0.2 (fume)
<0.011	<0.012	<0.012	<0.011	<0.012	<0.011	<0.012	<0.012	<0.012	<0.012	<0.012	<0.005		3 (respirable) 10 (total)	10 (metal and insoluble compounds)
<0.0045	<0.0047	<0.0048	<0.0044	<0.0047	<0.0043	<0.0050	<0.0049	<0.0050	<0.0049	<0.0047	<0.002	<0.0009	1 (metal)	0.2 (inhalable insoluble compounds)
<0.0022	<0.0023	<0.0024	<0.0022	<0.0024	<0.0021	<0.0025	<0.0024	<0.0025	<0.0024	<0.0024	<0.001	<0.009	0.2	0.2
<0.011	<0.012	<0.012	<0.011	<0.012	<0.011	<0.012	<0.012	<0.012	<0.012	<0.012	<0.005		0.01	0.1
<0.011	<0.012	<0.012	<0.011	<0.012	<0.011	<0.012	<0.012	<0.012	<0.012	<0.012	<0.005		0.1 (as Ti)	0.1 (as Ti)
0.01	0.038	0.0028	0.01	0.0036	0.0039	<0.0025	0.0055	<0.0025	<0.0024	0.0089	0.001	0.017	0.05 (respirable dust or fume)	0.05 (respirable dust or fume)
													5.0 (fume)	1.0 (fume)
						<0.099	<0.098	<0.099	<0.098	<0.095	<0.050	0.467	5	3
0.58	3.3	0.33	0.64	0.13	0.17	<0.12	0.23	<0.12	<0.12	0.33	<0.050	0.864	10	10

Table 4
VOC Results of Full Shift Monitoring at metals separation/ASR generation facilities

Volatile Organic Compound	Sample Thirteen Personal Air Maximum Tested Values 8-Hour TWA (ppb)	CalOSHA 8-Hour PEL-TWA (ppb)	ACGIH TLV 8-Hour TLV-TWA (ppb)
Benzene	1.6	1000	500
Toluene	12	50000	20000
Carbon Disulfide	1.3	4000	1000
Methyl Ethyl Ketone	5.2	200000	200000
Ethyl Benzene	4.7	100000	100000
Xylene	8.4	100000	100000
Heptane	3.3	400000	400000
Hexane	2.3	500000	500000

SELECTED ATTACHMENTS

California Regional Water Quality Control Board
San Francisco Bay Region

Dr. Alan Lloyd
Secretary for Environmental Protection

1515 Clay Street, Suite 1400, Oakland, California 94612
(510) 622-2300 • Fax (510) 622-2460
http://www.waterboards.ca.gov/sanfranciscobay

Arnold Schwarzenegger
Governor

See Attached Mailing List

Date: January 12, 2005

SUBJECT: Treated Auto Shredder Waste, Clarification and Revision to Water Board Letter of October 28, 2004

To Whom It May Concern:

This letter is to clarify and revise the subject letter that described conditions for acceptance of Treated Auto Shredder Waste (TASW) at Municipal Solid Waste Landfills (MSWLF). In that letter the third and fourth paragraphs lead to confusion on the applicability and implementation of reporting requirements and the Department of Toxic Substances Control (DTSC) de-classification of TASW.

DTSC has subsequently confirmed that the de-classification of TASW remains in effect and that any potential future changes will be prospective. In addition, Water Board staff has not seen impacts to water quality from the acceptance of TASW or use as alternative daily cover. We are therefore reaffirming that acceptance of TASW is permitted at MSWLF's within this region and that reporting requirements are as required in either Waste Discharge Requirements or as specifically stated in approval letters prior to the October 28, 2004 letter.

If you have any questions, please contact Terry Seward at 510.622.2416 or email **tseward@waterboards.ca.gov**.

Sincerely,

Curtis T. Scott, Chief
Groundwater Protection and Waste
Containment Division

Attachment: Mailing List
cc. Via email: Peggy Harris, DTSC
Howard Levenson, California Integrated Waste Management Board

ATTACHMENT 58

ASR009517

Mailing List:

Republic Services, Northern California
Attention: Mr. David Grede
4001 North Vasco Road
Livermore, California 94550

Zanker Road Landfill &
Zanker Materials Processing Facility
Attention: Mr. Paul Lineberry
705 Los Esteros Road
San Jose, California 95134

Guadalupe Rubbish Disposal Company
Attention: Paul Michael
P.O. Box 20957
San Jose, CA 95160

Kirby Canyon Rec. & Disposal Facility
Attention: Guy R. Petraborg
172 98th Avenue
Oakland, CA 94603

City of Palo Alto Landfill
Attn: Scan Kennedy
Public Works Department
3201 East Bayshore Road
Palo Alto, California 94303

Newby Island Landfill
Attention: Gil Cheso
1601 Dixon Landing Road
Milpitas, CA 95035

Redwood Landfill
Mr. Ramin Khany
P.O. Box 793
Novato, CA 94948

Clover Flat Landfill

Clover Flat Landfill
Attention: Ms. Marilyn Ryan
P.O. Box 382
St. Helena, California 94574

Ox Mountain Sanitary Landfill
Attention: Mr. Jim Gunderson
12310 San Mateo Road
Half Moon Bay, CA 94019-7112

Keller Canyon Landfill
Mr. Norm Christensen
901 Bailey Road
Pittsburg, CA 94565

Potrero Hills Landfill
P.O. Box 68
Fairfield, CA 94553

Waste Management – Tri Cities Landfill
Attention: Mr. Patrick McDonald
7010 Auto Mall Parkway
Fremont, California 94538

2/2/2009

Trends in California Auto Shredder Residue Composition

Barton P. Simmons
Simmons Consulting

1. Objective

The objective of this paper is to evaluate whether any statistically reliable trends for hazardous constituents in California auto shredder residue (ASR) can be observed over time.

2. Scope

Available data for California ASR cover the time frame of 1984 through 2008. The data represent samples taken at California metal recycling facilities as well as samples taken from ASR at landfills. Since earlier data, e.g., data from 1986-1989, are on untreated ASR, this paper focuses on total measurements for regulated metals and PCBs. A review of hazardous waste criteria and historical data has shown that cadmium, lead, zinc, and PCBs are the primary constituents of interest, and they are the focus of this paper. Experience has shown that treatment of ASR has little effect on total measurements, and typically lowers total concentrations by about ten per cent. Therefore, the scope includes total metals testing ("TTLC testing") on untreated and treated ASR.

3. Data Inputs

The needed data includes sampling dates and locations, size fraction (when available), and ASR test results using methods comparable to the digestion and test methods specified in DTSC regulations.

4. Data Quality Objectives

Previous testing has shown that approximately ten samples are needed to measure metal concentrations with a precision of ten per cent. The sampling in this study generally included 5-20 samples per sampling episode. To capture the uncertainty of each episode, the 95% (two-tailed) confidence intervals of the mean were calculated. The probability that a mean is greater than the Upper Confidence Limit (UCL) is 2.5%, and the probability that a mean is less than the Lower Confidence Limit (LCL) is 2.5%.

5. Data Collection

The available data are summarized in Table 1. The means are weighted means from the individual sampling events, and the confidence limits were calculated from the pooled standard deviation for all data in a time period. A total of 337 sample results were available from at least nine laboratories; some results did

not list the testing laboratory. No outlier tests were performed, and none of the data were excluded. The test methods used by the laboratories were comparable, although one data set from Calscience in 2006 included x-ray fluorescence (XRF) results. These results, being a true total measurement, may be biased high compared with the other results, which were obtained after acid digestion. No formal data validation was performed, although quality control data was typical for heterogeneous samples; matrix spike and matrix spike duplicate results were typically more variable than for homogeneous samples. No data was rejected for data quality reasons.

Samples tested by DTSC in 2004-5 followed a protocol which tested < 2mm material separately from > 2 mm material, and the results are shown separately. The DTSC protocol called for cutting and milling the >2mm fraction until it passed a 9.5 mm sieve. The mean concentrations of the metals and PCBs for the two DTSC fractions were similar, although the larger fraction tended to have greater variability, as reflected in larger confidence intervals.

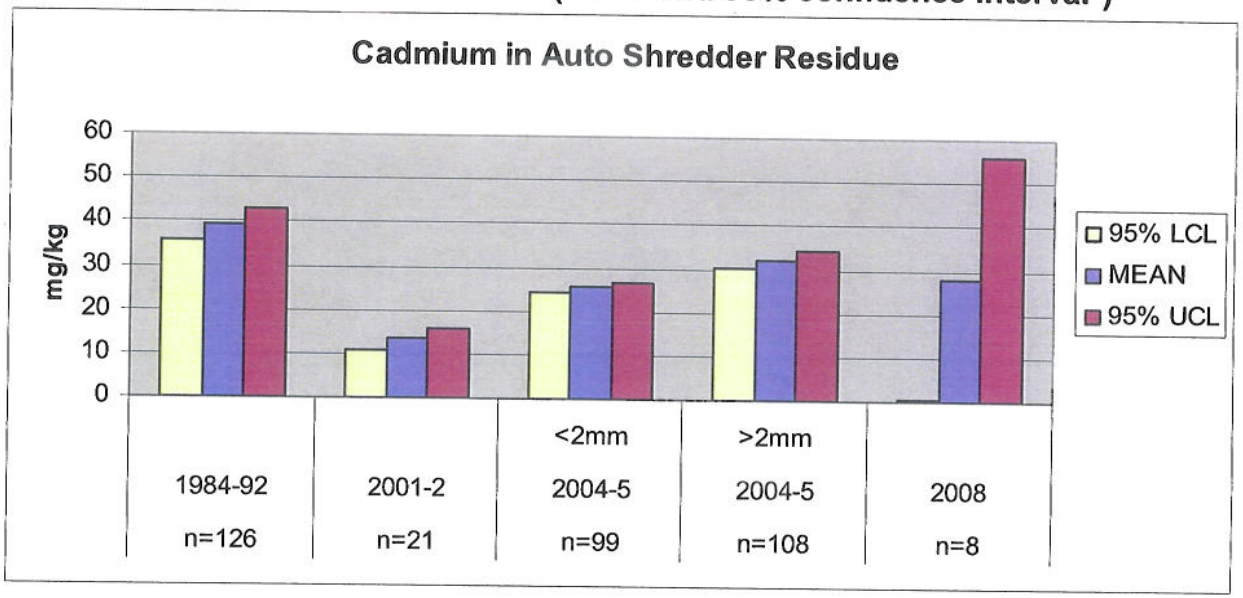
Table 1. Sources of ASR Data

Time Period	Date	Objective	Sampler	Number of Samples	Lab
1984-1992	1984	Wastestream Study (Battelle, 1984)	Batelle	10	Batelle
	1986	Enforcement	California Department of Health Services (DHS)	13	DHS Hazardous Materials Lab (HML)
	1986	Declassification	Facility	1	EAL
	1989	Remedial Investigation/ Feasibility Study (RI/FS)	DHS	10	HML
	1989	RI/FS	Facility	35	Truesdail Laboratory
	1987-1992	Treatment Testing	Facility	55	BC Labs
2001-2002	2001	Treatment Testing	Facility	21	Calscience
	2001	ASW Initiative (DTSC, 2002)	DTSC	32	American Scientific Labs
2004-2005	2004-2005	Enforcement – Facility and Landfill samples	DTSC	108	HML
2006	2006		Facility	25	Calscience (XRF)
2008	2008	Enforcement split samples	DTSC	19	Enviro-Chem
	2008	Landfill samples	DTSC	8	TestAmerica
				Total:337	

6. Results

The summary data are shown in Figures 1-4. For each time period, the mean and the 95% confidence interval of the mean are shown (for DTSC 2001-2 data, only the 90% confidence intervals were available). Cadmium results were not available for some of the 2001-2 and some of the 2008 data.

Figure 1. Cadmium in ASR (mean and 95% confidence interval[1])



[1] The relatively large confidence interval for the 2008 data is driven by one high landfill sample result of 110 mg/kg.

Figure 2. Lead in ASR (mean and 95% confidence interval)

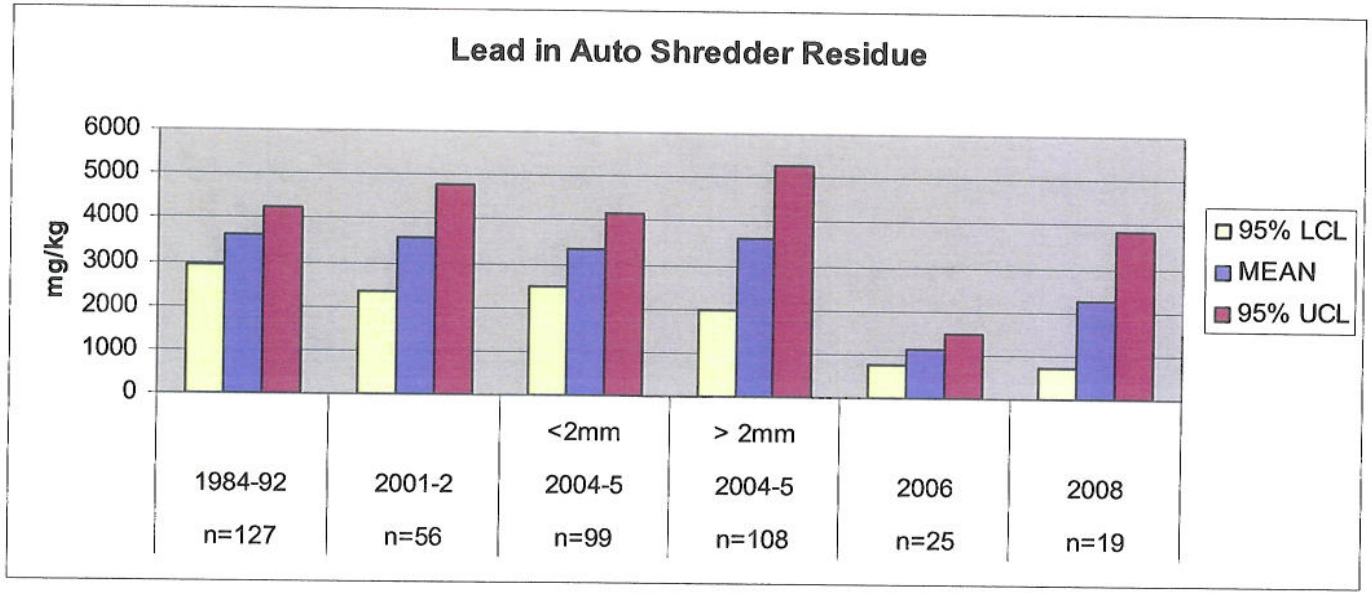


Figure 3. Zinc in ASR (mean and 95% confidence interval)

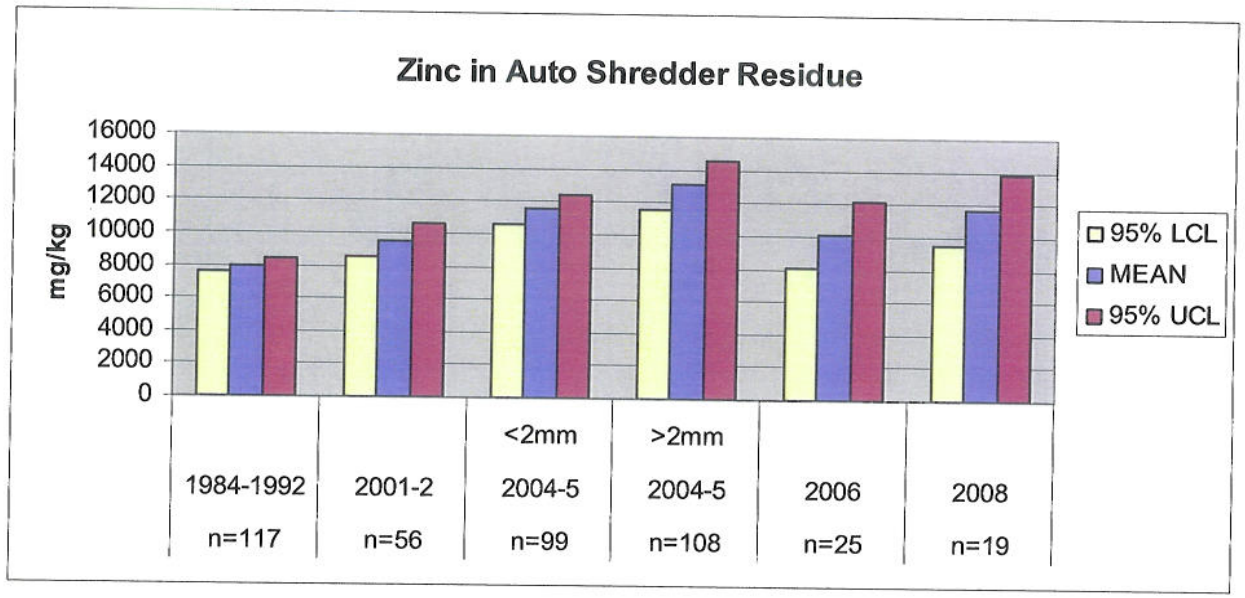
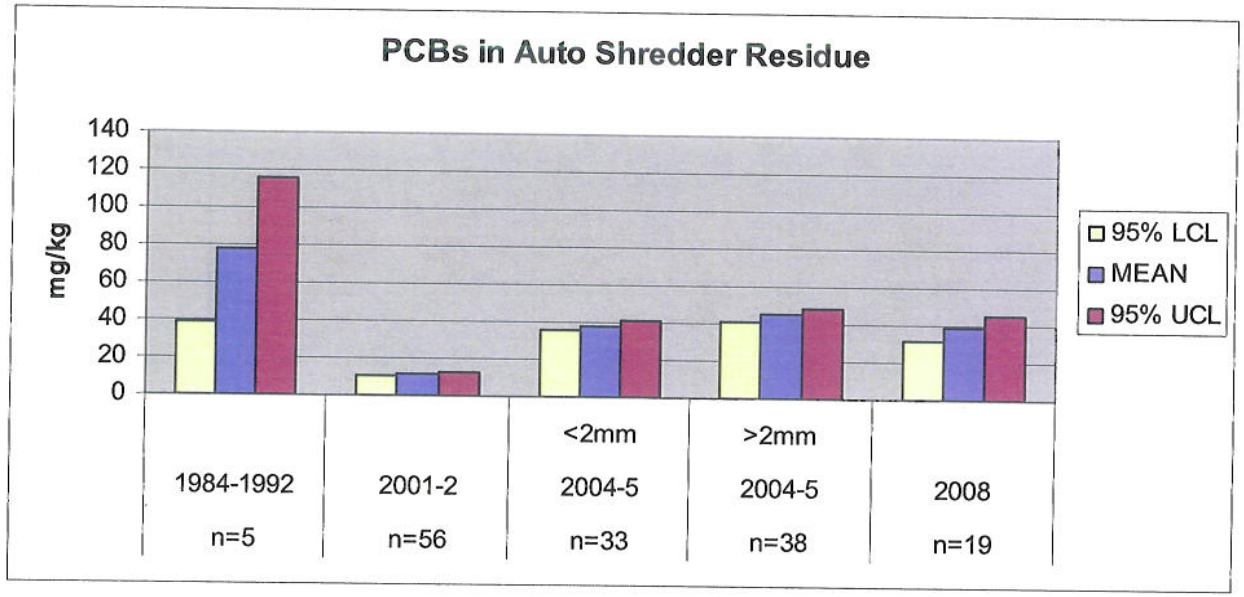


Figure 4. PCBs in ASR (mean and 95% confidence interval)



7. Discussion

Although ASR has considerably heterogeneity, the large number of samples tested since 1984 provides a robust, representative data base for measuring mean concentrations in ASR (" 'Representative sample' means a sample of a universe or whole (e.g., waste pile, lagoon, ground water) which can be expected to exhibit the average properties of the universe or whole[2]"). The graphs in Figures 1-4 present a much more accurate representation of ASR than graphs prepared using only select data points.

There is no obvious or statistically significant trend in cadmium levels; the large confidence interval in the 2008 data is driven by a single high landfill sample result of 110 mg/kg. Lead levels and PCB levels appear to be decreasing, although the difference is not significant. The concentration of zinc appears to have increased when compared to the earliest dataset, but no statistically significant trend was observed over time. Although the larger particle size ASR (>2 mm) tends to have more variability than the smaller (<2 mm) material, the means are similar for all the substances. There were no statistically significant trends for the means of any of the substances when tested at the 95% confidence level (Mann-Kendall Trend Test, EPA 2006). The Mann-Kendall Trend Test is sensitive to monotonic changes, i.e. consistent increases or decreases in mean values. In summary, there are no statistically significant trends for these substances in California ASR.

References

Battelle Office of Hazardous Waste Management, "Analysis of Wastes Produced by the California Auto Shredding Industry, 1984.

DTSC, "Draft Report; California's Automobile Shredder Waste Initiative," November, 2002.

EPA, "Data Quality Assessment: Statistical Methods for Practitioners, EPA QA/G-9S, February, 2006.

[2] 22 CCR § 66260.10 definitions

1925 Palomar Oaks Way, Suite 300
Carlsbad, California 92008
tel: 760 438-7755
fax: 760 438-7411

Memorandum

To: *Meg Rosegay, Pillsbury Winthrop Shaw Pittman, LLP*

From: *Teresa Raine, CDM*
Meredith McElmurry, CDM

Date: *January 30, 2009*

Subject: *Air Emission Associated with Auto Shredder Residue Transportation Scenarios*

CDM is pleased to provide this analysis of air emissions associated with heavy-duty truck transportation scenarios anticipated to occur in connection with the Department of Toxic Substances Control's proposal to regulate auto shredder waste as a hazardous waste in California. Consistent with new pending regulations for diesel emission sources and with new rules and standards implementing the California Global Warming Solutions Act of 2006 (AB32), this analysis looks at both criteria air pollutants and greenhouse gas (GHG) emissions associated with truck exhaust and highway wear. Comparisons to proposed and current California Environmental Quality Act (CEQA) thresholds of significance are provided for informational purposes and to provide a point of reference. The analysis adds the existing estimated emissions to the proposed new emissions as facilities will be required to dispatch additional trucks to local landfills to pick up scrap that is currently back- hauled to shredder yards.

Air Emission Analysis

The analysis examines the average trip distance and number of trips per year to landfills currently utilized in addition to the average trip distance from a facility to the proposed landfills located in California and Nevada. The analysis assumes that the same number of average annual trips to local and hazardous waste landfills would be required under the proposed scenario given the current use of back-hauling. Averages were developed based on the average information for selected auto shredders. Annual vehicle miles traveled (VMT) were calculated by multiplying the average number of trips with the average trip distance for the current and proposed landfill scenarios.

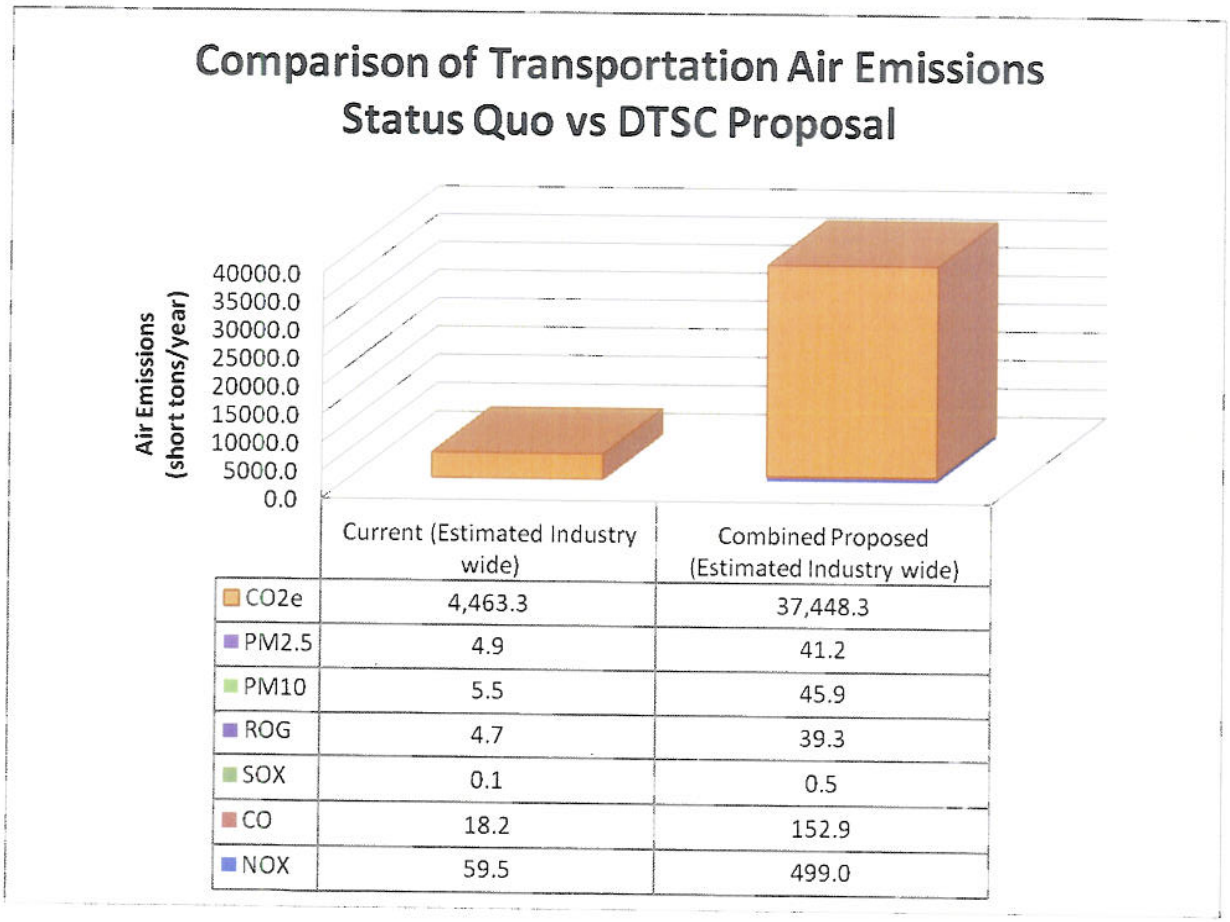
Emission factors, conversions, and assumptions were based on methodologies and information published for different pollutants:

- South Coast Air Quality Management District (SCAQMD) for air quality analysis of criteria pollutants;
- California Air Resources Board (CARB), Regulation for the Mandatory Reporting of Greenhouse Gas Emission for GHG emissions, supplemented with information as published in the California Climate Action Registry's (CCAR) General Reporting Protocol (GRP), Version 3.0.

A complete listing of emission factors, assumptions, and references is provided in Attachment A to this memorandum.

Results and Discussion

Based on the averages and methodologies as discussed above, the results of the analysis can be found in Attachment B to this report. As illustrated in Figure 1, air emissions associated with the proposed scenario are estimated to be over eight times higher than those calculated under the existing average scenario.



	Current (Estimated Industry wide)	Combined Proposed (Estimated Industry wide)
CO2e	4,463.3	37,448.3
PM2.5	4.9	41.2
PM10	5.5	45.9
ROG	4.7	39.3
SOX	0.1	0.5
CO	18.2	152.9
NOX	59.5	499.0

This is of particular concern regarding the associated criteria pollutant emissions caused by the increased travel. When compared to SCAQMD CEQA operational standards as a reference, the increase in mobile emissions from the current scenario to the proposed scenario, industry-wide, results in increased emissions are significantly above the CEQA threshold of significance for daily emissions.

As noted in the CARB Climate Change Proposed Scoping Plan (Scoping Plan), the transportation sector as a whole is the largest contributor to California's GHG emission total, accounting for approximately 38% of the state's annual GHG total. The shift from the current scenario to the proposed operations industry-wide could result in an estimated increase of almost 33,000 short tons per year of GHG emissions. As points of reference:

- The current CARB proposed CEQA threshold for industrial GHG emissions is 7,000 metric tons (7,716 short tons of CO_2 equivalent per year),
- The proposed Western Climate Initiative Reporting threshold is 10,000 metric tons CO_2 equivalent per year (11,023 short tons/year)
- The CARB threshold for Mandatory GHG Reporting is 25,000 metric tons of CO_2 (or 27,558 short tons/year)

It is also important to note that the increase in VMT is contrary to the measures as proposed in the Scoping Plan approved on December 11, 2008. Measure #6 of the Scoping Plan notes that VMT reductions are part of the regional transportation-related GHG measures that are being implemented in accordance to AB32 and the Scoping Plan. As part of the future goals described in the Scoping Plan, CARB seeks to continue implementing land-use and transportation policies to lower overall VMT in the state, reducing transportation-related GHG emissions to help achieve the state's 2020 and 2050 AB32 goals.

Attachment A
Assumptions used for Air Emission Calculations and Comparisons.

The following provides a summary of universal assumptions and factors used for the analysis. Any changes from assumptions or factors as previously provided as a part of the original analysis, have been highlighted in Yellow.

Estimate of Fuel Efficiency for HD Trucks

7	mpg

Source: CCAR GRP, Chapter 7, page 39 - CCAR References data from US DoE, Transportation Energy DATA book edition 20-2000, Table 8.1

Emission Factors			
Pollutant	Emission Factor	Units	Source of Factors
NO_X	0.041845907	lbs/mile	SCAQMD, 2009 Scenario Year: HHDT-DSL
CO	0.012822365	lbs/mile	SCAQMD, 2009 Scenario Year: HHDT-DSL
SO_X	4.01284E-05	lbs/mile	SCAQMD, 2009 Scenario Year: HHDT-DSL
ROG	0.003293205	lbs/mile	SCAQMD, 2009 Scenario Year: HHDT-DSL
PM10-tire/brake	0.00199572	lbs/mile	SCAQMD, 2009 Scenario Year: HHDT-DSL
PM2.5-tire/brake	0.001752274	lbs/mile	SCAQMD, 2009 Scenario Year: HHDT-DSL
PM10-exh	0.001853933	lbs/mile	SCAQMD, 2009 Scenario Year: HHDT-DSL
PM2.5-exh	0.001706795	lbs/mile	SCAQMD, 2009 Scenario Year: HHDT-DSL
CO_2	9.96	kg CO_2/gallon	CARB, Appendix A - Table 7, "CA Low Sulfur Diesel"
CH_4	0.0051	g/mile	CARB, Appendix A - Table 8, "Heavy Duty Trucks - Diesel and Alternative Fuels/Diesel All Model Years"
N_2O	0.0048	g/mile	CARB, Appendix A - Table 8, "Heavy Duty Trucks - Diesel and Alternative Fuels/Diesel All Model Years"

Note: the SCAQMD Source used for criteria pollutants also includes CO2 and CH4 emission factors which differ from those presented in the CARB Regulation. As the CARB reference is the methodology to be used for GHG Reporting, those emissions factors have been selected for use here. Also, information on additional pollutants (PM10, PM2.5) associated with tire, breakwear, and exhaust emissions were available from this source and included

Greenhouse Gas Global Warming Potentials (GWP)

Pollutant	GWP
CO_2	1
CH_4	21
N_2O	310

Source: Intergov. Panel on Climate Change Second Assessment Report, 1996 - As referenced in the CARB - Appendix A, "ARB Compendium of Emission Factors and Methods to Support Mandatory Reporting of Greenhouse Gas Emissions", Table 2

References

CARB — Regulation for the Mandatory Reporting of Greenhouse Gas Emissions
CCAR GRP — California Climate Action Registry, General Reporting Protocol, Version 3.0, April 2008
SCAQMD — South Coast Air Quality Management District, Air Quality Analysis Guidance, EMFAC 2007 (v2.3) Emission Factors (On-Road), Heavy-Heavy-Duty Vehicles, 2009 Scenario Year. http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html As website available on 1/29/09

Unit Converstions

1 short ton =	907.18474	kilograms
1 short ton =	907184.74	grams
1 short ton =	2000	lbs
1 year	365	working days
1 short ton =	0.90718474	metric ton

/Typical Facility

ɔased on the assumptions and factors as provided in the "assumptions" tab of this workbook
nultiple Confidential Clients

	AVERAGES	
	Current	Additional Proposed
round trip distance (miles/trip)	105.4	779.1
trips (trips/year)	5,393	5,393
total distance (miles/year)	568,499	4,201,413
total fuel (gallons/year)	81,214	600,202

Notes
(weighted average based on trips)
(average # of trips for all facilities)

AVERAGES - Comparison of Proposed vs Current
3,632,914 additional VMT per year
518,988 additional gallons diesel per year

Emission Factor	Units	Total Annual Emissions (short tons/year)		
		AVERAGES		Combined Proposed
		Current	Additional Proposed	
0.041845907	lbs/mile	11.9	87.9	99.8
0.012822365	lbs/mile	3.6	26.9	30.6
4.01284E-05	lbs/mile	0.0	0.1	0.1
0.003293205	lbs/mile	0.9	6.9	7.9
0.00199572	lbs/mile	0.6	4.2	4.8
0.001752274	lbs/mile	0.5	3.7	4
0.001853933	lbs/mile	0.5	3.9	4
0.001706795	lbs/mile	0.5	3.6	4.1
		1.1	8.1	9.2
		1.0	7.3	8.2
9.96	kg CO_2/gallon	891.7	6,589.6	7,481.3
0.0051	g/mile	3.2E-03	2.4E-02	2.7E-02
0.0048	g/mile	3.0E-03	2.2E-02	2.5E-02
		892.7	6,597.0	7,489.7

Average Daily Emissions (lbs/day)	
AVERAGES	
Current	Proposed
65.2	546.9
20.0	167.6
0.1	0.5
5.1	43.0
6.0	50.3
5.4	45.2

CEQA Thresholds	
Proposed, Annual (tons/year)	Daily Operational (lbs/day)
	55
	550
	150
	55
	150
	55
7,716	

37,448

clude trucking associated with one facility not using California landfills, but which may still be impacted by the change

5 mpg; consistant with GHG calculation methodologies for calcuating emissions from HD trucks,
een revised to mpg)
ated for comparison against SCAQMD CEQA Significance Thresholds. Assumed even average over 365 days/year
ed on CARB recommended 7,000 MT CO2e for industrial projects (though it typically does not include transportation
ıtion thresholds are not available this is used as a point of reference.)
olds presented are SCAQMD Thresholds of Significance for Operations as available at
v/ceqa/handbook/signthres.pdf

issions

nsportation emissions

:ility Wide Impacts

l on the assumptions and factors as provided in the "assumptions" tab of this workbook
)le Confidential Clients

'age facilities as calculated in this analysis.

	AVERAGES	
	Current	Additional Proposed
)und trip distance (miles/trip)		
trips (trips/year)		
total distance (miles/year)	2,842,494	21,007,065
total fuel (gallons/year)	406,071	3,001,009

Notes
(weighted average based on trips)
(average # of trips for all facilities)

AVERAGES - Comparison of Proposed vs Current
18,164,571 additional VMT per year
2,594,939 additional gallons diesel per year

ssion Factor	Units	Total Annual Emissions (short tons/year) AVERAGES ent (Estimated Industry v	Additional Proposed	Combined Proposed (Estimated Industry
).041845907	lbs/mile	59.5	439.5	499.0
).012822365	lbs/mile	18.2	134.7	152.9
4.01284E-05	lbs/mile	0.1	0.4	0.5
).003293205	lbs/mile	4.7	34.6	39.3
0.00199572	lbs/mile	2.8	21.0	23.8
).001752274	lbs/mile	2.5	18.4	21
).001853933	lbs/mile	2.6	19.5	22
).001706795	lbs/mile	2.4	17.9	20.4
		5.5	40.4	45.9
		4.9	36.3	41.2
9.96	kg CO_2/gallon	4,458.3	32,948.1	37,406.4
0.0051	g/mile	1.6E-02	1.2E-01	1.3E-01
0.0048	g/mile	1.5E-02	1.1E-01	1.3E-01
		4,463.3	32,985.1	37,448.3

Average Daily Emissions (lbs/day) AVERAGES Current	Proposed
325.9	2734.3
99.9	837.8
0.3	2.6
25.6	215.2
30.0	251.5
26.9	226.0

CEQA Thresholds Proposed, Annual (tons/year)	Daily Operational (lbs/day)
	55
	550
	150
	55
	150
	55
7,716	

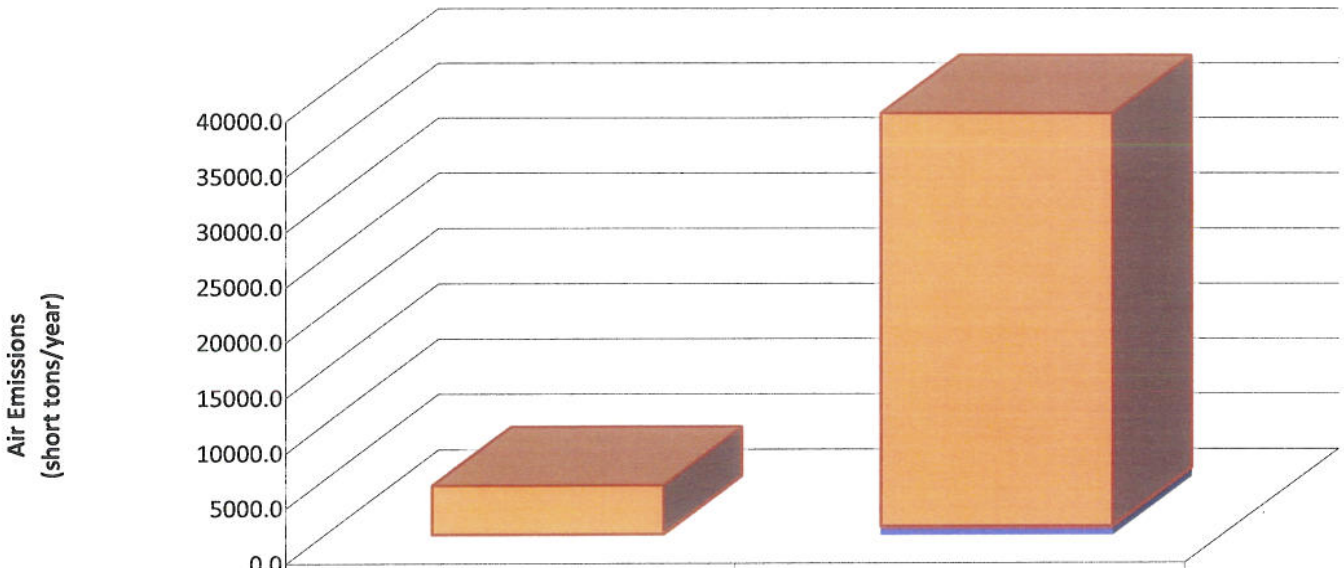
: trucking associated with one facility not using California landfills, but which may still be impacted by the change

g; consistant with GHG calculation methodologies for calcuating emissions from HD trucks,
evised to mpg)
for comparison against SCAQMD CEQA Significance Thresholds. Assumed even average over 365 days/year
CARB recommended 7,000 MT CO2e for industrial projects (though it typically does not include transportation
thresholds are not available this is used as a point of reference.)
)resented are SCAQMD Thresholds of Significance for Operations as available at
ıa/handbook/signthres.pdf

ıs

rtation emissions

Comparison of Transportation Air Emissions
Status Quo vs DTSC Proposal



	Current (Estimated Industry wide)	Combined Proposed (Estimated Industry wide)
CO2e	4,463.3	37,448.3
PM2.5	4.9	41.2
PM10	5.5	45.9
ROG	4.7	39.3
SOX	0.1	0.5
CO	18.2	152.9
NOX	59.5	499.0