Hazardous Waste Generation and Treatment Trends

San Francisco Bay Area 2006 and 2007 Manifest Data

Bay Area Hazardous Waste Management Facility Allocation Committee

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Executive Summary and Recommendations

This report presents the biennial analysis of the Bay Area's hazardous waste generation and treatment trends based upon manifest data compiled by the California Department of Toxic Substances Control (DTSC). It focuses on waste manifests from 2006 and 2007. Generally speaking, fewer total hazardous wastes were generated in the nine county Bay Area in 2006 and 2007 than in the previous two years. However, "industrial wastes," those counted according to the Committee's allocation formula, were higher in 2006 than in 2004 or 2005. In 2007, industrial wastes were consistent with historical trends. The increase in wastes in 2006 may be attributable to the change in manifesting procedures implemented in California starting in September 2005, i.e. wastes that were manifested in 2005 were entered into the data base late and/or improperly.

Since 2003, when ABAG's Hazardous Waste Facility Allocation Committee requested an in-depth look at the region's hazardous waste treatment capacity, a number of treatment facilities have closed or are expected to close in the near future. It is not surprising, then, that the number of wastes treated locally continues to decline (as the number of wastes treated outside the nine county Bay Area rises). San Mateo's Romic, a long time large solvent treatment facility in East Palo Alto, was reported to be closing, then to have a new owner (per DTSC). ABAG staff will continue to monitor its status for the Committee. ABAG has no information that the Bay Area's generators are having difficulty finding treatment facilities for hazardous wastes.

In keeping with the Committee's tradition of promoting actions that obviate the need to site a new hazardous waste treatment facility in the Bay Area, ABAG staff and Technical Advisory Committee (TAC) members recommend the following actions for consideration:

- Continue discussions with DTSC staff regarding pollution prevention initiatives (such as the Green Business Program) and their Green Chemistry Initiative. Per a recent report, top recommended actions are to:
  - Expand pollution prevention and product stewardship programs to more business sectors
  - Broaden technical assistance programs beyond hazardous and solid waste reduction by adding green chemistry and engineering lifecycle approaches
  - Create incentive programs to assist California businesses that adopt green chemistry and engineering practices1

[1] California Green Chemistry Initiative: SUMMARY OF RECOMMENDED POLICY ACTIONS, December 2008, For more information please visit: dtsc.ca.gov/GreenChemistry

- Work with DTSC, California Integrated Waste Management Board (CIWMB), and the California Product Stewardship Council (CPSC) on development/ dissemination of information, tools and resources for local governments related to Environmentally Preferable Purchasing (EPP), Extended Producer Responsibility (EPR), and related topics.
- Work with TAC and others to follow up on successful Environmentally Preferable Purchasing conference; identify ways to motivate/assist local jurisdictions interested in implementing EPP programs, which may include hosting presentations to the Committee and ABAG Executive Board, and organizing a conference or series of trainings in FY 2009/10.
- Continue to monitor legislation pertinent to hazardous waste issues, and, when appropriate, seek support from ABAG's Legislation & Governmental Organizations Committee and Executive Board.
- Meet with TAC prior to development of next Hazardous Waste report to discuss reformatting the report for accessibility and timeliness of issues for the Committee's consideration. Analyze the 2008 and 2009 Hazardous Waste Manifest data in 2010 (or when available from DTSC).

History of Committee

The Bay Area Hazardous Waste Management Facility Allocation Committee was established under a Memorandum of Understanding (MOU) in 1990 following the passage of AB 2948 (Tanner). The legislation, which assumed that hazardous wastes would increase statewide with a commensurate demand for additional treatment facilities, required that local governments plan to meet this demand locally. The committee sought to develop and implement a regional approach for siting treatment facilities. The MOU required that each county be represented by two locally elected officials, one to represent the county and one to represent the cities within the county. In 1993/94, the nine Bay Area counties approved an Inter-Jurisdictional Agreement establishing a Fair Share Capacity Allocation Formula (Formula) and initial county hazardous waste facility allocations. The plan assigned responsibility for planning to fill the regional capacity deficit among the counties based upon their relative contributions to that deficit.

The 1991 county allocations approved by the Committee and incorporated into the IJA were based upon projections for the year 2000. In other words, in 1991, ABAG projected how much, and what types of wastes would be generated throughout the Bay Area in 2000, given certain assumptions about economic growth and waste generation practices. There is no statutory or regulatory requirement for Bay Area counties to review or reformulate the assumptions underlying the county allocation formula.

However, the Committee agreed that ongoing monitoring of annual hazardous waste generation and treatment data provides valuable information counties and the region can use to guide pollution prevention, waste management, planning and other activities.

In May 2000, the Bay Area Hazardous Waste Management Facility Allocation Committee was reconstituted to allow a more flexible structure. The Committee is now an ad hoc Committee of ABAG. Committee members may be elected officials or staff from participating counties and cities or their designees. The ABAG Executive Board approves the Committee's recommendations. Under the restructuring, the Technical Advisory Committee (TAC) was reformulated into two TACs, one of which focuses primarily on hazardous waste data analysis. The second TAC helps guide the Bay Area Green Business Program. All TAC members also participate in development of pollution prevention and source reduction recommendations.

Evolution of Formula

At the outset, ABAG staff developed a Formula based upon projected need for hazardous waste treatment capacity by the year 2000. The Formula looked at potential industrial growth, potential increases in hazardous waste that would accompany the growth, and potential increases in treatment capacity anticipated by existing facilities. The guiding Fair Share principle of the Formula was that counties that had the largest gap between treatment capacity and hazardous wastes generated would be assigned the most problematic facilities to site: i.e. hazardous waste incinerators or landfills. Counties with a smaller treatment gap would be assigned more benign treatment types: primarily recycling facilities.

Throughout the 1990s, the Committee monitored the actual fluctuation in hazardous waste generation. As is shown in Figure 1 (page 15), neither manufacturing jobs nor hazardous waste generation increased steadily from 1990 to 2004. Note: manufacturing employment figures were not available for 2005.

Aware that hazardous waste generation was not rising, and unsure of trends in hazardous waste treatment capacity, the Committee authorized ABAG staff to survey regional Treatment, Storage and Disposal facilities (TSDs) to refine and update information on local treatment trends. Staff was also directed to recommend changes to the Formula as an outgrowth of the research. In July 2004, Committee staff prepared a memo outlining the proposed changes to the Formula. The Committee approved the changes and directed staff to "pilot test" the Formula using the 2002 hazardous waste

data provided by the State. In October 2005, the committee reviewed and was satisfied with the results of the 2003 data analysis using the revised Formula.

Beginning in September 2005, US EPA required that all states use a revised manifest. Among the changes, were requirements to use new treatment codes for each waste. Given that the change occurred in the middle of a calendar year, neither DTSC nor ABAG staff had a high level of confidence about the accuracy of the 2005 data. When ABAG staff examined the 2005 data and presented it to the committee, it was noted that the total amount generated in the nine-county Bay Area was significantly less than most years. DTSC responded that it had not received as many manifests as anticipated in a timely manner and that the upload system had not worked as well as hoped. At the October 2007 meeting, the committee directed staff to review the 2006 and 2007 data together and to run the formula on the 2007 data.

ABAG staff followed the procedures developed in 2004 for the 2006 and 2007 manifest data. It was noted that under the revised manifest, several new treatment categories should be "deselected" from the analysis to avoid double counting of wastes. These include: storage (both bulking and container), and microencapsulation prior to disposal at another site. The procedures memo attached to the end of this document will be modified accordingly for future years.

Hazardous Waste Data

The raw data used in the Fair Share Capacity Allocation Formula comes from hazardous waste manifests. Under the Resource Conservation and Recovery Act (RCRA), hazardous wastes must be tracked "from cradle to grave." The manifest provides this tracking. Each time a generator ships a waste off-site, the generator must mail California Environmental Protection Agency (CAL-EPA) Department of Toxic Substances Control (DTSC) a manifest detailing the amount going off-site, who is taking the waste, and to where. DTSC compiles all the manifests in a statewide database. This information is provided annually to ABAG

ABAG extracts the information for each county, providing it with an electronic version of every manifest sent from a generator in that county during the year. ABAG also provides each county with an annual compilation of the amount of waste received by its TSDs. TAC members are given the opportunity to review the data before ABAG uses it in the Formula, and to analyze the amounts and types of wastes being generated and managed throughout the Bay Area over time.

Historically, TAC and Committee members have sought to better understand various portions of the total hazardous waste stream. Some of these have included household hazardous wastes, and one-time wastes such as asbestos and contaminated soil (which are not included in the Formula). Many questions have also arisen about the contributions of TSDs to the overall waste stream since the treatment of hazardous wastes often produces by-products (sludges, ash) that are still hazardous wastes and need further offsite treatment or long-term disposal. Indeed, Bay Area TSDs are the largest hazardous waste "generators" in the region.

The amount of waste received at each Bay Area TSD is of interest because the definition of "capacity" is imprecise. There is no state agency that puts a ceiling on the amount that a treatment facility can process in a year. The treatment facility "capacity" estimates used in the 1991 ABAG staff report were based upon estimates of facility throughput. Some treatment facilities are regulated by Air Quality Management District Permits, which may limit capacity.

Hazardous Waste Generation and Treatment Trends 2006 & 2007

This section provides an overview of any changes reflected in the 2006 and 2007 data in hazardous waste treatment trends or generator profiles in each county around the Bay. The counties are listed in alphabetical order. The following section, which begins on page 13, discusses the regional picture, including trends over time.

Alameda County

Alameda County has considerable hazardous waste treatment capacity between Evergreen Oil in the City of Newark and AERC of Hayward. When ABAG staff conducted the Hazardous Waste TSD study in 2003, a film recycler was also located in Alameda County. That facility, Philips Medical and Diagnostic Imaging, accepted no wastes in either 2006 or 2007, indicating it has gone out of business or relocated elsewhere. Note that the treatment methods of Evergreen now indicate its discharges to a publicly owned treatment works (POTW). This "treatment method" was not noted in previous years. DTSC now includes this information. Jennifer Krebs discussed this method with Bill Johnson of the San Francisco Bay Regional Water Quality Control Board NPDES staff: he indicated that Evergreen is probably discharging modestly polluted water to a sanitary district's treatment plant.[2] The treatment capacity for Tanner planning purposes for Alameda County is 99,280 tons. As noted previously, however, "TSD capacity" is an imprecise concept. Evergreen and all the other regional TSDs have "capacity" that exceeds the actual amounts of wastes that they treat.

[2] Conversation = Jennifer Krebs with Bill Johnson November 6, 2008

Alameda Treatment Storage & Disposal Facilities	Treatment Method	Tons Processed in 2007
AERC Com Inc	Metals Recovery	12,970
Evergreen Environmental Services	Fuel Blending prior to Energy Recovery at Another Site	2,535
	Other Recovery or Reclamation for Reuse Including Acid Regeneration, Organics Recovery Etc.	8,180
Evergreen Oil Inc	Discharge to Sewer/POTW or NPDES with Prior Storage--with or without Treatment)	1,116,810
	Fuel Blending Prior to Energy Recovery at Another Site	1,489,567
	Incineration--Thermal Destruction Other Than Use as a Fuel	16,114
	Other Recovery or Reclamation for Reuse including Acid Regeneration, Organics Recovery Etc.	17,388,506
	Recycler	5,500
	Stabilization or Chemical Fixation Prior to Disposal at Another Site	1,270

Alameda County's largest generators in 2006 and 2007, shown in the table below, are Evergreen Oil & Evergreen Environmental Services. Evergreen has been the largest generator historically. NUMMI, PG & E, and US Pipe have also appeared before.

Alameda County Large Generators	2006 Tons	2007 Tons
Evergreen Environmental Services	22,124	33,175
Evergreen Oil Inc	5,784	3,925
Airgas Northern California & Nevada		3,462
New United Motor Manufacturing Inc	3,223	1,928
U S Pipe & Foundry Co Llc	3,839	1,325
Cargill Salt	6,471	
Clearwater Environmental Mgmt	9,502	
Container Management Services	1,009	
Impax Pharmaceuticals Inc	1,384	
Pacific Gas & Electric Corporation	1,598	
RCA Oil Recovery	1,004	
Waste Oil Recovery Systems Inc	1,076	
Western Digital Technologies Inc	1,284	

Alameda County is exempt from the siting of additional hazardous waste facilities under the Tanner planning process because its current capacity to treat hazardous wastes (99,280 tons) exceeds the amount of hazardous wastes generated collectively within the county (58,120 tons in 2006; 43,815 tons in 2007).

Contra Costa County

Although Contra Costa County has two transfer stations – Ecology Control and Veolia[3] Environmental (formerly Onyx) – the county has no TSDs counted for Tanner planning purposes. The county's largest generators are shown in the table below. Contra Costa generators shipped a larger quantity of hazardous wastes offsite in 2006 than in 2007 (and every other year shown in Tables 1 & 2, page 14). Several subtotals from 2006 are shown in italics. These subtotals indicate that Tesoro, Chevron, and SFPP exported large quantities of organic solids while Shell Oil exported large amounts of inorganic solids. However, as was noted by committee members when presented with the 2005 data, Contra Costa County showed few exported hazardous wastes in 2005. It is possible that with the conversion from the old to the new manifests, and a variety of DTSC manifest uploading issues, that some amount of 2005 wastes were uploaded as 2006 wastes. The average tonnage in Contra Costa between 2001 and 2007 is 55,362 tons. In 2007, the total hazardous wastes exported from Contra Costa County for treatment were 50,360 tons, more in line with the norm.

Contra Costa County Large Generators	2006 Tons	2007 Tons
Tesoro Refining & Marketing Co. *2006 subtotal of other organic solids was 9,441 tons*	18,066	14,528
Shell Oil Martinez Refinery *2006 subtotal of other inorganic solid waste was 12,679 tons*	17,265	11,347
The Dow Chemical Company	4,049	3,818
Chevron Products Co *2006 subtotal of other organic wastes was11,386 tons*	14,909	3,801
Conoco Phillips	10,492	3,483
Conoco Phillips The Carbon Plant	3,618	1,696
Gaylord Container Corporation		1,500
Bio-Rad Laboratories	1,130	
Criterion Catalysts & Technologies Lp	2,432	
EBMUD-WCTP	2,566	
General Chemical Corp/Bay Point Works	1,390	
SFPP LP (Concord Station) *2006 subtotal of other organic solids was 25,591*	25,809	
USS - POSCO Industries	1,685	

Under the Fair Share Formula, Contra Costa may be selected as a site for a hazardous waste treatment facility: The county has no hazardous waste treatment facilities and exported 50,360 tons of hazardous waste in 2007 for treatment.

Marin County

Marin has one counted Treatment Storage and Disposal Facility, Photo Waste Recycling, and no industries that generate over 1000 tons per year of hazardous waste.

[3] Veolia Environmental is a French-owned corporation who's primary business is water treatment/delivery & wastewater

Photo waste processors such as Photo Waste Recycling, Inc. are not regulated by a full TSD permit and are not listed in the DTSC publication, "California Commercial Office Hazardous Waste Facilities." Historically, the Committee has considered Photo Waste Recycling, Inc.'s capacity to be 895 tons. In 2007, it processed far more wastes, as is noted in the table below. Marin County is exempt from the siting of additional hazardous waste facilities under the Tanner planning process because its current capacity to treat hazardous wastes exceeds the amount of hazardous wastes generated collectively within the county (565 tons).

Marin TSD	Treatment Method	Tons Processed in 2007
Photo Waste Recycling Company Inc	Metals Recovery	316,596
	Recycling	1,000
	Other Metals recovery	320
	Total	317,916

Napa County

Napa County has no Treatment Storage and Disposal Facilities and no generators that generate over 1000 tons per year of hazardous waste. The total hazardous wastes generated in Napa in 2007 were 307 tons: under the Fair Share Formula, the county may be considered for siting of a hazardous waste treatment facility.

San Francisco City and County

San Francisco has no Treatment Storage and Disposal Facilities. In 2006, no San Francisco generators exported over 1000 tons of hazardous wastes. However, in 2007, 44,222 tons of amounts of inorganic solid wastes (likely lead contaminated building materials & soil) were removed from the Presidio, a former military base. The total hazardous wastes generated in San Francisco in 2007 were 50,214 tons: under the Fair Share Formula, the county may be considered for siting of a hazardous waste treatment facility.

San Mateo County

Since the inception of the Hazardous Waste Management Committee, San Mateo has had two large Treatment Storage and Disposal Facilities – Romic Environmental and Merry X-Ray. Merry X-Ray appears to have gone out of business in 2007 and Romic was purchased by Clean Harbors, a large company with facilities around the United States, including local facilities in Redwood City and San Jose. While articles appeared in local papers (see http://www.paloaltoonline.com/news/show_story.php?id=5324) indicating that the Romic

East Palo Alto facility would close, it continued to process hazardous wastes in 2007. As is shown in the table below, Romic treated over 2,000,000 tons of solvents and other organics.

TSD	Treatment Method	Tons Processed in 2007
Romic Environmental Technologies Corporation	Discharge to Sewer/POTW or NPDES (with Prior Storage – with or without Treatment)	1,007,028
	Fuel Blending Prior to Energy Recovery at Another Site	567
	Neutralization Only	925
	Other Recovery or Reclamation for Reuse Including Acid Regeneration, Organics Recovery, Etc.	2,460
	Recycling	11,433
	Solvents Recovery	2,662,782
	Total	3,685,195

Romic was the largest generator in San Mateo County in both 2006 and 2007 (as it has been historically). Genentech and All Petroleum have also previously appeared on the San Mateo large generator list.

San Mateo County Large Generators	2006 Tons	2007 Tons
Romic Environmental Technologies Corp	29,818	4,485
Clean Harbors Env. Services Inc Port Of Redwood City		1,818
All Petroleum Recovery Service LLC	1,972	
Genentech Inc	1,341	

San Mateo County is exempt from the siting of additional hazardous waste facilities under the Tanner planning process because its current capacity to treat hazardous wastes (175,000 tons) exceeds the amount of hazardous wastes generated collectively within the county (11,663 tons). Given Romic's uncertain status, this may be the last report in which San Mateo County is exempt.

Santa Clara County

Santa Clara County has six Treatment Storage and Disposal Facilities that have been noted in previous reports: Noranda, Metech, J&B, United Datatech, Clear Harbors and Wit Refining. These facilities collectively provide the region with 244,608 tons of recycling capacity. Santa Clara County has a transfer station, Alviso Oil/Clearwater Environmental. The amount of wastes treated by each Santa Clara County facility is shown below.

Facility Name	**Treatment Type**	**Total 2007**
Clean Harbors San		
	Discharge to Sewer/POTW or NPDES (with Prior Storage – with	3,796,535

Jose LLC	or without Treatment)	
	Incineration—Thermal Destruction Other Than Use as a Fuel	29,413
	Landfill or Surface Impoundment that Will Be Closed as Landfill (to Include On-site Treatment and/or Stabilization	200
	Metals Recovery	165
Clearwater Environmental Mgmt DBA Alviso Independent Oil	Fuel Blending Prior to Energy Recovery at Another Site	9,475
	Other Recovery or Reclamation for Reuse Including Acid Regeneration, Organics Recovery, Etc.	2,326,936
	Recycling	4,205
ECS Refining (DBA)	Metals Recovery	675,954
	Recycling	2,567
J&B Enterprises	Metals Recovery	66,109
Metech International	Metals Recovery	17,438
	Other Treatment	119,477
	Sludge Treatment and/or Dewatering	3,483
Noranda Recycling Inc	Metals Recovery	100,836
Wit Sales & Refining	Metals Recovery	126
Santa Clara total		7,152,919

As is the case in other counties, two of the largest generators in Santa Clara County are Treatment, Storage, and Disposal Facilities: Clearwater and Clean Harbors. Santa Clara also has defense industrial facilities - Lockheed Martin and United Technologies - that are large generators.

Santa Clara County Large Generator	2006 Tons	2007 Tons
Clearwater Env Mgmt dba Alviso Ind. Oil	11,695	26,106
Clean Harbors San Jose LLC	6,394	16,617
United Technologies Space Propulsion	2,525	12,875
Clean Harbors San Jose, Rail Spur	11,945	11,950
Recieve Knight Construction		3,656
Caltrans Dist 4/Constr/Ea04-1a9904		1,138
Agilent Technologies Inc	1,053	
Hitachi Global Storage Technologies, Inc	1,008	
Lockheed Martin Space Systems Co	1,060	

Santa Clara County is exempt from the siting of additional hazardous waste facilities under the Tanner planning process because its current capacity to treat hazardous wastes (234,208 tons) exceeds the amount of hazardous wastes generated collectively within the county (90,840 tons).

Solano County

Solano County has no Treatment Storage and Disposal Facilities counted for Tanner planning purposes; however it has waste processing stations, Norcal Landfill and

DeMenno/Kerdoon transfer station. Solano has a number of companies that generated over 1000 tons of hazardous wastes in 2006 and 2007. These include several environmental/waste disposal companies: Dixon, Fremouw, TTS, and Maximum Oil Service. Solano also has a refinery (Valero), biotech industry (Genentech), and military bases undergoing clean-ups (Mare Island and Travis Air Force Base).

Solano County Large Generators	2006 Tons	2007 Tons
D K Dixon	23,242	
Valero Refining Company-Calif	5,668	16,332
Fremouw Environmental Services Inc	2,665	5,711
TTS Environmental Inc	2,319	2,448
Lennar Mare Island LLC	2,304	2,179
Travis Air Force Base	2,132	2,175
Genentech Inc	2,699	1,642
Maximum Oil Service	1,312	1,626

The total hazardous wastes generated in Solano in 2007 were 45,982 tons: under the Fair Share Formula, the county may be considered for siting of a hazardous waste treatment facility.

Sonoma County

Sonoma County has no counted Treatment Storage and Disposal Facilities. However, the county does have a transfer station, Safety Kleen. The Geysers Power Company is the county's largest generator: in 2007, it exported 5,407 tons of hazardous waste from the county. The total hazardous wastes generated in Sonoma in 2007 were 10,381 tons. Under the Fair Share Formula, the county may be considered for siting of a hazardous waste treatment facility.

The Regional Picture, 2006 and 2007

This section moves from the county scale to the regional. The committee is interested in knowing whether local industries are implementing less wasteful chemical usage practices, whether industries are declining, or whether other information about industries can be drawn from hazardous waste manifest data. Tables 1 through 3 (on page 14) show the total tons of hazardous waste generated in the region, the total tons of industrial wastes generated in the region, and the total tons of waste treated in the region. Figure 1 (on page 15) shows total industrial wastes associated with manufacturing jobs.

In 2007, waste generators in the nine counties of the Bay Area manifested 568,156 tons of hazardous waste for off-site treatment. Of this amount, 305,594 tons (slightly over half) were "industrial wastes." The rest of the wastes were one time wastes such as asbestos or contaminated soils. Or they were wastes sent to transfer stations and/or bulking facilities (and thus, if included, would result in double counting).

The most common wastes generated in 2007 from the Bay Area are listed in Table 4. The largest category of wastes was inorganic solids. These wastes were shipped from hundreds of generators around the Bay Area including Caltrans (probably lead paint waste), many cities (construction and / or Corp Yard miscellaneous wastes), Chevron and Evergreen Oil (refining wastes). The largest shipper of inorganic solids generated less than 2000 tons in 2007.

The second largest category of hazardous wastes was waste oil which also comes from hundreds of sources. Much, but not allwaste oil, from the Bay Area is treated by Evergreen Oil in Newark, CA. Evergreen processed over 20,000,000 tons of waste oil from throughout California in 2007. (However, one of the company's most prevalent processes was fuel blending prior to energy recovery at another site (almost 1.5 million tons)). There were also hundreds of sources of the Bay Area's 17,000 tons of waste solvents, although Clean Harbors San Jose was the source of almost 12,000 tons. All the waste solvents shipped from Clean Harbors went to other Clean Harbors facilities in Utah (for incineration), Nevada (for incineration and / or energy recovery, which includes on-site fuel blending), or Arkansas (for energy recovery). It is likely that much of the wastes shipped from Clean Harbors San Jose to Clean Harbors other locations came from generators outside of the Bay Area and were bulked and / or minimally treated in San Jose before shipment out of state.

Table 1: Total Hazardous Wastes Generated in the Bay Area
Includes all hazardous wastes generated in the Bay Area and treated anywhere using any treatment technique

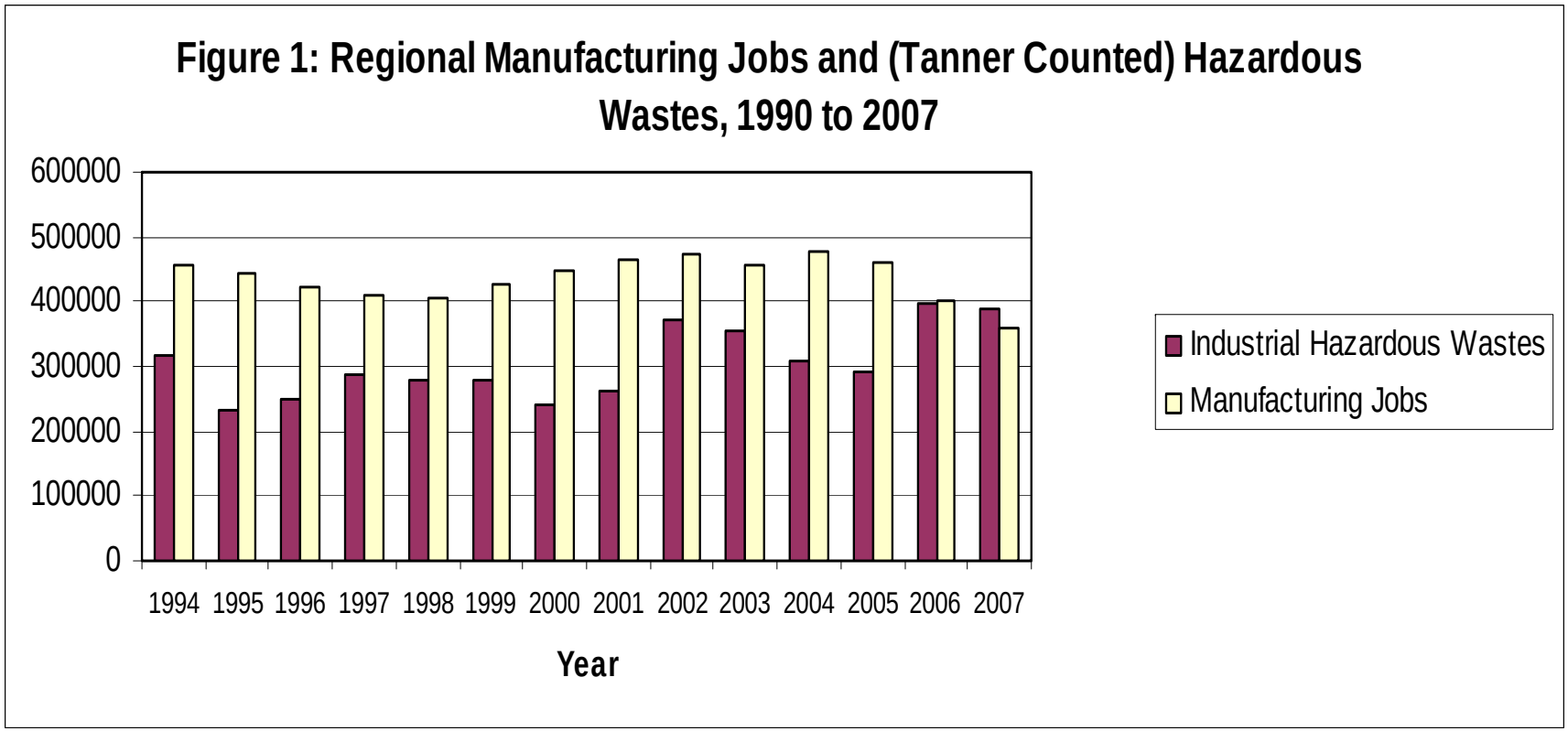
	ALAMEDA	CONTRA COSTA	MARIN	NAPA	SAN FRANCISCO	SAN MATEO	SANTA CLARA	SOLANO	SONOMA	Total
Total Tons 1994	96,176	130,376	2,546	2,536	99,242	113,442	86,390	23,952	7,993	562,654
Total Tons 2002	175,779	84,378	3,918	1,134	103,617	33,296	145,904	35,228	23,990	607,245
Total Tons 2003	130,968	97,927	5,985	1,627	102,072	37,732	105,303	35,374	11,774	528,760
Total Tons 2004	180,108	95,769	6,042	1,623	98,764	97,781	104,232	48,100	15,003	647,421
Total Tons 2005	178,026	76,201	5,807	1,702	282,202	55,417	121,486	50,212	9,728	780,781
Total Tons 2006	128,343	147,130	3,244	1,182	25,829	49,570	79,490	62,779	8,338	505,904
Total Tons 2007	130,320	84,068	4,222	1,120	124,994	41,759	125,310	45,982	10,381	568,156

Table 2: Total "Counted" Hazardous Wastes Generated in the Bay Area
Excludes asbestos wastes and contaminated soil, excludes wastes sent under manifest to a transfer station or storage bulking facility, and/or to be micro-encapsulated prior to disposal

	ALAMEDA	CONTRA COSTA	MARIN	NAPA	SAN FRANCISCO	SAN MATEO	SANTA CLARA	SOLANO	SONOMA	Total
Industrial Wastes 1994	59,109	44,224	1,316	2,128	14,805	100,939	66,743	18,714	6,849	314,828
Industrial Wastes 2002	91,221	48,384	1,187	696	9,509	22,038	111,512	21,683	6,628	312,858
Industrial Wastes 2003	36,401	29,688	1,436	347	9,328	9,962	54,230	20,300	2,602	164,296
Industrial Wastes 2004	91,348	61,622	1,358	633	14,391	37,822	69,781	26,718	4,665	308,339
Industrial Wastes 2005	69,251	39,311	961	725	69,748	26,190	62,979	15,967	4,477	289,611
Industrial Wastes 2006	77,032	113,945	1,592	688	7,963	38,537	60,923	46,340	4,471	351,490
Industrial Wastes 2007	58,120	50,360	565	307	50,214	11,663	90,840	35,310	8,215	305,594

Table 3: Total "Counted" Hazardous Wastes Treated Inside Bay Area versus Outside Bay Area

	1994	2002	2003	2004	2005	2006	2007
Total Industrial Wastes Generated In Bay Area	317,721	371,006	356,742	308,339	289,611	351,490	305,594
Total Industrial Wastes Treated Inside Bay Area	114,154	117,102	118,655	100,847	81,533	94,342	51,650
Total Industrial Wastes Treated Outside Bay Area	203,567	253,904	238,087	207,492	208,078	257,148	253,944



Data source for Manufacturing Jobs: State Employment Development Department (http://www.labormarketinfo.edd.ca.gov/cgi/databrowsing/?PageID=166 Page name: Employment by Industry Data).

Table 4: Counted Wastes (over 2 tons aggregate)	
Type of Waste	Tons
Other inorganic solid waste – construction debris and other lead waste	109,940
Waste oil and mixed oil	84,664
Unspecified solvent mixture	17,893
Other organic solids	15,453
Unspecified oil-containing waste	9,985
Unspecified sludge waste	7,434
Polychlorinated biphenyls and material containing PCBs	4,651
Aqueous solution with total organic residues less than 10 percent	4,554
Aqueous solution with total organic residues 10 percent or more	4,351
Liquids with halogenated organic compounds >= 1,000 Mg./L	3,805
Aqueous solution with metals (< restricted levels and see 121)	3,150
Liquids with pH <= 2 with metals	3,008
Unspecified aqueous solution	2,957
Alkaline solution without metals pH >= 12.5	2,754
Unspecified organic liquid mixture	2,602
Baghouse waste	2,499
Other spent catalyst	2,345

Of the 305,594 tons, roughly 17 percent (51,650 tons) was treated in the Bay Area. However, 79 percent (241,444 tons) was treated in California. Over 100,000 tons of wastes were shipped to Chemical Waste Management in Kings County (a Class 1 Facility that can accept all hazardous wastes). Just under 40,000 tons were shipped to Clean Harbors Buttonwillow Facility in Kern County (also a Chemical Waste Management company that accepts Class 2 wastes which are largely contaminated soils, construction debris, etc.). Los Angeles County received 48,848 tons of hazardous waste from the Bay Area, most of that going to DeMenno/Kerdoon (which accepts the residuals from oil refineries and / or waste oil recyclers such as Evergreen and processes the oil residuals into asphalt products and bunker oil). The bulk of wastes treated outside of California went to a Clean Harbors facility in Utah (just over 20,000 tons). Nevada received over 17,000 tons from the Bay Area, most of it destined for a Clearwater Environmental facility.[4]

Based upon the manifest data alone, it is hard to conclude whether industrial wastes are increasing or decreasing.[5] The average industrial wastes in the dataset prepared for the committee is 292,431 tons of industrial waste for the nine-county Bay Area. Using that

[4] Information on TSDs from Matt McCarron (phone conversation of February 18, 2008)

[5] While DTSC has maintained the manifest database since the late 1980s, the quality of the data is variable. Manifests are completed by thousands of users from around the state. The manifest itself was changed in 2005. Committee members are among few people outside of DTSC interested in reviewing the data, which means there is not a high demand for DTSC to troubleshoot data entry issues, uploading problems, etc.

as a reference point, industrial waste generation for 2006 and 2007 would be above average years.

While industrial hazardous wastes generated were above average in 2006 and 2007, manufacturing jobs in industry in the Bay Area waned in 2006 and 2007. There is little correspondence in trend lines between 1990 and 2007 between industrial hazardous waste generation and manufacturing jobs. DTSC has published no studies that correlate the up- and downturns of hazardous waste generation to either specific industrial changes, economic conditions, or even regulatory changes. However, it is true that 2006 and 2007 were relatively good years for the Bay Area economy (per Paul Fassinger, ABAG Research Director, December 19, 2008) and Bay Area industries generated hazardous wastes.

Fair Share Formula

Table 5 presents the Fair Share Formula results for the nine Bay Area Counties in 2007. Overall the region had a treatment capacity surplus of 225,655 tons. Four counties had capacity surpluses: Alameda, Marin, San Mateo and Santa Clara. It is uncertain if San Mateo County will continue to have a surplus after 2007 (if Romic closes completely). Napa and Sonoma counties have modest deficits (under 10,000 tons). Contra Costa, San Francisco, and Solano counties have large deficits (over 30,000 tons).

Table 5: Tanner Formula using TSD Capacity Quantities from 2003 Study

County	TSD Capacity	Tons Generated 2007	Surplus/Deficit	Ranking
Alameda	99,280	58,120	**41,160**	exempt
Contra Costa	0	50,360	**-50,360**	treatment/disposal
Marin	895	565	**330**	exempt
Napa	0	307	**-307**	recycling
San Francisco	0	50,214	**-50,214**	treatment/disposal
San Mateo	175,000	11,663	**163,337**	exempt
Santa Clara	234,208	90,840	**143,368**	exempt
Solano	0	35,310	**-35,310**	recycling
Sonoma	0	8,215	**-8,215**	recycling
Nine County Grand Total	531,279	305,594	**225,685**	

While the Bay Area's TSDs show an excess of capacity to treat the wastes generated within the nine Bay Area counties, the treatment processes locally available do not

match the treatment processes needed for locally generated wastes. Therefore, many tons of hazardous waste are treated either elsewhere in California or elsewhere in the US (Table 3 above).

The prohibitive costs of siting a new hazardous waste treatment facility (including land, facility design and construction and permitting) make it unlikely that a new facility will open in the nine-county Bay Area. However, Evergreen Oil has expanded its recycling capacity. Because of the current economic climate, the facility will not bring the additional capacity online until demand for it rises6. Should ABAG staff or Technical Advisory Committee members receive notice that a company is trying to site a hazardous waste treatment facility in the Bay Area, the Committee will be apprised of this.

Conclusions and Recommendations

The Committee has monitored Bay Area hazardous waste trends since 1989. Review and analysis of this information provides the Committee an opportunity to step back and look at trends in the area of hazardous waste and consider how best to direct source reduction and pollution prevention activities.

In keeping with the Committee's tradition of promoting actions that obviate the need to site a new hazardous waste treatment facility in the Bay Area, ABAG staff and TAC members recommend the following actions for consideration:

- Continue discussions with DTSC staff regarding pollution prevention initiatives (such as the Green Business Program) and their Green Chemistry Initiative. Per a recent report, top recommended actions are to:
  - Expand pollution prevention and product stewardship programs to more business sectors
  - Broaden technical assistance programs beyond hazardous and solid waste reduction by adding green chemistry and engineering lifecycle approaches
  - Create incentive programs to assist California businesses that adopt green chemistry and engineering practices7
- Work with DTSC, California Integrated Waste Management Board (CIWMB), and the California Product Stewardship Council (CPSC) on development/ dissemination of information, tools and resources for local governments related to

[6] Phone conversation Jennifer Krebs with Gary Colbert, President Evergreen Oil, Feb 19, 2009

[7] California Green Chemistry Initiative: SUMMARY OF RECOMMENDED POLICY ACTIONS, December 2008, For more information please visit: dtsc.ca.gov/GreenChemistry

Environmentally Preferable Purchasing (EPP), Extended Producer Responsibility (EPR), and related topics.

- Work with TAC and others to follow up on successful Environmentally Preferable Purchasing conference; identify ways to motivate/assist local jurisdictions interested in implementing EPP programs, which may include hosting presentations to the Committee and ABAG Executive Board, and organizing a conference or series of trainings in FY 2009/10.
- Continue to monitor legislation pertinent to hazardous waste issues, and, when appropriate, seek support from ABAG's Legislation & Governmental Organizations Committee and Executive Board.
- Meet with TAC prior to development of next Hazardous Waste report to discuss reformatting the report for accessibility and timeliness of issues for the Committee's consideration. Analyze the 2008 and 2009 Hazardous Waste Manifest data in 2010 (or when available from DTSC).

Changes to July 2004 Memo Noted in RED

July, 2004

Memo: To Hazardous Waste Management Committee

From: Jennifer Krebs, Sr. Environmental Planner

Re: Updated Tanner Formula – Results of Pilot Test

Following direction received in the April 2003 Hazardous Waste Management Committee meeting, staff modified the Tanner formula based upon the recommendations in the TSD report and "pilot tested" it using the 2002 hazardous waste generator information. This memo outlines the new formula, which is simpler and more transparent than the formula it replaces, and provides the results of the pilot test. The committee's Technical Advisory Committee (TAC) received the formula for review prior to the July 2004 Committee meeting.

The steps involved in the revised formula are as follows:

1) BEFORE RUNNING THE FORMULA: Sort the annual hazardous waste manifest data (compiled by and received from the state) in Microsoft Access. Produce tables for each county of the hazardous wastes generated within the county. Have the counties review the data for problems. County TAC members are responsible for determining if wastes attributed to their county are inaccurate (i.e., if a generator or TSD mis-coded data). After TAC approval, produce tables that display total hazardous wastes generated by county, and by the region. (The 2002 tables were approved at the April 2004 HW Committee meeting.)

2) Produce the table for the ranking formula which is voted upon by the committee. Arrange the data in an Excel table into the following sequential columns:

- County
- TSD disposal method
- Waste type
- Tons

3) In the Excel table, uncheck the following wastes and treatment processes to remove them from the "counted" wastes total.

- Wastes:
    - Asbestos
    - Blank
    - Contaminated Soil
    - Invalid Waste Code

- TSD processes*:
    - Blank
    - Transfer Station
    - Invalid
    - Storage, Bulking
    - Storage Container
    - Microencapsulation prior to disposal at another site
    - Fuel Blending prior to disposal at another site

The remaining table is a table of total counted hazardous wastes, by treatment type, for a given year. This table includes waste oil. For a number of years, the formula did not include waste oil due to concerns about double counting. In the analysis conducted as part of the TSD project, staff and TAC determined that if waste oil that goes to a transfer station is excluded from the formula, some amount of double counting has been removed. Per the direction of the HW Committee, waste oil is now a counted hazardous waste treated like all other counted wastes.

4) Produce a final table for the Committee (See Attached Table): Copy the results of each county's total counted hazardous waste into another table and subtract each county's treatment capacity. The result is the county's hazardous waste surplus or deficit in a given year, which determines the facility allocation ranking for that particular year. Counties with a treatment deficit will receive assignments for treatment facilities based on the size of the deficit. Counties with surplus treatment capacity will not receive assignments

* In the 2009 report, staff included "discharge to sewer" with the tracked wastes to bring the issue of waste discharges to water to the committee's attention. In subsequent reports, the TAC can advise as to whether or not to count this data.