

*Hazardous Waste Generation and Treatment Trends  
San Francisco Bay Area  
2004 and 2005 Manifest Data*

Approved by:

Bay Area Hazardous Waste Management Facility Allocation Committee

November 17, 2006

**TAC Members**

Rory Bakke  
Robin Bedell-Waite  
Rob D'Arcy  
Michael Frost  
Bill Lent  
Colby LaPlace  
Andy Parsons  
Steve Lederer  
Narcissa Untal  
Marjaneh Zarrehparvar

**Committee Staff**

Ceil Scandone  
Jennifer Krebs

**Author:** Jennifer Krebs

## **Executive Summary and Recommendations**

The Bay Area Hazardous Waste Management Facility Allocation Committee has monitored hazardous waste trends since 1989. The analysis of hazardous waste generation and treatment trends in 2004 and 2005 resulted in the same three general groupings of counties that resulted from the analysis performed on 2003 data:

- Alameda, San Mateo, Santa Clara have large Treatment, Storage and Disposal facilities and a surplus of hazardous waste treatment capacity.
- Napa, Marin, and Sonoma have few large hazardous waste generators and modest treatment deficits.
- San Francisco, Solano, and Contra Costa have large hazardous waste generators and no permitted treatment facilities. These counties have large capacity deficits.

The Counties with capacity deficits could be considered under the Fair Share Capacity Allocation Formula for the siting of future hazardous waste treatment facilities.

The Committee proposes that the Association of Bay Area Governments Executive Board:

Approve the county rankings based upon application of the updated capacity Formula to 2005 data (shown in Table 5 on page 19):

To address source reduction opportunities, the Committee will:

1. Direct ABAG staff to address, as requested, elected officials, planners and other agency staff who request information on the current capacity deficit and the status of each county with regard to this deficit and enlist their support for source reduction/pollution prevention efforts.
2. Continue to support the Bay Area Green Business Program.
3. Pursue opportunities to work more effectively with CAL-EPA Department of Toxic Substances Control (DTSC) Pollution Prevention Branch, CIWMB and other partners.
4. Continue to review data and rankings annually or as available from DTSC.
5. Direct ABAG staff to develop a fact sheet on Green Chemistry. The fact sheet will define green chemistry, design for the environment, and the general approach to designing products using minimal hazardous constituents to create non-hazardous products and minimize hazardous and other wastes. It will also discuss efforts to promote Green Chemistry in Europe, Canada, and California.
6. Direct ABAG staff to continue to monitor and apprise local governments of E-Waste and U-Waste trends as regulations and incentives to recycle such wastes change, including regular updates on the progress of the recently formed California Product Stewardship Council.

## **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 hazardous waste 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 capacity 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 16), 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 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 the results of the 2003 data analysis using the revised Formula. The committee was satisfied with the analysis. This report’s analysis of the 2005 data follows the same methodology. (Appendix 2 outlines the methodology.)

### **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 Treatment, Storage and Disposal facilities (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 2004 & 2005**

### Alameda County

Alameda County has considerable hazardous waste treatment capacity, the bulk of which is provided by Evergreen Oil in the City of Newark. Other TSDs in Alameda County include: AERC, a mercury and e-waste recycler; and Philips Medical and Diagnostic Imaging which recycle film products. The treatment capacity for Tanner planning purposes for Alameda County is 99,667 tons.

The largest hazardous waste generators – those generating over 1000 tons of waste in 2004/2005 - in Alameda County are shown in the table below. The first column displays the major waste types generated by each facility; the second and third columns display the total wastes in 2004 and 2005 respectively. The 2005 data is not displayed by waste type because the primary waste types are consistent: for instance, a decrease in overall wastes from 2004 to 2005 reflected a decrease in the primary waste type. If the inverse occurred, then the primary waste increased.

Tyco Printed Circuit Board Group in Fremont was not a large generator in Alameda County in 2003. However, the business also has a Santa Clara facility, which generated several hundred tons of waste in 2003. Perhaps a production process was moved to Alameda County in 2004. Other large Alameda County hazardous waste generators have been noted in previous years. These include US Pipe and Foundry, NUMMI, and Evergreen. Alameda County has a surplus of treatment capacity and is exempt according to the Formula.

Largest Alameda County Generators 2004 & 2005 (wastes over 100 tons)				
Company	Primary Wastes	2004, by waste	2004 Total	2005 Total
TYCO PRINTED CIRCUIT GROUP	Metal sludge	6763		
TYCO PRINTED CIRCUIT GROUP Total			6827	3452
EVERGREEN OIL INC	Aqueous solution with total organic residues less than 10 %	2148		
	Liquids with halogenated organic compounds >= 1,000 Mg./L	2371		
EVERGREEN OIL INC Total			4611	5487
U S PIPE & FOUNDRY CO INC	Aqueous solution with total organic residues 10 % or more	115		
	Baghouse waste	1251		
	Other organic solids	178		
U S PIPE & FOUNDRY CO INC Total			1574	1685
NUMMI			984	1281

### Contra Costa

Although Contra Costa County has two transfer stations – Ecology Control and Onyx Environmental – the county has no TSDs counted for Tanner Planning purposes. The county's largest generators are shown in the table below. The first column displays the major waste types generated by each facility; the second and third columns display the total wastes in 2004 and 2005 respectively. The largest Contra Costa facilities generally generated the same primary waste types in 2005 as 2004: if the total waste shown is less, generally the primary waste decreased. If the primary waste increased then the overall wastes for the facility also increased. Other inorganic wastes are the most common hazardous waste shipped offsite for disposal. This listing is typical for wastes containing lead.

Contra Costa has the largest capacity deficit of the nine Bay Area Counties (39,311 tons). As mentioned above, the region currently enjoys a capacity surplus; however, should the need arise for a new TSD to be sited with the San Francisco Bay Area, under the Formula Contra Costa County would be considered for future facility siting.

Largest Contra Costa County Hazardous Waste Generators, 2004 & 2005 (wastes over 100 tons)				
Company	Primary Wastes	2004, by waste	2004 Total	2005 Total
SHELL OIL	Fly ash, bottom ash and retort ash	702		
	Other inorganic solid waste	8781		
	Other organic solids	142		
	Unspecified oil-containing waste	1375		
SHELL OIL PRODUCTS/US MARTINEZ REFINERY Total			11112	9283
TESORO REFINING & MARKETING CO.	Other inorganic solid waste	507		
	Other organic solids	6371		
	Other spent catalyst	453		
	Tank bottom waste	343		
	Unspecified oil-containing waste	1730		
TESORO REFINING & MARKETING CO. Total			9425	13712
CONOCO PHILLIPS	Other inorganic solid waste	5268		
	Other organic solids	102		
	Unspecified sludge waste	428		
CONOCO PHILLIPS Total			6579	6946
CHEVRON	Aqueous solution with metals (< restricted levels and see 121)	101		
	Fluid Catalytic Cracker waste	228		
	Oil/water separation sludge	172		
	Other organic solids	191	0	
	Other spent catalyst	1230		0
	Unspecified oil-containing waste	367		
CHEVRON PRODUCTS CO Total			2415	5543
DOW CHEMICAL	Alkaline solution without metals pH >= 12.5	638		
	Liquids with halogenated organic compounds >= 1,000 Mg./L	460		
	Solids or sludges with halogenated organic compounds >= 1,000 Mg./L	261		
	Unspecified organic liquid mixture	205		
THE DOW CHEMICAL COMPANY Total			1919	3301
CRITERION	Other inorganic solid waste	1288		
	Off-specification, aged or surplus inorganics	173		
CRITERION CATALYSTS & TECHNOLOGIES LP Total			1553	1847
TOSCO	Baghouse waste	1248		
TOSCO REFINING COMPANY Total			1469	
USS-POSCO	Metal dust (see 121) and machining waste	174		
	Off-specification, aged or surplus inorganics	101		
	Other inorganic solid waste	812		
USS-POSCO INDUSTRIES Total			1120	1047

### Marin

Marin has one counted TSD, Photo Waste Recycling, and no industries that generate over 1000 tons per year of hazardous waste. (The largest generators included school districts removing asbestos and lead paint; CALTRANS and the county waste management facility.) Marin has a capacity deficit of 66 tons: it ranked fourth in county deficits and could be considered in the future for possible facility siting.

### Napa

Napa County has no TSDs and no generators that generate over 1000 tons per year of hazardous waste. Among the larger generators in Napa County in 2004 and 2005 were the County Flood Control and Water Conservation District and the County. Napa County has a capacity deficit of 725 tons, and could be considered in the future for a hazardous waste facility.

### San Francisco

San Francisco has no TSDs. As is shown in the table below, most of the hazardous wastes generated in San Francisco are other inorganic solid waste and PCBs. The first and third columns of the table display the major waste types generated by each facility in 2004 and 2005 respectively; the second and fourth columns display the total wastes in 2004 and 2005 respectively.

Most large generators in 2004 were not large generators in 2005 (and vice versa) which indicates that the sites are generating one-time clean up wastes rather than being an industry with an on-going hazardous waste stream. This is further corroborated by the names of the facilities – real estate ventures and the City and County of San Francisco. Inorganic solid waste includes lead contaminated waste, such as paint removal. In 2005, roughly 60,000 tons of San Francisco's manifested waste was labeled as inorganic solid waste. This volume was roughly 60% of the inorganic solid waste generated by the entire Bay Area in 2005. Historically, the Committee has included inorganic solid wastes in the "counted wastes" category of the formula. This results in San Francisco having a capacity deficit of 69,748 tons in 2005, the largest in the Bay Area. The City and County could be considered for a hazardous waste facility. If the inorganic solid wastes are removed from consideration in San Francisco, the County's capacity deficit would be only 9012 tons, more in line with prior years.

**Largest San Francisco County Hazardous Waste Generators, 2004 & 2005**  
(wastes over 100 tons)

<b>Company</b>	<b>Primary Wastes</b>	<b>2004, by waste</b>	<b>2004 Total</b>	<b>2005, by waste</b>	<b>2005 total</b>
300 SPEAR REALTY VENTURE LLC	Other inorganic solid waste/total			7009	
CCSF-DPW OCTAVIA BLVD.	Other inorganic solid waste	2336		2975	
CCSF-DPW OCTAVIA BLVD. Total			2341		2983
EQUILON ENTERPRISES	Other inorganic solid waste/total			35771	35771
LAMBERT O'CONNOR DEVELOPMENT	Other inorganic solid waste/total			1669	1669
MISSION STEUART HOTEL PARTNERS, LLC	Other inorganic solid waste/total	2094	2094		
NAVY BRAC PMO-W HPS	Polychlorinated biphenyls and material containing PCBs			6190	
NAVY BRAC PMO-W HPS Total					6203
PG&E POTRERO GC YARD CLEVE WHATLEY	Other inorganic solid waste			1838	
PG&E POTRERO GC YARD CLEVE WHATLEY Total					2071
PG&E/HUNTERS POINT POWER PLANT	Other inorganic solid waste			2144	
PG&E/HUNTERS POINT POWER PLANT Total					2401
POTRERO TO HUNTERS PT 115 KV UNDERGROUND	Other inorganic solid waste			9422	
POTRERO TO HUNTERS PT 115 KV UNDERGROUND Total					9467
THE PRESIDIO TRUST	Other inorganic solid waste	1026			
THE PRESIDIO TRUST Total			1056		
UNITED AIRLINES MAINTENANCE OPS CENTER	Other inorganic solid waste	488			
	Aqueous solution with total organic residues less than 10 percent	253			
	Liquids with halogenated organic compounds >= 1,000 Mg./L	134			
	Other organic solids	179		134	
	Unspecified oil-containing waste			210	
UNITED AIRLINES MAINTENANCE OPS CENTER Total			1206		927
VAN NESS TOWERS LLC	Other inorganic solid waste/total			2426	2426

San Mateo

San Mateo has two large TSDs – Romic Environmental and Merry X-Ray. San Mateo is credited with 175,109 tons of recycling capacity and 11,000 tons of treatment capacity. San Mateo also has two transfer stations, All Petroleum Recovery Service and Clean Harbors. In 2004 and 2005, the largest generator in the county (by a large margin) was Romic.

In the table below, which displays the primary large generators in San Mateo County, the first column displays the major waste types generated by each facility; the second and third columns display the total wastes in 2004 and 2005 respectively. San Mateo’s largest industrial facilities generated primarily the same primary waste types in 2004 and 2005: if the total waste shown is less, generally the primary waste decreased. If the inverse occurred, then the primary waste increased. Genentech, which in 2003 generated over 1000 tons has decreased in San Mateo County generation. At the same time, Genentech’s waste generation in Solano County is increasing (see the Solano County Snapshot). San Mateo has considerable excess capacity and is therefore exempt from further facility siting under the Formula.

Largest San Mateo County Hazardous Waste Generators, 2004 & 2005 (wastes over 100 tons)				
Company	Primary Wastes	2004, by waste	2004 Total	2005 Total
ROMIC ENVIRONMENTAL TECHNOLOGIES CORP	Other organic solids	1249		
	Other inorganic solid waste	458		
	Fluid Catalytic Cracker waste	193		
	Liquids with halogenated organic compounds >= 1,000 Mg./L	26259		
ROMIC ENVIRONMENTAL TECHNOLOGIES CORP			29403	19473
FORMER PENINSULA SPORTSMENS CLUB Other inorganic solid waste			6053	
GENENTECH INC	Other organic solids	120		
	Other inorganic solid waste	314		
	Aqueous solution with total organic residues less than 10 percent	367		
GENENTECH INC Total			918	442
RYAN TOWERS & MONTEREY APT Latex waste				2023

Santa Clara

Santa Clara has six TSDs that were noted in the previous year’s analysis – Noranda, Metech, J&B, United Datatech, Clear Harbors and Wit Refining. These facilities collectively provide the region with 244,608 tons of recycling capacity. In addition, Ionization Research, which DTSC listed as a permitted TSD in 2003 (but could not be

reached during the TSD study), received wastes in 2005. Milpitas Silver and Gold also received wastes in 2005. The committee could increase Santa Clara's capacity to adjust for these facilities: it would increase both Santa Clara's and the Bay Area's capacity surplus. Santa Clara has a transfer station, Alviso Oil/Clearwater Environmental.

Santa Clara has a number of large industrial generators, including the TSDs of Alviso and Clean Harbors. Other large generators are primarily "high tech" companies including Applied Materials, United Technologies, and MMC Technology. Because of its large treatment capacity Santa Clara County is exempt from additional facility siting.

In the table of large generators below, the first column displays the major waste types generated by each facility; the second and third columns display the total wastes in 2004 and 2005 respectively. The county's larger industrial facilities generated the same primary waste types in 2005 as 2004. In general, if total wastes for a facility increased from 2004 to 2005 then the increase is largely due to an increase in the primary wastes.

Largest Santa Clara County Hazardous Waste Generators, 2004 & 2005 (wastes over 100 tons)				
Company	Primary Wastes	2004, by waste	2004 Total	2005 Total
APPLIED MATERIALS, INC.	Unspecified oil-containing waste	200		
	Other inorganic solid waste	1514		
	Aqueous solution with metals (< restricted levels and see 121)	1388		
	Liquids with pH <= 2	138		
	Liquids with pH <= 2 with metals	1650		
	Unspecified sludge waste	110		
APPLIED MATERIALS, INC. Total			5232	3270
CLEARWATER ENV MGMT DBA ALVISO INDEPENDENT OIL Total			3991	22449
CLEAN HARBORS SAN JOSE LLC Total			18766	10384
UNITED TECHNOLOGIES	Other organic solids	396		
	Other inorganic solid waste	1124		
	Aqueous solution with total organic residues less than 10 percent	236		
UNITED TECHNOLOGIES PW SPACE PROPULSION Total			1971	609
MMC TECHNOLOGY	Aqueous solution with total organic residues less than 10 percent	1503		
MMC TECHNOLOGY INC Total			1509	1326
TELTEC CORP	Alkaline solution (pH >= 12.5) with metals	1292		
	Liquids with cyanides >= 1,000 Mg./L	108		
TELTEC CORP Total			1407	
SANMINA PLANT 2	Metal sludge (see 121)	442		
SANMINA PLANT 2 Total			1012	662

Solano

Solano County has no TSDs counted for Tanner purposes; however it has two transfer stations, Norcal Landfill and Advanced Environmental. The largest generators in 2005 were Valero Refining, Genentech and Insituform, as shown below. The first and third columns of the table display the major waste types generated by each facility in 2004 and 2005; the second and fourth columns display the total wastes in 2004 and 2005. It should be noted that Insituform generated no hazardous wastes in 2005; likely the inorganic wastes generated in 2004 were site clean up related. Mare Island’s primary waste in 2005 was PCB-waste, also from site clean up. Solano County businesses generate the most hazardous wastes in the region after Santa Clara, Alameda, and Contra Costa. The amount is growing even when site clean up wastes are not taken into account.

Like Contra Costa, because the county generates considerable hazardous waste and has no treatment capacity, the county has a large capacity deficit. It would be considered for siting to meet future hazardous waste facility needs.

Largest Solano County Hazardous Waste Generators, 2004 & 2005 (wastes over 100 tons)					
Company	Primary Wastes	2004, by waste	2004 total	2005, by waste	2005 total
ADVANCED ENVIRONMENTAL INC DBA D/K DIXON	Waste oil and mixed oil	12409	12444	8363	8423
ALZA CORPORATION Total			634		1034
ARENS ENVIRONMENTAL SERVICES, INC.	Waste oil and mixed oil	1249	1313		
FREMOUW ENVIRONMENTAL SERVICES INC	Waste oil and mixed oil	1554	1619	2031	2109
GENENTECH INC	Aqueous solution with total organic residues less than 10 percent	1012	1035	1621	1650
INSITUFORM TECHNOLOGIES INC	Other organic solids	1851	1869		
LENNAR MARE ISLAND LLC	Polychlorinated biphenyls and material containing PCBs	1229		15424	
LENNAR MARE ISLAND LLC	Other inorganic solid waste			1206	
LENNAR MARE ISLAND LLC Total			1291		16650
MAXIMUM OIL SERVICE	Waste oil and mixed oil	2084	2266	1996	2164
SFPP,LP	Waste oil and mixed oil	1199	1240		
TRAVIS AIR FORCE BASE Total		1332			1148
TTS ENVIRONMENTAL INC	Waste oil and mixed oil	1674	2013	1565	1918
VALERO REFINING COMPANY-CALIF	Other inorganic solid waste	2821	5204	2627	4142

## Sonoma

Sonoma County has no counted TSDs. However, the county does have a transfer station, Safety Kleen. The Geysers Power Company is the county's largest generator. Sonoma County, like Napa and Marin counties, had a modest capacity deficit in 2005. It could be considered for siting to meet future hazardous waste facility needs. It was suggested in the previous Committee report that Sonoma's hazardous waste generation might rise in 2005 because the county opened a hazardous waste collection facility. However, the overall wastes generated in 2004 and 2005 in Sonoma did not show much of an increase.

Largest Sonoma County Hazardous Waste Generators, 2004 & 2005 (wastes over 100 tons)				
Company	Primary Wastes	2004, by waste	2004 total	2005 total
GEYSERS POWER COMPANY,LLC	Other inorganic solid waste	2059		
GEYSERS POWER COMPANY,LLC total			2870	2898

## **The Regional Picture, 2004 and 2005**

As of April 2006, DTSC received 35,159 manifests from SF Bay Area facilities that described shipments of hazardous wastes sent offsite in 2004. As of April 2006, 33,565 manifests had been received for shipments during 2005. Cumulatively, these manifests totaled 647,421 and 780,781 tons of hazardous waste, respectively. Note that hazardous wastes from small generators (such as autobody shops) are exempted from manifesting requirements; their waste oil goes out under bill of lading, not a manifest.

As is noted every year, the tonnages used for the Formula are a smaller subset of the total hazardous waste. Appendix 1 displays the region's gross hazardous wastes by waste type, treatment type and treatment type by county.

## **Regional Waste Treatment Generation and Employment**

Committee members have asked how to interpret industrial hazardous waste generation in relationship to the Bay Area's economic trends. ABAG staff reviewed publicly available data provided by the State Employment Development Department (<http://www.labormarketinfo.edd.ca.gov/cgi/databrowsing/?PageID=166> Page name: Employment by Industry Data).

Figure 1 compares the regional manufacturing jobs with tons of hazardous waste from 1990 to 2004. (Note, the hazardous wastes used in the subset are the industrial wastes counted in the Fair Share Formula). We note that from 2002 to 2004 both industrial

employment and industrial hazardous waste generation has decreased. 2005 data is not included because EDD has not published employment information for 2005 (as of 6/06).

Figures 2 and 3 compare the relationship between each county's industrial employment and each county's industrial waste generation in two years, 1994 and 2004 respectively. Looking at these years, no strong correlations appear between employment and industrial waste generation.

### **2005 Fair Share Formula**

Tables 1 through 5 provide the analysis used for this year's Fair Share Formula following the process agreed to last year and memorialized in the memo included in Appendix 2.

Tables 1 and 2 show respectively all manifested hazardous wastes and all industrial (i.e. Fair Share Counted) wastes generated by Bay Area entities in 1994, and 2002 through 2005 separated by county.

Looking at the total hazardous wastes generated in the Bay Area, the total tonnages for both 2004 and 2005 were larger than 1994, 2002 or 2003. Most of the Bay Area counties removed contaminated soil and/or asbestos containing wastes from polluted sites. Additionally, as was discussed above in the San Francisco County analysis, inorganic solid wastes are not always industrial wastes; some inorganic solid wastes, i.e. lead paint waste contaminated materials, may be "generated" by property redevelopment.

What looking at these data does not tell us is whether the sites from which contaminated soil is being removed were contaminated 20 (or more) years ago before regulations for chemicals were put in place, or whether the contamination has occurred in spite of regulatory standards. Michael Wilson, Ph.D., MPH recently conducted a study at UC Berkeley and testified to the California Senate Environmental Quality Committee on the subject of "What are the key chemical challenges facing California?" He answered:

One of the effects of (the use of chemicals in industrial processes) is that for every dollar businesses spend in purchasing chemicals, they spend up to ten dollars trying to manage and dispose of those chemicals. The U.S. EPA projects that 600 new hazardous waste sites will be needed each month of every year in the U.S. over the next 25 years. This is on top of 77,000 current sites.<sup>1</sup>

---

<sup>1</sup> Testimony of Michael P Wilson to the California Senate Environmental Quality Committee, June 28, 2006 (Note: I could not find a citation to the EPA reference in the Wilson paper or on the website. I did find a reference to an EPA report issued in December 2004 – cited in the OMB reporter - that is the likely source of Wilson's information; however the link to the report had been disabled.)

While the effects of hazardous chemical/hazardous waste regulations are beyond the purview of the Committee, if a consequence of chemical regulation is not a decrease in polluted sites, then the Committee's assumptions about removing one-time wastes (i.e. site clean up wastes) from the Fair Share Formula deserves discussion (if not amending the formula).

Table 2 shows that industrial wastes are not increasing in the nine-county Bay Area. Looking at the wastes aggregated by county, no clear trends emerge as to counties with increasing or decreasing volumes of hazardous waste.

Table 3 shows the relationship between wastes treated within the Bay Area and wastes treated outside the Bay Area. The wastes displayed in this table are the Fair Share "counted" wastes. The observation noted in last year's report that roughly one-third of the wastes generated locally are treated locally seems to be roughly true in 2004 and 2005.

Table 4 shows the permitted treatment facilities in the Bay Area. Only four Bay Area Counties - San Mateo, Santa Clara, Alameda, and Sonoma – have permitted treatment facilities and are shown on this table. This table was developed in 2004 based upon the research for the committee on regional hazardous waste treatment facilities. Two new facilities are noted in Santa Clara in 2005. These include: Milpitas Silver and Gold and Ionization Research. Both of these facilities accepted well under 100 tons of hazardous waste; upon direction from the Committee, ABAG staff can find out more information on these facilities.

Table 5 is the Fair Share Allocation Formula as approved by the Committee. In reviewing the table we note the same trend as last year, that the counties break down into three groupings: those with TSDs have excess treatment capacity (Alameda, Santa Clara and San Mateo). Those with heavy industries and no TSDs have large deficits (Solano, Contra Costa, and San Francisco). The other three counties have modest capacity deficits (Marin, Napa, and Sonoma).

## **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. Three general groupings of counties were noted in the Committee's report on the 2003 data:

- The group with excess capacity – Alameda, San Mateo, Santa Clara
- The group with modest deficits– Napa, Marin, Sonoma
- The group with large deficits – San Francisco, Solano, Contra Costa

These groupings, as suggested in the previous report, persist. The application of the Fair Share formula in 2005 showed the largest capacity deficit in San Francisco. However, if inorganic solid waste were not considered a counted waste in San Francisco, then Contra Costa County would show the largest deficit. This was the result of the 2002 and 2003 application of the formula. (This would be true in 2004 as well).

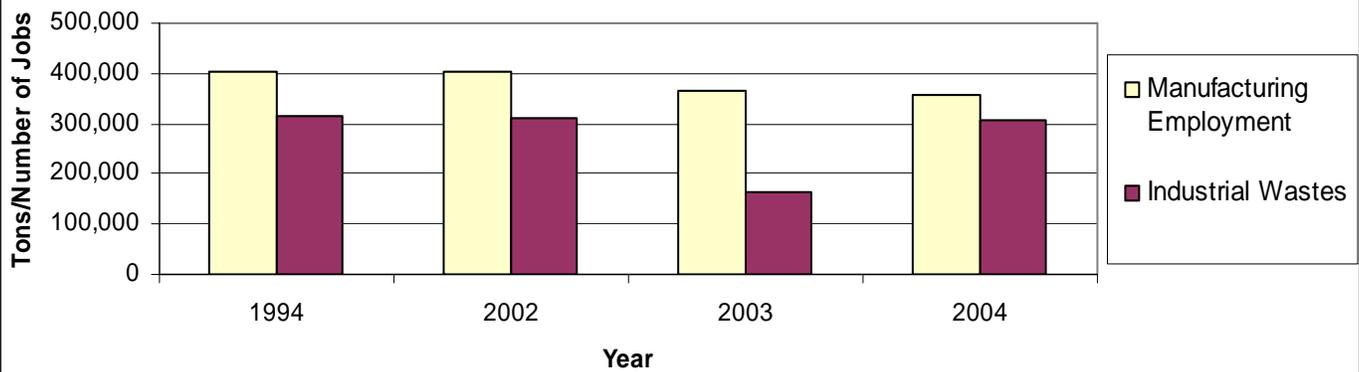
The goal for using the Formula has historically been to fairly allocate facilities for planning purposes consistent with the Tanner legislation. With this in mind, the Committee proposes the following to the ABAG Executive Board:

Approve the county rankings based upon application of the updated capacity Formula to 2005 data (shown in Table 5).

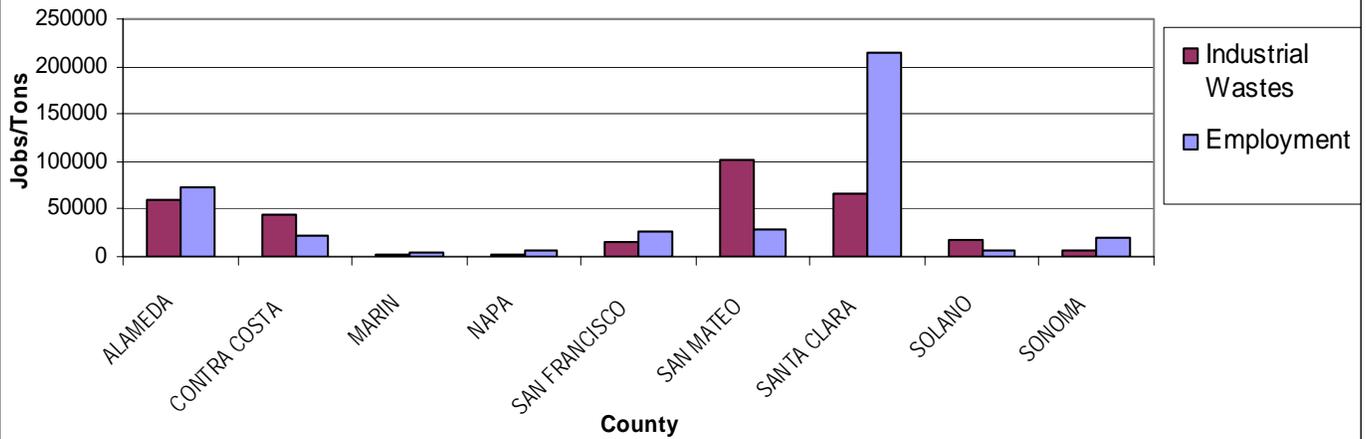
With regard to the Committee's work plan, during fiscal year 2006/07, the following activities are recommended:

1. Respond to requests from ABAG members regarding regional hazardous waste capacity/planning, source reduction, and pollution prevention efforts.
2. Support the Bay Area Green Business Program.
3. Collaborate with CAL-EPA Department of Toxic Substances Control (DTSC) Pollution Prevention Branch, CIWMB and other partners.
4. Review hazardous waste data and rankings annually or as available from DTSC.
5. Develop a fact sheet for Local Government Elected Officials and staff on Green Chemistry. This fact sheet will define green chemistry, design for the environment, and the general approach to designing products by using minimal hazardous constituents to create non-hazardous products and minimize wastes, including hazardous wastes. It will also discuss efforts to promote Green Chemistry in Europe, Canada, and California.
6. Monitor and discuss E-Waste and U-Waste trends as regulations and incentives to recycle such wastes change, and recommend regional actions, outreach, education, as needed. Monitor and provide regular updates on the progress of the recently formed California Product Stewardship Council.

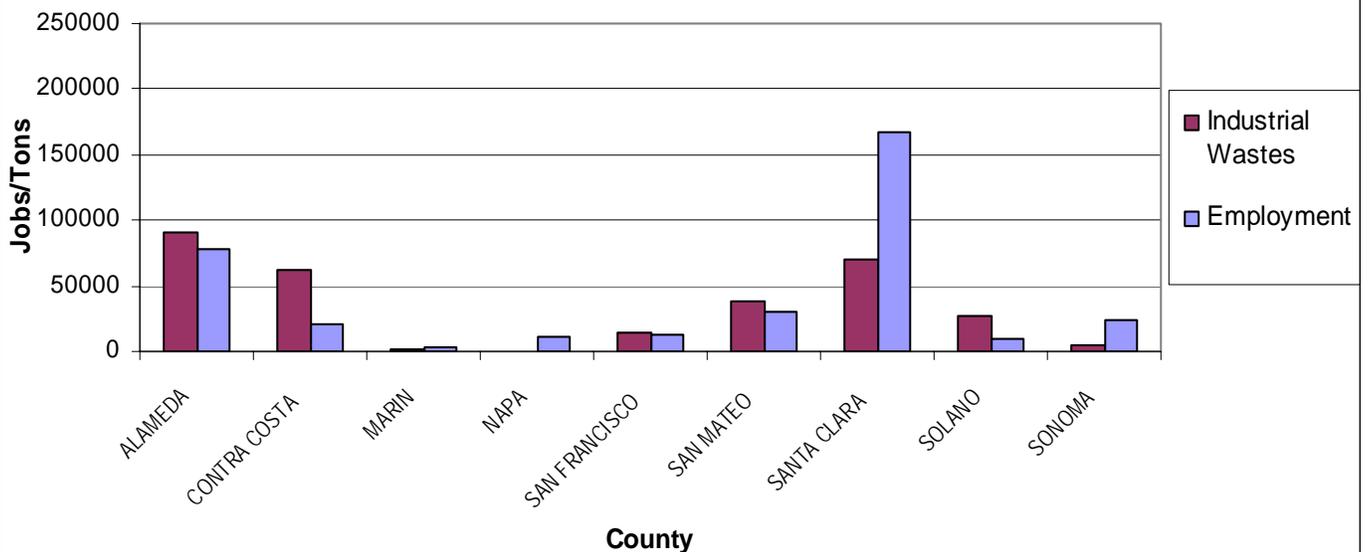
**Figure 1: Regional Manufacturing Jobs and Industrial Hazardous Wastes**



**Figure 2: Manufacturing Employment & Industrial Hazardous Wastes, 1994**



**Figure 3: Manufacturing Employment & Industrial Hazardous Wastes, 2004**



**Table 1**  
**Total Hazardous Wastes Generated by County (tons) 1994, 2002 to 2005**

Year/County	ALAMEDA	CONTRA COSTA	MARIN	NAPA	SAN FRANCISCO	SAN MATEO	SANTA CLARA	SOLANO	SONOMA	Total
1994	96176	130376	2546	2536	99242	113442	86390	23952	7993	562654
2002	175779	84378	3918	1134	103617	33296	145904	35228	23990	607245
2003	130968	97927	5985	1627	102072	37732	105303	35374	11774	528760
2004	180108	95769	6042	1623	98764	97781	104232	48100	15003	647421
2005	178026	76201	5807	1702	282202	55417	121486	50212	9728	780781

**Table 2**  
**Total Industrial (Fair Share Formula Counted) Hazardous Wastes Generated by County (tons) 1994, 2002 to 2005**

Year/County	ALAMEDA	CONTRA COSTA	MARIN	NAPA	SAN FRANCISCO	SAN MATEO	SANTA CLARA	SOLANO	SONOMA	Total
1994	59109	44224	1316	2128	14805	100939	66743	18714	6849	314828
2002	91221	48384	1187	696	9509	22038	111512	21683	6628	312858
2003	36401	29688	1436	347	9328	9962	54230	20300	2602	164296
2004	91348	61622	1358	633	14391	37822	69781	26718	4665	308339
2005	69251	39311	961	725	69748	26190	62979	15967	4477	289611

**Table 3**  
**Quantities of Industrial Wastes Treated Inside –vs. – Outside Bay Area**

(does not include blank wastes codes, asbestos or contaminated soil)

	1994	2002	2003	2004	2005
Total Industrial Wastes Generated in SFBA	317721	371006	356743	308339	289611
Wastes Treated In Bay Area (tons)	114154	117102	118655	100847	81533
Wastes Treated Outside Bay Area (tons)	203567	253904	238087	207492	208078

**Table 4: Bay Area Treatment Capacity**  
(Only counties that have TSDs are included below)

<i>County</i>	<i>Facility</i>	Capacity (From TSD Study)				<i>For Formula</i>
		<i>Recycler</i>	<i>Disposal</i>	<i>Treatment</i>	<i>Incineration</i>	
Alameda	Diagnostic Imaging	264				
Alameda	Evergreen	94,000				
Alameda	AERC	5,280				
Alameda	Philips Medical System	123				
TOTAL ALAMEDA						99,667
Marin	Photo Waste Recycling	895				
TOTAL MARIN						895
San Mateo	Romic	175,000		11,000		
San Mateo	Merry X Ray	109				
TOTAL SAN MATEO						186,109
Santa Clara	Micro Metallica/Noranda	288				
Santa Clara	Metech	1,020				
Santa Clara	Milpitas Silver and Gold					
Santa Clara	Ionization Research					
Santa Clara	J&B	2400				
Santa Clara	ECS Refining/United Datatech	10,140				
Santa Clara	Clean Harbors	220,000		10,400		
Santa Clara	Wit Refining	360				
TOTAL SANTA CLARA						244,608
<b>TOTAL Treatment Capacity</b>						<b>531,279</b>

**Table 5: Fair Share Allocation Formula 2005**

(uses Industrial Wastes and Treatment Methods described in Appendix 2)

County	Waste Type	Treatment Capacity (per 03 study, tons )	HW Generated 2005 (tons)	Surplus/Deficit Capacity	Rank
Alameda	Disposal, landfill		4842		
	Disposal, other		2124		
	Recycler	99,667	58059		
	Storage, container		0		
	Treatment, incineration		365		
	Treatment, tank		3859		
	<b>Alameda Total</b>		<b>99,667</b>	<b>69251</b>	<b>30,416</b>
Contra Costa	Disposal, landfill		25991		
	Disposal, other		211		
	Recycler		6456		
	Storage, container		0		
	Treatment, incineration		852		
	Treatment, tank		5802		
	<b>Contra Costa Total</b>		<b>0</b>	<b>39,311</b>	<b>-39,311</b>
Marin	Disposal, landfill		522		
	Disposal, other		38		
	Recycler	895	379		
	Storage, container		0		
	Treatment, incineration		16		
	Treatment, tank		6		
	<b>Marin Total</b>		<b>895</b>	<b>961</b>	<b>-66</b>
Napa	Disposal, landfill		380		
	Disposal, other		0		
	Recycler		303		
	Storage, container		0		
	Treatment, incineration		25		
	Treatment, tank		17		
	<b>Napa Total</b>		<b>0</b>	<b>725</b>	<b>-725</b>
San Francisco	Disposal, landfill		60475		
	Disposal, other		46		
	Recycler		2800		
	Treatment, incineration		57		
	Treatment, tank		6371		
	<b>San Francisco Total</b>		<b>0</b>	<b>69,748</b>	<b>-69,748</b>

County	Waste Type	Treatment Capacity (per 03 study, tons)	HW Generated 2005 (tons)	Surplus/Deficit Capacity	Rank
San Mateo	Disposal, landfill		713		
	Disposal, other		276		
	Recycler	175,109	24457		
	Storage, container		0		
	Treatment, incineration		131		
	Treatment, tank	11,000	612		
<b>San Mateo Total</b>		<b>186,109</b>	<b>26,190</b>	<b>159,919</b>	<b>Exempt</b>
Santa Clara	Disposal, landfill		16092		
	Disposal, other		844		
	Recycler	234,208	37223		
	Storage, container		1		
	Treatment, incineration		5042		
	Treatment, tank	10,400	3778		
<b>Santa Clara Total</b>		<b>244,608</b>	<b>62,979</b>	<b>181,629</b>	<b>Exempt</b>
Solano	Disposal, landfill		4198		
	Disposal, other		103		
	Recycler		9514		
	Storage, container		0		
	Treatment, incineration		355		
	Treatment, tank		1798		
<b>Solano Total</b>		<b>0</b>	<b>15,967</b>	<b>-15,967</b>	<b>7</b>
Sonoma	Disposal, landfill		2851		
	Disposal, other		29		
	Recycler		1015		
	Storage, container		2		
	Treatment, incineration		26		
	Treatment, tank		554		
<b>Sonoma Total</b>		<b>0</b>	<b>4,477</b>	<b>-4,477</b>	<b>6</b>
<b>Nine County Grand Total</b>		<b>531,279</b>	<b>289611</b>	<b>241,668</b>	

## Appendix 1: All Manifested Wastes, by Waste and Treatment Type (2005)

(Includes all wastes, all treatment types)

The following tables display all manifested waste from all Bay Area generators in 2005. Cumulatively 780,781 tons of hazardous waste were manifested in 2005 from the 9-county Bay Area.

Table 1.1 displays the waste by type for 2005.

Tables 1.2 and 1.3 display the waste by treatment method for 2005. (Table 1.3 shows the breakdown by county.)

<b>Table 1.1 Total Hazardous Wastes Generated (Tons) 2005, by Waste Types</b>	
Waste Type	Total
Adhesives	78
Alkaline solution (pH >= 12.5) with metals	1064
Alkaline solution without metals pH >= 12.5	4359
Alum and gypsum sludge	1
Aqueous solution (2 < pH < 12.5) containing reactive anions ...	1192
Aqueous solution with metals (< restricted levels and see 121)	7469
Aqueous solution with total organic residues 10 % or more	1859
Aqueous solution with total organic residues less than 10 %	13756
Asbestos containing waste	39792
Auto shredder waste	0
Baghouse waste	4088
Biological waste other than sewage sludge	1
Chemical toilet waste	0
Contaminated soil from site clean-up	273622
Degreasing sludge	15
Detergent waste chemicals	29
Drilling mud	47
Empty containers less than 30 gallons	311
Empty pesticide containers 30 gallons or more	36
Fluid Catalytic Cracker waste	397
Fly ash, bottom ash and retort ash	726
Gas scrubber waste	18
Halogenated solvents (chloroforms, methyl chloride, perchloroethylene, etc)	642
Household waste	3479
Hydrocarbon solvents (benzene, hexane, Stoddard, Etc.)	627
Laboratory waste chemicals	465
Latex waste	3226
Lime sludge	857
Liquids with arsenic >= 500 Mg./L	5
Liquids with cadmium >= 100 Mg./L	7
Liquids with chromium (VI) >= 500 Mg./L	399
Liquids with cyanides >= 1,000 Mg./L	143

Liquids with halogenated organic compounds $\geq$ 1,000 Mg./L	27180
Liquids with lead $\geq$ 500 Mg./L	32
Liquids with mercury $\geq$ 20 Mg./L	10
Liquids with nickel $\geq$ 134 Mg./L	267
Liquids with pH $\leq$ 2	730
Liquids with pH $\leq$ 2 with metals	6036
Liquids with polychlorinated biphenyls $\geq$ 50 Mg./L	426
Liquids with selenium $\geq$ 100 Mg./L	0
Metal dust (see 121) and machining waste	386
Metal sludge (see 121)	6945
Off-specification, aged or surplus inorganics	1207
Off-specification, aged or surplus organics	10596
Oil/water separation sludge	560
Organic liquids (nonsolvents) with halogens	10
Organic liquids with metals (see 121)	95
Organic monomer waste (includes unreacted resins)	8
Organic solids with halogens	354
Other empty containers 30 gallons or more	3512
Other inorganic solid waste	126903
Other organic solids	19235
Other spent catalyst	1009
Other still bottom waste	353
Oxygenated solvents (acetone, butanol, ethyl acetate, etc.)	3619
Paint sludge	125
Pesticide rinse water	15
Pesticides and other waste associated with pesticide production	38
Pharmaceutical waste	1670
Phosphate sludge	0
Photochemicals/photoprocessing waste	2831
Polychlorinated biphenyls and material containing PCBs	23477
Polymeric resin waste	196
Sewage sludge	33
Solids or sludges with halogenated organic compounds $\geq$ 1,000 Mg./L	1004
Still bottoms with halogenated organics	0
Sulfur sludge	1528
Tank bottom waste	251
Unspecified alkaline solution	108
Unspecified aqueous solution	3457
Unspecified oil-containing waste	10587
Unspecified organic liquid mixture	5840
Unspecified sludge waste	1492
Unspecified solvent mixture	5084
Waste oil and mixed oil	152178
(blank)	2680
<b>Grand Total</b>	<b>780781</b>

Treatment Method	Total
Disposal, injection well	0
Disposal, Land application	
Disposal, landfill	319819
Disposal, other	3765
Invalid disposal code	429
Recycler	140964
Storage, container	4
Transfer station	35087
Treatment, incineration	7078
Treatment, tank	27943
(blank)	245692
<b>Grand Total</b>	<b>780781</b>

**Table 1.3 Treatment Methods Specified on Manifests for Bay Area Wastes, 2005 (tons)**

County	Treatment Method	Total
Alameda	Disposal, landfill	26895
	Disposal, other	2160
	Invalid disposal code	44
	Recycler	58627
	Storage, container	0
	Transfer station	23000
	Treatment, incineration	366
	Treatment, tank	5509
	(blank)	61425
	<b>Alameda Total</b>	
Contra Costa	Disposal, Land application	
	Disposal, landfill	43396
	Disposal, other	246
	Invalid disposal code	256
	Recycler	6491
	Storage, container	0
	Transfer station	1573
	Treatment, incineration	957
	Treatment, tank	6127
	(blank)	17154
<b>Contra Costa Total</b>		<b>76,201</b>
Marin	Disposal, landfill	4319
	Disposal, other	38
	Invalid disposal code	0
	Recycler	394
	Storage, container	0
	Transfer station	199
	Treatment, incineration	16
	Treatment, tank	66
	(blank)	774
	<b>Marin Total</b>	
Napa	Disposal, landfill	843
	Disposal, other	0
	Invalid disposal code	1
	Recycler	337
	Transfer station	83
	Treatment, incineration	25
	Treatment, tank	186
	(blank)	228
<b>Napa Total</b>		<b>1702</b>

County	Treatment Method	Total	
San Francisco	Disposal, landfill	183499	
	Disposal, other	46	
	Invalid disposal code	3	
	Recycler	2802	
	Transfer station	642	
	Treatment, incineration	58	
	Treatment, tank	8180	
	(blank)	86972	
	<b>San Francisco Total</b>		<b>282202</b>
	San Mateo	Disposal, injection well	0
Disposal, landfill		10663	
Disposal, other		276	
Invalid disposal code		36	
Recycler		24513	
Storage, container		0	
Transfer station		1129	
Treatment, incineration		133	
Treatment, tank		864	
(blank)		17803	
<b>San Mateo Total</b>		<b>55417</b>	
Santa Clara	Disposal, landfill	35401	
	Disposal, other	867	
	Invalid disposal code	73	
	Recycler	37252	
	Storage, container	1	
	Transfer station	2288	
	Treatment, incineration	5143	
	Treatment, tank	4561	
	(blank)	35900	
	<b>Santa Clara Total</b>		<b>121486</b>

<b>County</b>	<b>Treatment Method</b>	<b>Total</b>
Solano	Disposal, landfill	10217
	Disposal, other	103
	Invalid disposal code	15
	Recycler	9525
	Storage, container	0
	Transfer station	5780
	Treatment, incineration	355
	Treatment, tank	1844
	(blank)	22374
<b>Solano Total</b>		<b>50212</b>
Sonoma	Disposal, landfill	4586
	Disposal, other	29
	Invalid disposal code	2
	Recycler	1023
	Storage, container	2
	Transfer station	393
	Treatment, incineration	26
	Treatment, tank	606
	(blank)	3061
<b>Sonoma Total</b>		<b>9728</b>
<b>Grand Total</b>		<b>780781</b>

## Appendix 2: Memo from July 2004

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

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.

5) 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.