EXHIBIT TO ATTACHMENT A
LARRY WALKER ASSOCIATES MEMO:
COMPARISON BETWEEN MONTGOMERY COUNTY (MD) AND VENTURA COUNTY (CA) STORMWATER PROGRAMS

Memorandum

LARRY WALKER ASSOCIATES

DATE: October 11, 2007

TO: Gerhardt Hubner

SUBJECT: Comparison between Montgomery County (MD) and Ventura County (CA) Stormwater Management Programs

MALCOLM WALKER, P.E.

707 4h Street
Davis, CA 95616
530.753.6400
530.753.7030 fax
mackw@lwa.com

The purpose of this memorandum is to summarize and compare the Stormwater Management Programs currently being implemented in Montgomery County (MD) and Ventura County (CA). Each program is in response to Federal regulations and subject to NPDES permits. This memorandum includes two sections: one is the side by side comparison between the two management programs and the other is a comparison between the runoff quality for comparable outfalls within each county.

Stormwater Management Program Comparison

The structure of both programs follows the format of the stormwater regulations (40 CFR 122.26). As such the programs are organized around the following program elements:

- Public Outreach
- Industrial/Commercial Businesses
- Illicit Discharge and Illegal Connection
- New Development and Land Use Planning
- Construction
- Municipal Operations

The 2005/06 Annual Report for each county was reviewed and summarized in the following table.

Table 1. Comparison of Stormwater Management Programs

Stormwater Management Program Elements	Ventura County FY05-06 Reported Activities	Montgomery County 2005 Reported Activities
a. Public outreach		
Presentations at community groups; participation in county-wide events	• Participation in Coastal Clean-up Day (2000 volunteers, 47 mi of shoreline) • Participation at Mobile Satellite City Hall Events (direct residents / program staff interactions)	• Mentoring partnership with local schools (assistance with environmental projects, distribution of outreach materials) • Participation in two Volunteers in Planting events (approx. 600 native trees and shrubs planted in riparian forested buffers for stream restoration)
Outreach materials	• Multimedia, bi-lingual materials (print, video, web) on water conservation, pet waste, illegal dumping, incident reporting; utility bill inserts; newsletters	• Multimedia materials (print, video, web) on water conservation, pet waste, illegal dumping, incident reporting; utility bill inserts.
Media advertisements	• Print, Radio, TV, Outdoor 10.2M total impressions	not reported
Other / Special programs	• Pet Waste Program (educate pet owners on proper disposal of pet waste; installation and stocking of 75 dispensers for pet waste bags in public areas)	• Rainscapes Program (community workshops on using native plants and creation of backyard wildlife habitat; distribution of 75 rain barrels)
b. Industrial / commercial businesses		
Site Education / Inspection	• Inspections at approx. 775 automotive facilities and 1100 food service establishments.	• 1,145 total inspections of sites with stormwater management equipment (oil/grit separators, ponds, etc.); 959 privately owned and 186 publicly-owned
Targeted Businesses / POCs	• Focus of food service establishments, automotive, car washes, equestrian stable facilities, agricultural-related facilities, and mobile businesses (e.g. concrete pumping).	not reported
General Industrial Permit Facility Visits	• Approx. 275 outreach contacts at facilities identified as potentially subject to General Industrial Permitting • Conducted several joint inspections with RWQCB inspection staff to promote consistency in inspection procedures	not reported
Stormwater Quality Staff Training	• 58 inspection staff trained	not reported
Enforcement	not reported	• 196 water quality complaints • 55 hazardous materials incidents • 22 NOVs, $1,750 fines

Table 1. continue

Stormwater Management Program Elements	VENTURA COUNTY, CA FY05-06 Reported Activities	MONTGOMERY COUNTY, MD 2005 Reported Activities
c. Illicit discharge and illegal connection		
Incident Response	• Approx. 900 reported incidents, 15% determined to be illicit discharges • 548 warnings, 226 NOVs • 15 illegal connections identified and eliminated	• 387 complaints of illegal dumping • 18 NOVs, $4,500 fines • no illegal connections reported
Education	Part of outreach for elements a. and e.	Part of element a
Illicit Discharges / Illegal Connections Staff Training	• 58 drainage, roadway, landscape and facilities, industrial inspection, and code enforcement staff trained	not reported
Outfall Screening Inspect outfalls for evidence of illicit discharges or illegal connections	not reported.	• 100 outfalls selected from targeted watersheds (based on history of water quality complaints & results of biological monitoring) • 37 with dry weather flow, out of which 9 identified with dry-weather flow from other than pipe streams • 5 had one or more of the five indicator parameters (Cu, Pb, Detergents, Total Phenols, Chlorine) above MDLs - source tracking unsuccessful
d. New development and land use planning		
Land Use Planning and Environmental Review	• Approx. 650 projects reviewed for stormwater requirements	Sediment and Erosion Control Program Program purpose is "to prevent excessive erosion and stormwater flow from land disturbing activities from causing siltation and degradation of streams and waterways." • 779 Sediment Control Permits issued (for activities disturbing 5000 sq. ft. of land or more) • 167 projects with area of disturbance greater than one-acre (reported on a quarterly basis to the MD Dept of Env't) • 84 'responsible personnel' (construction site operators) trained
Development Standards - Technical Manual	• Approx. 175 projects with Stormwater Quality Urban Impact Mitigation Plan (SQUIMP) technical requirements	
Development Community Outreach	• Approx. 3500 contacts made through meetings, public communication efforts, and educational materials	
Stormwater Quality Staff Training	• 34 development / planning staff trained	
e. Construction		
SWPCP Preparation, Certification, and Implementation (with incorporated BMPs)	• 110 projects w/ SWPCP requirements; all inspected at least once	
Notice of Intent Requirement	• 100% projects satisfied NOI requirement	
Construction Site Inspection Program	• All sites inspected at least once during the wet season; 807 enforcement actions taken (job memoranda, NOVs, CDOs)	
Stormwater Quality Staff Training	• 200 construction inspection staff trained	

Table 1. continue

Stormwater Management Program Elements	VENTURA COUNTY, CA FY05-06 Reported Activities	MONTGOMERY COUNTY, MD 2005 Reported Activities
f. Municipal operations Corporation Yards	• SWPCP developed and implemented at all 20 corporation yards; 100% compliance w/ SWPCP requirements	• SWPCP developed and implemented at all 9 corporation yards; 4 Plans need revisions • no indoor vehicle washing facility at 3 yards
Other Facilities		
Drainage System Operation and Maintenance	• Inspected catch basins and other drainage facilities at least once before the wet season • Approx. 28,500 tons of debris removed from catch basins, channels / ditches, and detention / retention basins	• Program is complaint-driven to remove clogged inlets or drainage problems • 5.72M ft total storm drains; 11,460ft cleaned • Pilot program to estimate effectiveness of storm drain inlet cleaning in source control
Roadway Operation and Maintenance	• Approx. 112,000 curb miles swept; over 100% of roadways (most streets swept more than once)	• All streets swept at least once between March and June (soon after wet season when sand and salt are applied). • Contractor required to keep track of amount of debris swept by route, so that areas with high amount of debris can be targeted for priority street sweeping.
Pesticide, Herbicide, and Fertilizer Application and Use	• No application during rain events, or within one day of an event forcasted to be greater than 0.25 in., or at anytime when water is leaching or running from the application area • Implement effective BMPs and focus on Integrated Pest Management approach	• Integrated Pest Management (IPM) plan • No fertilizer used at County facilities in 2005 • Limited pesticides usage, only when all other control measures failed
Stormwater Quality Staff Training	• 834 stormwater maintenance, drainage and flood control systems, street and roads, parks and public landscaping, and corporation yards staff trained	• Conducted for yard personnel
Other / Special programs	not reported	Montgomery County Environmental Policy - "to increase environmental awareness of all County agencies, departments, and employees" • Develop and implement Env'tl Action Plans for all departments (focus on energy conservation, pollution prevention, green purchasing, and green buildings). • Best Env'tl Practices part of County budget • "Going Green at Home" initiative to encourage green building techniques in employees' home renovations / purchases.

A review of Table 1 shows basically similar programs and commitments. The following observations are provided based on the review of Table 1

- Ventura County outreach focused on beach clean up and control of pest waste, while Montgomery County Outreach focused on rainscapes (including rain barrels)
- Similar effort with the industrial and commercial businesses with Ventura County providing significant inspections and Montgomery providing comprehensive enforcement.
- Enforcement of ID/IC program appears more aggressive in Ventura County although Montgomery County has an extensive outfall screening program.
- Both programs appear well situated to deal with construction sites.
- Ventura County has a well defined post construction program (probably due to its NPDES permit requirements). Unclear from the Annual Report the extent of the post construction program in Montgomery County.
- Similar efforts for municipal operations.

Although this comparison was limited to a review of the Annual Report the two programs appear very similar and comprehensive. A through audit of the two programs would likely distinguish significant differences (if any) but from our review the two programs are equivalent. This is not surprising since both programs are considered exemplary for their respective regions of the country.

Runoff Characteristics

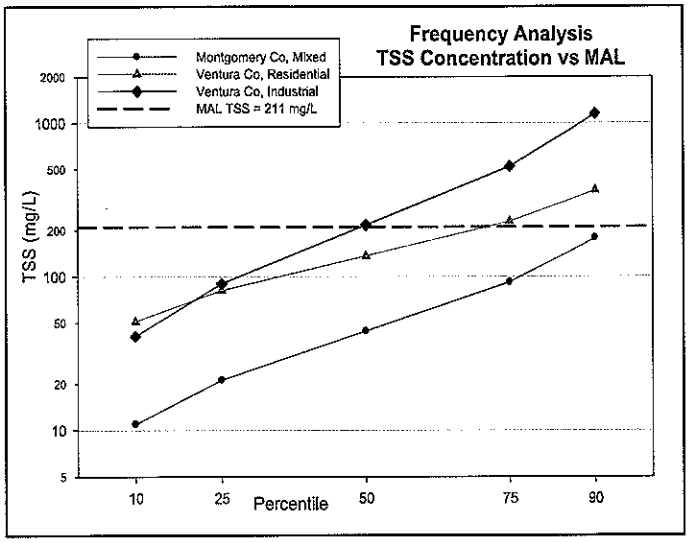
Each Program has an ongoing monitoring program that includes among other effort the characterization of runoff as determined through outfall monitoring. Each program has at least on land use outfall where sample are collected as flow weighted event mean concentrations. The side by side comparison between the outfall characteristics are shown below:

Characteristics	Montgomery County: Stewart-April Lane	Ventura County: Ortega Street (I-2)	Ventura County: Swan Street (R-1)
Dominant Land Use	Mixed	Industrial	Residential
Drainage Area, ac.	223	189	65
Monitoring record	2002-2006	1993-1998, 2000, 2004	1993-1998, 2000, 2004
Number of sample events	~45	~25	~25
Annual Precipitation, inches	46.4	15.35	15.35

The frequency distribution of the monitoring results for selected constituents are summarized and graphically shown in the following pages:

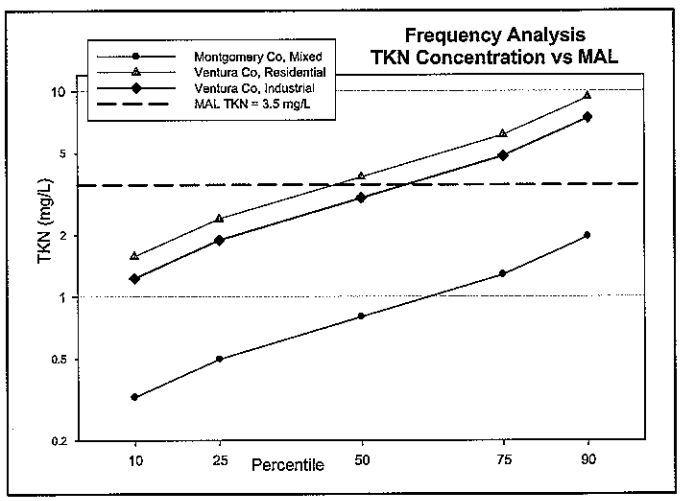
TSS (mg/L)

	Montgomery	Ventura R-1	Ventura I-2
min	5	26	5
10	11	51	41
25	21	81	90
50	44	135	217
75	92	227	520
90	177	361	1144
max	450	444	2796



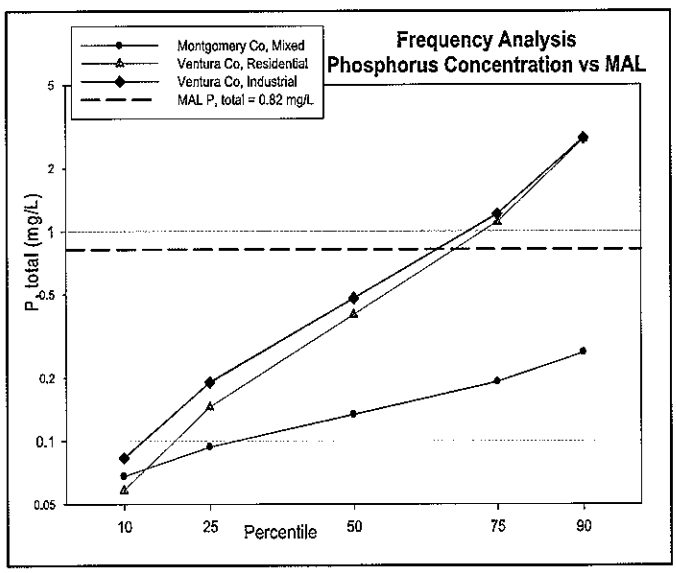
TKN (mg/L)

	Montgomery	Ventura R-1	Ventura I-2
min	0.1	1.2	1.1
10	0.3	1.6	1.2
25	0.5	2.4	1.9
50	0.8	3.8	3.0
75	1.3	6.1	4.8
90	1.9	9.3	7.4
max	4.3	23.4	8.1



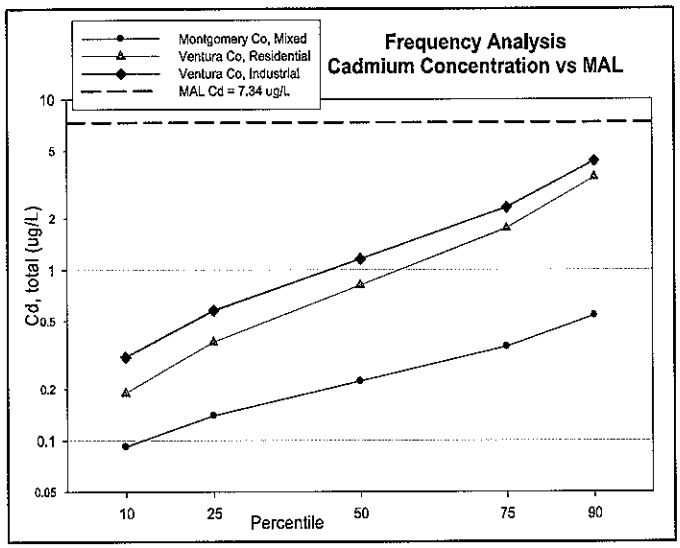
Phosphorus, total (mg/L)

	Montgomery	Ventura R-1	Ventura I-2
min	0.05	0.001	0.001
10	0.07	0.06	0.08
25	0.09	0.14	0.19
50	0.13	0.40	0.48
75	0.19	1.10	1.20
90	0.26	2.74	2.77
max	1.09	2.85	11.40



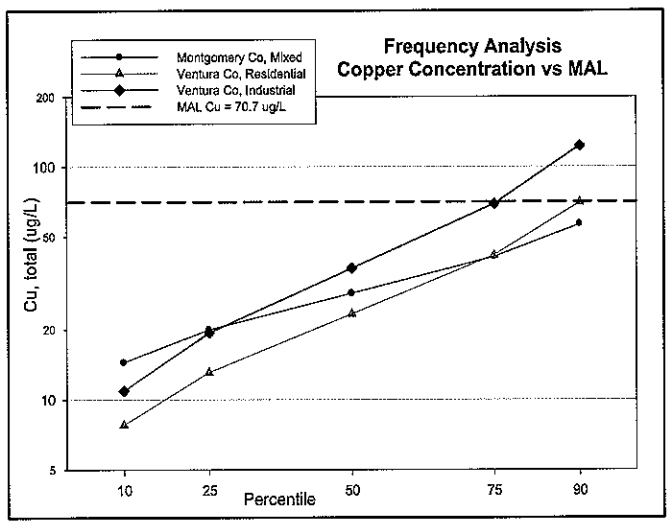
Cadmium, total (ug/L)

	Montgomery	Ventura R-1	Ventura I-2
min	0.05	0.20	0.30
10	0.09	0.19	0.31
25	0.14	0.38	0.58
50	0.22	0.81	1.15
75	0.35	1.74	2.31
90	0.54	3.47	4.33
max	2.20	5.70	7.00



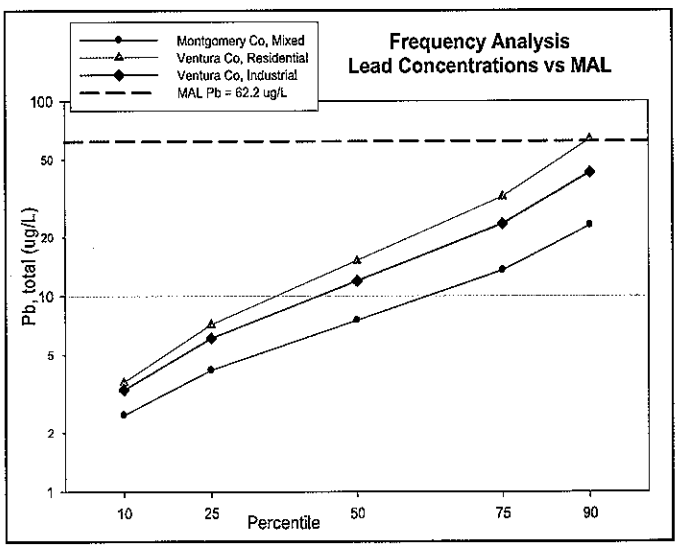
Copper, total (ug/L)

	Montgomery	Ventura R-1	Ventura I-2
min	10.8	5.0	6.0
10	14.4	7.7	10.9
25	19.9	13.0	19.3
50	28.5	23.2	36.6
75	40.8	41.4	69.1
90	56.3	69.7	122.6
max	169.2	84.1	254.5

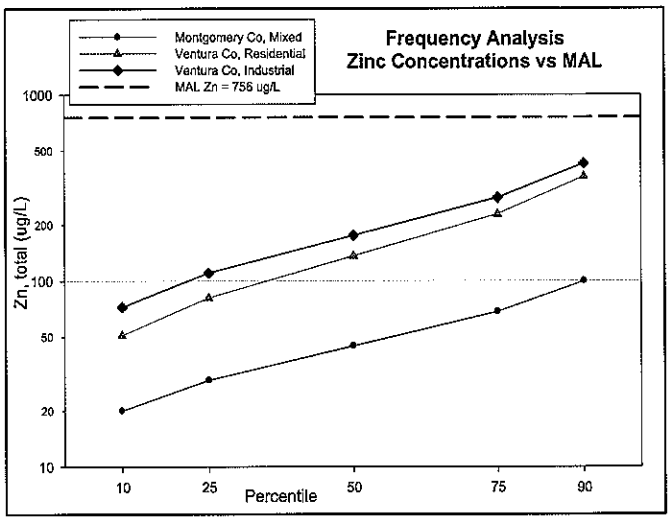


Lead, total (ug/L)

	Montgomery	Ventura R-1	Ventura I-2
min	1.6	2.0	3.0
10	2.5	3.6	3.3
25	4.2	7.1	6.1
50	7.5	15.1	11.9
75	13.4	32.0	23.3
90	22.8	63.1	42.8
max	60.7	61.0	72.0



Zinc, total (ug/L)			
	Montgomery	Ventura R-1	Ventura I-2
min	15	26	67
10	20	51	72
25	29	81	110
50	44	135	175
75	68	227	279
90	99	361	425
max	275	444	660



A closer review of the distribution plots shows that the runoff from the Stewart Apple Lane site is consistently cleaner than the runoff from either the Ortega Street or Swan Street sites. There are various reasons why this may be the case including

- Difference in annual rainfall amounts
- Difference in impervious area
- Difference in stormwater management programs

To assess the relationship in rainfall and runoff concentrations the arithmetic means of the constituents shown above were compared between Montgomery and R-1. The hypothesis is that the runoff concentrations are inversely related to the amount of annual rainfall. This hypothesis is consistent with the theory that pollutants build up between rain events and wash off during the event. On an annual basis if all things being equal the load from the two counties would be similar. The comparison is shown below:

Constituent	**Units**	**Runoff means**		**Ratio**
		Montgomery	**Ventura (R-1)**	**(Mont/Ven)**
TSS	mg/L	44	135	.33
TKN	mg/L	0.8	3.8	.21
Total P	mg/L	0.13	0.40	.33
Cadmium	ug/L	0.22	.81	.27
Copper	ug/L	28.5	23.2	1.23
Lead	ug/L	7.5	15.1	.50
Zinc	ug/L	44	135	.33
Annual Rainfall	inches	46.4	15.35	.33 (Ven/Mont)

Although this comparison is relatively elementary a review of the ratio would suggest that the rainfall concentrations are related to the annual rainfall amount. A more sophisticated analysis is necessary to conclusively validate this hypothesis but for the purposes of this level of comparison the hypothesis appears valid.