To: Members of the Facility and Plan Review Subcommittee

Los Angeles County Solid Waste Management Committee/

Integrated Waste Management Task Force

From: Chuk Agu, staff

POTENTIAL REVISIONS TO CHAPTER 5 OF THE LOS ANGELES COUNTY COUNTYWIDE SITING ELEMENT

Recognizing the complexity, sensitivity, and uncertainty of issues in Chapter 5 (Alternative Disposal Technologies) including the definition, distinction, and categorization of transformation and conversion technologies, we are seeking Subcommittee guidance on how Chapter 5 should be structured. Attached is a proposed table of contents which we will be discussing at the November 16, 2006, Subcommittee meeting. Based on input received from the Subcommittee, we will prepare a preliminary draft of Chapter 5 and submit it to the Subcommittee for review and approval.

If you have any questions, please contact me at (626) 458-3556, Monday through Thursday, 7 a.m. to 5:30 p.m.

NH/CA:

Attach.

CHAPTER 5 – ALTERNATIVE DISPOSAL TECHNOLOGIES **DEFINITION OF TERMS** 5.1.1 Combustion 5.1.2 Conversion Technologies 5.1.3 Incineration 5.1.4 Transformation 5.1.5 Waste-to-Energy 5.24 INTRODUCTION AND PURPOSE 5.24.1 Introduction 5.24.2 Purpose 5.32 COMBUSTION FACILITIES SOLID WASTE DISPOSAL FACILITIES 5.2.1 Landfill Facilities 5.2.2 Transformation Facilities 5.3.1 Incineration 5.3.1.1 Fluidized Bed Combustion Systems 5.3.1.2 Mass-Fired Combustion Systems 5.3.1.2.1 Commerce Refuse-to-Energy Facility 5.3.1.2.2 Southeast Resource Recovery Facility 5.3.1.3 RDF-Fired Combustion Systems 5.3.1.4 Rotary Cascading Bed Combustion Systems 5.3.2 Biomass Conversion (Combustion) Facilities CONVERSION TECHNOLOGIESALTERNATIVE SOLID WASTE 5.<u>4</u>3 **DISPOSAL TECHNOLOGIES** 5.43.1 Thermal Conversion Processes 5.3.1.1 Combustion Systems (Waste-to-Energy) 5.43.1.12Pyrolysis Systems

5.43.1.32Gasification Systems

5.4.1.2.1 Fixed Bed Gasification System5.4.1.2.2 Fluid Bed Gasification System

5.4.1.2.3 Plasma Arc Gasification System

	5.4.1.2.5 Plasma Arc Gasilication System					
	5.43.2 Biological/Chemical Conversion Processes					
	5.4.2.1 Anaerobic Digestion 5.4.2.2 Aerobic Digestion					
	5.3.2.1 Biosolids Injection Technology 5.3.2.2 Hydrocarb Gasification					
	5.4.3 Chemical/Other Conversion Processes					
	5.4.3.1 Acid Hydrolysis 5.4.3.2 Thermal Depolymerization (TDP)					
	5.3.3 Economic and Environmental Issues Relating to Transformation Technologies					
<u>5.5</u>	TASK FORCE EFFORTS AND THE SOUTHERN CALIFORNIA					
	CONVERSION TECHNOLOGY DEMONSTRATION PROJECT					
5. <u>6</u> 4	ALTERNATIVE METHODS FOR EXTENDING THE LIFE OF EXISTING CLASS III LANDFILLS					
	 5.64.1 Use of Alternative Daily Cover Materials 5.64.2 Biostabilization/Leachate Recirculation 5.64.3 Landfill Mining/Reclamation 5.64.4 Balefills 5.64.5 Shredfills 5.64.6 Waste Compaction 5.64.7 Exclusion of Specific Waste Streams Inert Solid Waste From Class III Landfills 5.64.8 Bioreactor Landfills Exclusion of Biosolids from Class III Landfills 5.6.9 Waste Autoclaves 					
<u>5.7</u>	ECONOMIC AND ENVIRONMENTAL ISSUES					
<u>5.8</u>	TABLES AND FIGURES					
	Figure 5-1 Commerce Refuse-to-Energy Facility Schematic Process <u>Diagram</u>					
	Figure 5-2 SERRF Refuse-to-Energy Facility Schematic Process <u>Diagram</u>					

Figure 5-3 Typical Conversion Technology Process Diagram

Working Draft For Discussion Only

- Table 5-1 Environmental Comparisons of Developing Technologies Table 5-2a Summary of Statistics for Developing Technologies (per ton quantities relate to raw MSW, Metric units) Table 5-2b Summary of Statistics for Developing Technologies (per ton quantities relate to raw MSW, English units) Table 5-3 Bailing Analysis Procedure Figure 5-1 Commerce Refuse-to-Energy Facility Schematic Process **Diagram** Figure 5-2 SEMASS Schematic Process Diagram Figure 5-3 Schematic Diagram of Batchfed Vertical Fixed Bed Gasifier Figure 5-4 Robbins Flow Diagram Figure 5-5 Biomass Gasification/Battelle High Throughput Gasification Systems Process Diagram Figure 5-6 Proler SynGas Schematic Process Diagram
- Figure 5-7 Thermoselect Schematic Process Diagram
- Figure 5-8 Biosolids Injection Technology
- Figure 5-9 Hydrocarb Process Block Diagram



Proposed Table of Contents

CHAPTER 5 – ALTERNATIVE TECHNOLOGIES

5.1	DFF	FINITION	I OF :	TFRMS
-----	-----	----------	--------	-------

- 5.1.1 Combustion
- 5.1.2 Conversion Technologies
- 5.1.3 Incineration
- 5.1.4 Transformation
- 5.1.5 Waste-to-Energy

5.2 INTRODUCTION AND PURPOSE

- 5.2.1 Introduction
- 5.2.2 Purpose

5.3 COMBUSTION FACILITIES

- 5.3.1 Incineration
 - 5.3.1.1 Fluidized Bed Combustion Systems
 - 5.3.1.2 Mass-Fired Combustion Systems
 - 5.3.1.2.1 Commerce Refuse-to-Energy Facility
 - 5.3.1.2.2 Southeast Resource Recovery Facility
 - 5.3.1.3 RDF-Fired Combustion Systems
 - 5.3.1.4 Rotary Cascading Bed Combustion Systems
- 5.3.2 Biomass Conversion (Combustion) Facilities

5.4 CONVERSION TECHNOLOGIES

- 5.4.1 Thermal Conversion Processes
 - 5.4.1.1 Pyrolysis Systems
 - 5.4.1.2 Gasification Systems
 - 5.4.1.2.1 Fixed Bed Gasification System
 - 5.4.1.2.2 Fluid Bed Gasification System
 - 5.4.1.2.3 Plasma Arc Gasification System

	5.4.2	Biological	Conversion	Processes
--	-------	------------	------------	------------------

- 5.4.2.1 Anaerobic Digestion
- 5.4.2.2 Aerobic Digestion
- 5.4.3 Chemical/Other Conversion Processes
 - 5.4.3.1 Acid Hydrolysis
 - 5.4.3.2 Thermal Depolymerization (TDP)
- 5.5 TASK FORCE EFFORTS AND THE SOUTHERN CALIFORNIA CONVERSION TECHNOLOGY DEMONSTRATION PROJECT
- 5.6 ALTERNATIVE METHODS FOR EXTENDING THE LIFE OF EXISTING CLASS III LANDFILLS
 - 5.6.1 Use of Alternative Daily Cover Materials
 - 5.6.2 Biostabilization/Leachate Recirculation
 - 5.6.3 Landfill Mining/Reclamation
 - 5.6.4 Balefills
 - 5.6.5 Shredfills
 - 5.6.6 Waste Compaction
 - 5.6.7 Exclusion of Specific Waste Streams From Class III Landfills
 - 5.6.8 Bioreactor Landfills
 - 5.6.9 Waste Autoclaves
- 5.7 ECONOMIC AND ENVIRONMENTAL ISSUES
- 5.8 TABLES AND FIGURES
 - Figure 5-1 Commerce Refuse-to-Energy Facility Schematic Process Diagram
 - Figure 5-2 SERRF Refuse-to-Energy Facility Schematic Process Diagram
 - Figure 5-3 Typical Conversion Technology Process Diagram