SUNSHINE CANYON LANDFILL

SCL - LEA

LOCAL ENFORCEMENT AGENCY

December 20, 2017

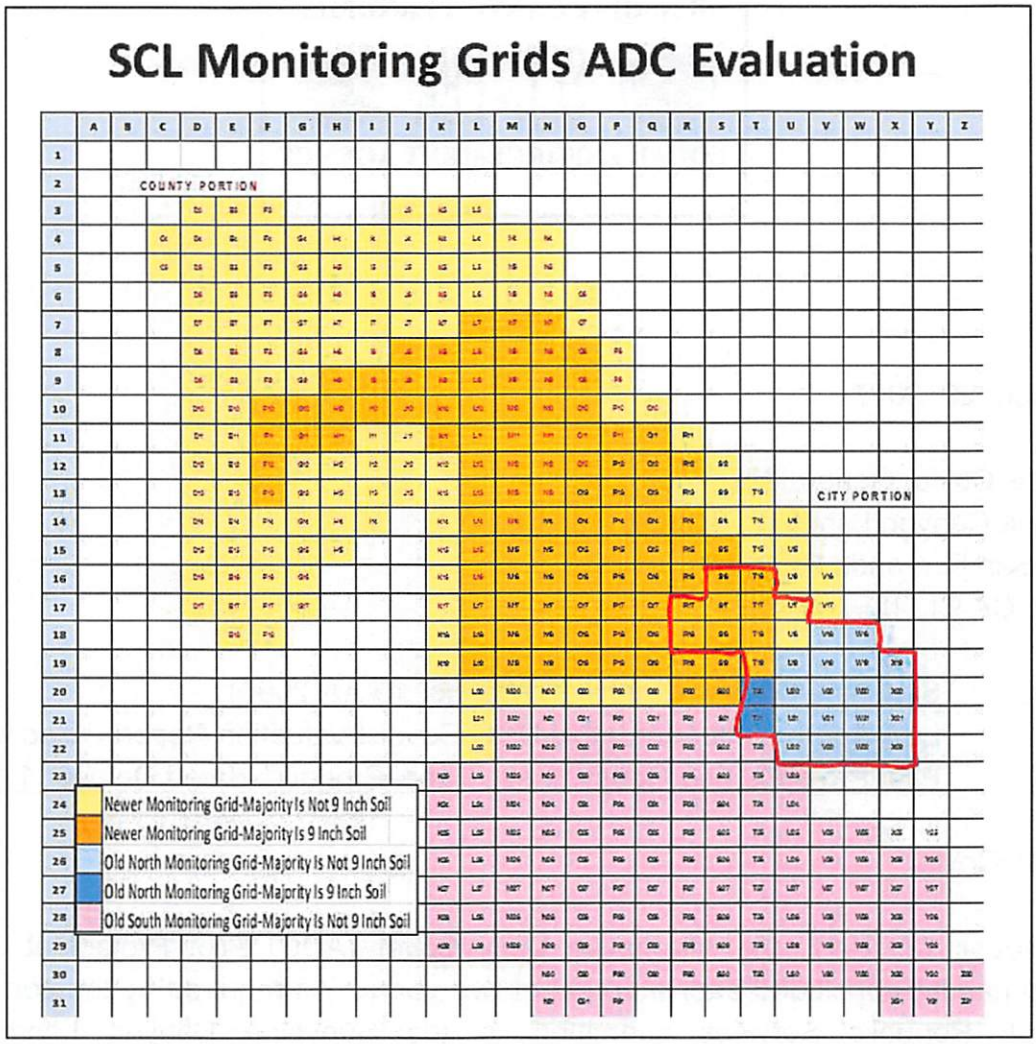
Mr. Chris Coyle, General Manager
Sunshine Canyon Landfill / Republic Services
14747 San Fernando Road
Sylmar, CA 91342

Subject: Sunshine Canyon Landfill (SWIS No. 19-AA-2000)
LEA Approval of Alternative Daily Cover Evaluation Report – Second Year, Pilot Project Using Geosynthetic Panel Product", dated October 11, 2017

Dear Mr. Coyle,

On October 12, 2017, the Alternative Daily Cover (ADC) Pilot Project at Sunshine Canyon Landfill concluded after a period of two years. As required by the conditions of approval, Republic Services submitted to the Sunshine Canyon Landfill Local Enforcement Agency (SCL LEA) a final evaluation report titled "Alternative Daily Cover Evaluation Report – Second Year, Pilot Project Using Geosynthetic Panel Product", dated October 11, 2017. The SCL LEA has completed reviewing the evaluation report along with the submitted monthly reports on the daily inspections of the ADC and has the following comments:

The SCL LEA has conducted its own independent review and evaluation of the effectiveness of the ADC at Sunshine Canyon Landfill. The SCL LEA took a holistic systems approach in evaluating the ADC that took many factors into consideration such as: odor complaints (all complaints), the timing of the implementation of the various aspects of the SCAQMD Abatement Order (e.g., LFG wells, and pump installation schedule), weather conditions (e.g., extraordinary wet season), surface emissions data, in-person observations of the trash removed during LFG well drilling, leachate seeps, and daily SCL LEA observations. Special attention was given to the performance of the ADC for Cell CC-3B, which was completed in April 2017. Cell CC-3B is a cell that utilized ADC and abuts up against an area in which 9" of compacted soil was utilized for daily cover without peel-back (shown in figure below outlined in red).



The specific monitoring grids that comprise of the Cell CC-3B are as shown below:

CELL CC-3B ADC GRIDS						
	S16	T16				
R17	S17	T17	U17			
R18	S18	T18	U18	V18	W18	
		T19	U19	V19	W19	X19
		T20	U20	V20	W20	X20
		T21	U21	V21	W21	X21
			U22	V22	W22	X22

The SCL LEA conducted independent analysis of the instantaneous surface emissions data and the integrated surface emissions data; and conducted data mining and statistical analysis. The SCL LEA also installed visqueen test plots on the side slopes and flat areas of the ADC Cell CC-3B to supplement the surface emissions data analysis. The complete detailed technical files (Excel Spreadsheets) the SCL LEA utilized in the analysis of the ADC have been made available for review in a folder titled *"SCL LEA Odor Mitigation Technical Data and Analysis File (2017)"* at the following link:

https://www.dropbox.com/home/Sunshine%20Canyon%20Landfill%20Local%20Enforcement%20Agency%20Odor%20Mitigation%20Folder/SCL%20LEA%20Odor%20Mitigation%20Technical%20Data%20and%20Analysis%20File%20(2017)

The specific file for the SCAQMD Rule 1150.1 Analysis is titled "*SCL-Rule1150.1Monitoring-110217.xlsx*"

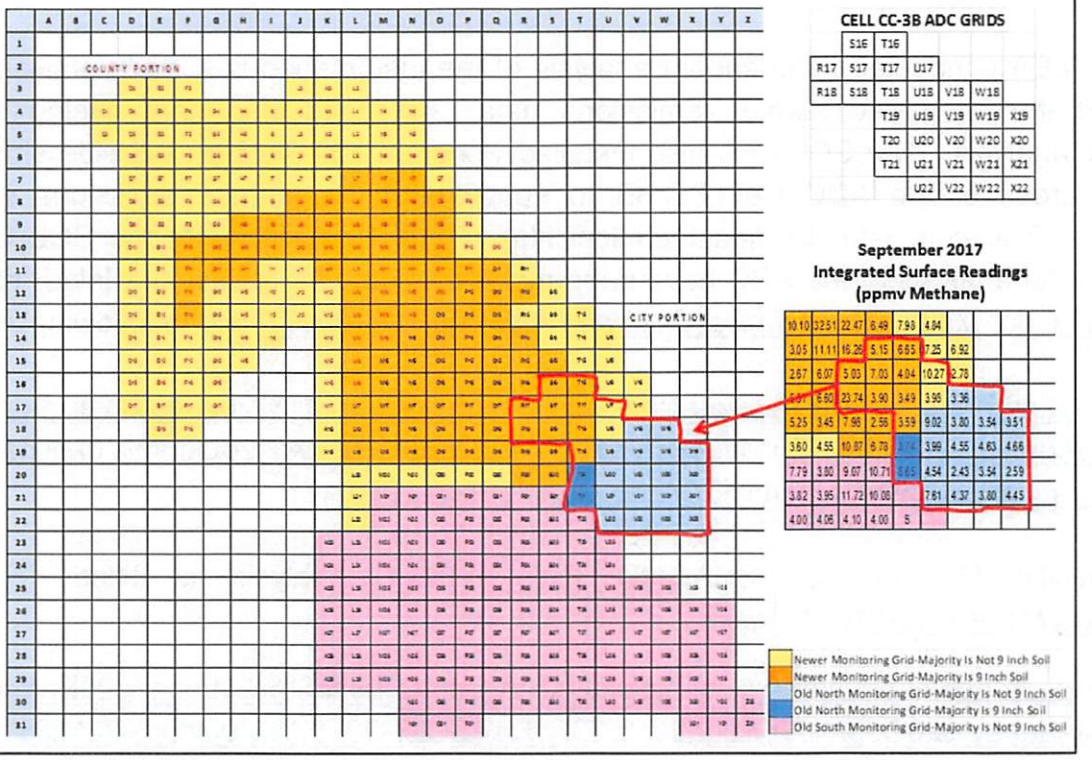
https://www.dropbox.com/home/Sunshine%20Canyon%20Landfill%20Local%20Enforcement%20Agency%20Odor%20Mitigation%20Folder/SCL%20LEA%20Odor%20Mitigation%20Technical%20Data%20and%20Analysis%20File%20(2017)?preview=SCL-Rule1150.1Monitoring-110217.xlsx

Examples of key findings made by the SCL LEA are based on detailed technical analysis, the key analysis are described below:

The general trend after the LFG wells and pumps that were installed (August 2017) for the integrated surface readings in the grids that overlay Cell CC-3B are in compliance with the regulatory requirements, whereas in the past, there were exceedances of the surface emissions threshold (>25 ppm). The SCL LEA is continuously monitoring on a monthly basis the surface emissions data reported in the SCAQMD Rule 1150.1 reports.

The figures below show the overall location of the monitoring grids with the integrated surface emissions data for September 2017. The spreadsheet / database will be periodically updated and analyzed by the SCL LEA to determine the continued impact of the ADC within the context of being one of the complementary mitigations measures with the totality of the overall best combination of mitigation measures.

SCL Monitoring Grids ADC Evaluation



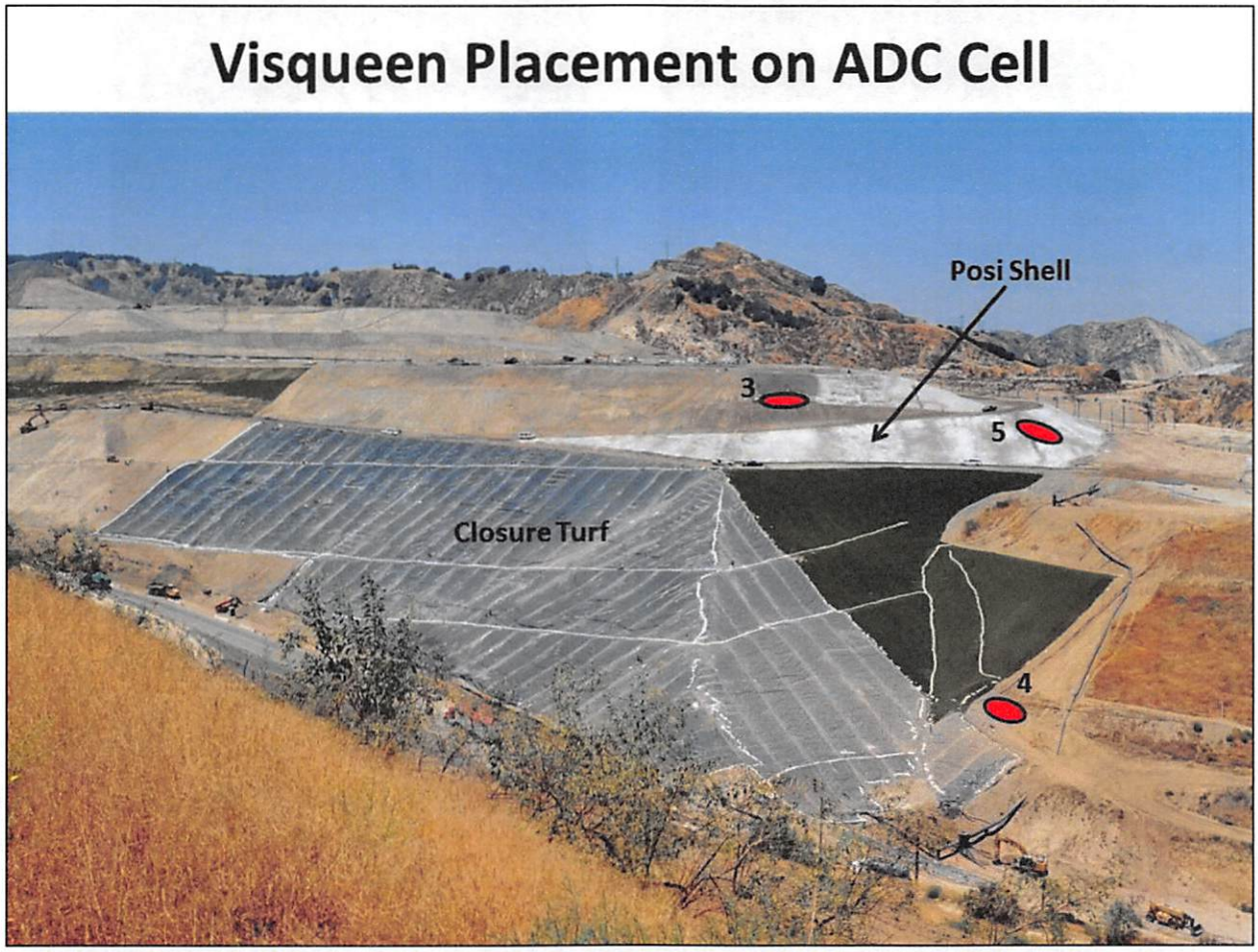
September 2017 Cell CC-3B (ADC Cell) Integrated Surface Readings (ppmv Methane)

10.10	32.51	22.47	6.49	7.98	4.84				
3.05	11.11	16.26	5.15	6.65	7.25	6.92			
2.67	6.07	5.03	7.03	4.04	10.27	2.78			
5.37	6.60	23.74	3.90	3.49	3.98	3.36			
5.25	3.45	7.98	2.56	3.59	9.02	3.80	3.54	3.51	
3.60	4.55	10.87	6.78	3.74	3.99	4.55	4.63	4.66	
7.79	3.80	9.07	10.71	8.65	4.54	2.43	3.54	2.59	
3.82	3.95	11.72	10.08		7.61	4.37	3.80	4.45	
4.00	4.06	4.10	4.00	S					

Individual Grid Emissions by Month for Grids within Cell CC-3B

Newer Monitoring Grid-Majority Is Not 9 Inch Soil
Newer Monitoring Grid-Majority Is 9 Inch Soil
Old North Monitoring Grid-Majority Is Not 9 Inch Soil
Old North Monitoring Grid-Majority Is 9 Inch Soil
Old South Monitoring Grid-Majority Is Not 9 Inch Soil

In order to provide a more real-time physical observable evaluation of the impact of the ADC, the SCL LEA utilized a visqueen field test (as previously done to demonstrate surface emissions) at multiple locations on the ADC Cell CC-3B. The visqueen was installed and the tests ran for a period of two weeks in October 2017.



The SCL LEA evaluation of the ADC utilized in Cell CC-3B also had to take into consideration the implementation of the intermediate cover enhancement (ICE) upgrades mandated by the SCAQMD Abatement Order. Three locations for installing the visqueen were selected on the ADC cell (Location ID# 3, #4, and #5); locations representing the locations most likely to have surface emissions (e.g., steepest slope (#5), transition border area (#4), and in an area that had no enhancement to the intermediate cover (#3).

No "puffing" in the visqueen was observed over a period of two weeks. Also, no leachate seeps were observed by the SCL LEA.

The odor complaint data, which is tracked by SCAQMD, is one of the primary measures utilized by the SCL LEA in determining the overall impact of the ADC and other mitigation measures implemented by the Sunshine Canyon Landfill. The SCL LEA looks at each and every single complaint (not just the verified ones) in its data mining / analysis. SCAQMD data is provided to the SCL LEA staff and the data is loaded onto a database/spreadsheet that looks at the type of complaint (e.g., trash, landfill gas, combination, other, etc.), the time of day, day of week, etc. Data mining and correlative analysis are conducted as part of the SCL LEA evaluation process.

Odor complaints for the key months in 2017 after the completion of the ADC Cell CC-3B and after the majority of the mitigation measures were implemented, were compared to pre-ADC operations/pre-mitigation measure implementation. The comparison shows a significant decrease of odor complaints. The decrease cannot be totally attributed to the implementation of the ADC or the ICE. It is the result of all of the mitigation measures of which the ADC is one. The ADC is designed to complement other programs in which the primary purpose is to improve the overall collection efficiency of the landfill gas collection system. The ADC improves trash-to-trash contact, and enhances movement of LFG

toward the collection wells, and also allows drainage of leachate to the leachate collection system at the bottom liner.

The detailed complaint analysis can be found in several files within the folder named *"SCL LEA Odor Mitigation Technical Data and Analysis File (2017)"* (link provided above).

Below is the SCAQMD data on odor complaints:

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
Sunshine Canyon Landfill, Facility ID No. 49111
Odor Complaints Reported to AQMD Alleging SCL; and Notices of Violation (NOV) Summary from 2009 through November 30, 2017
Public Nuisance: AQMD Rule 402; Calif. H&S 41700

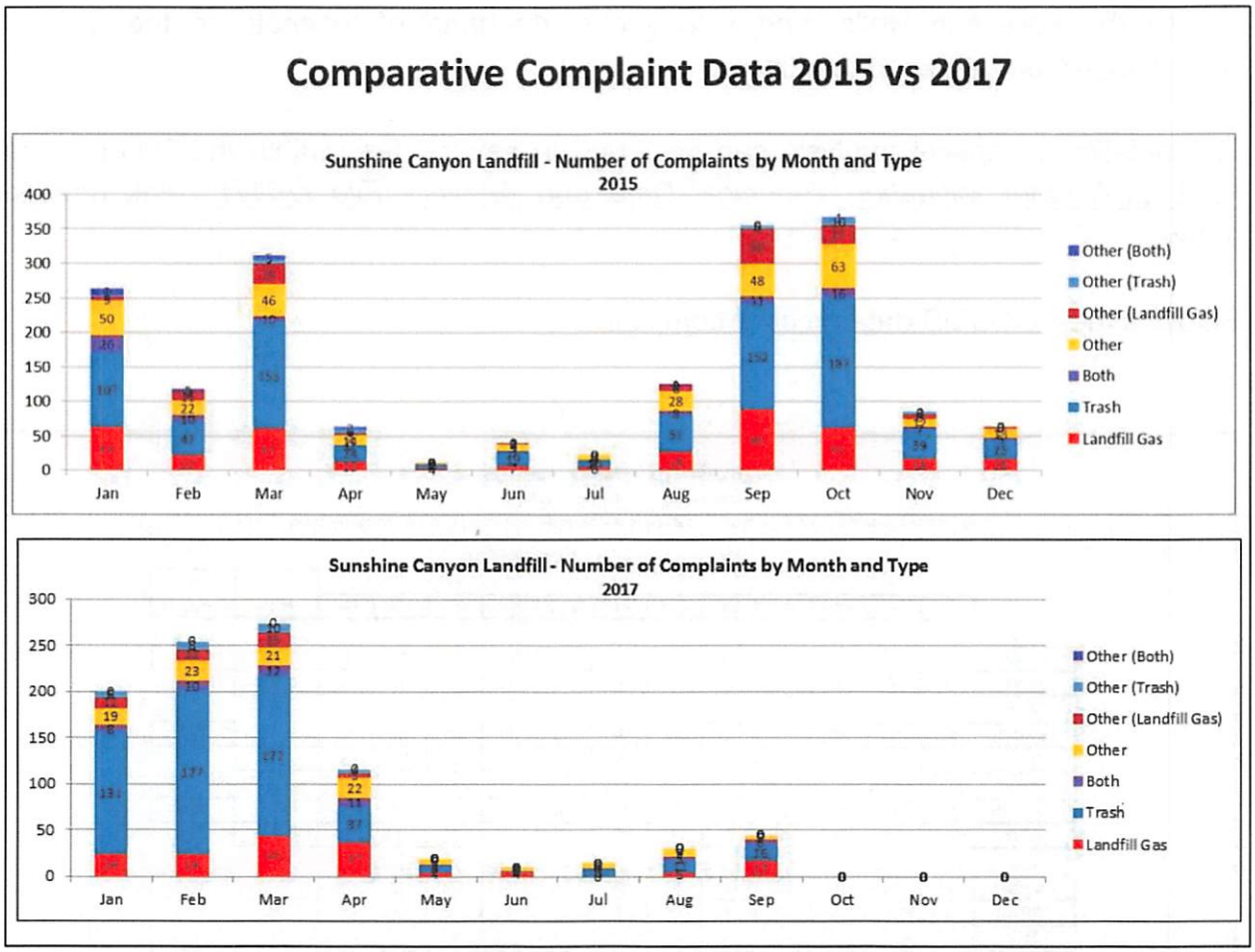
	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec	Total NOVs	Total Complaints
2010														
Complaints	64	94	93	56	21	5	13	33	40	39	76	79		613
NOVs	1	2	0	1	0	0	0	0	0	0	0	2	6	
2011														
Complaints	138	173	222	99	92	45	36	138	181	191	126	124		1565
NOVs	2	4	7	2	1	0	0	2	2	3	3	4	30	
2012														
Complaints	163	104	66	129	97	55	113	140	216	171	92	139		1485
NOVs	5	1	1	2	2	1	2	2	4	3	2	4	29	
2013														
Complaints	82	108	112	112	46	62	65	97	136	176	93	72		1161
NOVs	0	1	2	2	0	1	0	0	2	3	3	1	15	
2014														
Complaints	32	37	164	122	52	28	83	81	302	223	80	278		1482
NOVs	0	0	4	5	1	0	2	4	6	5	3	7	37	
2015														
Complaints	260	119	297	60	12	41	23	126	337	370	85	65		1795
NOVs	5	3	7	2	0	0	0	2	11	7	2	0	39	
2016														
Complaints	100	188	185	181	30	74	52	85	206	193	208	59		1559
NOVs	2	4	6	5	0	1	1	1	2	4	4	1	31	
2017														
Complaints	200	254	274	116	19	10	14	30	44	27	22			1010
NOVs	6	7	6	1	0	0	0	0	0	0	0		20	

Total R402 NOVs Issued to Date		
Total Complaints *		10,983
Total R402 NOVs Issued **	214	

* Includes 313 Complaints from 2009
** Includes 7 NOVs from 2009
December 5, 2017

Page 1 of 2

The SCL LEA conducts extensive analysis on the data mining files to independently evaluate the number of odor complaints and the details associated with each compliant. Below is a figure comparing the number and type of odor complaints during the pre-ADC (2015) and post-ADC implementation (2017) time periods. The SCL LEA will be continuing to update the odor complaint data from SCAQMD and also update the data mining and statistical analysis.



Note: October 2017 had 27 complaints, and November 2017 had 22 complaints

As part of the SCL LEA's normal daily duties at Sunshine Canyon Landfill, the onsite LEA inspector would inspect the ADC in the morning prior to the start of operations for compliance with the performance standards for controlling blowing litter, vectors, fires, odor and scavenging. The onsite LEA inspector would conduct a neighborhood survey prior to entering the landfill to determine if they could detect any adverse effects from the use of the ADC at the site. The daily inspection results did not detect any major problems with the ADC. Initially when the pilot project began, there were a couple of occasions when a geosynthetic panel was dislodged due to heavy winds. The landfill operator made adjustments to the Enviro Cover System so that additional ballast was applied each night to the geosynthetic panels. In addition, to ensure that the trash is properly covered each night, the ADC is not used during extreme wind events. A full dirt cover was utilized during these events.

Based on the above analysis and the review of Republic Services final evaluation report, the SCL LEA has made the following determinations:

(1) The SCL LEA has determined that the geosynthetic plastic panel ADC product meets the performance requirements of Title 27, California Code of Regulations,

Section 20690 for controlling blowing litter, vectors, fires, odor and scavenging and is as effective as the nine inches of compacted soil; and

(2) The SCL LEA has determined that the use of the geosynthetic plastic ADC enhances/improves the overall efficiency of the landfill gas collection system in the measurable control of landfill gas emissions; and

(3) The SCL LEA has determined that there is sufficient technical documentation and based upon field observations of the spoils from the drilling of the gas collection wells and the improved landfill gas collection rates to concur with SCAQMD's recommendation to the continued practice of partially peeling back the nine inches of compacted daily soil cover when the landfill is not able to use the ADC. This will improve the overall performance of the leachate collection system, the landfill gas collection system and reduce landfill gas and trash related odors.

Therefore, the SCL LEA concurs with Republic Services conclusion that the geosynthetic panel product (Environmental Products, Inc. (EPI), Enviro™Cover, 1.75 mil thickness) can continue to be used as an ADC at Sunshine Canyon Landfill as part of its daily operations. However, in order to make it a permanent practice, Republic Services is required to amend the Joint Technical Document to reflect this activity.

All associated technical data analysis files used in our analysis have been loaded onto the SCL LEA / Sunshine Canyon Landfill Sharefile FTP site and are also accessible via our SCL LEA website: www.scllea.org

If you have any questions, please contact me at 213-252-3932 or Ms. Dee Lugo at 626-430-5540.

Sincerely,

David Thompson, REHS
SCL LEA Program Manager

Cc: Maurice Pantoja, SCLLEA
Dee Lugo, SCLLEA
Jose Gutierrez, SCLLEA
Wayde Hunter, SCL CAC
Nicholas Sanchez, SCAQMD
Martins Aiyetiwa, DPW
Rob Sherman, Republic Services