ODOR IMPACT MINIMIZATION PLAN

Miramar Greenery

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Prepared for:
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ODOR IMPACT MINIMIZATION PLAN
Miramar Greenery

Recently amended California Integrated Waste Management Board (CIWMB) regulations (April 4, 2003) Title 14, CCR Section 17863.4 require that all compostable material handling operations and facilities prepare and maintain a site-specific Odor Impact Minimization Plan (OIMP). The following OIMP has been developed to assist the Miramar Greenery in complying with these regulations.

Project Name:	Miramar Greenery
Mailing Address:	9601 Ridgehaven Court, Suite 320 San Diego, CA 92123
Landowner:	US Navy, Southwest Division NAVFACENGCOM P.O. Box 727 San Diego, CA 94066
Project Contacts:	John Theroux City of San Diego Environmental Services Department 9601 Ridgehaven Court, Suite 320 MS1103B San Diego, CA 92123 858-573-1284
Regulatory Contacts:	Bill Prinz City of San Diego Development Services Department 1010 Second Avenue, Suite 600, MS606L San Diego, CA 92101-4998 619-533-3696/619-533-3688
Odor Complaints:	Miramar Landfill Operations Office (working hours) (858) 573-1410 Station 38 Dispatch Center (non-working hours) (619) 527-7660

The following provides specific information on compliance with §17863.4 (b) – (d). The text from Title 14 is presented in *italics* followed by the Miramar Greenery's proposed method of compliance.

(b) Odor impact minimization plans shall provide guidance to on-site personnel by describing, at a minimum, the following items. If the operator will not be implementing any of these procedures, the plan shall explain why it is not necessary.

ODOR MONITORING PROTOCOL

(1) an odor monitoring protocol which describes the proximity of possible odor receptors and a method for assessing odor impacts at the locations of the possible odor receptors; and

The closest receptors will be facility staff and management who will be on-site daily monitoring the status of the facility. Each day, the operator will evaluate on-site odors and evaluate planned operations for potential release of objectionable odors. Operational practices will be implemented to minimize the release of objectionable odors These include good composting practice as described in the Report of Composting Site Information (appropriate C:N ratio, sufficient moisture content, adequate aeration and/or turning, etc.) to minimize production and persistence of odors; good housekeeping measures (like clearing spilled materials between windrows, eliminating areas where water could pond, and maintaining reasonably sized stockpiles of feedstock and finished compost).

If the operator detects an objectionable on-site odor, they will follow the following protocol:

1. Investigate and determine the likely source of the odor.

2. Determine if on-site management practice could remedy the problem and immediately take steps to remedy the situation. An example of possible sources and likely management actions is shown in Appendix B.

3. Determine whether or not the odor is traveling beyond the site by patrolling the site perimeter and noting existing wind conditions.

4. Determine whether or not the odor event (or potential odor event) is significant enough to warrant contacting the adjacent neighbors and/or the LEA.

5. Log the odor source and corrective actions taken in the Site Operations Log.

The Miramar Greenery currently occupies a graded, unpaved area of approximately 29.46 acres located on an inactive portion of the Miramar Landfill known as West Miramar Phase I. The site is located on the City-leased area on the southern portion of MCAS Miramar, North of SR 52, East of I-805 and West of I-15. The nearest off-site receptors are approximately 1.3 miles from the site.

To the North – 2.1 miles to flight line at MCAS Miramar, 2.2 miles to housing
To the East – 4.0 miles to housing
To the West – 1.9 miles to industrial/business locations, 2.4 miles to housing
To the South – 1.3 miles to industrial/business locations, 2.1 miles to housing

Note: There is a commercial greenery and compost operation approximately 1.0 miles to the northwest that will be in position to initially detect any odors but could also be a potential source. Other potential odor sources include the Metropolitan Waste Water Treatment Facility located .5 miles south of the facility and the landfill disposal area located approximately .6 miles west of the facility.

DESCRIPTION OF METEOROLOGICAL CONDITIONS

(2) a description of meteorological conditions effecting migration of odors and/or transport of odor causing material off-site. Seasonal variations affect wind velocity and direction shall also be described; and

Historical wind data indicate moderate winds from most directions, though the predominant winds are from the west and west north west. See Appendix (A) for complete, specific wind breakdown. During the later part of the year Santa Anna wind conditions, when the wind blows from the east and temperatures are warmer on the coast than inland, may occur. As housing is closer in this direction than in general when the winds are from the west, the presence of odors will be carefully monitored. Should aerating the windrows become necessary, careful consideration of material moisture content and odor will be given in the event winds exceed 25 mph.

The San Diego region generally experiences relatively low annual rainfall; in the range of 10" to 12" per year. In the event of an extended rain event (25 or 100 year storm), excessively wet conditions may postpone the regular turning of windrows. This delay between aeration could cause the windrows to attain an anaerobic condition which

could indicate the possibility of odors. In this case, care will be taken to turn the windrows when the wind is out of the west/southwest to allow a wide buffer zone between the potential odor source and the nearest housing.

COMPLAINT RESPONSE PROTOCOL

(3) a complaint response protocol; and

Facility management will use the following protocol in responding to citizen complaints.

Response to Citizen Complaints

It is expected that the majority of complaints will be received, not by the operator, but by the LEA.

1. Should the LEA receive a complaint, they will notify the operator as soon as possible. During working hours this will be the Landfill Operations office at (858) 573-1410 and the City of San Diego Station 38 Dispatch Center at (619) 527-7660 after working hours.

2. Should the operator receive the complaint, they will log the event and the response for later LEA review. The LEA (if available) and the Operator will go to the location of the complaint to verify that the Greenery is indeed the source of the odor and will attempt to characterize the odor so that they can trace the odor back to a specific operational phase of the Greenery.

3. The Operator will document the complaint(s) in the Site Operations Log.

4. The Operator will assess the complaint and the nature of the source of the odor complaint and will make a recommendation to the LEA within 24 hours of receiving the complaint or 48 hours should the citizen complaint be received weekends or holidays.

5. The Operator will implement one or more of the management practices (depending on the particular source of odor and the time of year) listed in Table 1.
6. The Operator will contact the complainant (if known) after the corrective action is taken to assess success of the action. If necessary, the Operator, LEA, and complainant (if choosing to participate) will meet within a reasonable time frame to assess the original problem and result after each compliant.

7. Results and actions will be documented in the Site Operations Log, which serves as the Facility's permanent record.

DESIGN CONSIDERATIONS FOR MINIMIZING ODORS

(4) a description of design considerations and/or projected ranges of optimal operation to be employed in minimizing odor, including method and degree of aeration, moisture content of materials, feedstock characteristics, airborne emission production, process water distribution, pad and site drainage and permeability, equipment reliability, personnel training, weather event impacts, utility service interruptions, and site specific concerns; and

The facility was designed as a traditional turned windrow composting operation utilizing natural aeration, enhanced by the porosity provided by feedstock particle size and regular turning to reestablish pile porosity. Water is added to the initial composting mix and as needed during the composting process. Water is also used to minimize airborne emission production. Minimizing dust transport (and other airborne emissions) reduces odor molecule transport significantly.

The facility uses a Scarab windrow turner for material incorporation (initial mixing) and for re-establishing porosity within the windrows.

Employee Training. ESD staff provides regular training to new and existing employees. Monthly safety meetings are conducted and documented.

Emergency Provisions. The majority of the processing equipment is portable and diesel powered. During major equipment breakdowns, back-up equipment (such as grinding) can be contracted.

Water Source. The facility has an on-site well for process water.

OPERATING PROCEDURES TO MINIMIZE ODOR

(5) a description of operating procedures for minimizing odor, including aeration, moisture management, feedstock quality, drainage controls, pad maintenance, wastewater pond controls, storage practices (e.g., storage time and pile geometry), contingency plans (i.e., equipment, water, power, and personnel) weather impacts, biofiltration, and tarping.

The Greenery is operated to manage all odor-producing areas of the facility so as to minimize the development of conditions.that could lead to off-site odor problems.

Areas of potential concern for odors include:

Feedstock Receiving Area. Incoming feedstocks can generate odors if they are stored for excessive periods of time prior to being collected and transported to the site. Feedstocks left unprocessed at the site can also generate significant odors, particularly during the rainy season. In order to minimize these potential odors, The Greenery will process material regularly and within regulatory limits. Most incoming feedstock will be processed within 48 hours of receipt. In the event noxious loads of material are received they will be processed as soon as possible to address odors. Because of facility throughput requirements, equipment such as the grinder may operate daily. All green waste materials will be scheduled for processing within 7 days. The Greenery currently contains two fully functional grinders, making the possibility that both will be non-functional at the same time unlikely. In the event that both grinders are expected to be inoperable concurrently for extended periods of time, ESD will lease a back-up grinder to continue operations.

Aisles between Windrows. Windrow aisles can be sources of odor if raw, un-composted material is left for excessive amounts of time without being exposed to the high temperatures of composting. The facility will practice good housekeeping methods which include regular patrolling of windrow aisles to clean any spilled materials. Windrow aisles can also be a source of odor if stormwater or process water is allowed to pond in potholes or other pad depressions. Any standing water that is discovered will be absorbed with chipped material (or other absorbent) and the depression will be filled with pad material (typically dirt or clay).

Windrows. Odors emanating from windrows typically indicate problems in the initial mixing, turning frequency, pile porosity and/or moisture content of the pile. The Greenery strives to create windrows with appropriate carbon to nitrogen level (approximately 30:1 to start), adequate initial mixing and with adequate moisture (45% to 60%) within the windrows. Windrows will be turned regularly on a prescribed (approximately twice per week for the first five turns and as windrow core temperatures dictate to follow) schedule. Any odors detected from the windrows will be corrected using one or more of the techniques described in Table 1.

Curing piles. Curing piles have the potential to create odors if material that is not stable is moved to curing too soon, or if the pile is made too high (above 12 feet). The

Greenery only moves compost into curing piles that has undergone thorough decomposition and is ready for curing. All curing piles will be maintained at or below 12 feet in height.

The relatively remote location of the facility will also minimize the potential for off-site odors.

PLAN REVISION

(c) The odor impact minimization plan shall be revised to reflect any changes, and a copy shall be provided to the enforcement agency, within 30 days of those changes.

A copy of the Miramar Greenery Odor Impact Minimization Plan will be kept at Greenery Administration office as well as at the City of San Diego Environmental Services offices. The OIMP will be revised within 30 days to reflect significant changes to operations that affect the OIMP. The plan will be reviewed at a minimum of once yearly on the anniversary of its approval and any necessary changes and updates will be made.

Appendix A
WIND INFORMATION

Historical wind speed and direction follows:

Annual Wind Data - MCAS Miramar
6:00 AM - 6:00 PM

DIRECTION	% OF TIME	AVERAGE SPEED
N	4.1	3.4
NNE	1.7	3.8
NE	1.7	4.1
ENE	3.5	3.7
E	8.8	3.6
ESE	3.6	3.8
SE	2.3	4
SSE	2.5	4.5
S	3.7	4.7
SSW	3.9	5.4
SW	4.3	5.5
WSW	4.4	5.1
W	9	5.6
WNW	11.4	5.9
NW	10.1	5.6
NNW	6	4.2
CALM	19.2	0

Appendix B

Sources of Odor and Possible Management Techniques

Source of Odor	Possible cause	Management Approach
Feedstock receiving	Material sitting too long prior to processing	Expedite material processing. Increase grinding capacity Increase operating shifts Reduce incoming throughput Find alternative material outlets First in, first out processing Reduce size of material stockpiles Create discreet stockpiles with greater surface to volume ratio Consider blanketing odiferous materials with a one foot layer of woody overs (water lightly to reduce odor releases)
Feedstock receiving	Material arrives with odors	Increase collection frequency Consider blending wood waste and green waste to increase overall porosity First in, first out processing
Material Processing (Grinding)	Grinding volatizes particles	Reduce grinding activity during stagnant air conditions Reduce grinding activity when wind is in direction of nearby receptors Mist water or neutralizer at dust generation points

Appendix B (Con't)
Odor Sources and Possible Management Techniques

Material Processing (Screening)	Screening volatizes particles	Reduce screening activity during stagnant air conditions Reduce screening activity when wind is in direction of nearby receptors Mist water or neutralizer at dust generation points
Material Handling (Windrows)	Material handling releases odorous gases, anaerobic conditions can form odorous compounds. Ammonia odor (high nitrogen level) Sulfur odor (anaerobic conditions) Varying odors in pile Odors generated after turning Excessive temperature	Reduce handling activities during stagnant air conditions Create windrows which are sufficiently blended Turn regularly to re-establish porosity Maintain adequate moisture in windrows Avoid over-watering windrows Increase surface to volume ratios of active windrows. Increase turning frequency, check temperatures, check pH, increase porosity, and/or add bulking agent. Measure oxygen/CO^2 content regularly to determine oxygen levels Make piles on a one foot bed of screened overs to increase air flow
Aisles	Stormwater allowed to pond Uncomposted material in aisles	Absorb ponded water with wood chips/other absorbent, fill pothole. Clean aisles of spilled material. (particularly at the end of each day) Remove and replace woody overs and spilled material from unpaved areas on a regular basis. Mechanically sweep paved areas at the end of each shift. Apply water and/or neutralizer to reduce dust during dry conditions
Curing piles	Excessive temperatures	Decrease pile size (height), increase windrow time prior to

Appendix B (Con't)
Odor Sources and Possible Management Techniques

		moving to curing