

Composting: Compliance Guidance

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Solid Waste Unit

16th Annual EPAZ Conference

March 5, 2020



- Composting: The Basics
- Regulatory Requirements
- Benefits & Risks
- Best Management Practices (BMPs)



What Is Composting?

- A soil amendment that is created from the decomposed remains of organic material.
- When organic materials such as yard waste, food scraps, and animal waste decompose in aerobic conditions, compost is created.



- 3 basic ingredients





REGULATIONS

Arizona Administrative Code R18-13-312 (3)

Composting -- This method of disposal is acceptable to the Department under the following conditions:

- a. That plans and specifications and other information necessary to evaluate the project are submitted to the Department and approval received prior to start of construction.
- b. That provisions are made for the proper disposal of all refuse not considered suitable for composting.
- c. Skilled personnel shall be provided to assure the proper operation and maintenance of the facilities in a nuisance-free manner.

Do composting facilities require a solid waste permit?

Arizona Revised Statutes 49-762.07

- Owners or operators of solid waste facilities that begin operations after September 1, 1996 shall submit a notice to the director containing the following information no later than thirty days before beginning operation of a solid waste facility.

Solid Waste Requirements

DITAT DEUS



SOLID WASTE FACILITY COMPOSTING NOTIFICATION CHECKLIST

SUBMITTAL OF COMPOSTING NOTIFICATION

This checklist constitutes the outline for the solid waste facility composting notification that is required in accordance with A.R.S. §49-702. This checklist is provided as guidance for creating your notification. It is not required that you complete and submit this form with your notification, however by doing so you will be assisting ADEQ in facilitating its review.

Please note the following:

- For calculations, state any assumptions made and provide references for values and information used.
- The completeness, organization, and clarity of your submittal will assist ADEQ in facilitating its review. Please number pages, and use good editorial practices such as section headers, and a Table of Contents. Provide technical references as needed.

Use this checklist to ensure that you do not forget to include a notification component. The checklist also includes a cross-reference column in which you may note the location of the requested information in the notification submittal. This will aid ADEQ in facilitating its review, but it is not required.

The notification must receive approval from the Department, as prescribed in A.R.S. §49-702.07, 30 days prior to beginning operation of the facility. Should you have any questions regarding this process, please contact the Solid Waste Unit (SWU) at (602) 771-4136.

(Revised to Address Revised Statute (A.R.S. § 49-702.07))

- ADEQ shall not have a licensing decision, in whole or in part, on an application or condition not specifically authorized by statute or rule. General authority to enforce does not authorize a requirement or condition unless a rule is duly promulgated by the specifically authorized rule-making authority.
- Prohibited licensing decisions may be challenged in a private civil action. Relief may be awarded to the prevailing party against ADEQ, including reasonable attorney fees, damages, and all fees associated with the license application.
- ADEQ employees may not intentionally or knowingly violate the requirements for specific licensing authority. Violation is cause for disciplinary action or criminal prosecution to ADEQ's adopted personnel policy. ADEQ employees are still afforded the immunity in A.R.S. §§ 11-201.16 and 11-201.17.

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SOLID WASTE FACILITY COMPOSTING NOTIFICATION CHECKLIST

Solid Waste Facility Composting Notification Checklist

LETTER OF TRANSMITTAL	CITATION(S)	LOCATION OF MATERIAL IN NOTIFICATION
A letter of transmittal to the Department	NA	
TABLE OF CONTENTS	CITATION(S)	LOCATION OF MATERIAL IN NOTIFICATION
Instructions: Please provide a detailed Table of Contents that follows the general outline of this Notification checklist	NA	
GENERAL INFORMATION	CITATION(S)	LOCATION OF MATERIAL IN NOTIFICATION
Name of the facility	A.R.S. §49-702.07(A)(1)	
General Description of the Facility Operation - The type and a general description of the composting facility operation	A.R.S. §49-702.07(A)(2)	
Owner Information - All owners' names, addresses, and telephone numbers		
Operator Information - All operators' names, addresses, and telephone numbers		
Facility Information	A.R.S. §49-702.07(A)(3)	
<input type="checkbox"/> The physical location of the facility	A.R.S. §49-702.07(A)(3)	
<input type="checkbox"/> The mailing address of the facility	A.R.S. §49-702.07(A)(3)	
<input type="checkbox"/> The legal description of the facility by township, range, and section	A.R.S. §49-702.07(A)(3)	
<input type="checkbox"/> The county assessor's book, map, and parcel number for the land on which the facility is located	A.R.S. §49-702.07(A)(3)	
<input type="checkbox"/> The approximate size of the facility (in acres)	A.R.S. §49-702.07(A)(3)	
ADMINISTRATIVE DETERMINATIONS	CITATION(S)	LOCATION OF MATERIAL IN NOTIFICATION
Land Lease Agreements - For operators submitting a notification for land owned by another entity, provide a copy of all land lease agreements for the area on which the composting facility will be located		

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NOTIFICATION

FORM	CITATION(S)	LOCATION OF MATERIAL IN NOTIFICATION
Notification approval will have been obtained. Examples are:		
If a determination of applicability (A.C. R10-9-106), the applicant submit a copy of such a request having been approved.	A.R.S. § 49-201 A.A.C. § R10-9-106	
Aquatic protection permits in 40 Chapter 2, Article 3, the 19, or evidence of an SFP (see approval).	A.R.S. § 49-201	
A System (AEP) - If an approval for the facility under applicant shall include evidence of TPOB application, with the	A.A.C. § R10-9-1001	
OPERATIONS	CITATION(S)	LOCATION OF MATERIAL IN NOTIFICATION
Any site which clearly shows the	A.R.S. §49-702.07(A)(4)	
or facilities.	A.R.S. §49-702.07(A)(4) A.R.S. §49-702.07(A)(4) A.R.S. §49-702.07(A)(4)	
Multiple areas, clearly depicting non-		
erected structures.		
normally maintained on-site.	A.R.S. §49-702.07(A)(4) A.R.S. §49-702.07(A)(4)	
located at the facility and the		
notification not listed here.		
ask to assess the proper operation	A.A.C. § R10-11-302.1(a)	
any records, compilations, or		
approval of all refuse not contained	A.A.C. § R10-11-302.1(b)	
other surface deposits of solid	A.R.S. §49-702.07(A)(5)	

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NOTIFICATION

ITY AND OPERATIONS	CITATION(S)	LOCATION OF MATERIAL IN NOTIFICATION
IONS		
surface run-off and run-off to ensure that	A.R.S. §49-702.07(A)(1)	
solid waste from the facility so that solid waste		
does not pose an immediate and substantial		
to or the environment.		
that is deposited beyond the boundaries of the	A.R.S. §49-702.07(A)(1)	
collected on a regular basis by the operator of the		
ity and operations shall operate the facility in a	A.R.S. §49-702.07(A)(2)	
an hazardous substance as defined in applicant		
that, ground water, or subsurface soil in a		
substance or poses an immediate and substantial		
to or the environment.		
composting operations are conducted in order	A.R.S. §49-702.07(A)(5)	
to		
using of final waste into windrows		
operator for direct management which includes		
by and mixing		
solid's storage times		
multiple routing steps		
full sources of standing water		
roads of insect larvae		
humidity and temperature conditions		
with local fire department		
to vent		
ity depths or certain heights		
immediate of access roads for emergency		
from quickly placed fire control equipment		
and/or smoking		
volatile materials handled or stored on site	A.R.S. §49-702.07(A)(3)	
volatiles (in cubic yards per month)	A.R.S. §49-702.07(A)(3)	
compostable materials handled or stored on site	A.R.S. §49-702.07(A)(3)	
height of compostable material stockpiles	A.R.S. §49-702.07(A)(4)	
the receipt of compostable materials at the	A.R.S. §49-702.07(A)(4)	
composting process (i.e. the total timeframe for		
to be composted)		

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<http://www.azdeq.gov/composting>

Under A.R.S. § 49-762.07 solid waste facilities must submit to ADEQ a notice that contains the following information:

- Facility name and mailing address.
- Legal description by township, range and section and county assessor's book, map and parcel number.
- Description of waste storage and treatment equipment and methods of waste management, including types and volumes of waste handled and time the waste remains on site.
- Description of waste management practices used at the facility including measures taken to protect the environment and to protect the public health.
- A diagram of the property showing the location of the solid waste facility or facilities.

- A ***Determination of Applicability (DOA)*** may be necessary dependent on facility activities.
- You may need to obtain an:
 - Aquifer Protection Permit, or APP (if a facility discharges a pollutant either directly to an aquifer, to the land surface)
 - Agricultural Best Management Practice Permit Record (intended to reduce dust)



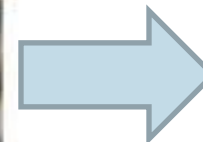
BENEFITS & RISKS



- Enriches soil
- Reduces need for chemical fertilizers
- Encourages bacteria/fungi production
- Reduces carbon footprint
- Reduces amount of waste going to landfills

Non-Commercial Composting Options

- Stationary Dust Generating Source
 - County Regulations
- Portable Burners
- Composting Toilets



- Fire Hazard
- Vector Breeding
- Discharge to surroundings
- Wind Blown Litter/Dust



- ~54% due to spontaneous combustion
- ~20% due to equipment failure
- ~26% Other

Integrated Waste Management Consulting, LLC

Matthew Cotton

Spontaneous Combustion



Note what's burning (it's not the windrows)

Spontaneous Combustion

- Most common cause of fires at compost facilities
- No external energy/spark required
- Result of a chain reaction of several heat-generating processes
- Common in industries where organic materials are stockpiled
- Not well understood by Industry

Spontaneous Combustion

$$\text{Temperature Change} = \text{Heat generation} - \text{Heat loss}$$

Smaller piles = more heat loss = lower temperatures	Larger piles = less heat loss = higher temperatures
Moist piles = more heat loss = lower temperatures	Dry piles = less heat loss = higher temps

Spontaneous Combustion

Heat generation > Heat Loss

1. More heat generated than lost
2. Chain reaction of several heat-generating processes:
 - Biological self-heating (160° - 185° F)
 - Chemical reactions release heat - bridging the gap between biological heat and ignition
 - Pyrolysis, adsorption, chemical oxidation
 - Water boils away, temp. exceeds 212° F
 - Ignition happens @ 300° - 400° F
 - Limited oxygen = smoldering fire
 - With oxygen = flaming fire

Vector breeding

- Mosquito
- Rodents
- Flies



Vector breeding

- Turn piles frequently.
- Wet the piles.
- Cover piles, if possible.
- Reduce standing water.



**BOTTLE
CAPS**

OR

**BREEDING
GROUND?**





BEST MANAGEMENT PRACTICES

- Keep pile sizes manageable (under 12 ft.)



■ Adequate Spacing Between Piles



- Fire Hazards
 - Have a pull-out area.
 - Readily accessible fire suppression near piles.



- Have an emergency response plan for your facility and make sure your employees understand how to use it and where it's located.



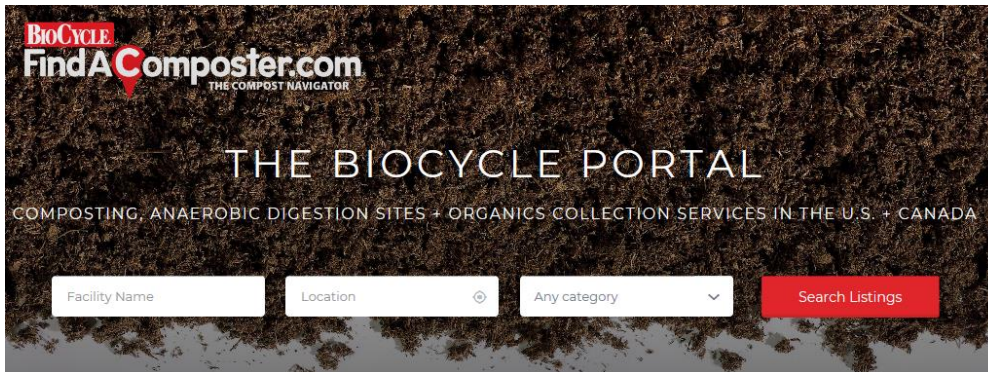
Is this your
current plan?

- **WORK WITH YOUR LOCAL FIRE AUTHORITY!**

Testing

- pH, soluble salts, nutrient content
- Moisture percent
- Maturity, stability
- Inerts
- Trace Metals
- Weed Seeds
- Pathogens

Alternatives to Composting Yourself



<http://findacomposter.com/>



Questions?

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602-771-4698

For more information visit:

www.azdeq.gov/composting

www.azdeq.gov/permits

