# CAMPUS COMPOST

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Sustainable Campus Fall 2008
Richard Hansis

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**Problem statement**

Our main problem-statement question is, "What is impeding large scale composting on the Humboldt State University (HSU) campus?" We, as a team, brain-stormed many problems inhibiting large-scale composting on our campus. We defined eight general problems: space, lack of volunteers, institution/infrastructure support, location, rodent/pest problems, funding, education, and the county and state laws that dictate large-scale composting.

**Goals**

Increase funding for composting on the HSU campus.

Raise awareness about the composting program on campus.

**Objectives (see Appendices 1-10)**

Get funding in the amount of $6,273.23, by the end of the academic year of 2008/2009 for the composting program on campus.

Solution

Finding and ordering five larger thirty-two gallon pest proof compost collection bins to be distributed around campus.

Inform five percent of both students living on campus and off campus about the campus recycling program.

**Background**

A large amount of our "footwork" was accomplished by the Biodegradable Waste Management Feasibility Study for Humboldt State University; one of last year's sustainable campus groups. They addressed the problem of biodegradable waste generated on the Humboldt State University Campus being transported to landfills. They found that the "Wig-Wam" that historically did the composting was a feasible way of getting rid of waste but it is lacking a permanent site. They found that a batch scale biodigester on campus was not the most feasible alternative and an anaerobic digester at the Humboldt Waste Management Authority (HWMA) waste water treatment plant would be the most feasible alternative for HSU's biodegradable waste.

*Other Campus's*

Composting has been happening on other college campus's around California for a long time, to what scale and with what technique is dependent on the space and the feed materials available. On the San Francisco State University campus they don't have much space for compost so they use an in-vessel composter, where at University of California Davis has a lot of room and a large agriculture program they do their composting on an on campus student farm.

outside California

*Waste Diversion Information (see Appendix 11)*

AB 939

In 1989, the California Integrated Waste Management Act (AB 939 by Senator Byron Sher) put California at the forefront of environmental protection and solid waste reduction with an ambitious agenda to reduce the amount of trash going to landfills by 50 percent in 2000. The Waste Board estimates the 2000 statewide diversion rate at 42 percent, well above the national rate, which the U.S. Environmental Protection Agency pegged at 28 percent for 1999. California's 1999 statewide rate was 37 percent.

*Meetings(see Appendix 12)*

We met with *CRP office manager Kelly Karaba*. She spoke with us about the need for a permanent compost site on campus, the different aspects of composting on campus, and the impediments of having large scale composting on campus.

We also met with *CRP Compost Director Luke Armbruster*. He identified main complications with getting large scale compost on HSU's campus, including the lack of funding required to start and maintain a program.

We had meetings with the campus *Sustainability Coordinator TallChief "TC" Comet* early on to help us get an idea about where the campus stood with composting. We got information about the proposed Eureka Biodigester, which could take all pre and post consumer compost-able waste, that at the time was still in the feasibility study stages and wouldn't be out for public review for a month at the time of our meeting. TC mentioned that they wanted HSU to be part of a trial process once the biodigester is in place. This would mean that there would be a need for transportation and storage containers. The biodigester needs a lot of waste to be economically viable and they would count on HSU's input to keep the digester functioning.

*Solid Waste Local Enforcement Agency (LEA) program manager Carolyn Hawkins along with LEA field inspector Mark Johnson, and HSU director of dinning services Ron Rudebock as well as with TallChief "TC" Comet Sustainability Coordinator:*
We arranged this meeting because we found it hard to find out what actually was being enforced when it comes to composting and LEA program manager Carolyn Hawkins has the final word when it comes to the laws regarding compost laws. Carolyn Hawkins gave us a brief summary of what contact the county has had with the composting program at HSU. She also pointed out exactly under what regulations composting is exempt and explained that we are allowed to transport compost around campus because we are considered one entity. The Criteria for exemption are that there can be no more than 500 cubic yards of compost on site at one time, no more than 10% of the compost can be food waste, and no more than 1000 cubic yards can be sold in one year. HSU historically and are currently within these criteria. Ron Rudebock gave us information about what the "J" is currently giving to the composting program. Currently the "J" gives only salad prep scraps and has 2 barrels that are never quite filled and are picked up a couple times a week. It was nice to have this meeting to ensure that people on campus are aware of what

the current regulations are and how we are currently well below possible capacity when it comes to regulations.

*Approval Process*

Nick is the member of the compost team who first contacted Gary Krietsch of Space and Facilities by E-mail. Gary replied back and said that he would not have the time to meet up with the team to look at our proposal for new animal proof bins for compost around campus and give his approval. Nick did this several times before Stacie tried another member of the compost team. So, Stacie went to the office of the President and talked to the Special Assistant to the President. Her secretary Mary Greta who Stacie met and told her about the teams problem with trying to meet with Gary. She asked Mary if she can try to see if Gary can meet with the team in a last ditch effort to get the Ok and a letter of support for the bins before the grant is do on Friday, November 14. Mary E-mailed Patty ,the President Secretary to see what she can find out. So, Patty reserved an E-mail from Denice Helwig that said," Carl has asked Tim Moxon to have Tallchief work with them *(the Compost Team)* in a timely manner." So this is how Tall Chief of Plan Operations was given this project by Space and Facilities to work with the students.

**Alternatives Weighed**

*Chosen route*

By getting a grant for $6,224.73 for the composting program we will hopefully cover the cost of larger bins for compost collection. In focusing on this aspect, we as a team can help the education of the campus community. By institutionalizing larger bins, their presence should be more noticed around campus. Also, we will place stickers/ educational placards on each of the bins that will help educate people about the concept of composting food on campus. Perhaps most importantly, the larger bins will be pest-rodent proof, thereby solving one of the main issues currently facing large-scale composting on campus. We will conduct surveys that will be distributed to students, faculty and staff that will assess general compost awareness of both compost techniques and the Campus Recycling Program (CRP).

*Alternative Possibilities*

Get funding from Humboldt Energy Independence Fund (HEIF), pros include less competition than other statewide grant opportunities and a significant amount of money is available this semester. The cons are that we might not be awarded the funding we are proposing, with a significant amount of time and energy going into the grant writing process.

Community fundraising to get our necessary funds. Pros include: we would know when we have reached our target figure and other members in our group have fundraising experience. The cons are that it could take longer than we have to raise the money needed. This alternative would take a lot more effort and time.

Possible sources of funding from the administration. Pros are that we would know hopefully soon, when and how much money would be appropriated to our project. Cons are that we might not be awarded any funding and the opportunity costs associated with us getting the funding and not some other project.

Unallocated Funds from Associated Students, every semester there is some money that AS receives from student fees that is not in the budget that could possibly be given to our project. Pros include: money from the students providing a service to the students. Cons include: an unreliable source of funding and not a proven source of funding.

Better signage placed around campus that would educate the campus community on the campus recycling program and compost techniques in general. This would raise awareness about the program, however signs might not be easily noticed and often overlooked by students.

Getting in contact with Living Group Advisors (LGAs) and helping to implement a mandatory program for new residents, which would educate them about composting and the composting facilities on campus. Pros include an easily implementable education program and a large number of people becoming aware about composting. The cons include that it would be difficult to maintain consistency because the LGAs are students and therefore the position changes often. Also, it would perhaps be difficult to get the initial approval for the program mainly because of a lack of administration/faculty support.

**Humboldt Energy Independence Fund (HEIF)**

We went to the HEIF for funding for new collection containers around campus. As part of this process we wrote a grant proposal, which is included in our appendix.

**Educational Component (see Appendices 13 &14)**

We performed a survey around campus that provided a baseline of HSU's composting knowledge. Additionally, it is our belief that by conducting our survey campus awareness was increased. Stickers, created by CRP, will be placed on all of the bins once they have been placed. From responses received from our survey potential bin users need to be informed of what can and cannot be composed (which will be both an indirect and direct consequence of the bins) but perhaps could be a possible project for next year's team.

**Implementation Strategies**

There are two possible processes for implementation of our proposed project. One consists of receiving the grant which would then our main contact of the group, Katie, along with TC to order the bins. Once the bins are received HSU's Plant Operations will install the locks and place the bins in the locations chosen by CRP. From there, CRP has taken the responsibility of monitoring the bins by an accurate weekly weighing of the waste at each pick up.

The second possible implementation process would be that if we fail to receive the grant the work we did will be on file with TC, CRP and Dr. Hansis. From there it is possible that CRP will be able use it as a basis for proposing other grants in the future.

*Task timeline*

| Start Date | Task | Assigned to | Ending Date |
|---|---|---|---|
| Nov. 3, 2008 | Meet with Space and Facilities committee and ask for letters of support (Gary Krietcsh, gdk7001) | Nick | Nov. 10, 2008 |
| Nov. 3, 2008 | Letter of support from the C.R.P. | Emily | Nov. 12, 2008 |
| Nov. 3, 2008 | **Life Cycle Cost Analysis:** | | |
| Nov. 3, 2008 | Calculate the life-time of the bins | Nick | Nov. 10, 2008 |
| Nov. 3, 2008 | Who pays for the maintenance of the bins? | Emily | Nov. 12, 2008 |
| Nov. 3, 2008 | Contacting the container company "The Parks" | Emily | Nov. 5, 2008 |
| Nov. 3, 2008 | Carbon cost of shipping compost | Nick | Nov. 12, 2008 |
| Nov. 3, 2008 | ** To landfill vs. Around campus | Emily | Nov. 10, 2008 |
| Nov. 3, 2008 | ** Fuel consumption of carts used on campus | Emily | Nov. 10, 2008 |
| Nov. 3, 2008 | **Benefits:** | | |
| Nov. 3, 2008 | Interviewing students to figure out the possible increase in bin use | Emily | Nov. 12, 2008 |
| Nov. 3, 2008 | Long-term monitoring (how could it be evaluated over time?) | Emily | Nov. 12, 2008 |
| Nov. 3, 2008 | Material savings? | Emily & Nick | Nov. 12, 2008 |
| Nov. 3, 2008 | Efficiency savings? | Nick | Nov. 10, 2008 |
| Nov. 3, 2008 | Tangible results | Nick | Nov. 10, 2008 |
| Nov. 3, 2008 | Could later be expanded | Nick | Nov. 10, 2008 |

| | | | |
|---|---|---|---|
| Nov. 3, 2008 | Educational campaign | Nick | Nov. 10, 2008 |
| Nov. 3, 2008 | **Concern:** | Nick | Nov. 10, 2008 |
| Nov. 3, 2008 | Human aspect of use…(removing heavy compost) | | |
| Nov. 3, 2008 | How often pick up? | | |
| Nov. 3, 2008 | Competition for bin space | | |
| Nov. 3, 2008 | Containers in the Depot (could help increase volume) | | |
| | **After the Grant process:** | | |
| Beginning of Dec. | Receiving the grant | H.E.I.P. | |
| End of Dec. | Order the bins | T.C. Comet & Katie | Dec. 15, 2008 |
| | Plan Ops. will order the bins if we do not receive the grant after Dec.10, 2008 | Plan Ops. | Dec. 15, 2008 |
| Jan. 15, 2009 | Installation of bins | Plan Ops. | Jan. 15, 2008 |

## Monitoring And Evaluation Strategies

**Who/What:** The Campus Recycling Program (C.R.P.); a student-run program that focuses on waste reduction, prevention, and education on our campus and in the local community. C.R.P. will be collecting all of the compostable waste, monitoring and evaluating the waste, and maintaining the bins themselves (provisions will be set aside in the CRP yearly budget to account for bin repairs/new liners, etc.)

Once the bins are placed, CRP has agreed to monitor (by weighing the waste at each bin site), and maintain the bins for their expected lifetime of fifty years. CRP plans to administer surveys prior to the placement of the bins as a way of qualitatively measuring students reactions to the new, permanent animal-proof compost bins. They will also be using the digital scale on site to measure the amount produced by each bin site and keep a running log. This will give them quantitative data in which to compare the use of the bins.

**When:** As soon as the grant is approved and the bins are ordered, and implemented (by Plant Operations). Grant approval is announced around the middle of December and once ordered, the bins will arrive approximately a month and a half (six weeks) after they are ordered. The bins will be placed during the early Spring semester 2009.

**Where:** CRP would like to implement 5 animal-proof, 32-gallon collection containers in high food-traffic areas; The Depot, Quad, BSS, Library, and Marketplace.

**Why:** In the past two years, CRP has encountered problems as the raccoon population has been growing on campus. To solve the problem, CRP has been taking in the small 5-gallon buckets currently used for compost-collection every night, and then putting fresh buckets out every morning. This is very time consuming and extra volunteers and resources have been required to meet these priorities. With the use of these larger, animal-proof bins the goal is to increase awareness, divert waste, and increase the efficiency of compost collection on campus.

In a cooperative effort with the Sustainable Campus class, and the Humboldt Energy Independence Fund (H.E.I.F.), CRP is planning to run a pilot project to improve the campus's compost collection procedures. CRP also helps the University meet state mandates requiring waste reduction regulations; CRP runs and operates an on-site compost demonstration site, where the community can see various methods of composting and learn how they are doing it at the University level. Compost collection of food scraps, is done by providing the campus community with collection buckets in high traffic areas.

## Conclusion/What we would do differently

Every step of the project was part of our process; we learned something from each part of our problem-solving journey. In terms of what we would do differently, we would not focus so indepthly on our alternative possible solutions, including researching the proposed biodigestor. Although this was part of our problem-solving process, it shortened the amount of time and energy we were able to put into the final problems and solution we addressed.

A big part of our success was our ability, as a group, to come together--work together--and together achieve a common goal. We developed every step of the problem-solving process and regardless of the outcome (whether we have received the grant or not) we were successful and we achieved!

# Appendix 1

We are students currently enrolled in the Sustainable Campus class at Humboldt State University (HSU). We are proposing to purchase five (5) thirty-two gallon, animal-proof, permanent composting receptacles from Highland Products Group. In addition to the initial bins that include one liner per bin, we plan to purchase five (5) additional liners as replacements if any become damaged or in need of cleaning (see Index 1). Along with the bins and replacement liners, we intend to acquire a high-end digital scale that is to be placed on site at the Campus Recycling Program (CRP) with the purpose of monitoring the amount of compost being deposited and thus diverted from the waste stream (see Index 2). The scale will be durable and thus reduce the likelihood of replacement in the near future, increasing the sustainable and energy-reducing aspects of the project. Lastly, we intend to obtain five (5) locks from HSU's Plant Operations that are to be placed on the bins' lids in order to keep the bins secure during the time when they will not be in use.

Plant Operations (instead of Space and Facilities) will place the order with Highland Products Group, and the bins, liners, and scale will be delivered directly to HSU. CRP will direct Plant Operations to place the bins at high-use, pre-chosen locations on campus (see Index 3). Once the bins are set in their permanent locations, CRP intends to place educational stickers on the bins to indicate what can and cannot be placed into the bins (see Index 4). CRP has already produced the stickers and has graciously provided them as a contribution to this project. Also, CRP has accepted the responsibility for the usage, maintenance, and monitoring of the bins throughout the bins' lifetimes (an approximate 50 years) (see Index 5). This responsibility will include accurate measurement (by weight) of the compostable waste produced by HSU, the education of the campus community through the bins themselves and the signage associated with them, and the composting of the waste at the designated site on campus.

In terms of the specific energy-reduction components of this project, the larger bins will help to reduce the amount of waste that is currently being trucked away from HSU and deposited into distant landfills (either Medford, Oregon or Redding, California). We estimate the increase in use will range from fifty to one hundred and fifty percent. Based on this increase, we estimate the campus would produce between seventeen to one hundred and thirteen gallons of compostable waste per week, and prevent between 175 kilograms to 1123 kilograms of carbon dioxide emissions per lifetime of each bin. This could have a potential fuel cost savings of $53.00 to $340.00 (see Index 6) per lifetime of each bin. The diversion of compostable waste out of the waste stream will save energy due to the reduction of the overall volume that needs to be trucked off campus to other sites or landfills.

The Office Manager for CRP, Kelly Karaba, estimates that over ninety-five percent of compostable waste is being trucked off-campus. CRP is limited by the amount of compostable waste that it can effectively handle, but its overall efficiency is further inhibited by the fact that the small 5-gallon buckets are often overlooked by potential users. The buckets are currently placed at random locations daily by volunteers through what is known as the "Adopt-a-Bucket" program. This current program is extremely

inefficient due to the lack of fixed composting locations and the resultant confusion of potential compost bin users.

If the new bins are purchased, CRP believes that it will significantly increase their ability to collect more compostable waste. Currently, the CRP Director of Composting, Luke Armbuster, estimates that the buckets only collect an average of a hundred pounds of waste per week. He believes that the use of larger, permanent, pest-proof bins will increase usage and thus increase the amount of waste that can be composted and used as a potential fertilizer (the specific increase of diverted waste will be accurately measured and the data will be recorded by CRP). They predict that the increased volume and increased visibility of the bins, combined with education of potential users and more diligent monitoring, will result in much greater success than the existing program. Also, one of the main concerns with the current bucket system is that the bins need to be taken in each night due to pest problems. The design of these pest-proof bins effectively eliminates that problem.

The bin is made up of two main materials. Each bin's metal component is available in several colors and is made partially from recycled materials. The wood slats are available in weathered Redwood or Cedar (see Index 1). Plant Operations supports the choice of Fir (a dark green) for the metal portion and the Redwood slats for the wood portion, pending a letter of support for this decision. These bins' aesthetically pleasing design will blend into the redwood forest that makes HSU's campus unique. Most importantly, the bins are produced in southern California, and the shipment of the bins would require little energy in the form of transportation costs. Also, the locks are purchased through HSU, with no shipping charge, further reducing the overall cost of the project. Additionally, the stickers that CRP plans to place on the bins can be changed to fit the colors chosen by Plant Operations.

One of the major strengths of this proposal is that it is not only proposed by students but also supported by students. CRP is funded directly from Associated Students (AS) and run in large part by HSU students. The participation of students is vital to the success of the proposed action. The larger, permanent bins, along with the educational stickers, will increase student awareness of composting that happens on HSU's campus. Once the bins are placed in their permanent locations, CRP has agreed to monitor (by weighing the waste collected at each bin site) and maintain the bins for their expected lifetime of fifty years. CRP plans to administer surveys prior to and after the placement of the bins as a way of qualitatively measuring student reactions to the new, permanent, pest-proof compost bins. They will also be using the digital scale to precisely measure the amount of compost produced at each bin site and keep a running log that will give CRP an accurate picture of the overall success of the program and perhaps areas for improvement, such as varying placement of the bins or further education of potential users. All of this monitoring would be done by HSU students, and will educate them about waste management and the benefits of composting. Additionally, CRP will continue to use the small "golf cart" for the transportation of the compostable waste and pay for its maintenance and fuel consumption.

The implementation of this program is fairly straightforward. Once the bins have been purchased, Plant Operations would be responsible for installing the locks on the bin lids. All that remains is the placement of the bins in designated high-use areas, namely the Quad, The Depot, the Library, the South Campus Market and the courtyard at the

BSS building. From then on, CRP would be responsible for the upkeep and monitoring the bins.

Once the bins have been ordered, the Highland Products Group estimates a six to eight week window for delivery. We are estimating a two to three month timeline, from ordering to installation of the bins (see Index 7). Upon delivery and installation, CRP will begin collection at intervals varying from daily to once every three days, depending on usage. We were assured by CRP that the waste would not accrue a stench in this short amount of time.

Each bin is priced at $953.00 and the cost of five quoted to us from Highland Products Group is $4,765.00. The additional liners are $56.00 each with a quoted cost of five liners equaling $280.00. The estimated shipping cost of all five bins and liners was quoted to be $844.70. As recommended by the University Sustainability Coordinator, TC Comet, we are allowing for a ten percent increase in shipping due to possible increases in gas prices. Thus our estimated shipping cost is $929.17 (see Index 8). In addition to the bins and liners, we intend to purchase a digital scale from Industrial Commercial Scales (icscales.com). The dimensions of the scale are two feet by one foot with a capacity of five hundred pounds. The cost of the scale was estimated at $180.00 with a shipping and fuel charge of $28.60. Again we would like to allow for a ten percent increase in shipping charges which would bring our estimated shipping cost to be $31.46 (see Index 2). The locks that we would obtain from Plant Operations were quoted to us at a price of $12.00 per lock with a total cost of $60.00. Therefore, our total, all-inclusive budget is $6,245.63 (see Index 9).

We believe that the purchase of the above-mentioned items will benefit the HSU campus in that it will reduce the energy required to move compostable waste off site, and it will engage students, faculty and staff alike in a program that will be a sustainable long term fixture on campus. HSU has prided itself on its reputation of being a green campus. We believe, along with the support of the members of CRP and Plant Operations, that this will further encourage that deserved reputation. This program can be used as a model for other waste-producing sites, such as other campuses in the CSU system. In addition, there is assured student participation because CRP is run by students and funded by AS, itself funded by student tuition.

Overall, with the support given by CRP and Plant Operations, we believe the addition of permanent, pest-proof bins on campus will be a positive step in reducing waste and energy use. It will also increase environmental consciousness and further confirm HSU's commitment to being a leader in sustainability. CRP will be able to provide quantitative and qualitative data that will support these benefits once the bins and scale are in place for a period of time. We have worked hard to see this project through and we thank you for your consideration.

Appendix 2

# Appendix 3

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Choose a Product

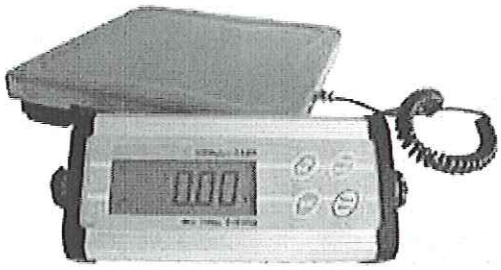
Site Search

GO

sitemap

*Featured Item:*
**SPECIAL**

**ICS-44-5K FLOOI SCALE**
***Complete with Indicator***
***$ 645.00***



- **Stainless steel weighing pan with remote indicator**
- **Large backlit LCD display**
- **Simple 4 button operation**
- **Portable with battery power or AC adapter (included).**
- **Lb / oz / lb:oz / kg switchable**
- **Tare function**
- **Wall mounting kit for display included as standard**
- **Bi-directional RS-232 Interface**
- **Hold function - for animal weighing**

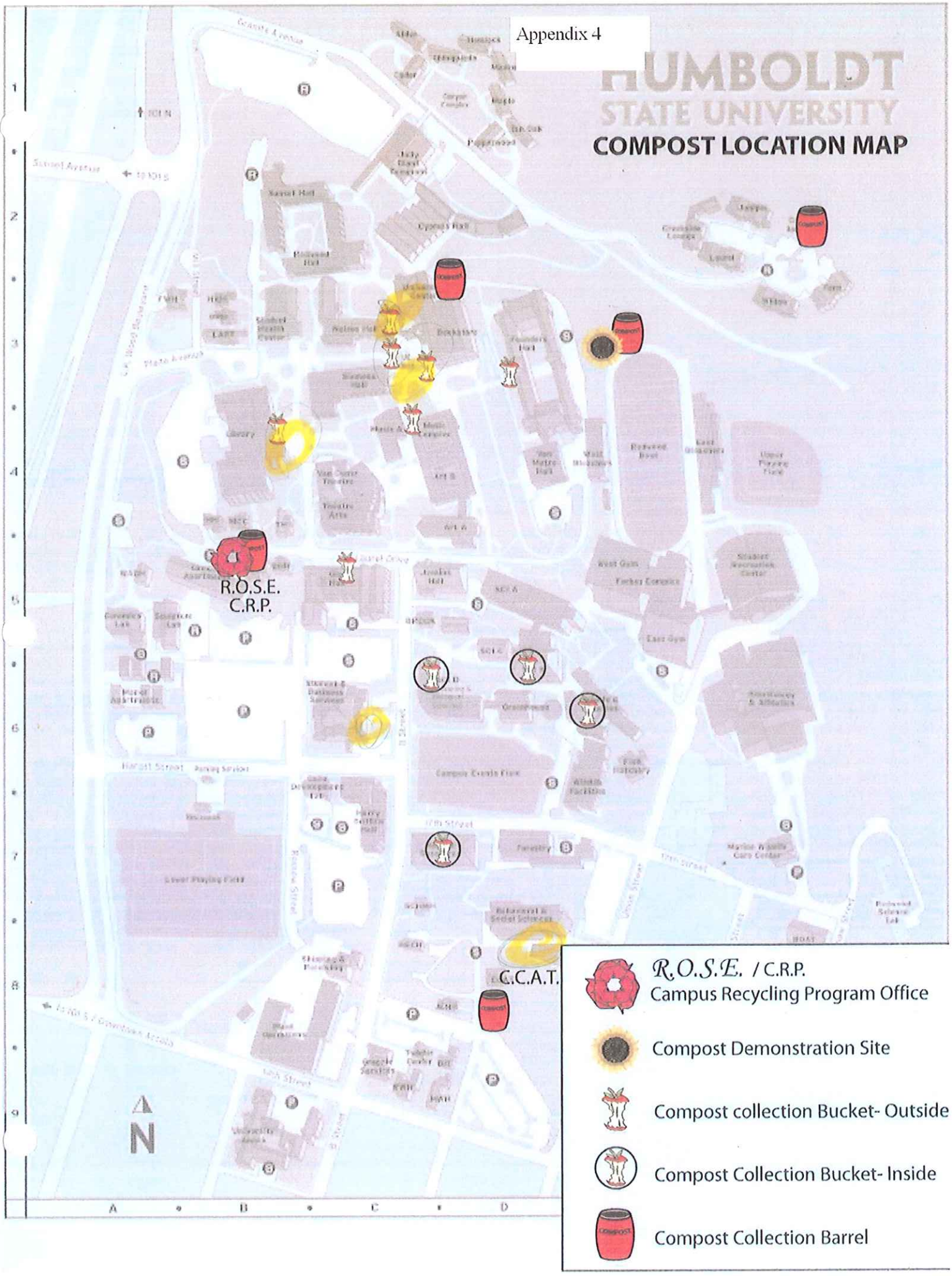
## Options:

- **Hard Carry Case with lock and strap - $85.00**
- **Pillar Mount - $65.00**

| | |
|---|---|
| Weighing Units | kg, lb |
| Capacity | 6kg x 2 g / 13lb x .005lb - $160.00<br>15kg x 5 g / 33 lb x .01lb - $170.00<br>35kg x 10g / 75 lb x .02lb -$170.00<br>75 kg x 20g /165lb x .05lb -$180.00<br>150kg x 50g / 330lb x .1lb - $190.00<br>200kg x 50g / 440lb x .1lb - $195.00 |
| Power | AC Adaptor or 6 AA<br>non-rechargeable batteries |
| Warranty | 1 Year Manufacturers Warranty |
| Indicator Dimensions | 8.5" x 3.75" x 1.5" |
| Base Dimensions | 12" x 12" x 2" |
| Operating Temp. | 0°C - 40°C<br>32°F - 104°F |

ALL MAJOR CREDIT CARDS ACCEPTED

Appendix 4


HUMBOLDT
STATE UNIVERSITY
COMPOST LOCATION MAP
R.O.S.E.
C.R.P.
C.C.A.T.
N
R.O.S.E. / C.R.P.
Campus Recycling Program Office
Compost Demonstration Site
Compost collection Bucket- Outside
Compost Collection Bucket- Inside
Compost Collection Barrel

HUMBOLDT STATE UNIVERSITY

# Composting

## ACCEPTED

Vegetables
Fruit
Bread
Pasta
Beans
Grains
Torn-up Paper
Paper
Coffee Grounds


## NOT ACCEPTED

Meat
Dairy
Glass
Plastic
Metal
Garbage

CAMPUS RECYCLING PROGRAM

AS

Contact the Campus Recycling Program at **826-4162** for pick up, questions, or volunteering.

Appendix 5

November 13, 2008

# Appendix 6



To whom it may concern,

The mission of Campus Recycling Program at Humboldt State University is waste reduction, prevention, and education on our campus and in the local community. We engage in reusable material collection, distribution, composting on site, environmental education, and waste prevention training. The Campus Recycling Program provides a necessary service and meets student needs by attending to the waste material generated by all members of the HSU community. We provide responsible participation, not only in the governance of the campus but the society as well; by acknowledging that excessive uses of the earth's resources should be reduced to enhance the quality of life for current and future students and community members. As we strive to promote environmental awareness, we are working to stimulate the educational, physical and social well being of the campus community.

We assist HSU to meet state mandates requiring waste reduction regulations. We run and operate an on-site compost demonstration site, where the community can see various methods of composting and learn how we are doing it at the University level. Compost collection of food scraps, is –done by providing the campus community with collection buckets in high traffic areas. In the past two years, we have encountered problems as the raccoon population grew on campus. To solve the problem, we have been taking in the buckets every night, and then putting fresh buckets out every morning. This is very time consuming and extra volunteers and resources have been required to meet these priorities.

In a cooperative effort with the Sustainable Campus Senior Capstone class, and the Humboldt Energy Independence Fund (H.E.I.F.), we are planning to run a pilot project to improve the campus's compost collection procedures. We would like to implement 5 vermin proof collection containers in high food-traffic areas; The Depot, Quad, BSS, Library, and Marketplace. During the project, data of weight and volume of food scraps will be gathered at every servicing.

The addition of these bins to the campus is a great step toward the sustainable recovery of our resources and waste reduction. The 32 gallon capacity of the bins, and the vermin-proof design will allow us to save money, time, fuel, energy and resources because they will not have to be picked up and put out daily. The containers can be checked every 3 days and serviced as needed. It is projected that with the capacity, location, and design, the bins will increase the amount of waste that is diverted, and decrease the amount of vehicle use and transportation.

November 13, 2008

Signage on the bins will clearly display acceptable items- all vegetable based matter and paper. No meat, dairy, or trash will be accepted, preventing undesirable odor causing conditions. Collecting both food and paper materials together, minimizes odor by decreasing moisture. San Francisco, who has a similar climate, has a curbside compost collection program, which is picked up weekly without odor complaints.

During the pilot, the bins will be checked every 3 days to monitor volume and odor. We project that the bins will only need to be serviced with the truck weekly, cutting the use of the truck from five days a week to one day a week. During periods of short staffing, when the bins cannot be serviced, the bins can be locked, preventing food pile-up and odor. We are planning on setting aside provisions in our budget to account for the long term maintenance of these bins. We will continue to provide a vehicle, fuel and all other necessary aspects of transportation and servicing to efficiently care for the bins and the campuses need for compost collection. We will also continue to run education campaigns, and public outreach to promote the bins and their sustainable use. As the biodigester in Samoa comes closer to completion, these bins will efficiently help in the transition, as the university increases the food waste collection on campus. In addition, the bin design is made from recycled resources, is handicap assessable, and is very attractive. With the use of these bins, are goal is to increase awareness, divert more waste from the landfill, decrease truck use, and increase the efficiency of compost collection on campus. Please contact me if there is anything else we can do to support this project.

Sincerely,

Kelly Karaba

Kelly Karaba
Office Manager
Campus Recycling Program
(707) 826-4162

| Low Estimate (Estimated By CRP) | | | High Estimate | | | |
|---|---|---|---|---|---|---|
| Weight of compost current*[1] | 100 | lb/week | Weight of compost current | 100 | lb/week | |
| *Extra Diversion Because of Bin*[*2] | *50* | lb/week | *Extra Diversion Because of Bin* | *150* | lb/week | range of collection potential |
| Weeks of collection*[3] | 30 | weeks | Weeks of collection | 30 | weeks | |
| Weight per Academic year | 1500 | lb/year | Weight per Academic year | 4500 | lb/year | |
| Lifetime of bin*[4] | 50 | year | Lifetime of bin | 50 | year | |
| **Weight per Lifetime** | **75000** | **lb/lifetime** | **Weight per Lifetime** | **225000** | **lb/lifetime** | |
| Weight capacity of truck | 80000 | lb | Weight capacity of truck | 80000 | lb | |
| Trips needed to take compost | 1 | trip | Trips needed to take compost | 3 | trip | |
| *Miles per trip*[*5] | *141* | *mile* | *Miles per Trip* | *188* | *mile* | Redding vs Medford |
| Miles saved per Lifetime | 141 | mile | Miles saved per Lifetime | 564 | mile | |
| *Miles per gallon per truck*[*6] | *8* | *g/m* | *Miles per gallon per truck* | *5* | *g/m* | range of gas milage of trucks |
| **Gallons of Gas saved** | **17.625** | **gallon** | **Gallons of Gas saved** | **112.8** | **gallon** | |
| **Amount of Gas Money saved**[*7] | **$52.88** | **gallon*** | **Amount of Gas Money saved** | **$338.40** | **gallon*** | |
| Liter of Gas saved | 66.72 | liter | Liter of Gas saved | 426.99 | liter | |
| Carbon intensity of diesel | 2.63 | kg CO2/liter | Carbon intensity of diesel | 2.63 | kg CO2/liter | |
| CO2 saved | 175.47 | kg CO2 | CO2 saved | 1123.00 | kg CO2 | |

Appendix 7

* Assumptions

1. Estimation from CRP
2. Estimation of possible inrease based on CRP's average
3. Guesstimation, varies with use and temperature
4. Quoted from Highlan Products Group
5. Estimated mileage
6. Estimated capacity of truck gas tanks
7. Estimation of fuel costs

# Appendix 9

HIGHLAND
PRODUCTS GROUP LLC
3350 NW BOCA RATON BLVD., SUITE B2 • BOCA RATON, FL • 33431
PHONE: 561.620.7870• FAX: 561.620.8660
WWW.THEPARKCATALOG.COM

| PROPOSAL | |
|---|---|
| SQ-269884 | 11/10/2008 |

| Customer | Ship To |
|---|---|
| Humboldt State University Parking<br>#1 Harpst St<br>Arcata CA 95521<br>Emily Creegan<br>(408) 808-1003, (707) 826-4654<br>(707) -82-6-4637 fax | Humboldt State University Parking<br>#1 Harpst St<br>Arcata CA 95521<br>Emily Creegan<br>(408) 808-1003, (707) 826-4654 |

| Account | Quotation | Terms | Customer PO # | Account Rep | Page | Printed |
|---|---|---|---|---|---|---|
| sas7001 | SQ-269884 | Prepay | | Web Web | 2 | 11/12/2008 5:50:44PM |

| | Item | Description | Qty | Unit | Unit Price | Unit Disc | Amount |
|---|---|---|---|---|---|---|---|
| 1 | 278-1003 | Animal-Proof Trash Container - HA - Wheelchair Accessible<br>Frame Color: Select Frame Color<br>Recycled Plastic Wood: Select Recycled Plastic Wood<br>Decal: Select Decal | 5 | EA | $953.00 | $0.00 | $4,765.00 |
| 2 | AS278-01 | Select Frame Color | 5 | EA | $0.00 | $0.00 | $0.00 |
| 3 | AS278-03 | Select Recycled Plastic Wood | 5 | EA | $0.00 | $0.00 | $0.00 |
| 4 | AS278-02 | Select Decal | 5 | EA | $0.00 | $0.00 | $0.00 |
| 5 | 278-SPCL | Liner for 278-1003 | 5 | EA | $56.00 | $0.00 | $280.00 |
| 8 | | "This quote qualifies under Highland's BEST PRICE GUARANTEE. If you find a quote lower for this product we will not only match it but beat it." | | | | | |
| | | | | | | | |

NOTES:
Ships in Approx 4-6 Weeks
Notify Before Delivery
Liftgate Service

* Unless otherwise noted shipping charges include standard delivery only. Liftgate service, notify before delivery available at additional cost.

To accept this proposal please sign here: _____

Credit card holder name _____

Card No. _____

CVV 2Code _____ Exp. Date _____

Card Billing Address _____

City _____ State _____ Zip _____

Customer agrees to inspect all deliveries for damage and correct quantities and to note any discrepancies on freight bill and report them to Highland within 48 hours of receipt of goods or forfeit any right to freight damage claims or shortages.

| | |
|---|---|
| Sub Total | $5,045.00 |
| Sales Tax | $0.00 |
| Shipping | $844.70 |
| Total | $5,889.70 |
| Balance | $5,889.70 |

PRODUCT PRICE QUOTE IS VALID FOR 30 DAYS - DUE TO FUEL PRICE VOLATILITY FREIGHT QUOTES ARE VALID FOR 7 DAYS.

# Facsimile Transmittal

# FAX

**To:**
**Fax Number:** 17078264145
**Pages:** 3 (including cover page)
**Re:** PROPOSAL : 269864

**From:** Highland Products Group
**Date:** 11/12/2008

**Comments:**

ATTN: Hansis

Bonnie Dos Santos

8:00am-6:30pm, Monday-Thursday

8:00am-5pm Friday

9:00am-2:00pm Saturday

Highland products Group LLC

3350 NW Boca Raton Blvd, Suite B2

Boca Raton. Florida 33431

1-888-447-2401 ext. 320

561-620-8668 Fax

Bonnie@HighlandProductsGroup.com

# Appendix 10

## Budget

## Project Title: Animal Proof Permanent Compost Bins

## HSU Implemented Project Budget

| Category (list major items) | Unit (e.g. miles, each, etc.) | Cost per unit | Total cost | Amount requested from HEIF | Matching contribution to be provided by applicant or other source | Who/what is the other source? | Is the matching contribution confirmed or potential? |
|---|---|---|---|---|---|---|---|
| Durable equipment | | | | | | | |
| Animal-Proof Trash Container | 5 | $953.00 | $4,765.00 | $4,765.00 | NA | NA | NA |
| Replacement Liner | 5 | $56 | $280 | $280.00 | NA | NA | NA |
| Scale | 1 | $180.00 | $180.00 | $180.00 | NA | NA | NA |
| Locks | 5 | $12 | $60 | $60 | NA | NA | NA |
| | | | | | | | |
| Other | | | | | | | |
| Scale S&H | 1 | $28.60 | | | NA | NA | NA |
| S&H adjusted for 10% increase | 1 | $31.46 | $60.06 | $60.06 | NA | NA | NA |
| Animal-Proof Trash Container S&H | 1 | $844.70 | | | NA | NA | NA |
| S&H adjusted for 10% increase | 1 | $929.17 | $929.17 | $929.17 | NA | NA | NA |
| | | | | | | | |
| | | **TOTAL:** | $6,274.23 | $6,274.23 | NA | | |

conditions, or processed or disposed of on the property in a manner approved by the Enforcement Agency.

Animal carcasses from animals on pasture or rangeland shall be managed so as to prevent the creation of excessive vectors or other adverse public health/well-being conditions.

### § 17824. Management of Agriculture Waste Ponds, Lagoons, Ditches and Pipelines.

(H) Ponds, lagoons, ditches and pipelines used for the transfer, holding, treatment and stabilization of manure or vegetable or fruit crop wastes shall be managed so as to prevent the creation or harborage of excessive vectors or other conditions that adversely affect the public health/well-being. Accumulations of floating solids, scum and thick aquatic vegetation, and the growth of weeds and emergent aquatic vegetation at the water's edge shall be continuously maintained at a minimal level to assist in the prevention of such adverse conditions.

Disposal or utilization of the contents of such facilities shall not create excessive vectors or other adverse public health/well-being conditions.

## Article 9. Litter Receptacle Standards

### § 17830. Purpose.

NOTE: Authority cited: Sections 40502 and 43020, Public Resources Code; and Section 24389, Health and Safety Code. Reference: Chapter 1, Title 7.8, Government Code, Sections 43020 and 43021, Public Resources Code and Chapter 3.5, Division 29, Health and Safety Code.

HISTORY

1. New article 9 (sections 17830–17840) filed 8–18–78; effective thirtieth day thereafter (Register 78, No. 33).
2. Change without regulatory effect amending section filed 5–17–91 pursuant to section 100, title 1, California Code of Regulations (Register 91, No. 27).
3. Repealer of article 9 and section filed 9–10–96; operative 10–10–96 (Register 96, No. 37).

### § 17831. Limitations.

HISTORY

1. Repealer filed 9–10–96; operative 10–10–96 (Register 96, No. 37).

### § 17832. Responsibility.

HISTORY

1. Repealer filed 9–10–96; operative 10–10–96 (Register 96, No. 37).

### § 17833. Placement of Receptacles.

HISTORY

1. Repealer filed 9–10–96; operative 10–10–96 (Register 96, No. 37).

### § 17834. Receptacle Design.

HISTORY

1. Repealer filed 9–10–96; operative 10–10–96 (Register 96, No. 37).

### § 17835. Receptacle Maintenance.

HISTORY

1. Repealer filed 9–10–96; operative 10–10–96 (Register 96, No. 37).

### § 17836. Special Design and Maintenance Limitations.

HISTORY

1. Repealer filed 9–10–96; operative 10–10–96 (Register 96, No. 37).

### § 17837. Receptacle Marking.

HISTORY

1. Repealer filed 9–10–96; operative 10–10–96 (Register 96, No. 37).

### § 17838. Prohibited Acts.

HISTORY

1. Repealer filed 9–10–96; operative 10–10–96 (Register 96, No. 37).

### § 17839. Penalties.

HISTORY

1. Repealer filed 9–10–96; operative 10–10–96 (Register 96, No. 37).

### § 17840. Compliance.

Appendix 11

HISTORY

1. Repealer filed 9–10–96; operative 10–10–96 (Register 96, No. 37).

# Chapter 3.1. Compostable Materials Handling Operations and Facilities Regulatory Requirements

## Article 1. General

### § 17850. Authority and Scope.

(a) This Chapter is adopted pursuant to and for the purpose of implementing the California Integrated Waste Management Act of 1989 (Act) commencing with section 40000 of the Public Resources Code, as amended. These regulations should be read together with the Act.

(b) This Chapter implements those provisions of the Act relating to composting. Nothing in this Chapter is intended to limit the power of any federal, state, or local agency to enforce any provision of law that it is authorized or required to enforce or administer.

(c) Biological decomposition of organic material can be both a naturally occurring or artificially controlled process. This Chapter establishes standards and regulatory requirements for intentional and inadvertent composting resulting from the handling of compostable materials, including but not limited to feedstock, compost, or chipped and ground materials as defined in section 17852.

(d) Nothing in these standards shall be construed as relieving any owner, operator, or designee from the obligation of obtaining all required permits, licenses, or other clearances and complying with all orders, laws, regulations, or reports, or other requirements of other regulatory or EA, including but not limited to, local health entities, regional water quality control boards, air quality management districts or air pollution control districts, local land use authorities, and fire authorities.

(e) Nothing in these standards precludes the EA or the board from inspecting an activity, operation or facility to determine if it is subject to these standards.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. Amendment of chapter 3.1 and article 1 headings and new section filed 6–30–95; operative 7–30–95 (Register 95, No. 26).
2. Amendment of subsection (c) filed 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 15). A Certificate of Compliance must be transmitted to OAL by 8–5–97 or emergency language will be repealed by operation of law on the following day.
3. Amendment of subsection (c) refiled 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 31). A Certificate of Compliance must be transmitted to OAL by 12–1–97 or emergency language will be repealed by operation of law on the following day.
4. Certificate of Compliance as to 4–7–97 order, including further amendment of subsection (c), transmitted to OAL 11–25–97 and filed 1–9–98 (Register 98, No. 2).
5. Amendment of chapter heading, amendment of subsections (c) and (d) and new subsection (e) filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).
6. Change without regulatory effect amending subsection (a) filed 8–23–2005 pursuant to section 100, title 1, California Code of Regulations (Register 2005, No. 34).

### § 17851. Scope.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 40051, 40052, 40053, 40054, 40055, 40056, 40057, 40116, 43020 and 43021, Public Resources Code.

HISTORY

1. New chapter 3.1, article 1 and section filed 7–15–93; operative 7–15–93 (Register 93, No. 29).
2. Repealer filed 6–30–95; operative 7–30–95 (Register 95, No. 26).

### § 17852. Definitions.

(a) For the purposes of this Chapter:

(1) "Active Compost" means compost feedstock that is in the process of being rapidly decomposed and is unstable. Active compost is generat-

ing temperatures of at least 50 degrees Celsius (122 degrees Fahrenheit) during decomposition; or is releasing carbon dioxide at a rate of at least 15 milligrams per gram of compost per day, or the equivalent of oxygen uptake.

(2) "Additives" means material mixed with feedstock or active compost in order to adjust the moisture level, carbon to nitrogen ratio, or porosity to create a favorable condition. Additives include, but are not limited to, fertilizers and urea. Additives do not include septage, biosolids, or compost feedstock.

(3) "Aerated Static Pile" means a composting process that uses an air distribution system to either blow or draw air through the pile. Little or no pile agitation or turning is performed.

(4) "Aerobic Decomposition" means the biological decomposition of organic substances in the presence of oxygen.

(5) "Agricultural Material" means material of plant or animal origin, which result from the production and processing of farm, ranch, agricultural, horticultural, aquacultural, silvicultural, floricultural, vermicultural, or viticultural products, including manures, orchard and vineyard prunings, and crop residues.

(6) "Agricultural Material Composting Operation" means an operation that produces compost from green or agricultural material additives, and/or amendments.

(7) "Amendments" means materials added to stabilized or cured compost to provide attributes for certain compost products, such as product bulk, product nutrient value, product pH, and soils blend. Amendments do not include septage, biosolids, or compost feedstock.

(8) "Anaerobic Decomposition" means the biological decomposition of organic substances in the absence of oxygen.

(9) "Biosolids" means solid, semi–solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Biosolids includes, but is not limited to, treated domestic septage and scum or solids removed in primary, secondary, or advanced wastewater treatment processes. Biosolids does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screenings generated during the preliminary treatment of domestic sewage in a treatment works.

(10) "Chipping and Grinding Operations and Facilities" means an operation or facility, that does not produce compost, that mechanically reduces the size or otherwise engages in the handling, of compostable material and:

(A) The site does the following:

1. The site handles only material, excluding manure, allowed at a green material composting operation or facility as set forth in section 17852(a)(22); and,

2. Each load of green material is removed from the site within 48 hours of receipt. The EA may allow a site to keep green material on–site for up to 7 days if the EA determines that the additional time does not increase the potential for violations of this Chapter.

(B) If the site fails to meet the definition of green material because it exceeds the contamination limits in section 17852(a)(21), the site shall be regulated as set forth in the Transfer/Processing Regulatory requirements (commencing at section 17400).

(C) If the site fails to meet the definition of this section because the green material remains on–site for a longer period of time than is allowed, then the site shall be regulated as a compostable material handling operation or facility, as set forth in this Chapter.

(11) "Compostable Material" means any organic material that when accumulated will become active compost as defined in section 17852(a)(1).

(12) "Compostable Materials Handling Operation" or "Facility" means an operation or facility that processes, transfers, or stores compostable material. Handling of compostable materials results in controlled biological decomposition. Handling includes composting, screening, chipping and grinding, and storage activities related to the production of compost, compost feedstocks, and chipped and ground materials. "Compostable Materials Handling Operation or Facility" does not include activities excluded from regulation in section 17855. "Compostable Materials Handling Operation or Facility" also includes:

(A) agricultural material composting operations;

(B) green material composting operations and facilities;

(C) research composting operations; and,

(D) chipping and grinding operations and facilities.

(13) "Curing" means the final stage of the composting process that occurs after compost has undergone pathogen reduction, as described in section 17868.3, and after most of the readily metabolized material has been decomposed and stabilized.

(14) "Domestic Sewage" means waste and wastewater from humans or household operations that is discharged to or otherwise enters a treatment works.

(15) "Disposal" means:

(A) stockpiling of compostable material onto land for a combined period of time greater than six months, or agricultural and green material for twelve months on prime agricultural land as defined in Government Code section 51201, unless the RWQCB in consultation with the EA makes a written finding that the material may remain within the operations area for a period of time greater than specified.

(B) disposal does not include the use of compostable material for alternative daily cover material at a solid waste landfill. Notwithstanding this section, use of compostable organic material as a alternative daily cover material shall still require approval for use pursuant to Title 27, California Code of Regulations, section 20680 and may require additional approvals from other governmental agencies, including, but not limited to RWQCB and Air Districts.

(C) disposal does not include land application of compostable organic material. "Land Application" means the application of compostable material, excluding food material or mixed solid waste for the following applications: to forest, agricultural, and range land at agronomic rates; in accordance with California Department of Food and Agriculture (CDFA) requirements for beneficial use as authorized by Food and Agricultural Code section 14501 et seq.; or for beneficial uses that may be otherwise exempt or excluded from regulation by CDFA.

(D) Should the EA have information that a compostable material handler is engaging in other activities that meet the definition of disposal, the burden of proof shall be on the land owner or operator to demonstrate otherwise.

(E) If the activities at a site meet the definition of disposal, the site shall be regulated as set forth in the Consolidated Regulations for Treatment, Storage, Processing or Disposal of Solid Waste (commencing at Title 27, California Code of Regulations, section 20005).

(16) "Dry Weight Basis" means weight calculated on the basis of having been dried until reaching a constant mass, that results in essentially 100 percent solids content.

(17) "Enclosed Composting Process" means a composting process where the area that is used for the processing, composting, stabilizing, and curing of organic materials, is covered on all exposed sides and rests on a stable surface with environmental controls for moisture and air–borne emissions present.

(18) "EA" means enforcement agency.

(19) "Feedstock" means any compostable organic material used in the production of compost or chipped and ground material including, but not limited to, agricultural material, green material, food material, biosolids, and mixed solid waste. Feedstocks shall not be considered as either additives or amendments.

(20) "Food Material" means any material that was acquired for animal or human consumption, is separated from the municipal solid waste stream, and that does not meet the definition of "agricultural material." Food material may include material from food facilities as defined in Health and Safety Code section 113785, grocery stores, institutional cafeterias (such as, prisons, schools and hospitals) or residential food scrap collection.

(21) "Green Material" means any plant material that is separated at the point of generation contains no greater than 1.0 percent of physical con-

taminants by weight, and meets the requirements of section 17868.5. Green material includes, but is not limited to, yard trimmings, untreated wood wastes, natural fiber products, and construction and demolition wood waste. Green material does not include food material, biosolids, mixed solid waste, material processed from commingled collection, wood containing lead–based paint or wood preservative, mixed construction or mixed demolition debris.

(22) "Green Material Composting Operation" or "Facility" is an operation or facility that composts green material, additives, and/or amendments. A green material composting operation or facility may also handle manure and paper products. An operation or facility that handles a feedstock that is not green material, manure, or paper products, shall not be considered a green material composting operation or facility. "Green Material Composting Operation" or "Facility" does not include activities excluded from regulation in section 17855.

(23) "Handling" means the processing, transfer, and storage of compostable materials. Handling of compostable materials results in controlled biological decomposition. Handling includes composting, screening, chipping and grinding, and storage activities related to the production of compost, compost feedstocks, and chipped and ground materials.

(24) "Insulating Material" means material used for the purpose of minimizing the loss of heat from a compost pile undergoing the "Process to Further Reduce Pathogens" (PFRP), as described in section 17868.3. Insulating material includes, but is not limited to, soil and stabilized compost.

(25) "Manure" is an agricultural material and means accumulated herbivore or avian excrement. This definition shall include feces and urine, and any bedding material, spilled feed, or soil that is mixed with feces or urine.

(26) "Mixed Solid Waste" means any material that is part of the municipal solid waste stream, and is mixed with or contains non–organics, processed industrial materials, or plastics. A feedstock that is not source separated or contains 1.0% or more of physical contaminants by weight is mixed solid waste. Compostable material that contains mixed demolition or mixed construction debris shall be considered mixed solid waste.

(27) "Mushroom Farm" means an activity that produces mushrooms. The handling of compostable material at a mushroom farm prior to and after use as a growth medium is subject to regulation pursuant to this chapter and is not considered mushroom farming.

(28) "Operations Area" means the following areas within the boundary of a compostable material handling operation or facility:

(A) equipment cleaning, maintenance, and storage areas;

(B) feedstock, active, curing and stabilized compost processing or stockpiling areas; and

(C) process water and stormwater drainage control systems.

(29) "Operator" means the owner, or other person who through a lease, franchise agreement or other arrangement with the owner, becomes legally responsible for the following:

(A) complying with regulatory requirements set forth in this Chapter;

(B) complying with all applicable federal, state and local requirements;

(C) the design, construction, and physical operation of the site; and

(D) site restoration.

(30) "Owner" means the person or persons who own, in whole or in part, a compostable material handling operation or facility, or the land on which these operations or facilities are located.

(31) "Pathogenic Organism" means disease–causing organisms.

(32) "Physical Contamination" or "Contaminants" means human–made inert products contained within feedstocks, including, but not limited to, glass, metal, and plastic.

(33) "Process Water" means liquid that is generated during or used in the production of compost or chipped and ground materials.

(34) "Research Composting Operation" means a composting operation, that is operated for the purpose of gathering research information on composting.

(35) "Separated At The Point of Generation" includes material separated from the solid waste stream by the generator of that material. It may also include material from a centralized facility as long as that material was kept separate from the waste stream prior to receipt by that facility and the material was not commingled with other materials during handling.

(36) "Stabilized Compost" means any organic material that has undergone the Process to Further Reduce Pathogens (PFRP), as described in section 17868.3, and has reached a stage of reduced biological activity as indicated by reduced temperature and rate of respiration below that of active compost.

(37) "Static Pile" means a composting process that is similar to the aerated static pile except that the air source may or may not be controlled.

(38) "Vector" includes any insect or other arthropod, rodent, or other animal capable of transmitting the causative agents of human disease.

(39) "Vermicomposting" means an activity that produces worm castings through worm activity. The EA may determine whether an activity is or is not vermicomposting. The handling of compostable material prior to and after use as a growth medium is subject to regulation pursuant to this chapter and is not considered vermicomposting.

(40) "Windrow Composting Process" means the process in which compostable material is placed in elongated piles. The piles or "windrows" are aerated and/or mechanically turned on a periodic basis.

(41) "Within–vessel Composting Process" means a process in which compostable material is enclosed in a drum, silo, bin, tunnel, reactor, or other container for the purpose of producing compost, maintained under uniform conditions of temperature and moisture where air–borne emissions are controlled.

(42) "Wood Waste" means solid waste consisting of wood pieces or particles which are generated from the manufacturing or production of wood products, harvesting, processing or storage of raw wood materials, or construction and demolition activities.

(43) "Yard Trimmings" means any wastes generated from the maintenance or alteration of public, commercial or residential landscapes including, but not limited to, yard clippings, leaves, tree trimmings, prunings, brush, and weeds.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 6–30–95; operative 7–30–95 (Register 95, No. 26).
2. Amendment of subsections (k), (*l*) and (t), new subsection (x2), and amendment of subsections (aa)(2) and (*ll*) filed 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 15). A Certificate of Compliance must be transmitted to OAL by 8–5–97 or emergency language will be repealed by operation of law on the following day.
3. Amendment of subsections (k), (*l*) and (t), new subsection (x2), and amendment of subsections (aa)(2) and (*ll*) refiled 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 31). A Certificate of Compliance must be transmitted to OAL by 12–1–97 or emergency language will be repealed by operation of law on the following day.
4. Certificate of Compliance as to 4–7–97 order, including repealer of subsection (x2) and further amendment of subsection (aa)(2), transmitted to OAL 11–25–97 and filed 1–9–98 (Register 98, No. 2).
5. Amendment filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).
6. Change without regulatory effect amending subsections (a)(5), (a)(11)–(13), (a)(15)–(16), (a)(21)–(22), (a)(24), (a)(36) and (a)(41) filed 8–23–2005 pursuant to section 100, title 1, California Code of Regulations (Register 2005, No. 34).

### § 17853. Definitions.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 40051, 40052, 40116, 43020 and 43200, et seq., Public Resources Code.

HISTORY

1. Repealer filed 7–15–93; operative 7–15–93 (Register 93, No. 29).
2. Repealer filed 6–30–95; operative 7–30–95 (Register 95, No. 26).

### § 17853.0. Approval of Alternatives.

(a) Approvals, determinations and other requirements that the EA is authorized to make in this Chapter shall be provided in writing by the EA to the operator. The operator shall place a copy of these approvals, in

addition to those records identified in sections 17869, in the operating record.

(b) Some of the provisions of this Chapter allow the EA to approve a reduced inspection frequency. The EA shall only approve a reduced inspection frequency if the EA finds that it is as protective of the public health and safety and the environment as the standard inspection frequency.

(c) Some of the standards contained in this Chapter allow the EA to approve an alternative method of compliance with the standard. These provisions are not intended to allow the EA to change the particular standard, but are intended to allow the EA flexibility to approve, in advance, an alternative method of meeting the existing standard. For facilities that require a full solid waste facilities permit, the EA may choose to include the approved method as a term and condition of the solid waste facilities permit, rather than in the manner authorized by subdivision (a) of this section. If the method is included in the Compostable Materials Handling Facility Permit, a change to the method may require a revision to the solid waste facilities permit in accordance with the procedures set forth in Title 27, Division 2, Subdivision 1, Chapter 4, Subchapter 3, Articles 2, 3, and 3.1 (commencing with section 21570).

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).

## Article 2. Regulatory Tiers for Composting Operations and Facilities

### § 17854. Compostable Materials Handling Facility Permit Requirements.

Except as specified in this Article, all compostable materials handling activities shall obtain a Compostable Materials Handling Facility Permit pursuant to the requirements of Title 27, California Code of Regulations, Division 2, Subdivision 1, Chapter 4, Subchapter 1 and Subchapter 3, Articles 1,2,3, and 3.1 (commencing with section 21450) prior to commencing operations.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).

### § 17855. Excluded Activities.

(a) The activities listed in this section do not constitute compostable material handling operations or facilities for the purposes of this Chapter and are not required to meet the requirements set forth herein. Nothing in this section precludes the EA or the board from inspecting an excluded activity to verify that the activity is being conducted in a manner that qualifies as an excluded activity or from taking any appropriate enforcement action.

(1) An activity is excluded if it handles agricultural material, derived from an agricultural site, and returns a similar amount of the material produced to that same agricultural site, or an agricultural site owned or leased by the owner, parent, or subsidiary of the composting activity. No more than an incidental amount of up to 1,000 cubic yards of compost product may be given away or sold annually.

(2) Vermicomposting is an excluded activity. The handling of compostable material prior to and after use as a growth medium is not an excluded activity and is subject to the requirements of this chapter. Handling of agricultural material on the site of a vermicomposting activity, for use as a growth medium on that same site, is an excluded activity if it complies with section 17855(a)(1).

(3) Mushroom farming is an excluded activity. The handling of compostable material prior to and after use as a growth medium is not an excluded activity and is subject to the requirements of this chapter. Handling of agricultural material on the site of a mushroom farm, for use as mushroom bedding on that same site, is an excluded activity if it complies with section 17855(a)(1).

(4) Handling of green material, feedstock, additives, amendments, compost, or chipped and ground material is an excluded activity if 500 cubic yards or less is on–site at any one time, the compostable materials are generated on–site and if no more than 1,000 cubic yards of materials are either sold or given away annually. The compostable material may also include up to 10% food material by volume.

(5) The handling of compostable materials is an excluded activity if:

(A) the activity is located at a facility (i.e., landfill or transfer/processing facility) that has a tiered or full permit as defined in section 18101,

1. has a Report of Facility Information which is completed and submitted to the EA that identifies and describes the activity and meets the requirements of Titles 14 or 27; and,

2. will only use the material on the facility site, or

(B) the activity is solely for the temporary storage of biosolids sludge at a Publicly Operated Treatment Works (POTW), or

(C) the activity is located at the site of biomass conversion and is for use in biomass conversion as defined in Public Resources Code section 40106; or

(D) the activity is part of a silvicultural operation or a wood, paper, or wood product manufacturing operation; or

(E) the activity is part of an agricultural operation and is used to temporarily store or process agricultural material not used in the production of compost or mulch; or

(F) the activity is part of an operation used to chip and grind materials derived from and applied to lands owned or leased by the owner, parent, or subsidiary of the operation; or

(G) the activity is part of an agricultural operation used to chip and grind agricultural material produced on lands owned or leased by the owner, parent, or subsidiary of the agricultural operation, for use in biomass conversion; or

(H) the activity is part of an animal food manufacturing or rendering operation.

(I) the activity is the storage of yard trimmings at a publicly designated site for the collection of lot clearing necessary for fire protection provided that the public agency designating the site has notified the fire protection agency; or

(J) the materials are handled in such a way to preclude their reaching temperatures at or above 122 degrees Fahrenheit as determined by the EA.

(6) Non–commercial composting with less than one cubic yard of food material is excluded provided that all compostable material is generated and used on–site.

(7) Storage of bagged products from compostable material is an excluded activity provided that such bags are no greater than 5 cubic yards.

(8) Within–vessel composting process activities with less than 50 cubic yard capacity are excluded.

(9) Beneficial use of compostable materials is an excluded activity. Beneficial use includes, but is not limited to, slope stabilization, weed suppression, alternative daily cover, and similar uses, as determined by the EA; land application in accordance with California Department of Food and Agriculture requirements for a beneficial use as authorized by Food and Agricultural Code section 14501 et seq.; and reclamation projects in accordance with the requirements of the Office of Mine Reclamation of the Department of Conservation as authorized by Public Resources Code section 2770 et seq.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 7–15–93; operative 7–15–93 (Register 93, No. 29).

2. Repealer, relocation and new section and amendment of article 2 heading filed 6–30–95; operative 7–30–95 (Register 95, No. 26).

3. Amendment of subsections (a)(3) and (a)(5) and new subsections (a)(6) and (a)(7) filed 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 15). A Certificate of Compliance must be transmitted to OAL by 8–5–97 or emergency language will be repealed by operation of law on the following day.

4. Amendment of subsections (a)(3) and (a)(5) and new subsections (a)(6) and (a)(7) refiled 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 31). A Certificate of Compliance must be transmitted to OAL by 12–1–97 or emergency language will be repealed by operation of law on the following day.
5. Certificate of Compliance as to 4–7–97 order, including further amendment of subsections (a)(3) and (a)(5)–(7), transmitted to OAL 11–25–97 and filed 1–9–98 (Register 98, No. 2).
6. Amendment filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).
7. Change without regulatory effect amending subsections (a), (a)(5)(A), (a)(5)(A)2., (a)(5)(B) and (a)(7) filed 8–23–2005 pursuant to section 100, title 1, California Code of Regulations (Register 2005, No. 34).

### § 17855.2. Prohibitions.

(a) The composting of unprocessed mammalian tissue, including but not limited to, flesh, organs, hide, blood, bone and marrow is prohibited, except when from the food service industry, grocery stores, or residential food scrap collection, or as part of a research composting operation for the purpose of obtaining data on pathogen reduction or other public health, animal health, safety, or environmental concern, in accordance with section 17862.

(b) The composting of medical waste is prohibited.

(c) The composting of hazardous waste is prohibited.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).
2. Amendment of subsection (a) filed 6–18–2007 as an emergency; operative 6–18–2007 (Register 2007, No. 25). A Certificate of Compliance must be transmitted to OAL by 12–17–2007 or emergency language will be repealed by operation of law on the following day.
3. Amendment of subsection (a) refiled 12–17–2007 as an emergency; operative 12–17–2007 (Register 2007, No. 51). A Certificate of Compliance must be transmitted to OAL by 3–17–2008 or emergency language will be repealed by operation of law on the following day.
4. Certificate of Compliance as to 12–17–2007 order, including further amendment of subsection (a), transmitted to OAL 3–13–2008 and filed 4–25–2008 (Register 2008, No. 17).

### § 17855.3. Permit Name.

Any permit issued pursuant to this Article, except for one issued pursuant to section 17862.1(b), shall be entitled: "Compostable Materials Handling Facility Permit."

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).

### § 17855.4. Pre–Existing Permits and Notifications.

(a) If a facility had previously obtained a Registration or Standardized Permit in accordance with the regulations in effect prior to April 4, 2003, that facility may continue to operate in accordance with its permit until the EA conducts a permit review pursuant to Title 14, California Code of Regulations, sections 18104.7 and 18105.9 and determines that a Compostable Materials Handling Facility Permit is required. If the EA makes such a determination, the operator shall comply with the Compostable Materials Handling Facility Permit requirements set forth in Title 27, California Code of Regulations, Division 2, Subdivision 1, Chapter 4, Subchapter 1 and Subchapter 3, Articles 1, 2, 3, and 3.1 (commencing with section 21450) within two years of that determination.

(b) If an operation had previously been operating pursuant to an EA Notification in accordance with the regulations in effect prior to April 4, 2003, that operation may continue to operate in accordance with its EA Notification or regulatory authorization until the EA determines that a Compostable Materials Handling Facility Permit is required. The EA shall make this determination no sooner than 120 days and no later than two years from April 4, 2003. If the EA determines that a Compostable Materials Handling Facility Permit is required, the operator shall comply with the Compostable Materials Handling Facility Permit requirements set forth in Title 27, California Code of Regulations, Division 2, Subdivision 1, Chapter 4, Subchapter 1 and Subchapter 3, Articles 1, 2, 3, and 3.1 (commencing with section 21450) within two years of that determination.

(c) If an activity had previously been excluded from the regulations in effect prior to April 4, 2003, that activity may continue to operate in accordance with its regulatory exclusion until the EA determines that a Compostable Materials Handling Facility Permit is required. The EA shall make this determination no sooner than 120 days and no later than two years from April 4, 2003. If EA determines that a Compostable Materials Handling Facility Permit is required, the operator shall comply with the Compostable Materials Handling Facility Permit requirements set forth in Title 27, California Code of Regulations, Division 2, Subdivision 1, Chapter 4, Subchapter 1 and Subchapter 3, Articles 1, 2, 3, and 3.1 (commencing with section 21450) within two years of that determination.

(d) Notwithstanding other provisions of this section, a Chipping and Grinding activity that is currently operating in accordance with the regulations in effect prior to April 4, 2003, may continue to operate in accordance with its regulatory authorization until the EA determines that a different authorization is required. The EA shall make this determination within 120 days from April 4, 2003.

(1) If the EA determines that the activity is required to comply with the EA Notification requirements, the operator shall comply with the EA Notification requirements set forth in Title 14, California Code of Regulations, Division 7, Chapter 5.0, Article 3.0 (commencing with section 18100), within 120 days from that determination.

(2) If the EA determines that the activity is required to comply with the Registration requirements, the operator shall comply with the Registration requirements set forth in Title 14, California Code of Regulations, Division 7, Chapter 5.0, Article 3.0 (commencing with section 18100) within 120 days from that determination.

(3) If the EA determines that the activity is required to comply with the Compostable Materials Handling Facility Permit requirements, the operator shall comply with the Compostable Materials Handling Facility Permit requirements set forth in Title 27, California Code of Regulations, Division 2, Subdivision 1, Chapter 4, Subchapter 1 and Subchapter 3, Articles 1, 2, 3, and 3.1 (commencing with section 21450) within two years from that determination.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).
2. Change without regulatory effect amending subsections (a), (c) and (d)–(d)(3) filed 8–23–2005 pursuant to section 100, title 1, California Code of Regulations (Register 2005, No. 34).

### § 17856. Agricultural Material Composting Operations.

(a) All agricultural material composting operations and chipping and grinding operations shall comply with the Enforcement Agency Notification requirements set forth in Title 14, California Code of Regulations, Division 7, Chapter 5.0, Article 3.0 (commencing with section 18100), except as otherwise provided by this Chapter. Agricultural Compostable Materials Handling Operations shall only be subject to the requirements of section 17863.4 if the EA makes a written determination that the operation has violated the requirements for odor impacts of section 17867.

(b) Compost produced by an agricultural material composting operation or a chipping and grinding operation which uses only agricultural material may be sold or given away in unrestricted quantities. These operations shall be inspected by the EA at least once annually.

(c) Compost produced by an agricultural material composting operation which uses agricultural material and/or green material, as specified in section 17852(a)(21), may be sold or given–away in accordance with the following restrictions.

(1) Those sites that do not sell or give–away more than 1,000 cubic yards of material per year shall be inspected by the EA at least once annually when actively composting. If more than 12,500 cubic yards of green material, including feedstock, compost, or chipped and ground material, is to be handled on–site of productive farmland as defined in Government

Code section 51201, the operator shall give advance notice to the EA. The EA shall only prohibit the on–site storage of additional materials, or impose a greater inspection frequency, if the EA makes a written finding that it will pose an additional risk to public health and safety and the environment. The EA shall forward a copy of the request and approval to the Board.

(2) Those operations that sell or give–away more than 1,000 cubic yards of material per year, shall have no more than 12,500 cubic yards of green material, including feedstock, compost, or chipped and ground material, on–site at any one time and shall be inspected by the EA once every three (3) months.

(3) These sites shall record the quantity received of green material.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New article 2 and section filed 7–15–93; operative 7–15–93 (Register 93, No. 29).
2. Repealer and new section filed 6–30–95; operative 7–30–95 (Register 95, No. 26).
3. Amendment of subsection (c) filed 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 15). A Certificate of Compliance must be transmitted to OAL by 8–5–97 or emergency language will be repealed by operation of law on the following day.
4. Amendment of subsection (c) refiled 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 31). A Certificate of Compliance must be transmitted to OAL by 12–1–97 or emergency language will be repealed by operation of law on the following day.
5. Certificate of Compliance as to 4–7–97 order transmitted to OAL 11–25–97 and filed 1–9–98 (Register 98, No. 2).
6. Amendment filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).
7. Change without regulatory effect amending subsections (a), (c) and (c)(1) filed 8–23–2005 pursuant to section 100, title 1, California Code of Regulations (Register 2005, No. 34).

### § 17857. Green Material Composting Operations and Facilities.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 7–15–93; operative 7–15–93 (Register 93, No. 29).
2. Repealer and new section filed 6–30–95; operative 7–30–95 (Register 95, No. 26).
3. Amendment of subsection (c) filed 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 15). A Certificate of Compliance must be transmitted to OAL by 8–5–97 or emergency language will be repealed by operation of law on the following day.
4. Amendment of subsection (c) refiled 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 31). A Certificate of Compliance must be transmitted to OAL by 12–1–97 or emergency language will be repealed by operation of law on the following day.
5. Certificate of Compliance as to 4–7–97 order transmitted to OAL 11–25–97 and filed 1–9–98 (Register 98, No. 2).
6. Repealer filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).

### § 17857.1. Green Material Composting Operations and Facilities.

(a) A green material composting operation that has up to 12,500 cubic yards of feedstock, compost, or chipped and ground material on–site at any one time shall comply with the EA Notification requirements set forth in Title 14, California Code of Regulations, Division 7, Chapter 5.0, Article 3.0 (commencing with section 18100).

(b) A green material composting operation that has up to 12,500 cubic yards of feedstock, compost, or chipped and ground material on–site at any one time shall be inspected by the EA at least once every three (3) months, unless an operator request for a reduced inspection frequency of no less than annually is approved by the EA. The EA shall only approve a lesser inspection frequency, if the EA finds that it will not pose an additional risk to public health and safety and the environment. The EA shall forward a copy of the request and approval to the Board.

(c) A green material composting facility that has more than 12,500 cubic yards of feedstock, compost, or chipped and ground material on–site at any one time shall obtain a Compostable Materials Handling Facility Permit pursuant to the requirements of Title 27, California Code of Regulations, Division 2, Subdivision 1, Chapter 4, Subchapter 1 and Subchapter 3, Articles 1,2,3, and 3.1 (commencing with section 21450) prior to commencing operations.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).
2. Change without regulatory effect amending subsection (a) filed 8–23–2005 pursuant to section 100, title 1, California Code of Regulations (Register 2005, No. 34).

### § 17858. Animal Material Composting Facilities.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 6–30–95; operative 7–30–95 (Register 95, No. 26).
2. Amendment of subsection (b) filed 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 15). A Certificate of Compliance must be transmitted to OAL by 8–5–97 or emergency language will be repealed by operation of law on the following day.
3. Amendment of subsection (b) refiled 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 31). A Certificate of Compliance must be transmitted to OAL by 12–1–97 or emergency language will be repealed by operation of law on the following day.
4. Certificate of Compliance as to 4–7–97 order transmitted to OAL 11–25–97 and filed 1–9–98 (Register 98, No. 2).
5. Repealer filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).

### § 17859. Sewage Sludge Composting Facilities.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code. Title 40, Chapter I, Subchapter O, Part 503, of the Code of Federal Regulations.

HISTORY

1. New section filed 7–15–93; operative 7–15–93 (Register 93, No. 29).
2. Repealer and new section filed 6–30–95; operative 7–30–95 (Register 95, No. 26).
3. Amendment of subsection (b) filed 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 15). A Certificate of Compliance must be transmitted to OAL by 8–5–97 or emergency language will be repealed by operation of law on the following day.
4. Amendment of subsection (b) refiled 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 31). A Certificate of Compliance must be transmitted to OAL by 12–1–97 or emergency language will be repealed by operation of law on the following day.
5. Certificate of Compliance as to 4–7–97 order transmitted to OAL 11–25–97 and filed 1–9–98 (Register 98, No. 2).
6. Repealer filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).

### § 17859.1. Biosolids Composting at POTWs.

(a) Except as provided in section 17855(a)(5)(B), the composting of biosolids on–site at a Publicly Operated Treatment Works (POTW) shall comply with the EA Notification requirements set forth in Title 14, California Code of Regulations, Division 7, Chapter 5.0, Article 3.0 (commencing with section 18100).

(b) All other composting of biosolids shall comply with section 17854.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code; and Title 40, Chapter I, Subchapter O, Part 503, Code of Federal Regulations.

HISTORY

1. New section filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).
2. Change without regulatory effect amending subsection (a) filed 8–23–2005 pursuant to section 100, title 1, California Code of Regulations (Register 2005, No. 34).

### § 17860. Mixed Solid Waste Composting Facilities.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 6–30–95; operative 7–30–95 (Register 95, No. 26).
2. Change without regulatory effect amending section filed 3–8–99 pursuant to section 100, title 1, California Code of Regulations (Register 99, No. 11).

3. Repealer filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).

## § 17861. Application Process for Green Compost Permit.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 40051, 40052, 40057, 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 7–15–93; operative 7–15–93 (Register 93, No. 29).
2. Repealer filed 6–30–95; operative 7–30–95 (Register 95, No. 26).

## § 17862. Research Composting Operations.

(a) An operator conducting research composting operations shall not have more than 5,000 cubic yards of feedstock, additives, amendments, chipped and ground material, and compost on–site at any one time, and shall comply with the EA Notification requirements set forth in Title 14, California Code of Regulations, Division 7, Chapter 5.0, Article 3.0 (commencing with section 18100), except as otherwise provided by this Chapter.

(b) An operator conducting research composting operations utilizing within–vessel processing, may exceed 5,000 cubic–yards of feedstock, additives, amendments, chipped and ground material and compost, if the EA determines that such increased volume will not pose additional risk to the public health, safety and the environment.

(c) In addition to the EA Notification requirements set forth in Title 14, California Code of Regulations, Division 7, Chapter 5.0, Article 3.0, section 18103.1(a)(3), the operator shall provide a description of the research to be performed, research objectives, methodology/protocol to be employed, data to be gathered, analysis to be performed, how the requirements of this subchapter will be met, and the projected timeframe for completion of the research operation.

(d) The EA Notification for a research composting operation shall be reviewed after each each two year period of operation. Review criteria shall include the results and conclusions drawn from the research.

(e) Research composting operations that will be using unprocessed mammalian tissue as a feedstock for the purpose of obtaining data on pathogen reduction or other public health, animal health, safety, or environmental protection concern, shall satisfy the following additional requirements:

(1) Unprocessed mammalian tissue used as feedstock shall be generated from on–site agricultural operations, and all products derived from unprocessed mammalian tissue shall be beneficially used on–site.

(2) The operator shall prepare, implement and maintain a site–specific, research composting operation site security plan. The research composting site security plan shall include a description of the methods and facilities to be employed for the purpose of limiting site access and preventing the movement of unauthorized material on to or off of the site.

(3) The EA Notification for the research composting operation using unprocessed mammalian tissue as feedstock and documentation of additional requirements of this section shall be reviewed after each six month period of operation.

(f) The operator shall submit all additional documentation required by subsections (c) and (e)(2) to the EA with the Notification and prior to the composting of any feedstock. The EA shall determine that the EA Notification for research composting operations is complete and correct only if the additional documentation requirements of this section have been met.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 6–30–95; operative 7–30–95 (Register 95, No. 26).
2. Amendment filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).
3. Change without regulatory effect amending subsections (a) and (c) filed 8–23–2005 pursuant to section 100, title 1, California Code of Regulations (Register 2005, No. 34).
4. New subsections (e)–(f) filed 6–18–2007 as an emergency; operative 6–18–2007 (Register 2007, No. 25). A Certificate of Compliance must be transmitted to OAL by 12–17–2007 or emergency language will be repealed by operation of law on the following day.
5. New subsections (e)–(f) refiled 12–17–2007 as an emergency; operative 12–17–2007 (Register 2007, No. 51). A Certificate of Compliance must be transmitted to OAL by 3–17–2008 or emergency language will be repealed by operation of law on the following day.
6. Certificate of Compliance as to 12–17–2007 order, including further amendment of subsection (e), transmitted to OAL 3–13–2008 and filed 4–25–2008 (Register 2008, No. 17).

## § 17862.1. Chipping and Grinding Operations and Facilities.

(a) A chipping and grinding operation that receives up to 200 tons per day of material that may be handled by a green material composting operation shall comply with the EA Notification requirements set forth in Title 14, California Code of Regulations, Division 7, Chapter 5.0, Article 3.0 (commencing with section 18100), except as otherwise provided by this Chapter.

(b) A chipping and grinding facility that receives more than 200 tons per day, and up to 500 tons per day of material that may be handled by a green material composting operation shall obtain a Registration Permit pursuant to the requirements of Title 14, California Code of Regulations, Division 7, Chapter 5.0, Article 3.0, prior to commencing operations.

(c) A chipping and grinding facility that receives more than 500 tons per day of material that may be handled by a green material composting operation shall obtain a Compostable Materials Handling Facility Permit pursuant to the requirements of Title 27, California Code of Regulations, Division 2, Subdivision 1, Chapter 4, Subchapter 1 and Subchapter 3, Articles 1,2,3, and 3.1 (commencing with section 21450) prior to commencing operations.

(d) A chipping and grinding operation or facility shall not be subject to the provisions of sections 17868.1 through 17868.3 of this Chapter.

(e) If a chipping and grinding operation or facility exceeds the contamination limits in section 17852 (a)(21), it shall be regulated as set forth in the Transfer/Processing Regulatory requirements (commencing at section 17400).

(f) If a chipping and grinding operation or facility stores material for a longer period of time than is allowed by section 17852 (a)(10)(A)(2), then the site shall be regulated as a green material handling operation or facility, as set forth in this Chapter.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 15). A Certificate of Compliance must be transmitted to OAL by 8–5–97 or emergency language will be repealed by operation of law on the following day.
2. New section refiled 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 31). A Certificate of Compliance must be transmitted to OAL by 12–1–97 or emergency language will be repealed by operation of law on the following day.
3. Certificate of Compliance as to 4–7–97 order, including amendment of subsections (b)(2)–(4) and new subsections (b)(5)–(c), transmitted to OAL 11–25–97 and filed 1–9–98 (Register 98, No. 2).
4. Amendment of section heading and section filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).
5. Change without regulatory effect amending subsections (a) and (b) filed 8–23–2005 pursuant to section 100, title 1, California Code of Regulations (Register 2005, No. 34).

## § 17862.2. Storage.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 15). A Certificate of Compliance must be transmitted to OAL by 8–5–97 or emergency language will be repealed by operation of law on the following day.
2. New section refiled 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 31). A Certificate of Compliance must be transmitted to OAL by 12–1–97 or emergency language will be repealed by operation of law on the following day.
3. Certificate of Compliance as to 4–7–97 order, including amendment of subsections (a) and (b)(2)–(4), new subsection (b)(6), amendment of subsection (c) and new subsection (d), transmitted to OAL 11–25–97 and filed 1–9–98 (Register 98, No. 2).

4. Repealer filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).

## Article 3. Report of Facility Information

### § 17863. Report of Composting Site Information.

Each operator of a compostable material handling facility that is required to obtain a Compostable Materials Handling Facility Permit, as specified in Article 2 of this Chapter, shall, at the time of application, file a Report of Composting Site Information with the EA. If the operator intends to alter the permitted feedstock, these changes must be reported to the EA for maintenance of permit status. Such changes may become the basis for revisions to the permit or for revocation of the permit.

(m) A description of the proposed site restoration activities, in accordance with Section 17870.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New article 3 and section filed 6–30–95; operative 7–30–95 (Register 95, No. 26).
2. Amendment of subsection (f) filed 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 15). A Certificate of Compliance must be transmitted to OAL by 8–5–97 or emergency language will be repealed by operation of law on the following day.
3. Amendment of subsection (f) refiled 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 31). A Certificate of Compliance must be transmitted to OAL by 12–1–97 or emergency language will be repealed by operation of law on the following day.
4. Certificate of Compliance as to 4–7–97 order transmitted to OAL 11–25–97 and filed 1–9–98 (Register 98, No. 2).
5. Amendment filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).

### § 17863.4. Odor Impact Minimization Plan.

(a) All compostable material handling operations and facilities shall prepare, implement and maintain a site–specific odor impact minimization plan. A complete plan shall be submitted to the EA with the EA Notification or permit application.

(b) Odor impact minimization plans shall provide guidance to on–site operation 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.

(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,

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

(3) a complaint response protocol; and,

(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,

(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), biofiltration, and tarping.

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

(d) The odor impact minimization plans shall be reviewed annually by the operator to determine if any revisions are necessary.

(e) The odor impact minimization plan shall be used by the EA to determine whether or not the operation or facility is following the procedures established by the operator. If the EA determines that the odor impact minimization plan is not being followed, the EA may issue a Notice and Order (pursuant to section 18304) to require the operator to either comply with the odor impact minimization plan or to revise it.

(f) If the odor impact minimization plan is being followed, but odor impacts are still occurring, the EA may issue a Notice and Order (pursuant to section 18304) requiring the operator to take additional reasonable and feasible measures to minimize odors.

NOTE: Authority cited: Sections 40502, 43020, 43021 and 43209.1, Public Resources Code. Reference: Sections 43020, 43021 and 43209.1.

HISTORY

1. New section filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).
2. Change without regulatory effect amending subsection (e) filed 8–23–2005 pursuant to section 100, title 1, California Code of Regulations (Register 2005, No. 34).

## Article 4. Standardized Composting Permit Terms and Conditions

### § 17864. General Terms and Conditions.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New article 4, section and Appendix I filed 6–30–95; operative 7–30–95 (Register 95, No. 26).
2. Change without regulatory effect amending section and moving form to section 18831, appendix A filed 4–2–96 pursuant to section 100, title 1, California Code of Regulations (Register 96, No. 14).
3. Change without regulatory effect amending section filed 2–6–97 pursuant to section 100, title 1, California Code of Regulations (Register 97, No. 6).
4. Repealer of article 4 (section 17864) and repealer of section filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).

## Article 5. Composting Operation and Facility Siting and Design Standards

### § 17865. Siting on Landfills.

(a) Compostable materials handling operations and facilities located atop closed solid waste landfills shall meet postclosure land use requirements pursuant to Title 27, California Code of Regulations, Division 2, Subdivision 1, Chapter 3, Subchapter 5, Article 2, section 21190.

(b) Compostable materials handling operations and facilities sited on intermediate cover on a solid waste landfill shall locate operations areas on foundation substrate that is stabilized, either by natural or mechanical compaction, to minimize differential settlement, ponding, soil liquefaction, or failure of pads or structural foundations.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New article 5 and section filed 6–30–95; operative 7–30–95 (Register 95, No. 26).
2. Amendment filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).
3. Change without regulatory effect amending subsection (a) filed 8–23–2005 pursuant to section 100, title 1, California Code of Regulations (Register 2005, No. 34).

### § 17866. General Design Requirements.

(a) Compostable materials handling operations and facilities shall be designed and constructed in such a manner as to enable the operations and facilities to comply with the operational requirements set forth in Article 6 of this Chapter.

(b) The design of a compostable materials handling facility shall utilize advice, as appropriate, from persons competent in engineering architecture, landscape design, traffic engineering, air quality control, and design of structures.

(1) The engineering design of a compostable materials handling facility shall be in accordance with the principles and disciplines in the State of California generally accepted for design of this type of facility. The

design of a composting facility requiring a Compostable Materials Handling Facility Permit shall accompany the Report of Composting Site Information, pursuant to section 17863 of this Chapter.

(2) The engineering design shall be based on appropriate data regarding the service area, anticipated nature and quantity of material to be received, climatological factors, physical settings, adjacent land use (existing and planned), types and numbers of vehicles anticipated to enter the station, drainage control, the hours of operation and other pertinent information. If the station is to be used by the general public, the design of the facility shall take account of features that may be needed to accommodate such public use.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 6–30–95; operative 7–30–95 (Register 95, No. 26).
2. Amendment filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).
3. Change without regulatory effect amending subsection (b)(1) filed 8–23–2005 pursuant to section 100, title 1, California Code of Regulations (Register 2005, No. 34).

## Article 6. Composting Operating Standards

### § 17867. General Operating Standards.

(a) All compostable materials handling operations and facilities shall meet the following requirements:

(1) All handling activities are prohibited from composting any material specified in section 17855.2 of this Chapter.

(2) All handling activities shall be conducted in a manner that minimizes vectors, odor impacts, litter, hazards, nuisances, and noise impacts; and minimizes human contact with, inhalation, ingestion, and transportation of dust, particulates, and pathogenic organisms.

(3) Random load checks of feedstocks, additives, and amendments for contaminants shall be conducted.

(4) Contamination of compostable material that has undergone pathogen reduction, pursuant to section 17868.3 of this Chapter, with feedstocks, compost, or wastes that have not undergone pathogen reduction, pursuant to section 17868.3 of this Chapter, or additives shall be prevented.

(5) Unauthorized human or animal access to the facility shall be prevented.

(6) Traffic flow into, on, and out of the composting operation or facility shall be controlled in a safe manner.

(7) All compostable materials handling operations and facilities, that are open for public business, shall post legible signs at all public entrances. These signs shall include the following information:

(A) name of the operation or facility,

(B) name of the operator,

(C) facility hours of operation,

(D) materials that will and will not be accepted, if applicable,

(E) schedule of charges, if applicable, and

(F) phone number where operator or designee can be reached in case of an emergency.

(8) The operator shall provide fire prevention, protection and control measures, including, but not limited to, temperature monitoring of windrows and piles, adequate water supply for fire suppression, and the isolation of potential ignition sources from combustible materials. Firelanes shall be provided to allow fire control equipment access to all operation areas.

(9) The operator shall provide telephone or radio communication capability for emergency purposes.

(10) Physical Contaminants and refuse removed from feedstock, compost, or chipped and ground material shall be removed from the site within 7 days and transported to an appropriate facility.

(11) Enclosed operations and facilities shall provide ventilation to prevent adverse public health effects from decomposition gases.

(12) The operator shall ensure that leachate is controlled to prevent contact with the public.

(13) The operator shall prevent or remove physical contaminants in compost and chipped and ground materials that may cause injury to humans.

(14) An attendant shall be on duty during business hours if the operation or facility is open to the public.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 7–15–93; operative 7–15–93 (Register 93, No. 29).
2. New article 6 and repealer and new section filed 6–30–95; operative 7–30–95 (Register 95, No. 26).
3. Amendment of subsection (a)(4) filed 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 15). A Certificate of Compliance must be transmitted to OAL by 8–5–97 or emergency language will be repealed by operation of law on the following day.
4. Amendment of subsection (a)(4) refiled 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 31). A Certificate of Compliance must be transmitted to OAL by 12–1–97 or emergency language will be repealed by operation of law on the following day.
5. Certificate of Compliance as to 4–7–97 order transmitted to OAL 11–25–97 and filed 1–9–98 (Register 98, No. 2).
6. Amendment filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).
7. Change without regulatory effect amending subsection (a)(4) filed 8–23–2005 pursuant to section 100, title 1, California Code of Regulations (Register 2005, No. 34).
8. Repealer and new subsection (a)(1) filed 6–18–2007 as an emergency; operative 6–18–2007 (Register 2007, No. 25). A Certificate of Compliance must be transmitted to OAL by 12–17–2007 or emergency language will be repealed by operation of law on the following day.
9. Repealer and new subsection (a)(1) refiled 12–17–2007 as an emergency; operative 12–17–2007 (Register 2007, No. 51). A Certificate of Compliance must be transmitted to OAL by 3–17–2008 or emergency language will be repealed by operation of law on the following day.
10. Certificate of Compliance as to 12–17–2007 order transmitted to OAL 3–13–2008 and filed 4–25–2008 (Register 2008, No. 17).

### § 17867.5. Training.

(a) Compostable materials handling operations and facilities shall meet the following requirements:

(1) Operators shall ensure that all personnel assigned to the operation shall be trained in subjects pertinent to operations and maintenance, including the requirements of this article, physical contaminants and hazardous materials recognition and screening, with emphasis on odor impact management and emergency procedures. A record of such training shall be maintained on the site.

NOTE: Authority cited: Sections 40502, 43020, and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).

## Article 7. Environmental Health Standards

### § 17868.1. Sampling Requirements.

All composting operations that sell or give away greater than 1,000 cubic yards of compost annually, and all facilities shall meet the following requirements:

(a) Operators shall verify that compost meets the maximum acceptable metal concentration limits specified in section 17868.2, and pathogen reduction requirements specified in section 17868.3. Verification of pathogen reduction requirements shall occur at the point where compost is sold and removed from the site, bagged for sale, given away for beneficial use and removed from the site or otherwise beneficially used. This verification shall be performed by taking and analyzing at least one composite sample of compost, following the requirements of this section as follows:

(1) An operator who composts green material, food material, or mixed solid waste shall take and analyze one composite sample for every 5,000 cubic–yards of compost produced.

(2) An operator who composts biosolids shall meet the sampling schedule described in Table 1 below.

Table 1 - Frequencies of Compost Sampling for Biosolids Composting Facilities

| *Amount of Biosolids Compost Feedstock (metric tons per 365 day period)* | *Frequency* |
|---|---|
| Greater than zero but fewer than 290 | annually |
| Equal to or greater than 290 but fewer than 1,500 | quarterly |
| Equal to or greater than 1,500 but fewer than 15,000 | bimonthly |
| *Amount of Biosolids Compost Feedstock (metric tons per 365 day period)* | *Frequency* |
| Equal to or greater than 15,000 | monthly |

(A) The amount of biosolids compost feedstock shall be calculated in dry weight metric tons.

(3) Composite sample analysis for maximum acceptable metal concentrations, specified in section 17868.2, shall be conducted at a laboratory certified by the California Department of Health Services, pursuant to the Health and Safety Code.

(b) A composite sample shall be representative and random, and may be obtained by taking twelve (12) mixed samples as described below.

(1) The twelve samples shall be of equal volume.

(2) The twelve samples shall be extracted from within the compost pile as follows:

(A) Four samples from one–half the width of the pile, each at a different cross–section;

(B) Four samples from one–fourth the width of the pile, each at a different cross–section; and,

(C) Four samples from one–eighth the width of the pile, each at a different cross–section.

(c) The EA may approve alternative methods of sampling for a green material composting operation or facility that ensures the maximum metal concentration requirements of section 17868.2 and the pathogen reduction requirements of section 17868.3 are met.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New article 7 and section filed 6–30–95; operative 7–30–95 (Register 95, No. 26).
2. Amendment of subsection (a) and Table 1 filed 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 15). A Certificate of Compliance must be transmitted to OAL by 8–5–97 or emergency language will be repealed by operation of law on the following day.
3. Amendment of subsection (a) and Table 1 refiled 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 31). A Certificate of Compliance must be transmitted to OAL by 12–1–97 or emergency language will be repealed by operation of law on the following day.
4. Certificate of Compliance as to 4–7–97 order, including further amendment of subsection (a), transmitted to OAL 11–25–97 and filed 1–9–98 (Register 98, No. 2).
5. Amendment filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).
6. Change without regulatory effect amending subsections (a) and (a)(3) filed 8–23–2005 pursuant to section 100, title 1, California Code of Regulations (Register 2005, No. 34).

## § 17868.2. Maximum Metal Concentrations.

(a) Compost products derived from compostable materials that contain any metal in amounts that exceed the maximum acceptable metal concentrations shown in Table 2 shall be designated for disposal, additional processing, or other use as approved by state or federal agencies having appropriate jurisdiction.

Table 2—Maximum Acceptable Metal Concentrations

| *Constituent* | *Concentration (mg/kg) on dry weight basis* |
|---|---|
| Arsenic (As) | 41 |
| Cadmium (Cd) | 39 |
| Chromium (Cr) | 1200 |
| Copper (Cu) | 1500 |
| Lead (Pb) | 300 |
| Mercury (Hg) | 17 |
| Nickel (Ni) | 420 |
| Selenium (Se) | 36 |
| Zinc (Zn) | 2800 |

(b) Alternative methods of compliance to meet the requirements of Subdivision (a) of this section, including but not limited to sampling frequencies, may be approved by the EA for green and food materials composting operations and facilities if the EA determines that the alternative method will ensure that the maximum acceptable metal concentrations shown in Table 2 are not exceeded.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 6–30–95; operative 7–30–95 (Register 95, No. 26).
2. Amendment of first paragraph filed 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 15). A Certificate of Compliance must be transmitted to OAL by 8–5–97 or emergency language will be repealed by operation of law on the following day.
3. Amendment of first paragraph refiled 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 31). A Certificate of Compliance must be transmitted to OAL by 12–1–97 or emergency language will be repealed by operation of law on the following day.
4. Certificate of Compliance as to 4–7–97 order transmitted to OAL 11–25–97 and filed 1–9–98 (Register 98, No. 2).
5. Amendment filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).
6. Change without regulatory effect amending subsection (b) filed 8–23–2005 pursuant to section 100, title 1, California Code of Regulations (Register 2005, No. 34).

## § 17868.3. Pathogen Reduction.

(a) Compost products derived from compostable materials, that contains pathogens in amounts that exceed the maximum acceptable pathogen concentrations described in Subdivision (b) of this section shall be designated for disposal, additional processing, or other use as approved by state or federal agencies having appropriate jurisdiction.

(b) Operators that produce compost shall ensure that:

(1) The density of fecal coliform in compost, that is or has at one time been active compost, shall be less than 1,000 Most Probable Number per gram of total solids (dry weight basis), and the density of *Salmonella* sp. bacteria in compost shall be less than three (3) Most Probable Number per four (4) grams of total solids (dry weight basis).

(2) At enclosed or within–vessel composting process operations and facilities, active compost shall be maintained at a temperature of 55 degrees Celsius (131 degrees Fahrenheit) or higher for a pathogen reduction period of 3 days.

(A) Due to variations among enclosed and within–vessel composting system designs, including tunnels, the operator shall submit a system–specific temperature monitoring plan with the permit application to meet the requirements of Subdivision (b)(2) of this section.

(3) If the operation or facility uses a windrow composting process, active compost shall be maintained under aerobic conditions at a temperature of 55 degrees Celsius (131 degrees Fahrenheit) or higher for a pathogen reduction period of 15 days or longer. During the period when the compost is maintained at 55 degrees Celsius or higher, there shall be a minimum of five (5) turnings of the windrow.

(4) If the operation or facility uses an aerated static pile composting process, all active compost shall be covered with 6 to 12 inches of insulating material, and the active compost shall be maintained at a temperature of 55 degrees Celsius (131 degrees Fahrenheit) or higher for a pathogen reduction period of 3 days.

(c) Alternative methods of compliance to meet the requirements of Subdivision (b) of this section may be approved by the EA if the EA determines that the alternative method will provide equivalent pathogen reduction.

(d) Compost operations and facilities shall be monitored as follows to ensure that the standards in Subdivision (b) of this section are met:

(1) Each day during the pathogen reduction period, at least one temperature reading shall be taken per every 150 feet of windrow, or fraction thereof, or for every 200 cubic–yards of active compost, or fraction thereof.

(2) Temperature measurements for pathogen reduction shall be measured as follows:

(A) Windrow composting processes and agitated bays shall be monitored twelve (12) to twenty–four (24) inches below the pile surface;

(B) Aerated static pile composting processes shall be monitored twelve (12) to eighteen (18) inches from the point where the insulation cover meets the active compost.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 6–30–95; operative 7–30–95 (Register 95, No. 26).
2. Amendment of subsections (a) and (b)(1) filed 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 15). A Certificate of Compliance must be transmitted to OAL by 8–5–97 or emergency language will be repealed by operation of law on the following day.
3. Amendment of subsections (a) and (b)(1) refiled 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 31). A Certificate of Compliance must be transmitted to OAL by 12–1–97 or emergency language will be repealed by operation of law on the following day.
4. Certificate of Compliance as to 4–7–97 order transmitted to OAL 11–25–97 and filed 1–9–98 (Register 98, No. 2).
5. Amendment of subsections (a), (b)(1)–(2) and (c) filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).
6. Change without regulatory effect amending subsections (a), (b)(2)(A), (c) and (d) filed 8–23–2005 pursuant to section 100, title 1, California Code of Regulations (Register 2005, No. 34).

### § 17868.4. Clean Green Material Processing Requirements.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 6–30–95; operative 7–30–95 (Register 95, No. 26).
2. Amendment of first paragraph filed 1–9–98; operative 1–9–98 (Register 98, No. 2).
3. Repealer filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).

### § 17868.5. Green Material Processing Requirements.

In order for a feedstock to be considered green material, as defined in section 17852(a)(21), the following requirements shall be met:

(a) The feedstock shall undergo load checking to ensure that physical contaminants are no greater than 1.0 percent of total weight. Load checking shall include both visual observation of incoming waste loads and load sorting to quantify percentage of contaminating materials.

(1) A minimum of one percent of daily incoming feedstock volume or at least one truck per day, whichever is greater, shall be inspected visually. If a visual load check indicates a contamination level greater than 1.0 percent, a representative sample shall be taken, physical contaminants shall be collected and weighed, and the percentage of physical contaminants determined. The load shall be rejected if physical contaminants are greater than 1.0 percent of total weight.

(b) Upon request of the EA, the operator shall take a representative sample of feedstock, physical contaminants shall be collected and weighed, and the percentage of physical contaminants determined.

(c) Any agricultural material handling operation using this material shall ensure the feedstock meets the metal concentration limits specified in Table 2 of section 17868.2.

(d) Facility personnel shall be adequately trained to perform the activities specified in this section.

(e) Any operation or facility using this feedstock shall maintain records demonstrating compliance with this section.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).
2. Change without regulatory effect amending first paragraph and subsection (c) filed 8–23–2005 pursuant to section 100, title 1, California Code of Regulations (Register 2005, No. 34).

## Article 8. Composting Operation and Facility Records

### § 17869. General Record Keeping Requirements.

Except as provided in subsection (d), all compostable materials handling operations and facilities shall meet the following requirements:

(a) All records required by this Chapter shall be kept in one location and accessible for five (5) years and shall be available for inspection by authorized representatives of the board, EA local health entity, and other duly authorized regulatory and EAs during normal working hours.

(b) The operator shall record any special occurrences encountered during operation and methods used to resolve problems arising from these events, including details of all incidents that required implementing emergency procedures.

(c) The operator shall record any public complaints received by the operator, including:

(1) the nature of the complaint,

(2) the date the complaint was received,

(3) if available, the name, address, and telephone number of the person or persons making the complaint, and

(4) any actions taken to respond to the complaint.

(d) The operator shall record the quantity and type of feedstock received and quantity of compost and chipped and ground material produced. Agricultural compostable materials handling operations shall maintain records only for compostable material accepted from off–site.

(e) The operator shall record the number of load checks performed and loads rejected.

(f) The operator shall record all test results generated by compliance with Article 7 of this Chapter, including but not limited to, metal concentrations, fecal coliform and *Salmonella* sp. densities, temperature measurements, and dates of windrow turnings.

(1) The operator shall retain records detailing pathogen reduction methods.

(g) The operator shall record and retain records of any serious injury to the public occurring on–site and any complaint of adverse health effects to the public attributed to operations. Serious injury means any injury that requires inpatient hospitalization for a period in excess of 24 hours or in which a member of the public suffers a loss of any member of the body or suffers any degree of permanent disfigurement.

(h) The operator shall retain a record of training and instruction completed in accordance with section 17867.5.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New article 3 and section filed 7–15–93; operative 7–15–93 (Register 93, No. 29).
2. Repealer of article 3, new article 8 and repealer and new section filed 6–30–95; operative 7–30–95 (Register 95, No. 26).
3. Amendment of subsection (d) filed 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 15). A Certificate of Compliance must be transmitted to OAL by 8–5–97 or emergency language will be repealed by operation of law on the following day.
4. Amendment of subsection (d) refiled 4–7–97 as an emergency; operative 4–7–97 (Register 97, No. 31). A Certificate of Compliance must be transmitted to OAL by 12–1–97 or emergency language will be repealed by operation of law on the following day.
5. Certificate of Compliance as to 4–7–97 order transmitted to OAL 11–25–97 and filed 1–9–98 (Register 98, No. 2).
6. Amendment filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).

## Article 9. Composting Facility Site Restoration

### § 17870. Site Restoration.

All compostable materials handling operations and facilities shall meet the following requirements:

(a) The operator shall provide the EA written notice of intent to perform site restoration, at least 30 days prior to beginning site restoration.

(b) The operator(s) and owner(s) shall provide site restoration necessary to protect public health, safety, and the environment.

(c) The operator shall ensure that the following site restoration procedures are performed upon completion of operations and termination of service:

(1) The operation and facility grounds, ponds, and drainage areas shall be cleaned of all residues including, but not limited to, compost materials, construction scraps, and other materials related to the operations, and these residues legally recycled, reused, or disposed of.

(2) All machinery shall be cleaned and removed or stored securely.

(3) All remaining structures shall be cleaned of compost materials, dust, particulates, or other residues related to the composting and site restoration operations.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 43020 and 43021, Public Resources Code.

HISTORY

1. New article 9 and section filed 6–30–95; operative 7–30–95 (Register 95, No. 26).
2. Amendment of first paragraph and subsection (a) filed 4–4–2003; operative 4–4–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 14).

### § 17871. Geological Siting Requirements.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 40051, 40052, 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 7–15–93; operative 7–15–93 (Register 93, No. 29).
2. Repealer filed 6–30–95; operative 7–30–95 (Register 95, No. 26).

### § 17873. General Facility Design Requirements.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 40051, 40052, 40053, 40054, 40055, 40056, 40057, 43020 and 43021, Public Resources Code; and Sections 6730, 6735.1, 6735.3, and 6735.4, Business and Professions Code.

HISTORY

1. New section filed 7–15–93; operative 7–15–93 (Register 93, No. 29).
2. Repealer filed 6–30–95; operative 7–30–95 (Register 95, No. 26).

### § 17875. General Facility Operations Procedures for Exempted and Non–Exempted Composting Facilities.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 40051, 40052, 40053, 40054, 40055, 40056, 40057, 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 7–15–93; operative 7–15–93 (Register 93, No. 29).
2. Repealer filed 6–30–95; operative 7–30–95 (Register 95, No. 26).

### § 17876. General Facility Operations Procedures for Non–Exempted Composting Facilities.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 40051, 40052, 40053, 40054, 40055, 40056, 40057, 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 7–15–93; operative 7–15–93 (Register 93, No. 29).
2. Repealer filed 6–30–95; operative 7–30–95 (Register 95, No. 26).

### § 17877. Record Maintenance Requirements.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 40051, 40052, 40053, 40054, 40055, 40056, 40057, 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 7–15–93; operative 7–15–93 (Register 93, No. 29).
2. Repealer filed 6–30–95; operative 7–30–95 (Register 95, No. 26).

### § 17879. Site Closure Standards.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 40051, 40052, 40053, 40054, 40055, 40056, 40057, 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 7–15–93; operative 7–15–93 (Register 93, No. 29).
2. Repealer filed 6–30–95; operative 7–30–95 (Register 95, No. 26).

### § 17881. Purpose, Scope, and Applicability.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 40051, 40052, 40053, 40054, 40055, 40056, 40057, 40116, 43020 and 43021, Public Resources Code.

HISTORY

1. New article 4 and section filed 7–15–93; operative 7–15–93 (Register 93, No. 29).
2. Repealer of article 4 and section filed 6–30–95; operative 7–30–95 (Register 95, No. 26).

### § 17883. Compliance with Laws and Regulations.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 40051, 40052, 40053, 40054, 40055, 40056, 40057, 40116, 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 7–15–93; operative 7–15–93 (Register 93, No. 29).
2. Repealer filed 6–30–95; operative 7–30–95 (Register 95, No. 26).

### § 17885. General Requirements.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 40051, 40052, 40053, 40054, 40055, 40056, 40057, 40116, 43020 and 43021, Public Resources Code; and 40 CFR, Part 261.

HISTORY

1. New section filed 7–15–93; operative 7–15–93 (Register 93, No. 29).
2. Repealer filed 6–30–95; operative 7–30–95 (Register 95, No. 26).

### § 17886. Compliance Period.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 40051, 40052, 40053, 40054, 40055, 40056, 40057, 40116, 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 7–15–93; operative 7–15–93 (Register 93, No. 29).
2. Repealer filed 6–30–95; operative 7–30–95 (Register 95, No. 26).

### § 17887. Environmental Health Standards.

NOTE: Authority cited: Sections 40502, 43020 and 43021, Public Resources Code. Reference: Sections 40051, 40052, 40053, 40054, 40055, 40056, 40057, 40116, 43020 and 43021, Public Resources Code.

HISTORY

1. New section filed 7–15–93; operative 7–15–93 (Register 93, No. 29).
2. Repealer filed 6–30–95; operative 7–30–95 (Register 95, No. 26).

[The next page is 763.]

# Appendix 12

**Meetings:**

1. Kelly Karaba, CRP Office Manager

HSU Campus Recycling Program (CRP) Meeting

Kelly Karaba, CRP office manager

Contact: kellykaraba@hotmail.com

1. General:

-Number of small buckets stationed around campus for composting = approximately 10

-the "J", Depot collection (prep./pre-consumer compost) = approximately 3 buckets/week

-CRP funding comes from a "trust fund"

-The compost gathered from the campus community is put in bins, turned, and then given to CCAT and the university "grounds" department to use

2. Campus compostable type/whereabouts:

-Pre-consumer: "as much as we can", sources include: shreddings from zero-waste events and "biodegradable stuff" from around campus, limiting factor = space, people, equipment

-Buckets on campus (in "high traffic" areas): put and pull out buckets everyday (pest problem), CRP does not use "pest-free" buckets because of price and associated bureaucracy

-Zero-waste events

3. Space (to process the compostable material):

-struggling for a permanent site on campus

-historically: the last site was near CCAT

-currently: now by Redwood Bowl (temporary site), the administration promised a site near the soccer field this past summer but it never happened

4. Concerns:

-may not get site due to compost "aesthetics", particularly the *perceived* "stench" of composting

-additionally, the athletics have a lot of "clout"/priority with administration

-after denying CRP the site near the soccer field, the administration tried pushing CRP up into the forest where there is no truck access, and would be difficult for the compost crew to get up to

5. Possible Solutions:

-CRP has been letter-writing to petition for the compost site near the soccer field (citing the advantages of the site, questioning the stalling (sports/compost conflict))

-Collect more, more permanent buckets, feasibility study and biodigestor on campus (get grants for ELECTRIC trucks)

-Resolve the space situation/need for the site near the soccer field: main contact, the head of Plant Operations (Tim Moxon), the new compost site would also be used for education and research purposes (large enough to do so), "Compost does not smell if it's taken care of!!" – Kelly

2. Luke Armbuster, CRP Director of Composting

Contact: luker_a@hotmail.com

1. Main impediments to large-scale composting on campus:

-lack of technical expertise in "compost processing"

-"university can only give so much space"

-lack of institutional/ad ministerial acceptance

-lack of structure (no large buckets, comparable to recycling and trash buckets)

-lack of funding/grants for improved buckets (at least "pest-proof")

3. TallChief 'TC' Comet, Sustainability Coordinator Contact: tcc4@humboldt.edu

1. Eureka Bio-digester
    a. Still working on feasibility study, out for public in about a month
    b. Project is a long way from being implemented
    c. They want HSU to be part of a trial
        i. Would need transportation and storage containers
        ii. We could still have to pay for disposal of waste but it would travel less and methane would be used so less greenhouse gas emissions associated with our biodegradable waste
    d. Bio-digester could take all pre and post consumer waste.
    e. Would need a lot of waste to be economically viable
        i. The more biodegradable waste the bio-digester gets the less it costs to give your waste to the bio-digester because the more energy the bio-digester would produce
        ii. Counting on HSU's input

2. On Campus

a. not sure of what is going on with CRP's collection at this point
b. They have been moved to an impermanent area near redwood bowl
c. Have been trying to get a permanent area
d. Waste audit has been done recently that will be forwarded to us

4. Meeting with Solid Waste Local Enforcement Agency (LEA) Program Manager Carolyn Hawkins, REHS; Solid Waste LEA Field Inspector Mark Johnson, REHS; HSU Director of Dining Ron Rudebock, along with TallChief "TC" Comet Sustainability Coordinator

Meeting with Solid Waste Local Enforcement Agency (LEA) Program Manager Carolyn Hawkins, REHS; Solid Waste LEA Field Inspector Mark Johnson, REHS; HSU Director of Dining Ron Rudebock, along with TallChief "TC" Comet Sustainability Coordinator

County's notification of composting operations at HSU

2003 planned university compost at that point exempt

2003, later same year the regulations changed

2005 phone update with Alex Coolie, still exempt

Legislation; HSU exempt under provisions that

a.No more than 500 cubic yards on site at one time

b.Can not sell more than 1000 cubic yards in a year

c.No more than 10% of compost can be food waste

Currently the "J" gives to CRP

d.Only Salad prep

e.never full containers "a couple times a week"

f.staff could use education and the J would be willing to provide that education if needed.

TC informed us of the bio-digester that is supposed to be placed in Eureka. He explained that a feasibility study was under way and that they were hoping to use HSU for a pilot program. Also we spoke with TC about the Campus Recycling Program's ability to create and maintain a large scale compost site on campus and the things we would need to address.

HSU Webmail po1@humboldt.edu

Re: meeting with students re recycling containers

Wednesday, November 12, 2008 8:13:23 AM

From: Patty.Lindley@humboldt.edu
To: Gary.Krietsch@humboldt.edu
Cc: mg3@humboldt.edu; mam112@humboldt.edu; bjn7001@humboldt.edu

Mornin' Gary... per note from Denice in our office, looks like Carl has asked Tim Moxon/TC to work with the students. Thanks, Patty

Patty Lindley
Administrative Assistant
Office of the President
Humboldt State University
Arcata, CA 95521
707-826-3311

----- Original Message -----
From: "Denice Helwig" <Denice.Helwig@humboldt.edu>
To: "Patty Lindley" <po1@humboldt.edu>
Sent: Wednesday, November 12, 2008 7:03:24 AM GMT -08:00 US/Canada Pacific
Subject: Fwd: meeting with students re recycling containers

Carl has asked Tim Moxon to have Tallchief work with them in a timely manner.
----- Forwarded Message -----
From: "Patty Lindley" <Patty.Lindley@humboldt.edu>
To: "Gary Krietsch" <Gary.Krietsch@humboldt.edu>
Cc: "Betty Newman" <bjn7001@humboldt.edu>, "Melanie Miller" <mam112@humboldt.edu>, "mg3" <mg3@humboldt.edu>, "Denice Helwig" <Denice.Helwig@humboldt.edu>
Sent: Tuesday, November 11, 2008 8:33:50 PM GMT -08:00 US/Canada Pacific
Subject: meeting with students re recycling containers

Hi Gary,

Stacey Bartram, who has worked with our office on projects in the past, apparently came in and spoke with Greta on Monday (see below). If you don't have time to meet with the students regarding this class project, is there someone else they could meet with (Wednesday, November 12, 2:00)? We would like to be able to respond to Stacey. Thanks, Patty

Patty Lindley
Administrative Assistant
Office of the President
Humboldt State University
Arcata, CA 95521
707-826-3311

----- Forwarded Message -----
From: "M. Greta" <Mary.Greta@humboldt.edu>
To: dh7003@humboldt.edu, kellym@humboldt.edu, mg3@humboldt.edu, "patty lindley" <patty.lindley@humboldt.edu>
Sent: Monday, November 10, 2008 3:08:45 PM GMT -08:00 US/Canada Pacific
Subject: Stacey Bartram

Stacey came by to see if we could help her with the following situation: for a capstone project, several students are applying for a grant to get new recycling containers on campus. They were told by Tim Moxon that they need to work with Gary Krietsch on this; however, they have not been able to reach Gary other than through email. Gary has indicated that he does not have the time now to meet with them, and he has told them that the new containers will not work - they are too heavy. The students think these new containers will work fine and would like to explain this to Gary.

The application for the grant is due Friday, November 14. The students were thinking they should go to Gary's supervisor. Stacey will come by the office Wednesday, around 1 pm, to see if we have any information for her. They would like to meet with Gary on Wednesday at 2 pm if possible. If we

could help arrange for Gary to meet with them at this time, Stacey would meet Gary outside the NR building and walk with him to the classroom where the meeting will be held.

Stacie's email is srb35 in case we want to reach her between now and Wednesday at 1 pm.

Any thoughts? /g

--
Special Assistant to the President
Humboldt State University
Arcata, CA 95521
707-826-3300

# Appendix 13

**Circle the best answer(s) please or fill in.**

**What is your class standing?**

Freshman Sophomore Junior Senior Faculty Administrator Staff Graduate School

**What is your major?**_____

**Is there a composting program on campus?**

Yes No Not know

**What materials can be composted?**

Meat Vegetables Plastic Paper Towels Egg shells
Coffee Grounds Banana Peels Wool socks Plywood
Soy milk Pet waste Pumpkin seeds

**Would you be willing to have a permanent composting on site to reduce our waste?**

Yes No

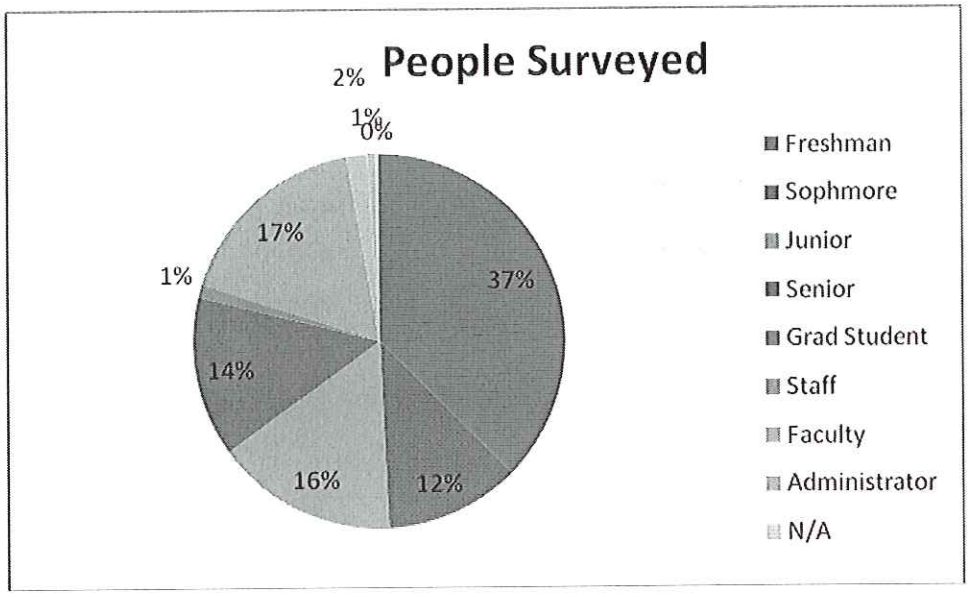
**Do you separate your waste?**

Yes No

**Would you be willing to use a food waste receptacle on campus?**

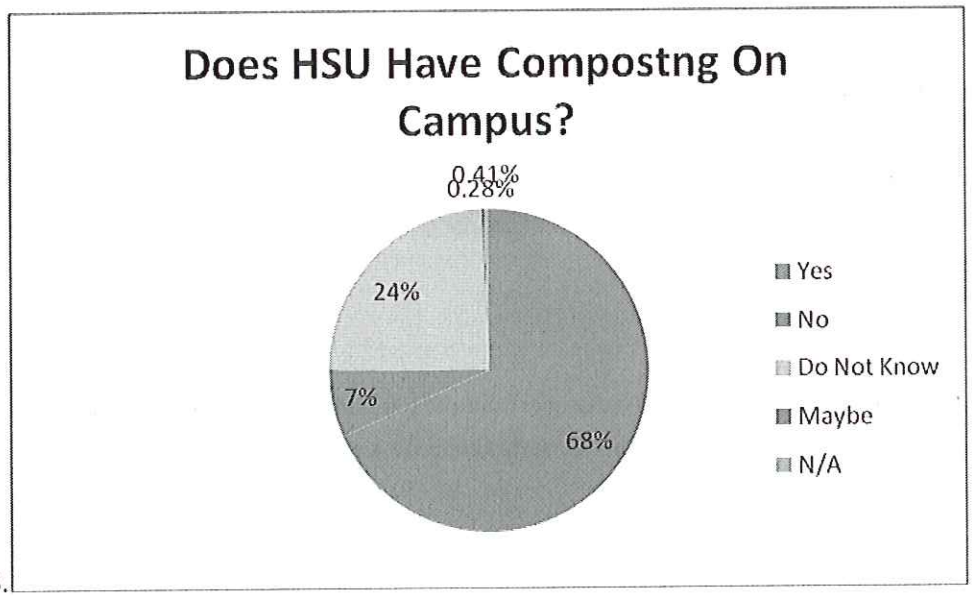
Yes No

# Appendix 14




A.

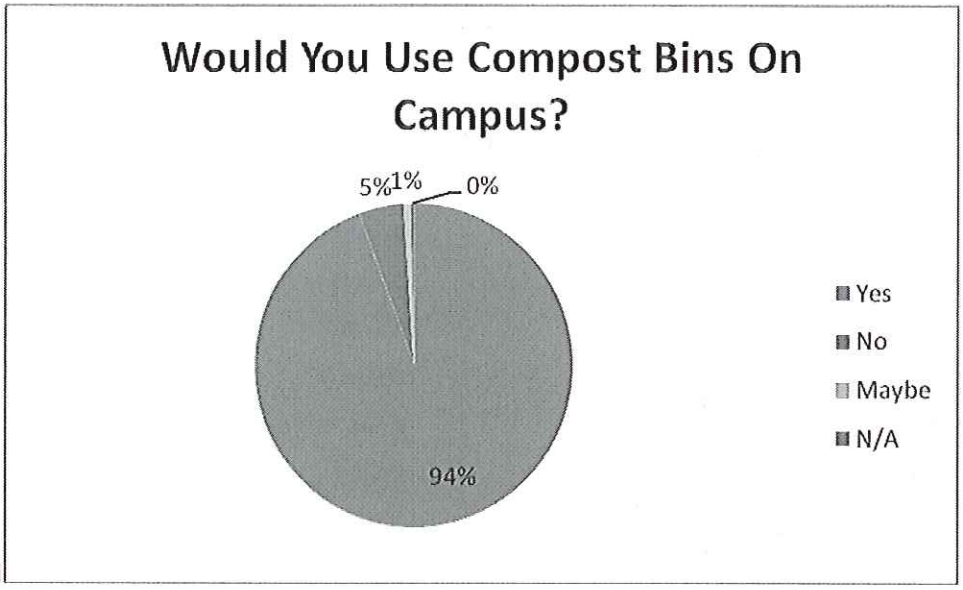
The majority of the people surveyed were freshmen but we did get responses from other students as well as faculty, administration and staff. There were a few of the surveys that were returned with nothing answered and therefore were placed under N/A.



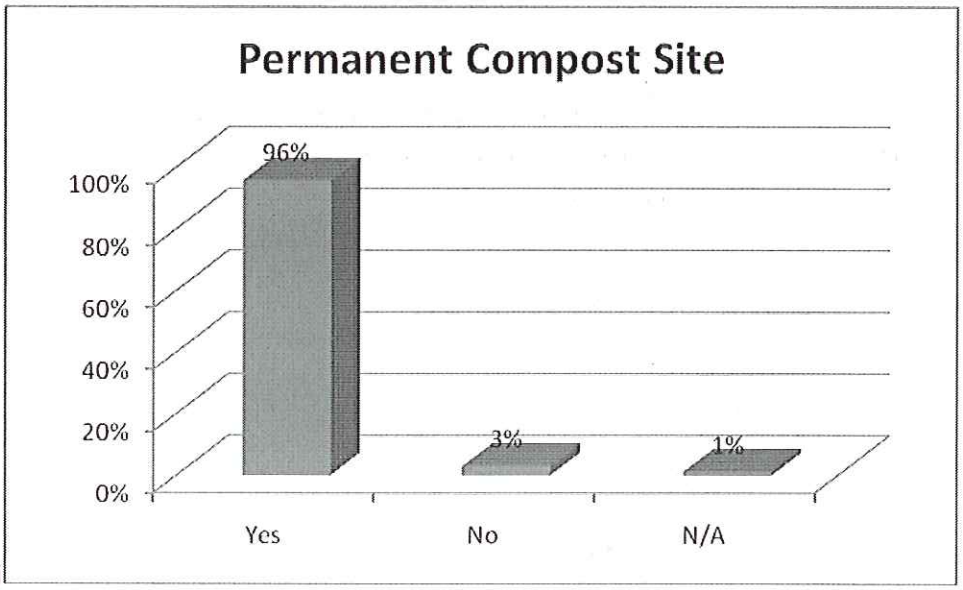

B.

There is a fair majority of the people surveyed that knew there was a composting program on campus. However, a little over a third of the people surveyed did not know or no. This was helpful because we believe once the permanent bins are placed on campus, all who answered "No" or "Do Not Know" they would learn that we do have a program on campus. Along with the stickers that are going to be placed on the bins we believe this would increase awareness and promote education.

C. i




ii




Both of these graphs show support of using and having permanent bins on campus. The overwhelming support shown by the people surveyed leads us to believe that the bins we propose will provide a service that would be highly used.

Appendix 15

| Date | Task or Lecher | Due Date | Who does it?/How long?/total |
|---|---|---|---|
| 9/10/2008 | Composting team | | |
| 9/10/2008 | The team talked about Composting on campus | 9/10/2008 | The Team |
| 9/10/2008 | looked at the Legal aspect of compost on campus | 9/152008 | Nick T. / 3hr. |
| 9/10/2008 | looked at why isn't the "J" is not composting & would they compost | 9/152008 | Stacie B. / 1hr. |
| 9/10/2008 | Look at the fact: what happen /Why was composting stopped | | Emily C. (don't know) |
| 9/12/2008 | **notes/work to SB 1hr.** | | |
| ** | The "J" would do it now but the reason why need to talk to "T.C. Comet Going to like & see him on Monday. | | Stacie B. |
| ** | The "J" does get a lot of their food locally, but they operation are year around. | | Stacie B. |
| ** | The given their food waste to a pig farm in the past. | | Stacie B. |

| | | | |
|---|---|---|---|
| 9/15/2008 | class meeting with team: Teem for 1 hour | 9/15/2008 | Nick & Stacie |
| 9/15/2008 | Talk to Kule or Luke Recycle (way for Emily) | no | Stacie B. |
| 9/15/2008 | Email Emily about What we found out about topic | 9/17/2008 | Nick / 1hr. |
| 9/17/2008 | class meeting with teem: Teem for 1 hour | 9/17/2008 | The Team |
| 9/17/2008 | talk about **meeting times** | 9/17/2008 | The Team |
| 9/17/2008 | Monday @ 1:00 pm -- 3:00 pm | 9/17/2008 | The Team |
| 9/17/2008 | Wednesday @ 2:00 pm -- 3:00 pm | 9/17/2008 | The Team |
| 9/17/2008 | When the Biodigestor is going in/oppational | 9/22/2008 | K ate / 2hrs. |
| 9/17/2008 | ASEE & other schools | 9/22/2008 | Emily / 1hr. |
| 9/17/2008 | Who is going to pay for the Trans.? | 9/22/2008 | Nick / 1hr. |
| 9/17/2008 | See if CT Comet would like to meet with the team | 39713 | Stacie B. / 1hrs. |
| 9/17/2008 | **notes/work to SB: 2 hours** | | |

| | | | |
|---|---|---|---|
| ** | talk to TC and found out that he may know of somebody that would have more information on the tuck and he would be better in answer our question | | Stacie B. |
| ** | see if CT Comet would like to meet with the team also | | Stacie B. |
| ** | to see if the person who Emily talk to would like to come to the the teem times to | | Stacie B. |
| 9/22/2008 | class meeting with teem: **for 2 hours** | **9/22/2008** | The Team & T. C. Comet |
| ** | T.C. comet would like to see HSU become the pilit problem for the Biodigestor | 9/22/2008 | T. C. Comet |
| ** | Grant for the tucks (team idea) | 9/22/2008 | The team |
| ** | need to see the report for the Boidegstor | 9/22/2008 | The team |
| 9/22/2008 | look into other city's way for composting (Biodigestor) | 9/24/2008 | Nick / **30 min.** |
| 9/22/2008 | Look into plant Opps. (what dothey do with the waste from land scapping?) | 9/24/2008 | Stacie / **15 min.** |
| 9/22/2008 | Look into the cost of trash. | 9/24/2008 | Kate / **30 min.** |
| 9/22/2008 | Look into farming where the compost can gob for the next 5 yr before the Biodigestor is build. | 9/24/2008 | Emily / **30 min.** |
| 9/22/2008 | **notes/work to SB: 1 hours** | | |
| ** | Grass & Ivy are send to a farm that can us it | | Stacie B. |
| ** | The tree clippings & leaves are us by the school | | Stacie B. |
| 9/24/2008 | class meeting with teem: **for 40 min.** | 9/24/2008 | The Team & Kelly Karaba |
| | | | |
| | The main point of the Composting problem is space on campus | | Kelly Karaba |
| 9/24/2008 | Look more into the law about composting & like to get a farm answer to the question of compost on campus | | Stacie / **6 hrs.** |
| 9/24/2008 | A form answer on does the "J" compost the waste. | | Stacie / **6 hrs.** |
| 9/24/2008 | Talk to Luke | | Emily / **30 min.** |

| 9/24-29/2008 | notes/work to SB: 6 hours | | |
|---|---|---|---|
| ** | talk to the Humboldt County Environment Hearth (Caralyn Hawkins) & up to 10% only can be food in the composting at any one time. | | |
| ** | 1000 cubic feet can be sold anaul | | |
| ** | the "j", the dopot, and window on compus are she consiter part of the campus at a whole (one intaty) Caralyn said. | | |
| 9/29/2008 | Team meet: for 2 hr. | | The Team |
| | We talked about the problem background & Statement | | The Team |
| | Have the team a better clarifyation about the law | | Stacie |
| 9/29/2008 | Take notes & type up the problem background & Statement | 10/1/2008 | Nick / 3 hrs. |
| 9/29/2008 | Type up this teem & the teem with Kelly, reach AB Kally, Contact CPPL., futher & cost of transiorting/ landfill, Composting " how to Shewy? And also help with the problem statement | 10/1/2008 | Emily / 4 hrs. |
| 9/29/2008 | Type up the teeming with TC & team | not here | Katie /no |
| 9/29/2008 | Call Carolyn ~~& Email team on things do~~ | 10/1/2008 | Stacie / 1 hr |
| 10/1/2009 | Problem background and Statemant due | | |
| 10/1/2008 | Team meet: for 1hr. | 10/1/2008 | The Team |
| 10/1/2008 | The teacher review the problem statement the team and talkabout the background and we need to narrow the problem statemant . | 10/1/2008 | Stacie, Emily, Nick, & Teacher met |
| 10/1/2008 | Email the team on things to do, look up cost of "pest port bins or compost receptical (move to next week) | | Stacie / 1, 1/2hrs. |
| 10/1/2008 | work and look into the background more (move to next week) | | Nick/ 0hrs. & Emily / 30min. |
| 10/1/2008 | Look into bigger bin (move to next week) | | Emily / 0hrs. |
| 10/6/2008 | Team meet: for 1hr. | 10/6/2008 | The Team |
| 10/6/2008 | The team talked about the Goals & Objective | 10/6/2008 | The Team |
| 10/6/2008 | Look up cost of Pest proof bins or compost | | Stacie/ 1hr |
| 10/6/2008 | Talk to Tim , look at the cost of big bins, help nick with the problem statement | | Emily / 1, 1/2hrs |
| 10/6/2008 | Work and look into the background more, type up the goals & Objectives | | Nick / 1-1/2hrs |

| | | | |
|---|---|---|---|
| 10/8/2008 | Team meet:with Carolyn Hawkins & Mark Johnson of the Humboldt County Environmental **for 1hr** | 10/8/2008 | Carolyn Hawkins, Mark Johnson, T.C. Comet, Ron & the teacher |
| 10/8/2008 | To get everybody on the same page about composting on campus | 10/8/2008 | |
| **10/13/2008** | **Goals & Ojective is due** | | |
| 10/13/2008 | Reach HEIP | 10/15/2008 | Nick /1hr |
| 10/13/2008 | Reach bins & catch Tim Moxin | 10/15/2008 | Emily / 1hr. |
| 10/13/2008 | Email people things to do | 10/15/2008 | Stacie / 1hr |
| 10/15/2008 | class meeting with team **for 1hr.** | | The team |
| 10/15/2008 | work on norrowing down the problem statement & work on the Goals & Objectives | 10/20/2008 | Stacie / 3hrs |
| 10/15/2008 | Meet with Nick to work on these things above together | 10/20/2008 | Nick / 1hr |
| 10/20/2008 | class meeting with team **for 1hr.** | | |
| 10/20/2008 | CRP about the history of the start of the recycle and composting problem Also the map of composting on campus | 10/22/2008 | Emily / 0hrs |
| 10/20/2008 | HEIP & other Grants | 10/22/2008 | Katie / 0hrs |
| 10/20/2008 | Email people things to do & go to the teacher to go over our paper | 10/22/2008 | Stacie / 1-1/2hrs |
| 10/20/2008 | ~~HEIP & other Grants~~ & compost servy | | Katie / |
| 10/22/2008 | class meeting with team **for 1hr.** | 10/22/2008 | The team |
| 10/22/2008 | Look for other grants | 10/27/2008 | Emily / 2hrs |
| 10/22/2008 | Add more to the papere for the class | 10/27/2008 | Nick / 0hrs |
| **10/27/2008** | **Weighing alternatives is due & meet for 1 hr.** | | |
| 10/27/2008 | We meet and worked no the Alternations and the Pro. & Con. Of each | 10/27/2008 | Stacie, Emily, & Nick |
| 10/27/2008 | going to CRP to talk Tim Moxin | 10/29/2008 | Emily / 1hr. |
| 10/27/2008 | Work on paper | 10/29/2008 | Nick & ~~Stacie~~ / 1-1/2hrs |
| 10/27/2008 | Email people things to do & Katie to see what is up. ~~Also, update the task list~~ | 10/29/2008 | Stacie / 1hr |
| 10/29/2009 | class meeting with team | | |
| 10/29/2008 | Write the meeting in paragraph, ~~update task list~~ | | Stacie / 4hrs. |

| | | | |
|---|---|---|---|
| 10/29/2008 | work on the grant App. | | Emily / 0 hrs |
| 10/29/2008 | Fix meet with TC. Into paragraph, work on the Grant App. | | Nick / 0hrs |
| 10/30/2008 | the team went to a meeting in the South loung to get up with the App. HEIP and more information | | Stacie, Nick, & Emily |
| **11/3/2009** | **Implementation Strategies is due** | | |
| 11/3/2008 | updata the task list & meeting into paragraph | | Stacie / 3hrs. |
| 11/3/2008 | work on the grant App. | | Emily & Nick / 1hr |
| 11/5/2009 | The team meet **for 2hr.** | 11/5/2008 | Stacie, Emily, Nick, Katie |
| 11/5/2008 | meeting into paragraph | | Stacie & Katie / 1hrs. |
| 11/5/2008 | Servay Question about composting & get grant outline and started | 11/102008 | Katie / 2 hrs |
| 11/5/2008 | talk to space & facilities Committer & work on life cycle cost Analysis | 11/10/2008 | Nick / 2hrs. |
| 11/5/2008 | contact park's people,& Plan Opps. about the stickers up data , installation | 11/10/2008 | Emily / done |
| 11/6/2008 | The team meet with CRP for 2hr. | 11/6/2008 | |
| 11/7/2008 | meet with Katie to put meeting into Paragraph | 11/7/2008 | Stacie & Katie |
| 11/10/2008 | class meeting with team | | |
| 11/11/2008 | meet to work on the grant App. (HEIP) | 11/11/2008 | Stacie, Emily, Nick, & Katie / 2hrs. |
| 11/12/2009 | Class meeting with team **for 2hrs.** | | The team |
| | Grant meeting this included the Budget, timeline, & the grant itself | | |
| 11/12/2009 | Check with TC. to meet on Thur. (11/13/2008 at 1-2pm) for more Questions | Done that day | Stacie & nick / no time spent / 5 min. |
| 11/12/2008 | Work more on the grant App. | 11/17/2008 | Katie / 24hrs |
| 11/12/2008 | ~~the other meeting into paragraph do next week~~. Meeting with TC & get a letter of support from CRP Kelly | 11/17/2008 | Emily / 5hrs |
| 11/13/2008 | Meeting with TC | 11/13/2008 | The team & TC. |
| 11/14/2008 | meetin to finish the grant at 4:00pm | 11/14/2008 | Emily, Nick & Katie |
| **11/17/2009** | **Monitoring and Evaluation plan is due** | | |
| 11/17/2008 | met to work on the Monitoring & Evaluation plan | 11/17/2008 | Emily & Stacie / 1-1/2hrs |

| | | | |
|---|---|---|---|
| 11/17/2008 | the other meeting into paragraph | | Emily / 2hrs |
| 11/17/2008 | Synopsis =a short "blurb" of the meeting do for Wednesday | | Stacie / 1hr |
| 11/19/2008 | class meeting with team about presentation on Monday | | The Team |
| 11/19/2008 | send Stacie surveys | 12/1/2008 | katie/done |
| 11/19/2008 | work on serving and toweling them | 12/1/2008 | Stacie/ 5hrs. |
| 11/20/2008 | more work on surveying | 12/1/2008 | Stacie /3hrs |
| 11/20/2008 | meeting with CRP @ 5:00 | 12/1/2008 | Stacie /1 & 1/2hrs |
| 11/30/2008 | survey toweling | 12/1/2008 | Stacie/ 6hrs. |
| 12/1/2008 | class meeting with team | | |
| 12/1/2008 | Surveys | 12/3/2008 | Stacie / 6 hrs |
| 12/1/2008 | Team meet | 12/3/2008 | Nick, Stacie, & Emily / 4-1/2hrs |
| 12/1/2008 | look into excell fix | 12/3/2008 | nick/ 30min. |
| 12/1/2008 | start powerpoint | 12/3/2008 | Emily & Nick 3hrs |
| 12/1/2008 | the paper | 12/3/2008 | Katie / 2hrs. |
| 12/1/2008 | Surveys | 12/3/2008 | Stacie / 3-1/2hrs |
| 12/2/2008 | survey toweling | 12/3/2008 | Stacie / 3hrs |
| 12/3/2008 | class meeting with team | | |
| 12/3/2008 | Survey toweling | 12/6/2008 | stacie / 6hrs |
| 12/3/2008 | paper | 12/6/2008 | Katie / 2hrs |
| 12/3/2008 | powerpoint | 12/6/2008 | Emily & Nick / 6hrs |
| 12/6/2008 | Survey toweling & send to katie | 12/6/2008 | Stacie / 8hrs |
| 12/6/2008 | Analizing on Survey | 12/8/2008 | Katie / 10 hrs |
| 12/6/2008 | look over powerpoint | 12/8/2008 | The team / 2-1/2hr |
| 12/8/2008 | Presentations begin | | |
| 12/8/2008 | meet to look over and make last minutes changes | 12/8/2008 | The Team / 2hrs |
| 12/9/2008 | team meet to work on the paper | | The Team / hrs |
| 12/10/2008 | Writing project is due | | |
| | Composting Team | | |

| name | e-mail or phone | | |
|---|---|---|---|
| Stacie | stacie.bartram@gmail.com | | |
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