COLD CREEK COMPOST FACILITY USE PERMIT

Response to Comments Addendum

January 16, 1998

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ESA Environmental Science Associates

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Prepared for:
Mendocino County
Department of Planning
and Building Services

225 Bush Street
Suite 1700
San Francisco,
California
94104
(415) 896-5900

315 Washington Street
Suite 102
Oakland,
California
94607
(510) 839-5066

700 University Avenue
Suite 130
Sacramento,
California
95825
(916) 564-4500

4221 Wilshire Boulevard
Suite 480
Los Angeles,
California
90010
(213) 933-6111

ESA Environmental Science Associates

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TABLE OF CONTENTS

COLD CREEK COMPOST
RESPONSE TO COMMENTS ADDENDUM

		Page
S.	SUMMARY	S-1
I.	INTRODUCTION	I-1
II.	ORAL COMMENTS & RESPONSES	II-1
	Public Hearing Summaries	II-2
	1. Pano Stephens	II-2
	2. Betty Ball	II-3
	3. Francine Long	II-3
	4. Cathy Henry	II-3
	5. Loula Miller	II-3
	6. Dale McCulley	II-4
	7. Clarke Miller	II-4
	8. Vicki Oldham	II-4
	9. John Hawthorn	II-4
	10. Eric Anderson	II-4
	11. Mary Goodwin	II-5
	12. Rob Anderson	II-5
	13. Planning Commissioners' Comments, June 5, 1997	II-5
	14. Planning Commissioners' Comments, June 19, 1997	II-34
III.	WRITTEN COMMENTS & RESPONSES	
	State and Regional Agencies	
	A. Governor's Office of Planning and Research	III-2
	B. California Integrated Waste Management Board	III-5
	C. California Department of Forestry and Fire Protection	III-12
	D. California Department of Forestry and Fire Protection	III-14
	E. California Regional Water Quality Control Board - North Coast Region	III-16
	G. University of California Cooperative Extension, Mendocino County	III-22
	County and Local Agencies	
	H. Mendocino County Air Quality Management District	III-24
	I. Mendocino Emergency Services Authority	III-28
	J. Mendocino County Local Enforcement Agency	III-31
	K. Mendocino County Planning Commission	
	L. Mendocino County Department of Public Works	III-44
	M. Mendocino County Water Agency, May 16, 1997	III-48
	N. Mendocino County Water Agency, June 19, 1997	III-50

		Page
	Project Applicant and Property Owner	
O.	Cold Creek Compost, Inc.	III-52
P.	Charles C. Guntly, Property Owner	III-65
	Community Organizations	
Q.	Gary and Betty Ball, Mendocino Environmental Center	III-67
	Businesses	
R.	Alder Springs Ranch & Vineyard	III-88
S.	Bell & Echo Vineyards	III-90
T.	Burgess Tire	III-92
U.	Ceago Vineyards	III-94
V.	The Howland Agency	III-96
W.	Keith's Family Food Center	III-99
X.	Masonite Corporation	III-101
Y.	Mendocino County Employers Council	III-103
Z.	Mountain Maples	III-105
AA.	Warbonnet Rock Products	III-108
	Individuals	
BB.	Odell E. Combest	III-110
CC.	Raymond and Rose Ellis	III-112
DD.	Mary Goodwin	III-114
EE.	Rebecca Grant	III-144
FF.	Donald J. and Maureen Hillard	III-146
GG.	Sigvart Horneman	III-149
HH.	Christina Kelly and Bob Steiner	III-151
II.	Patricia Kovner	III-153
JJ.	Francine Long	III-155
KK.	Elizabeth Jane Magruder	III-169
LL.	John Mayfield Jr.	III-171
MM.	Dale McCulley	III-173
NN.	Bill Neese	III-176
OO.	Vicki Oldham	III-178
PP.	Esther M. Smith	III-185
QQ.	Katherine Stornetta	III-187
RR.	Bruce Strichler	III-190
SS.	Eric Sunswheat	III-193
TT.	Janine Thill	III-197
UU.	Anonymous	III-205
VV.	Form Letter	III-207
IV.	STAFF-INITIATED TEXT CHANGES	IV-1
V.	INDEX	V-1

Page

FIGURES AND TABLES

C&R 1	Aerial Photo of Project Area (see Comment Q6)	III-79
Figure 2.2	Project Area Topography (see Comment J3)	III-39
Figure 2.2a	Additional Amendments Area (see Comment J3)	III-40
Table 13-1	Historic Origin of Truck Trips (see Comment 13-5)	II-21
Table 13-2	Traffic Analysis at Full Operational Capacity (see Comment 13-5)	II-21
Revised	Table from page 2-13 in DEIR (see Comment B2)	III-10
Table J-1	Operations Locations (see Comment J2)	III-37
Table Q-1	Potential Pollutants from Compost Materials	III-78

ATTACHMENTS

A. Information provided with Comment Letter Q (Mendocino Environmental Center)
B. Information provided with Comment Letter DD (Mary Goodwin)
C. Information provided with Comment Letter JJ (Francine Long)
D. Page 3 of the Plain English Guide to Biosolids (In response to Comment MM5)
E. Engineering Progress Report for Construction of the Compost Pad (Comment DD43)

CHAPTER I
EXECUTIVE SUMMARY

INTRODUCTION

Cold Creek Compost, Inc. (CCCI) has proposed a Use Permit (#U 26-93) for a mixed solid waste composting facility located on the Guntly Ranch, approximately 10 miles northeast of Ukiah. Current operations at the facility include composting operations of various source-separated organic materials. The Use Permit would allow the facility to compost a greater range of materials, including vegetative matter (primarily grape pomace and yard wastes from local cities), biosolids, restaurant waste, and fishery waste.

On April 7, 1997, the County circulated a Draft Environmental Impact Report (DEIR) regarding this project for public review and comment in accordance with the California Environmental Quality Act (CEQA). The DEIR is intended to inform decision-makers and the public of the possible environmental impacts of the Use Permit, to determine whether these impact could be significant, to identify methods whereby significant impacts could be reduced to less-than-significant levels, and to discuss possible alternatives to the proposed project. CEQA Guidelines specify that the Final EIR shall consist of the following:

- the DEIR or a revision of that draft;
- comments and recommendations received on the DEIR;
- a list of persons, organizations, and public agencies commenting on the DEIR;
- the response of the Lead Agency to significant environmental points raised in the review and consultation process; and
- any other information added by the Lead Agency.

This Response to Comments document was prepared with the assistance of Environmental Science Associates. It responds to all comments received during the public review period for the DEIR. It also lists text changes to the DEIR deemed essential as a result of the CEQA review process. This Response to Comments document, together with the DEIR, constitutes the Final EIR for the proposed project. To that end, the DEIR is hereby incorporated by reference into this report. The DEIR is available for review at the Mendocino County Department of Planning and Building Services.

TIPS ON USING THIS RESPONSE TO COMMENTS ADDENDUM

The inputs received on the DEIR were oral comments from two Planning Commission meetings and written comments. The oral comments are responded to in Chapter II. Chapter II begins with the summary of the public hearing on the project held on June 5, 1997. Each comment has been labeled with an identification number for reference to its response. The summary of the public hearing is presented together followed by all the responses to the comments on June 5, 1997. Next, Section II presents a summary of the continuing Planning Commission comment on the project from the June 19, 1997 Planning Commission meeting. This summary is followed by all the responses to the comments from the June 19, 1997 meeting.

Chapter III contains copies of all written comments received. Each comment has been labeled with an identification number for reference to its response. Immediately following each comment letter are the responses to the written comments. Three comment letters added extensive information that was not in the form of comments. To improve the readability of Chapter III, this information was moved to the Attachments A, B, and C. The Table of Contents identifies the location of comments from a particular agency or individual.

Some comments and responses in this document resulted in text that should be changed in the Draft EIR. Text with a line through it (strikethrough) is removed from the Draft EIR; underlined text is added to the Draft EIR.

Chapter V, the Index, provides a guide to different topics addressed in this Response to Comments Addendum. The bolded response to comments in the index provide the significant responses that address a particular topic.

CLARIFICATIONS OF THE PROPOSED PROJECT

Since publication of the DEIR, the project applicant provided additional information regarding the proposed project. In particular, additional information has been given about the following aspects of the project:

- Regarding hours of operation and nighttime lighting, the applicant has further clarified that extended deliveries of materials outside the regular hours of 7 a.m. to 6 p.m. will be limited to times when there is natural lighting. In addition, nighttime operations will be limited to times of the year when it becomes dark before the close of regular operating hours, and any facility lighting would be directed downward so that direct light does not shine off-site. For more information, please see the responses to Comments J1 and 13-11.

- A visible monitoring system has been added to the leachate tank, and secondary containment has been added around the tank. These measures will help reduce the possibility of the leachate tank overflowing, which was identified as a significant impact of the project. For more information, please see the responses to Comments 13-51 and 13-52.

- The number of truck trips to the proposed facility at full operating capacity has been re-evaluated, using site-specific data from 1996 and the first half of 1997. At full capacity of 50,000 tons of incoming feedstock per year and 10,000 tons of additives and amendments, the number of heavy-duty truck trips was calculated to be 12.4 per day, or approximately one trip per hour of operation (see response to Comment 13-5). This figure is considerably lower than the 40 round trips per day analyzed in the DEIR. In addition, the backhaul factor was calculated to be approximately 20% (that is, only 20% of the outbound trips were deliveries made by a truck that arrived empty at the facility). For more information, please see the response to Comment 13-5.

Additionally, since publication of the DEIR, there have been changes in regulatory responsibilities related to water issues and coordination thereof between the LEA and the Regional Water Quality Control Board. Starting October 1, 1997 the LEA (in addition to enforcing 14 CCR) will inspect for compliance with the revised SWPPP and any future Waste Discharge Requirements (WDRs). The LEA shall refer any compliance issues under the SWPPP or WDRs to the Regional Water Quality Control Board for evaluation and enforcement. The current SWPPP (September 24, 1997) allows the storage of feedstocks, additives, and amendments outside of the roof structure during wet weather, provided the material is securely tarped. See responses to Comments J2, O28 and 13-7 for more details regarding operations during wet weather.

IMPACTS AND MITIGATION

As indicated on pages S-1 and S-2 of the DEIR, the EIR focuses primarily on issues specified by the Court. The Court summarized their concerns into two issues (as corrected per response to Comment DD4).

1. The effect of compost leachate on domestic water wells in the area, the Russian River and Lake Mendocino, and

2. The public health impacts on the ground and surface water, *Aspergillus fumigatus* and the impacts related to traffic noise, safety and odors.

The EIR includes analysis of the effects of the project with potential to affect the environment, including the following issues not mentioned in the original court order (see response to Comments O1 and DD4):

- Visual impacts of the roof structure
- Water quality impacts other than those posed by leachate, including sediment and contaminated storm water runoff.
- Impacts on water supply (East Fork Russian River, Cold Creek, groundwater)
- Traffic impacts on local roadways
- Air quality impacts, other than odor and aspergillus
- Potential for impacts on wildlife and biological resources
- Public health and safety impacts beyond those cited in the court order, including worker health and safety, fire potential, vectors, hazardous materials, and dust.

The impacts of the project are summarized in Table 1 (included at the end of the Executive Summary). Table 1 also lists measures identified to mitigate these potential impacts. The mitigation measures in Table 1 would reduce all of the significant impacts to less-than-significant levels. Therefore, there are no unavoidable significant impacts of the project that can not be mitigated. Mitigation measures in **"bold text"** in Table 1 have been modified by the comments and responses in this Response to Comments Addendum.

As a final note, it is again pointed out that the EIR has analyzed the entire operations of CCCI (for reasons cited on page 1-4 of DEIR). However, the County still considers composting of animal wastes to be a land use right at this site. Therefore, in reality, the changes in environmental impacts result from the new types of feedstocks including; vegetative matter (primarily grape pomace and yard wastes from local cities), biosolids, restaurant waste, and fishery waste. The issue of composting most of these new feedstocks did not invoke many new issues, because most of the potential negative environmental effects related to processing the new feedstocks already have the potential to occur from the composting of animal wastes. Biosolids, on the other hand, raised some new issues, of most concern being the introduction of a feedstock that could contain hazardous levels of heavy metals and human pathogens. The primary concerns for biosolids are the potential for cross-contamination of other on-site materials and the potential for water runoff from the site to contain human pathogens. The handling of biosolids would not raise the probability or likelihood of contaminated runoff leaving the site, but would increase the possibility of the runoff containing human pathogens and/or increased levels of heavy metals. The EIR does include mitigations related to biosolids, see response to Comment Q38.

ALTERNATIVES

The DEIR considered three alternatives to the project.

A. The **No Project Alternative** assumes that the CCCI would continue animal waste composting on its site as permitted under the existing land use zoning of the site, and would not expand the feedstocks to the extent proposed by Use Permit # U26-93.

B. The **Off-Site Alternative** evaluates the composting facility project as proposed at an alternative off-site location near Covelo.

C. The **Reduced Project / Mitigated Alternative (No Biosolids)** evaluates the compost facility at a reduced facility design capacity of 30,000 tons per year on incoming materials, and considers a number of design modifications that would further reduce any potential negative environmental impacts of the project. This alternative removes sewage sludge biosolids as a potential feedstock.

As described beginning in the last paragraph on page 5-1, per the CEQA Guidelines (Section 15126[d]), Table 5.1 in the DEIR (pages 5-2 and 5-3) was analyzed to determine which of the alternatives is the environmentally superior alternative. On the basis of the impacts of the alternatives shown in Table 5.1 in the DEIR, the Reduced Project / Mitigated Alternative would be the environmentally superior alternative because the environmental impacts of the Reduced Project / Mitigated Alternative are generally less than the project or the No-Project Alternative. The impacts analysis of the alternatives does not consider the potential benefit of the project to divert solid wastes from going to landfills and produce a product with agricultural benefits. When this broader perspective is considered, it is not clear if any of the alternatives to the project (analyzed in the DEIR) would be environmentally superior to the project.

This EIR does not identify any significant, unmitigable impacts associated with the access road or with the facility itself. As described in response to Comment JJ8, the County as Lead Agency has, however, decided to evaluate other access routes to the site. Two alternate routes have been identified. These roads are shown on Figure C&R 1 (see comment Q6) and discussed in response to Comment JJ8.

Although the two alternative access roads discussed above would reduce noise from the access road at some residences, the development and implementation of these access roads would result in construction-related environmental impacts that would not occur with the project (since the access is developed already). Noise generated from the use of the Alternative Route B would have a less-than-significant affect on a new set of residential receptors.

TABLE 1: SUMMARY OF IMPACTS AND MITIGATION MEASURES /1/

Impact	Significance Threshold	Significant?	Mitigation	Significant with Mitigation?
VISUAL				
3.1.1: Construction of the roof could degrade the views from surrounding areas.	A substantial, demonstrable negative aesthetic effect would be considered significant.	No	***Proposed as Part of the Project*** a. The slope of the roof shall not exceed one foot vertical to 12 feet horizontal, which will minimize the surface area visible off site. b. The roof ridge shall be oriented northwest-southeast, which will limit the visibility from the north and northwest. c. The compost pad shall be approximately 4,800 feet from the nearest off-site residence. d. **Any facility lighting shall be directed downward so that direct light does not shine off the site.** e. **A final site closure plan shall be prepared for acceptance by Planning and Building Services and Environmental Health at least 90 days prior to closure. The plan shall provide for the restoration of the site to its natural state, to the maximum extent reasonably feasible, including removal of all feedstock, additives, equipment, and non-permanent structures; grading to natural and stable contours; and reseeding and replanting with native or native-like vegetation.**	No
HYDROLOGY AND WATER QUALITY				
3.2.1: Stormwater runoff may carry leachate or contaminants into natural drainages that flow into the East Fork Russian River,	Substantial degradation of water quality would be considered significant. Discharge of wastewater to any	Yes	***Proposed as Part of the Project*** a. **The project applicant shall conduct active composting and storage of saturated feedstock under the roof structure during periods of wet weather. Finished**	No

TABLE 1: SUMMARY OF IMPACTS AND MITIGATION MEASURES /1/

Impact	Significance Threshold	Significant?	Mitigation	Significant with Mitigation?
compromising the water quality of the East Fork Russian River and Lake Mendocino.	branch of the Russian River is considered "substantial."		**compost, compost additives, and compost amendments including lime, wood ash, gypsum, and dry feedstocks, including ground wood waste and ground greenwaste, that have the potential of causing contaminated storm water runoff, shall be either stored under the roof structure or, if appropriately tarped during periods of wet weather, outside on the compost pad or at the designated auxiliary storage site. Storm water monitoring will be performed at the site to determine if tarping prevents production of leachate and contaminated storm water runoff. Additionally, additives and amendments that would normally be stored on the pad outside of the roofed area, if received during periods of wet weather in a saturated condition, shall be placed under the roof so that any leachate will be collected by the leachate collection system.** b. **The project applicant shall maintain the specified grade to avoid ponding of stormwater. In addition, the auxiliary additives and amendments storage area, near the water storage tanks, will be graded to promote lateral runoff and rocked to prevent rutting. The perimeter of the auxiliary storage area will be planted with grass and the edge of the area will be bermed or straw-bale diked to trap sediment. Piles of additives and amendments will be tarped during wet weather to prevent contact with stormwater, and during dry weather, as necessary, to prevent blown dust. Dust suppression will be employed during loading and unloading of materials, if necessary, to prevent blown dust.**	

TABLE 1: SUMMARY OF IMPACTS AND MITIGATION MEASURES /1/

Impact	Significance Threshold	Significant?	Mitigation	Significant with Mitigation?
			c. The project applicant shall clean the pad of any compost and feedstock before the first storm event of the year. d. **During periods of wet weather, the project applicant shall keep the ends of the windrows within the perimeters of the drainage system under the roof.** d1. **The facility shall maintain compliance with its SWPPP and, when they are developed, its Waste Discharge Requirements.** ***Identified in this EIR*** e. The project applicant shall take steps to prevent or repair rutting caused by heavy equipment. f. In accordance with the terms of the SWPPP, which prohibits contact of ". . . composted or uncomposted material with stormwater," the project applicant shall cease use of compost for filling tires used to weight tarps placed over finished compost piles. g. The area around the perimeter of the roof structure is likely the greatest current source of uncontrolled leachate. This area receives the heaviest traffic and is the most difficult to keep clean of compost and feedstock. The project applicant shall take steps to prevent rutting and ponding of the pad surface. This could be accomplished by paving the area, or by other means agreed to by the NCRWQB. h. The facility shall receive only sewage sludge biosolids that meet federal EPA Part 503 Class B standards for pathogen reduction, that have met one of the Part 503 options for vector attraction reduction, and that meet Part 503 pollutant	

TABLE 1: SUMMARY OF IMPACTS AND MITIGATION MEASURES /1/

Impact	Significance Threshold	Significant?	Mitigation	Significant with Mitigation?
			limits for "exceptional quality" biosolids (see discussion in Public Health and Safety section on federal EPA Part 503 Biosolids Rules). In addition, only biosolids with no free liquids shall be accepted. When biosolids are received, they shall be tipped onto a surface that is thoroughly protected from stormwater contact, and that is completely cleanable, such as a concrete pad. Tipping materials onto an absorbent material, such as wood chips, would aid in complete cleaning. Wastewater from cleaning of equipment and surfaces used to handle biosolids shall be collected and treated, or applied to fresh composting material as process water. Biosolids shall not be stored or stockpiled; they shall be processed and placed in windrows the same day they are received. To reduce the likelihood of production of uncontrolled leachate or biosolids-contaminated wastewater, biosolids shall not be received during wet weather. Any leachate collected in the leachate collection system while uncomposted biosolids are on the site shall either be tested for pathogens or treated with the assumption that it contains pathogens. Use of biosolids leachate shall be restricted to application to fresh piles of compost that have not yet undergone thermophilic decomposition. The leachate tank shall be maintained to ensure that human pathogens do not continually recontaminate leachate entering the tank, for example by completely emptying and/or disinfecting the tank after it has received biosolids leachate. All water equipment used for pumping, piping, and storage of water, including the tank truck, will be managed in a similar fashion if they are used for handling biosolids leachate.	

TABLE 1: SUMMARY OF IMPACTS AND MITIGATION MEASURES /1/

Impact	Significance Threshold	Significant?	Mitigation	Significant with Mitigation?
			i. **If stormwater monitoring indicates that incidental or "fugitive" compost material is found to be a source of leachate contaminating runoff from the site, additional steps will be taken to ensure that exposed portions of the compost pad are kept free of such material during periods of wet weather. This may require a revision of the facility's SWPPP, and approval by the NCRWQCB.** j. **If leachate production from winter storms overwhelms the capacity of the leachate tank and the ability of the facility operator to prevent overflowing the tank, the project applicant shall install roll-up tarps or other devices to prevent rain from blowing in under the roof structure.**	
3.2.2: Stormwater may carry sediments into natural drainages that flow into the East Fork Russian River.	Substantial degradation of water quality would be considered significant. Discharge of wastewater to any branch of the Russian River is considered "substantial."	Yes	***Proposed as Part of the Project*** a. **The facility's SWPPP includes measures for dust control and protection of materials from contact with rainwater and stormwater runoff that could lead to transport of sediment off site. The most important of these measures are storage and processing of materials under the roof during periods of wet weather, tarping of finished product stored on the unroofed portion of the pad during periods of wet weather, maintenance of a grade from the center of the pad outward in all directions, and maintenance of a grass buffer around the perimeter of the pad.** b. **The applicant plans to expand the existing roof structure to three times its current size, to cover approximately 60% of the pad. Unroofed portions of the pad will continue to be used for storage and processing during periods of wet weather as long as**	No

TABLE 1: SUMMARY OF IMPACTS AND MITIGATION MEASURES /1/

Impact	Significance Threshold	Significant?	Mitigation	Significant with Mitigation?
			materials are securely tarped to prevent contact of composted or uncomposted materials with rainwater, as stated in the facility's Storm Water Pollution Prevention Plan. c. The haul road to the facility is rock surfaced, ditched, and culverted. d. Energy dissipaters are used at the outfall of the roof drains, and the channels into which these empty are rock-lined. ***Identified in this EIR*** e. Energy dissipaters shall be used on the culverts on the haul road. f. In areas where sediment is accumulating on the edge of the pad and threatening to enter ephemeral stream channels, such as on the north edge of the pad, the project applicant shall construct a silt fence consisting of strawbales and filter fabric, or other appropriate filter materials.	
3.2.3: Leachate may percolate through the compost pad and contaminate groundwater.	Substantial degradation of groundwater quality would be considered significant.	No	***Proposed as Part of the Project*** a. The compost pad is compacted, graded, and rock surfaced. If properly maintained, this should prevent percolation of leachate through the pad. b. The roof structure is fitted with a leachate collection and storage system. This should prevent pooling of leachate beneath the roof structure and reduce the possibility of leachate percolating through the soil.	No

TABLE 1: SUMMARY OF IMPACTS AND MITIGATION MEASURES /1/

Impact	Significance Threshold	Significant?	Mitigation	Significant with Mitigation?
			Identified in this EIR	
			c. Remedial measures shall be taken to ensure that the integrity of the compost pad is not compromised by placement or movement of heavy equipment or vehicles. (See Mitigation 3.2.1g).	
3.2.4: Storage tanks for leachate and brewery process water could leak, overflow, or topple in an earthquake, causing a spill.	A spill of a large volume of water into the ephermal channels that drain into the Russian River would be considered significant.	Yes	***Proposed as Part of the Project***	No
			a. Storage tanks are placed on top of concrete pads, and are attached to the pads with steel bolts.	
			Identified in this EIR	
			b. A qualified engineer shall inspect the tank attachment system and make recommendations on any necessary improvements to ensure that the tanks would be stable during an earthquake.	
			c. **Secondary containment structures shall be constructed around the tanks. The structures shall have the capacity to hold all of the liquid held in the tanks, and will be engineered to withstand the pressure of a catastrophic tank failure, in which the entire tank contents are suddenly emptied. Secondary containment structure design shall be reviewed and approved by the NCRWQCB. The berms shall be seeded and mulched to prevent erosion and maintain their integrity.**	
			d. The applicant shall prepare an amendment to the SWPPP, describing procedures for monitoring the level of leachate collected in the leachate storage tank during storms. Care must be taken to ensure that the tank does not overfill during a storm event. In case the tank reaches capacity	

TABLE 1: SUMMARY OF IMPACTS AND MITIGATION MEASURES /1/

Impact	Significance Threshold	Significant?	Mitigation	Significant with Mitigation?
			during a storm event, the applicant shall drain the tank and transport the collected leachate to another storage container. e. Because of the highly corrosive nature of compost leachate, the leachate storage tank shall be inspected annually by a qualified engineer to certify its integrity.	
3.2.5: Water drawn from the East Fork Russian River of from springs feeding Cold Creek during drought conditions for use as process water or road quench water could reduce flows in either of these streams and impact other beneficial uses of the streams.	Depletion of water supply would be considered significant.	Yes	*Proposed as Part of the Project* a. **Deleted by County – mitigation not acceptable without further review.** *Identified in this EIR* b. **The applicant shall limit diversions from the East Fork Russian River, and from springs feeding Cold Creek to times when the flow of the East Fork Russian River is a minimum of 20 cfs.** c. **Any water diversions from the East Fork Russian River shall be limited to a suction velocity not to exceed 0.33 cubic feet per second (cfs). All diversion inlet pipes shall be screened according to California Department of Fish and Game recommendations. A screen size of 5/32 of an inch is recommended.**	No
AIR QUALITY				
3.3.1: Emissions of criteria air pollutants generated by operation of the proposed project would increase total air pollutant emissions in the region.	Emissions of criteria air pollutants resulting in exceedances of state standards would be considered significant.	No	*Proposed as Part of the Project* a. **The first 600 feet of the facility access road, from the point of its intersection with Potter Valley Road, shall be paved to minimized dust generation and entrainment of dust and soil onto Potter Valley Road.**	No

TABLE 1: SUMMARY OF IMPACTS AND MITIGATION MEASURES /1/

Impact	Significance Threshold	Significant?	Mitigation	Significant with Mitigation?
3.3.2: Increased composting operations and increased diversity of feedstocks could increase the concentration of odors at the locations of downwind receptors.	Substantial off-site odor complaints due to project operations would be considered significant.	No	***Proposed as Part of the Project*** a. All incoming feedstocks shall be managed to minimize odors. b. Active windrows shall be turned frequently enough to maintain aerobic conditions within the windrows. c. Process water shall be added as necessary to keep windrows at a moisture content of 40% to 60%. ***Identified in this EIR*** d. The project sponsor, together with either the LEA or MCAQMD (whichever agency is responsible for odors, per AB 59 or any revisions), shall formulate a progressive odor management protocol. This protocol will allow the project sponsor to respond to odor complaints and revise operations as necessary. The LEA and/or the MCAQMD shall notify the project sponsor of all odor complaints received for the composting facility. The protocol shall include progressive measures to be made in the event of repeated verified complaints. When the LEA or MCAQMD verify strong compost odors at off-site residences, the sponsor shall make changes in site operations to reduce the potential for odors. Odor may be reduced by limiting incoming throughput, limiting incoming materials to certain types of feedstocks, installing odor control equipment, removal and disposal of the odiferous compounds, or other activities. e. If required by the LEA or MCAQMD, neutralizers, deodorizers or other management practices shall be employed to reduce odors.	No

TABLE 1: SUMMARY OF IMPACTS AND MITIGATION MEASURES /1/

Impact	Significance Threshold	Significant?	Mitigation	Significant with Mitigation?
			f. **Fresh materials shall be managed to decrease odors. Management practices for odor control for fresh materials shall include rapid incorporation into windrows or feedstock mixing piles, covering of fresh material with finished compost, treatment with odor control products, or other methods.** g. **Feedstock mixing piles shall be managed to control odors from becoming an offsite nuisance. Management practice for odor control of the feedstock mixing piles may include forced aeration of the piles, channeling of exhaust from piles through a biofilter, or other methods.** h. **Feedstock mixing piles with odor strength that could affect site neighbors (such as an identified aerobic pile) shall not be broken down when atmospheric conditions may carry odors to neighbors.** i. **If feedstock mixing piles cause recurring validated odor complaints for off-site receptors, their use will be discontinued, until an effective operating method to manage these piles is developed offsite and its use approved by the County.**	
3.3.3: Increased composting operations could increase *Aspergillus fumigatus* concentrations at nearby sensitive receptors.	A substantial increase in *Aspergillus* spore concentrations at off-site receptors due to project operations would be considered significant.	No	***Identified in this EIR*** a. **The project sponsor shall install a windsock or other wind direction monitoring device at the facility. To the extent possible, windrows will not be turned on days when the wind is blowing directly toward nearby residences.**	No

TABLE 1: SUMMARY OF IMPACTS AND MITIGATION MEASURES /1/

Impact	Significance Threshold	Significant?	Mitigation	Significant with Mitigation?
NOISE				
3.4.1: Project-generated vehicle traffic would result in an increase in ambient noise levels to residences directly adjacent to the access road.	A substantial increase in ambient noise levels of adjoining areas due to project operations would be considered significant.	No	*Identified in this EIR:* a. **To reduce noise from trucks descending the facility access road, empty trucks shall not use their jake brakes. Loaded trucks may continue to use their jake brakes as a safety measure. The facility operator shall instruct truck drivers not to use their jake brakes if they are leaving the site empty. In addition, a sign shall be posted at a point on the road above where the trucks normally apply their jake brakes, stating that empty trucks shall not use their jake brakes.** b. **The speed limit on the access road shall be set at 20 MPH. The facility operator shall post the speed limit at both ends of the access road.** c. **Trucks leaving the facility will have their beds swept or washed out before leaving the site. The facility operator will instruct trucks leaving the site not to slam their trailers as they descend the hill.**	No
3.4.2: Operation of heavy-duty equipment at the site, such as the loaders or grinder, will increase ambient noise levels at nearby receptors.	A substantial increase in ambient noise levels of adjoining areas due to project operations would be considered significant.	No	None	No

TABLE 1: SUMMARY OF IMPACTS AND MITIGATION MEASURES /1/

Impact	Significance Threshold	Significant?	Mitigation	Significant with Mitigation?
3.4.3: The project could result in an increase in the cumulative noise levels in the project area.	A substantial increase in ambient noise levels of adjoining areas due to project operations would be considered significant.	No	***Proposed as Part of the Project*** a. Noise from project operations shall be limited to 55 dBA, L_{dn}, at the nearest off-site receptor. b. **Operations at the site are limited to 7 a.m. to 6 p.m., except for when extended daylight allows for materials deliveries after 6 p.m. in the spring planting season (March to May) and in the fall grape crush (September to November).**	No
PUBLIC HEALTH AND SAFETY				
3.5.1: Workers at the Cold Creek Compost Facility could be exposed to hazardous materials brought to the site.	Worker exposure to hazards would be considered significant.	No	***Proposed as Part of the Project*** a. Facility staff shall visually inspect all incoming materials. b. Hazardous wastes, if found, shall be held in locked storage and appropriate notifications would be made to assure proper disposal of those materials.	No
3.5.2: Worker exposure to hazards during composting operations could exceed levels protective of health or safety.	Worker exposure to hazards would be considered significant.	Yes	***Proposed as Part of the Project*** a. New employees shall be provided copies of the RCSI, the SWPPP and the facility Use Permit, and shall be familiarized with requirements of all regulatory agencies. All employees shall be familiarized with facility operations and with the contents of the CIWMB LEA Advisory No. 6, regarding *Aspergillus fumigatus*. b. The Facility Manager shall schedule regular health and safety meetings to ensure regulatory compliance, and update facility personnel with any changes or new information pertaining to worker health and safety.	No

TABLE 1: SUMMARY OF IMPACTS AND MITIGATION MEASURES /1/

Impact	Significance Threshold	Significant?	Mitigation	Significant with Mitigation?
			c. Water and equipment for dust suppression shall be available at grinding, turning, screening, and dry material unloading operation areas. d. Temperature and moisture monitoring of windrows shall be employed. e. Facility personnel and visitors would be provided with hard hats, gloves, earplugs, dust masks/respirators, safety goggles, and disposable coveralls pursuant to State law and OSHA regulations. f. Facility personnel shall be provided with hearing protection equipment (e.g., ear muffs or ear plugs) pursuant to State law and OSHA regulations. g. Facility access should continue to be controlled to discourage unauthorized entry by persons or vehicles, and shall not be open to the public. h. The facility shall be equipped with signage, sanitary facilities, water supply, communications, equipment, lighting, and a back-up generator. i. Any accidents that occur shall be recorded in a daily log kept at facility offices. ***Identified in this EIR*** j. Site employees shall wear a high visibility vest during all facility operations so as to be easily seen by other workers and visitors to the site.	

TABLE 1: SUMMARY OF IMPACTS AND MITIGATION MEASURES /1/

Impact	Significance Threshold	Significant?	Mitigation	Significant with Mitigation?
			k. Newly introduced feedstocks, such as sewage sludge biosolids, shall have feedstock-specific worker health and safety plans developed as part of the permitting process. l. Best Management Practices (BMPs) shall be implemented to minimize exposure of facility workers. This should include: • A handout shall be developed which explains in common terms the health aspects and proper handling procedures for waste products. The handout will be distributed to all current employees and new employees. • All facility operations personnel shall be trained in safe, proper composting procedures and related activities. Proper operating procedures should be reviewed annually and be repeated as needed for new employees. m. **As necessary to prevent visible dust, additives and amendments shall be securely tarped.** n. **Ash from Masonite Corporation boilers shall be tested annually for pollutant concentrations during each calendar year in which it is accepted as an additive or amendment. Ash will also be tested prior to acceptance if Masonite begins burning fuels other than clean wood, natural gas, and residue from their manufacturing process. Ash will also be tested when the scrubber ponds are emptied. Ash will be tested for levels of heavy metals, dioxins, furans, and aromatic hydrocarbons. Test results will be forwarded to the LEA and to the NCRWQCB, where they will be made available for public inspection.**	

TABLE 1: SUMMARY OF IMPACTS AND MITIGATION MEASURES /1/

Impact	Significance Threshold	Significant?	Mitigation	Significant with Mitigation?
3.5.3: Composting operations would increase the potential for hazards that could pose threats to public health or safety.	The creation of a public health hazard would be considered significant.	Yes	***Proposed as Part of the Project*** a. Temperature and moisture monitoring of windrows shall be employed. b. A perimeter fire break, including removal of brush and combustible fuels, shall be maintained. Clearing of vegetation for fire protection shall minimize disruption of vegetation root structures and soil-holding properties, such that erosion is minimized. The width of the fire break will be determined in consultation with the Fire Marshal or with the California Department of Forestry. c. All equipment shall be fitted with spark arresters. d. **The existing roof structure and all expansions of the roof structure shall be equipped with a sprinkler system.** e. Any special or unusual occurrences such as fire, property damage, or incidents related to hazardous wastes shall be recorded in a daily log kept at the facility offices. f. The project applicant shall install fencing adequate to exclude range animals and contain litter, as approved by the Planning and Building Services Department. At a minimum, fencing shall encompass the compost pad. g. The applicant shall employ appropriate management techniques to eradicate vectors identified by the LEA.	No

TABLE 1: SUMMARY OF IMPACTS AND MITIGATION MEASURES /1/

Impact	Significance Threshold	Significant?	Mitigation	Significant with Mitigation?
			Identified in this EIR h. **The applicant shall install a standpipe on the compost pad with a 21/2 inch fire department connection, leading from the 22,000 gallon fresh water tank. The tank shall be kept filled with at least 10,000 gallons year-round. The standpipe will be labeled "Fire Fighting Purposes Only." The applicant shall maintain a 200 foot minimum clearance around piles, a 30 foot minimum clearance around structures, and shall maintain roads for fire access year-round.** i. **If vectors become a problem, the project applicant shall implement a vector eradication program using a professional pest control service. If vectors become a problem in the feedstock mixing piles, in order to reduce vector attraction, the applicant shall discourage the vectors by covering the feedstock mixing piles with a 6-12 inch layer of insulating material, such as finished compost. If feasible, non-toxic methods shall be implemented.** j. The Applicant shall develop a detailed operating plan to be reviewed by the LEA, prior to accepting any sewage sludge biosolids. The operating plan shall identify likely sources of material, material characteristics (percent solids, Class A or Class B designation, constituents, etc.), volumes and types of materials, material flow through the facility, plans to reduce pathogens, plans to educate employees about potential health risks associated with sewage sludge biosolids, plans to prevent biosolids from re-contaminating finished product or windrows that have begun the pathogen reduction process, and other relevant information as requested by the LEA.	

TABLE 1: SUMMARY OF IMPACTS AND MITIGATION MEASURES /1/

Impact	Significance Threshold	Significant?	Mitigation	Significant with Mitigation?
			k. **Only clean woodwaste shall be accepted as a feedstock or bulking agent. The facility operator shall specify in contracts with suppliers of woodwaste that no painted, varnished, or pressure-treated wood will be included in loads delivered to the site. Any contaminated wood brought to the site shall be segregated from feedstocks and disposed of properly, pursuant to state compost regulations.** l. **Any sewage sludge biosolids accepted as a feedstock must be shown through analysis by a State certified analytical laboratory to have radioactivity no greater than 1 picocurie per gram.**	
TRAFFIC AND CIRCULATION				
3.6.1: The proposed project would generate new off-site vehicle trips, including truck trips, on roadways serving the project site. The projected increase in daily vehicle trips would not significantly disrupt traffic flow or increase congestion on roadways serving the project site.	An increase in traffic hazards to motor vehicles due to the project would be considered significant.	No	None	No
3.6.2: (Interim between implementation of the proposed project and the completion of the County-planned realignment/bridge replacement): The existing	An increase in traffic hazards to motor vehicles due to the project would be considered significant.	No	None	No

TABLE 1: SUMMARY OF IMPACTS AND MITIGATION MEASURES /1/

Impact	Significance Threshold	Significant?	Mitigation	Significant with Mitigation?
project access road intersects with Potter Valley Road along the south approach to the East Side Potter Valley Road Bridge (State Bridge 10C-102). The County has determined the bridge and south approach to the bridge to have existing safety deficiencies. The introduction of project traffic at this location would increase the potential for conflicts.				
3.6.3: (Interim between implementation of the proposed project and the completion of the County-planned realignment/bridge replacement): Instances could occur when project trucks that would need to wait along the shoulder of Potter Valley Road outside the project entrance would be prevented from doing so by the presence of recreational-related parked vehicles associated with McKee County Parkway.	An increase in traffic hazards to motor vehicles due to the project would be considered significant.	No	***Identified in this EIR*** a. Post "No Parking" signs on northbound approach to the project access road on Potter Valley Road (east shoulder of roadway). This mitigation measure would prohibit parking by recreationists from McKee County Parkway along the access road approach, and maintain this stretch of shoulder for project trucks to wait. However, to be effective, this measure would require enforcement by the Mendocino County Sheriff's Department.	No

TABLE 1: SUMMARY OF IMPACTS AND MITIGATION MEASURES /1/

Impact	Significance Threshold	Significant?	Mitigation	Significant with Mitigation?
3.6.4: The existing project facility access road is unpaved along its length, and steep and winding in sections. This roadway could pose a traffic safety hazard if unsafe driving conduct occurred by truck operators.	An increase in traffic hazards to motor vehicles due to the project would be considered significant.	No	***Identified in this EIR*** b. The applicant shall post a speed limit on the project access road that would ensure safe travel speed by project traffic. c. The applicant shall review their system of using radio control to coordinate access in and out of the facility in light of the proposed increase in truck traffic on this road. d. An accident reporting system shall be prepared that would allow immediate contact of emergency services if a truck accident should occur on the project access road. e. The applicant shall be responsible to assure that the access road is properly maintained for safe driving conditions.	No

/1/ Bolded mitigation measures have been added or revised by text in the Response to Comments Addendum.

CHAPTER II

ORAL COMMENTS AND RESPONSES

Chapter II contains the oral comments received at the Mendocino County Planning Commission public hearing on the project held on June 5, 1997, as well as comments by the County Planning Commissioners received at an additional meeting held on June 19, 1997. Each comment has been labeled with an identification number for reference to its response. Responses to the comments follow the meeting summaries.

Some comments and responses have resulted in text that should be changed in the Draft EIR. Text with a line through it (strikethrough) is removed from the Draft EIR; underlined text is added to the Draft EIR.

MENDOCINO COUNTY PLANNING COMMISSION
MINUTES - FINAL
JUNE 5, 1997

3(A). #U 26-93 - GUNTLY/MILECK/COLD CREEK COMPOST - South of Potter Valley

Request: Review and comment on the Draft Environmental Impact Report for a use permit to establish a mixed solid waste composting facility

Mr. Falleri briefly discussed the process for site viewing projects explaining that the public may attend the site visit, however, are not allowed at that point to make comments. He explained that this hearing is to make comments on the Draft Environmental Impact Report and not to make comments regarding the merits of the project. The consultant will respond to the comments in the Final Environmental Impact Report.

Mr. Eric Anderson, applicant, requested that the Commission and public remain on the access road and the project site. He advised the Commission that this is a working ranch and requested that no one stray off the project site. He also advised the Commission that several operations will not be conducted on the site while the site view is being conducted to insure public safety.

Ms. Pam Townsend, project coordinator, requested that Commissioners and members of the public try to identify specific locations within the Draft EIR which they are addressing so that the consultant can properly respond to the comments in the Final EIR. Ms. Townsend briefly discussed the project.

The Commission recessed at 9:12 a.m. and conducted a site visit of the project. All Commissioners and various members of staff and the public attended the site visit. The meeting reconvened at 10:52 a.m.

Ms. Townsend briefly discussed the history of the project. She circulated a reading file to the Commission. In response to Chairman Piper, Ms. Townsend briefly discussed the consultant selection process.

Chairman Piper opened the public hearing and advised the public that comments will be limited to three minutes.

Mr. Pano Stephens commented:

The EIR (Page 2-11, Section 2.2.7) indicates that the current zoning is Rangeland. He stated that he has reviewed the zoning ordinance and does not find where anything but animal waste processing is permitted in the RL District. Legal Counsel and the consultant should address consistency of processing sewage sludge and ash with the Zoning Ordinance. The definition for animal waste processing contained in Section 20.032.035 of the Zoning Ordinance does not include sewage sludge. The EIR is "off base" in the assumption that the applicant can process other materials. 1-1

On Page 2-1 and various other locations throughout the EIR, the applicant appears to be Cold Creek Composting, Incorporated. When the project was first processed, the applicant was M&M Feed and Mileck. Mr. Stephens questioned whether proper procedures have been followed for changing the applicant and commented that there is no discussion of the change of applicant in the EIR. Mr. Stephens felt that the EIR should address the potential for the corporation declaring bankruptcy and "wash its hands of the potential nuisance." 1-2

On Pages 3-1 and 3-2 and various other areas, under environmental setting, the EIR describes the property as being timberland, crop production and cattle. The Guntly's have some cattle and vineyard, however, the area is primarily residential. The project is an industrial manure factory being put into a residential neighborhood and the project should be viewed in that light. The property is not timberland. 1-3

Regarding water supply (Pages 2-8, 2-15 and 3-15), the EIR indicates that the applicant will be using 21,000 gallons of water per day. If they cannot get the water from the well, they will take it out of the east fork of the Russian River and Cold Creek utilizing riparian rights held by the owner of the property. He commented that there is no discussion within the EIR of the riparian rights, whether the rights exist to utilize the water for this project and what impacts this usage may have on other property owners' riparian rights since the Guntly's have only been using riparian rights for domestic, cattle and agricultural operations and have not established riparian rights for an industrial operation. 1-4

The EIR ignores evidence submitted to the courts regarding noise, traffic, air quality and Aspergillus. 1-5

Ms. Betty Ball, Mendocino Environmental Center, commented that, after going on the site visit, it reinforces that this DEIR is not adequate. She stated that she is disappointed in the content of the DEIR. 2-1
She stated that they have submitted written comments into the record. She stated that they are concerned with the quantity of waste being brought to the site. That is a very great impact on any area. She expressed concern about the introduction of biosolids. Ms. Ball questioned what the wood wastes brought to the site are treated with. She expressed concern with chemicals that might be introduced by way of the wood waste. The DEIR indicates that no hazardous material will be introduced, however, requested that the consultant investigate what toxic substances may be on the wood waste. She also questioned what chemicals might be on the grape pomace and what chemicals might be on the Masonite ash. To date, these products have been considered innocent components, however, that may not be the case. 2-2 2-3

Ms. Francine Long, adjacent property owner, commented that she has lived in this area for 27 years. They bought the property when there were no services at the site. They developed the property expecting it to be an investment for the future. She commented that they were never brought into the project process until after Mr. Mileck started the process. They have been inundated with horrific smells. They could not conduct a barbecue in their yard due to these smells. She commented that she also has a problem with the truck noise. These things affect the quality of their life and value of their property. There will be up to 80 truck trips on the road. She felt that this is unfair and they do not want to live with this unpleasantness. She also expressed concern that there could be an accident where a truck ends up in the river or could possibly run someone over. She felt that the EIR is very biased. It never discusses noise within ¼ mile of the site. The consultant preparing the DEIR did not discuss the project with adjacent property owners and it is deficient. An alternative site in Covelo would be an appropriate way to handle this or relocating the site and road elsewhere on the Guntly Ranch. 3-1 3-2 3-3 3-4 3-5 3-6

Ms. Cathy Henry commented that she attended a meeting in Potter Valley 14 months ago and she asked what the maximum number of trucks would be on the site and was told there would only be 14 trucks and has now been told that there will be 40 and therefore she is concerned with the truck traffic. 4-1

Ms. Loula Miller, adjacent property owner, commented that the trucks start early in the morning and stop late at night. She stated that the water truck operates at all times. She expressed concern with the dust and noise from trucks. 5-1

Mr. Dale McCulley commented that the consultant measured the noise with a meter. That is not an adequate way to measure sound. He is concerned that the kind of sound introduced by the complex is unacceptable in the rural environment. It is not the kind of noise normally associated with a rural environment. The air movement does not take into account the effect that occurs during warm weather when cold air slides down the slope, collects and concentrates on the valley floor, and in the morning the sun heats the air and it moves back up the slopes. They have enjoyed this breeze and would not like to have it contaminated by Aspergillus or by the odors associated with the site. The applicant is not a partner, he is a predator with the "public be dammed" attitude. He expressed concern that he was never notified of this project until after it was up and running. This gives us great cause for concern about the future of a project so conceived and maintained. 6-1 6-2 6-3

Mr. Clarke Miller stated that he lives ¼ mile from the access road. The working ranch is not a problem, however, this is a heavy industrial use and is not an agriculture operation. He objected to the tax payers paying for a bridge. The applicant has created extra traffic and should pay for the bridge. 7-1 7-2

Ms. Vicki Oldham commented that she lives upstream from the site out of view. She read a letter into the record which is on file with the Department of Planning and Building Services. The letter addresses Masonite ash in detail, contamination from run off, traffic, noise and smell, impacts to McKee County Park providing recreational and animal habitat. The letter also expresses concern regarding the applicant's failure to obtain required permits and operating in violation. The applicant has a reputation of doing what they want and considering violation fines the price of doing business. The applicant cannot be trusted to handle biosolids. After reviewing weight and volume records, she questioned how we can trust that the incoming materials will not exceed 400 tons per day or 50,000 tons per year. Monitoring should be frequent and unexpected. Violations should be expensive. The entire ranch should be inspected for hidden stockpiles of feedstock and amendments. She recommended the no project alternative be considered with the added mitigation of no Masonite ash allowed. 8-1

Mr. John Hawthorn commented that he is opposed to the operation. They originally stated that there is no one within a one mile radius and as could be seen from the site view there are numerous residences near the site. The fence around the site does not keep animals from the site. He stated that he took a water sample today. The smell is directed toward his home. The County needs to look and ask what is really going on at the site. He is concerned that the run off will be directed toward the creek and onto the lake which provides water supplies for Mendocino and Sonoma County. He commented that he has seen material "oozing" from the trailers. Many times they drive up the road and leave a stench from the oozing material. They coated the road this week to keep the dust down, however, they should keep it treated all the time. He had concern regarding the dust generated by the truck traffic. He questioned who would pay for the clean up if there is a spill. 9-1 9-2 9-3 9-4 9-5 9-6

Mr. Eric Anderson, applicant, commented that they will be submitting written comments. The DEIR has been expensive and time consuming. He stated that they are pleased with the Draft EIR. It is difficult to focus on a Draft EIR which addresses the appropriate technical and scientific information when you are presented with the testimony presented today. It is their hope that the Planning Commission focus is on the DEIR and technical and objective analysis of the project. They have been operating for two years and during that time they have not received a single confirmed odor complaint. The project has been inspected and no complaints have been confirmed. Just as these folks had the opportunity to build a home in an agricultural area, so does Mr. Guntly have the right to make use of his property. Regarding the ash, he commented that the information is available to support use of the ash and that their operations do not represent a significant threat to the public health or environment. There are two other permitted facilities in Mendocino County and the Commission may want to visit those sites to compare how this facility is operated. They are proud of the mitigations implemented for the project and they will continue to be an environmentally responsible company. 10-1 10-2 10-3 10-4

Ms. Mary Goodwin commented that odor complaints have been made and she submitted copies into the record. She objected to the forum of the public hearing. Many people were unable to determine when they should show up for the hearing. There is insufficient forum for expressing comments due to the lack of specificity on the agenda. She requested that Commissioner McCowen recuse himself from action on this project due to the fact that he has actively promoted this enterprise before the Ukiah City Council. She also requested that Chairman Piper, if Fetzer Vineyards, his employer, is still doing business with the applicant, abstain from the proceedings. Regarding riparian rights, she stated that she has enclosed copies of existing rights to a very limited right to water from Cold Creek. They have no rights to pump from the Russian River. It should not be assumed that the DEIR is correct regarding water sources. The DEIR should go back to the drawing board on every single impact including water. There is no analysis of the toxicity and pathogenicity of materials hauled to the site. The DEIR wrongly and illegally limits the scope of its analysis. The court order was amended to be comprehensive. The DEIR does not address biological wildlife, aesthetic, land use impacts, recreational and other issues that address the environment and cumulative impacts. The DEIR does not provide for realistic alternatives. The No Project alternative under CEQA means "no project" and restoration of the site. This is a major industrial operation in an otherwise rural area. The DEIR does not properly address visual impacts. This is on top of the mountain with a metal structure where no structures formerly existed. The DEIR is flawed in many other aspects and she indicated that her written comments address these issues.

11-1
11-2
11-3
11-4
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11-6
11-7

Mr. Rob Anderson, Anderson Valley Advertiser, addressed Masonite ash. The Commission should know that we know what Masonite is burning but not in what quantities. They refuse to make public the quantity over the last five years. We would have to go to court to find out in what quantities they are burning. The only tests of the ash are tests done and paid for by Masonite itself. We need independent tests on the material.

12-1

The public hearing was declared closed.

Commissioner Barth commented, Page 3-48 on the public health and safety portion gives a long laundry list of agencies that are involved. She questioned whether there is a lead agency that will really keep an eye on this. She questioned whether there is one agency that the public can call if they have a problem and not be referred to other agencies, "where the buck stops." Who will be responsible for inspecting and monitoring and keeping neighbors informed if there is a problem? Regarding monitoring on Pages 2-15 and 2-16, she questioned why it isn't possible to monitor for heavy metals at the two monitoring sites. The product is monitoring anyway at these sites. She had questions regarding the wood, fly and scrubber ash. She felt that we need more information on what this material contains. On 3.6, she felt there should be some discussion regarding relocation of the access road. She felt that introduction of sewage sludge is a major change and there should be an amendment to the DEIR to address this issue in more detail. This is where it gets into something that can cause a lot more hazard than what is presently being processed.

13-1
13-2
13-3
13-4

Commissioner Thomas questioned how many truck trips will be brought in from outside the County. Ms. Townsend indicated that materials may be brought in from other Counties. She did not know how many would be generated from outside the County.

13-5

Commissioner Berry questioned how critical Masonite ash is for the operation and how much is used per cubic yard of compost. He questioned what the dripping contents were noted by Mr. Hawthorn. Mr. Eric Anderson indicated that he does not know what the materials could have been. They have asked repeatedly that members of the public contact them if they see a problem. They even have a complaint form at the site. The only material might be when they haul grape pomace which means it would be grape juice. They generally use about 10 percent by weight of the ash. The ash is a valuable nutrient.

13-6

The ash is classified as an amendment (rather than a feedstock) consistent with state law. Ash is not a organic decomposed material, therefore, it is classified as an amendment.

Commissioner McCowen commented that one of the primary mitigations for controlling leachate is to conduct composting operations under the roof except during the rainy season which is not defined. He asked when the operation began conducting operations outside the roofed area. Mr. Anderson responded that they began operations on May 16th. They do not do active composting outside between October 1st and May 15th. There is an issue mentioned in the EIR regarding Condition Number 6 in the solid waste facilities permit. That condition says that all operations during the winter must be conducted under the roof. They do intend and would like to conduct grinding and screening operations outside. That would be done during dry weather conditions. The impacts during the winter are associated with storm water contact with raw manure. Woody materials do not present those significant problems. Commissioner McCowen questioned whether it would be appropriate to move the material back from the edge of the roofed area to minimize contact with blown in water. Mr. Anderson indicated that they cannot control the blown in water, however, they keep the material and resultant leachate within the perimeters of the drainage system. Materials will not drain off the pad. 13-7

Commissioner Calvert commented that on Page 2-9, at the bottom of the page, the Planning Commission denied the use permit on November 17, 1994 because additional information was required. In the bottom paragraph on Page S1, she noted that the Board of Supervisors did not uphold an appeal by the Planning Commission but rather of the Planning Commission's decision. She also noted correction of the spelling of "Supervisors". She had the same comment regarding the second paragraph on Page 1-1. She noted that, on Page 2-5 under Section 2.1.3, Item 4 in the FEIR she would like to see something that reflects what happened with the elimination of the leachate ponds. 13-8 13-9

Commissioner Calvert noted, on Page 2-9, in the second paragraph, the term 22,000 gallons of potable well water (only) is used. Figure 2.3 presents information that says drinking, fresh and gray water. She requested that the terms be consistent. 13-10

Commissioner Calvert noted that on Page 2-17, nighttime operations are expected during the period of the fall grape crush and that it is expected that no more than one or two nighttime deliveries per hour will occur. On Page 3-5, at the end of the first paragraph under Impact 3.1.1, it states that nighttime operations will not be conducted at the facility, so no lighting will be used which could cause glare. She noted that these sections need to be made consistent. She also noted, given the hours of operation, it needs to be taken into consideration that it gets dark at 5:00 p.m. in the winter and lighting could be affected if deliveries are made after that time. 13-11

Commissioner Calvert commented that in the fourth paragraph on Page 3-18, the spelling of the Guntly's name should be corrected. 13-12

Commissioner Calvert noted, under Mitigation Measure 3.2.1 (Page 3-20), there is a discussion in the second sentence saying the finished compost "should" be stored under roof structure or appropriately tarped. She questioned why "should" is being used rather than "shall." She had the same comment regarding the third to the last sentence of the same Mitigation Measure. 13-13

Commissioner Calvert commented, on Page 3-25, that the references were very useful but wondered if it would be possible to footnote those references throughout the text to make it easier to read. 13-14

Commissioner Calvert noted on Page S-2, under Number 8 at the bottom of the page, that it refers to 40 truck round trips per day. She also noted that, on Page 3-31, Table 3.3.1, footnotes "a" and "b" identify 13-15

40 truck round trips as well as 3 water truck trips per day. The discussion should consider both private haul trucks as well as the three water truck trips per day. 13-16

Commissioner Calvert commented that she had some confusion on S-3 at the top of the Page under 9. There is discussion about water coming from Mendocino Brewing Company and it was not clear if that water is included in the 40 truck round trips or not. If it is included, it should be made clear that it is included. 13-17 Another point that she found confusing was on Page 3-40, under Location A in the second line it says the property is used as a County parkway. The term County parkway should be clarified. 13-18

Commissioner Calvert also noted, on Page 3-44, Impact 3.4.1 is not clear on whether the 40 truck round trips includes the water trucks and the trucks bringing in the water from the Mendocino Brewing Company. 13-19

Commissioner Calvert questioned use of "should" rather than "shall" in Mitigation Measure 3.5.2 on Page 3-56. She had the same question regarding the second paragraph at the top of Page 3-57. 13-20

Commissioner Calvert commented that, on Page 3-65, Mitigation Measure 3.6.3, "No parking" signs would be enforced by the Mendocino County Sheriff. She questioned why it did not also list the California Highway Patrol. 13-21

Commissioner Calvert commented, on Page 5-4 under Visual Resources, that the EIR states that the No Project alternative would not involve nighttime operations which would not be accurate in relation to the delivery of grape pomace. 13-22

Commissioner Calvert complimented the consultant on the glossary section which contains acronyms which she found very helpful. 13-23

Commissioner Heckeroth commented that he loves compost but at this scale it's a totally different thing. This is at an industrial scale and there are many things that have not been adequately addressed in the EIR. 13-24 The most important one is the energy involved in getting the materials to the site. It is important that operations be regionally located to reduce the travel time. It is not in Mendocino County's interests to have waste products from another county brought in. The issue of wood ash concerns him. In Fort Bragg there was a similar facility and that facility had problems with LP wood ash because of the spray used on the wood. Small traces of dioxin can have an effect on people when it gets up stream in the food chain. 13-25 There is only one reference to testing of the wood ash on Page 3-52. That is only one test. One test is not the basis for approving all future samples. The wood ash should be regularly tested. 13-26 Using energy as the criteria for deciding where to place these facilities, you will have much smaller facilities related to whatever waste needs to be taken care of. 13-27 Masonite should take care of its waste without pawning it off on another community especially considering the travel distances. As we get closer to running out of oil supplies, we have to find more localized ways of dealing with waste so that we are not hauling wastes around. 13-28

Chairman Piper noted that the Commission has a timed item at 1:30 p.m. and will return to this item if time permits after conclusion of the timed item.

3(A). #U 26-93 - GUNTLY/MILECK/COLD CREEK COMPOST - South of Potter Valley
(Continued from Earlier in Session)

Request: Review and comment on the Draft Environmental Impact Report for a use permit to establish a mixed solid waste composting facility

Chairman Piper commented that his feelings follow closely with Commissioner Calvert's comments. Some of the errors and inaccuracies which she pointed out and the need to cleanup the nature of the night time activities at the site. 13-29

Commissioner Berry commented that there are a lot of things that need to be mitigated such as the noise, traffic and night time operations. He stated that composting is a good thing to do and with a little work it can be made to work at this site. 13-30

In response to Commissioner Thomas, Chairman Piper clarified that there will be Saturday operations. 13-31

Commissioner McCowen stated that he has some fairly extensive comments to make and noted that the consultant and project coordinator are not present at this time. Mr. Falleri advised the Commission that he is prepared to make notes and pass those on to the consultant. He encouraged Commissioners to submit written comments.

Commissioner McCowen commented that he concurs with the comments that the staff person who serves in the Environmental Review Section of the California Integrated Waste Management Board made. She said it was difficult to follow what they were discussing in the EIR and that it was not clear which elements constitute the project. 13-32

Commissioner McCowen asked staff, on Page 1-4, to state the regulations allowing unregulated amounts of manure composting regardless of the County ordinance. When they are discussing level of analysis, it says in the middle of the last paragraph "Moreover, under the State Composting Operations Regulatory Requirements, the applicant is permitted to compost an unlimited amount of manure upon notification of the local enforcement agency." He questioned whether this supersedes the County ordinance. Commissioner McCowen requested some discussion regarding the ordinance and what the intent was in the EIR. It refers to it but does not give any specifics. 13-33

Commissioner McCowen commented, on Page 1-5, in the first full paragraph, it states that the EIR simplifies this uncertainty by analyzing the "entire project" against a baseline of no composting on the site. He stated that it would make sense to use no composting as a no project alternative. If you want a clean base line, then no project would mean no composting. 13-34

Commissioner McCowen asked, since this requires a Use Permit, could the use permit put a time limit on the life of the project or require that it periodically come back for review. Mr. Falleri responded that the use permit can contain a term.

Commissioner McCowen commented, on Page I-4, it refers to the value of the end product as being beneficial for sustainable agriculture. He wondered if they mean by that "organic farming." We had a letter from a person that runs an organic operation and they use these materials in their operation and yet he has some question on whether all of the materials that wind up in the end product are really consistent with organic farming. Chairman Piper commented that he has personal knowledge that the applicant does make a range of products, one of which is certified as organic. Commissioner McCowen questioned whether this would still be true once the applicant introduces biosolids. Chairman Piper stated that he knows a person that inspected the site and commented that there is a lot of information that will come out during the use permit discussion. Commissioner McCowen requested that the information be included and asked if biosolids are consistent with organic material. 13-35

Commissioner McCowen commented, on Page 2-12, Section 2.2.10, that he would assume that a requirement could be made that all structures would have to be removed. He stated that he would have 13-36

trouble envisioning. in the event that the use was discontinued, what agricultural use could use a 3.5 acre shed.

Commissioner McCowen commented, on Page 2-13, Section 2.3.1, that the EIR lists a number of things that the applicant has done. It sounds as if all approvals are final and all the "hoops have been jumped through." He felt that this occurs throughout the EIR. The information tends to lean in favor of finding that there is no problem with the application and the information supplied by the applicant is taken at face value. If the applicant has clearances from these regulatory agencies, then which ones does he not have clearances from and why and what is the status with regard to compliance with other regulatory agencies? In some cases there appears to be a bias in favor of the applicant. An example would be the issue raised by Commissioner Calvert where mitigation measures were stated in a weak manner using should rather than shall. When the applicant intends to do certain things, the consultant has stated in strong terms that this will absolutely take care of the problem. Commissioner McCowen stated that there is some questions in his mind on how objective the review was. 13-37

Commissioner McCowen commented, on Page 2-14, in the next to the last sentence it refers to samples to be performed at a minimum of one composite sample for every 5,000 cubic yards of compost produced. Since the yearly output is calculated in tons, he requested an estimate of how many tons are involved in 5,000 cubic yards. 13-38

Commissioner McCowen commented, on Page 2-15, Section 2.3.4, that he would like a full listing of all of the additives that might be included. The EIR refers to other commercial fertilizers and he would like a complete listing because the potential impacts of all of the additives needs to be evaluated. 13-39

Commissioner McCowen commented that an example of where this report leans in favor of approving everything the applicant says would be Section 2.3.5. The section states that the facility is designed and best management practices will be employed, to ensure that no leachate produced from feedstock, composting material, or finished compost is discharged off site that would negatively impact ground or surface water quality. In one instance it appears there was runoff from the pad. There are a lot of ruts both under and outside the roof structure, and there was ponded water. The applicant was cited for this in December 1996 and it has not been taken care of. It would be more accurate to say that the facility is designed and best management practices will be employed to help insure or with the intention of insuring. 13-40

Commissioner McCowen requested further discussion of night time deliveries. The discussion on Page 2-17 is a little vague and he questioned whether the impacts of night time deliveries with regard to truck traffic were calculated into the daily truck traffic nitrogen oxide (NOx) limits. 13-41

Commissioner McCowen commented that, on Page 2-18, under Vector Control Provisions, it states that flies may become a problem due to the static pile composting. Elsewhere the applicant states in 1996 he had the fly problem under control. If it was controlled in 1996, why is it being noted as a problem in 1997. 13-42

Commissioner McCowen commented, on Page 2-19, under Dust Control Provisions, that he would like to see a discussion of the use of the Masonex. He noted on the access road, there was pooled water colored black in the ditch and a little further east there was one section where there was a ditch across the road surface which funnels water from the inboard ditch across the road and into the east fork of the river which is close at that location. The Masonex was described as being wood byproducts and molasses but what were the wood byproducts and were they treated in any way with chemicals. 13-43

Commissioner McCowen commented, on Page 2-20, Section 2.3.21, that it states that incoming trucks containing materials deemed unacceptable for composting will not be allowed to unload. He questioned whether there is any way to monitor where those loads go once they are turned away from the site in order to control illegal dumping. 13-44

Commissioner Thomas questioned whether the fencing around the site was secure. Commissioner McCowen responded that he saw animal droppings on the pad next to the roof facility. When someone asked Mr. Anderson if they fence for wildlife, he responded that they do not. Commissioner McCowen commented that it is obvious that the site is not securely fenced to prevent animals from coming into contact with leachate. 13-45

Commissioner McCowen commented, in the last sentence on Page 3-5, with regard to the shed, it states that increasing the size of the shed roof will not result in a significant demonstrable negative aesthetic effect and will therefore have a less than significant impact. He stated that they are increasing the shed roof by three times its present size. It might not have much of an impact now but it may be significant at three times its present size. He requested more discussion on this issue. 13-46

Commissioner McCowen commented, regarding the last paragraph on Page 3-7, regarding storing amendments at the water tanks, that this area drains into Silver Creek and Bear Creek and he questioned what amendments would be stored at this area and what impacts that might create especially with regard to runoff or earthquakes. 13-47

Commissioner McCowen noted that we are repeatedly assured that the water table is very low at the site, however, at the top of Page 3-9 it states that the applicant opened a spring near the project site during construction of the haul road and this seems minimized in the EIR. 13-48

Commissioner McCowen commented that, regarding the first paragraph on Page 3-10, the DEIR discusses the leachate run off from the pad and he is concerned when he reads that project design and best management practices will insure that there is no leachate run off and yet we see evidence that leachate is being produced on the pad and flowing water forms channels that run to the edge of the pad indicating the likelihood that leachate was running off the pad and into the natural drainage system. He felt that some of the potential impacts are somewhat glossed over. 13-49

Commissioner McCowen stated that we noted earlier the leachate ponds and collection ditches were deleted from the project but when we get to the last paragraph on Page 3-13, it says that the space between the windrows has been graded or ditched to allow surface flow of leachate into the floor drains. So we came up with a new system of ditches under the roof and that should be a feature that is added to the project. We should also have some discussion of the degree to which that ditching allows leachate to penetrate the pad and possibly enter the groundwater. He noted that he saw a lot of very black looking water standing in ditches under the roof area and he felt that the integrity of the pad was compromised by creating those ditches. 13-50

Commissioner McCowen noted that the sentence beginning at the end of Page 3-13 states that the leachate tank overflowed at least once which indicates that our perfect system does not seem to be working perfectly. He also commented that the method to prevent future spills will be to take a 4,000 gallon tank truck, with a leachate tank of 22,000 gallons, and empty that storage tank into a 4,000 gallon tank truck and reapply the water to the windrows which are already saturated with water which is why it is running off the pad and being collected into the storage tank. On those days when we have a 20 year storm event, we will have a merry little circus out there with this guy running around trying to reapply the water to the saturated windrows faster than it can collect into the tank. Meanwhile, driving back and 13-51

forth across the pad both under the roof and outside the roof creating more ruts that will make deeper holes.

Commissioner Thomas added that on top of that we have the concern that if there is an earthquake the tank could topple over. Commissioner McCowen stated that, if the tank should topple over, it is not that far from water. He felt there is an inadequate discussion of how they are going to handle the leachate that is being produced. 13-52

Commissioner McCowen noted, on Page 3-16, the DEIR indicates that they may construct ponds to collect water runoff if they need it for additional water. He felt that if it is anticipated to be a part of the project, we should have an analysis of the likely impacts of the ponds. If they are contemplated to be needed to supply future water for the site, it should be analyzed as part of the EIR. 13-53

Commissioner Thomas requested clarification of what the combination of Brewery process water and well water in the third paragraph on Page 3-16 would be. 13-54

Commissioner McCowen, regarding Section 3.2.1 on Page 3-19, commented that it states that the roof structure's leachate collection and storage system should prevent any leachate from flowing through or out of the structure. Commissioner McCowen questioned what would happen in a major storm event when the windrows are saturated and the storage tank is full. It also states that the best management practices in the SWPPP should be sufficient to prevent leachate from forming on the un-roofed section of the compost pad. He noted that he saw leachate forming at the site today. In a major storm event, he stated that he could envision it going off the site as well. 13-55

Commissioner Thomas stated that the leachate is not supposed to be harmful. Commissioner McCowen responded that they propose zero discharge for this facility. 13-56

Commissioner McCowen stated that on Page 3-20, "should" needs to be changed to "shall" which was covered by Commissioner Calvert. 13-57

Commissioner McCowen noted that, under "h" on Page 3-21, there is some discussion about the problems of biosolids and leachate for the biosolids contaminating and cross contaminating the storage tank that holds the leachate. The last sentence in the paragraph states "The leachate tank shall be maintained to ensure that human pathogens do not continually recontaminate leachate entering the tank, for example by completely emptying and/or disinfecting the tank after it has received biosolids leachate." Once you apply the leachate tank to the windrows, then all of the windrows will be recontaminated. It seems that their method of dealing with the leachate is very short sighted and inadequate. He requested some discussion regarding this issue. 13-58

Commissioner Barth commented that they are trying to get everything to the max with the EIR and biosolids are in there because there are some other source they can tap. If they start taking biosolids, they should go to an amended EIR and not try to do it for this operation all inclusively. Commissioner McCowen pointed out that they are proposing the biosolids for this proposal, therefore, it should be thoroughly discussed with the DEIR. 13-59

Commissioner McCowen noted on Page 3-22 under Mitigation Measure 3.2.2, Item B, it indicates that the applicant plans to expand the existing roof structure to three times its current size and perform all operations and storage under the roof year-round. This will reduce contact of materials by rainwater and stormwater runoff. Commissioner McCowen stated that, presumably it would also increase by three times the amount of blown in water that comes in under the roof and would then have three times the 13-60

problem of dispersing this leachate that collects in the storage tanks. He requested some discussion regarding the potential impacts from the increase of blown in water.

Commissioner Heckeroth noted that, with three acres of roof area and a four inch storm, there will be 280,000 gallons of runoff. Commissioner McCowen commented that since that is supposedly channeled off site, the appropriate discussion would be where that rain water runoff is dispersed off site and are they taking appropriate erosion control measures. 13-61

Commissioner McCowen noted that, on Page 3-23, Impact 3.2.4, the EIR states that storage tanks for leachate could topple over during an earthquake. Commissioner McCowen noted that the tank is situated on a little knoll where the ground falls away rapidly in three directions. He felt that, in this location, it would be difficult to design measures to insure containment in this particular location. 13-62

Commissioner McCowen commented that on Page 3-24, as noted by Commissioner Calvert, the word "should" needs to be changed to "shall." 13-63

Commissioner McCowen questioned, regarding Table 3.3.1 on Page 3-31, if the calculation for NOx included the factor of truck traffic during grape harvest. The NOx level is very close to the significance criteria. He asked if, during grape harvest, the significance criteria would be exceeded. 13-64

Commissioner McCowen noted on Page 3-47 in the last paragraph it discusses the importance of maintaining proper temperature in the compost and that when it is being maintained at 55 degrees centigrade or higher the windrow is turned a minimum of five times and yet on Page 3-36 it discusses the desirability of limiting turning of windrows on days when the wind is blowing directly to the west which is a seasonal problem with the prevailing winds. He felt there is a conflict if you have winds blowing to the west yet you need to continue turning the windrow piles. There appears to be a conflict between what you need to do to deal with biosolids and avoiding odors and Aspergillus carried down wind. 13-65

Commissioner McCowen commented that, on Page 3-49, it states that hazardous wastes are defined as wastes that pose a hazard to human health or the environment due to their flammability, corrosiveness, reactivity, or toxicity to living things. It says no hazardous materials have been identified in materials brought to the site, however, under sewage sludge biosolids on Page 3-50 it says the presence of human pathogens distinguish sewage sludge biosolids from other types of animal manure and make their handling and processing potentially more problematic. Other constituents sometimes present in sewage sludge biosolids, such as heavy metals, solvents, and other potentially harmful substances, warrant particular concern. 13-66

Commissioner McCowen commented, on Page 3-52, Impact 3.5.1, it states that workers could be exposed to hazardous materials and in the second paragraph it states that none of the proposed materials contain hazardous constituents. Sewage sludge biosolids is listed as an additional feedstock yet it may contain human pathogens. The whole issue of hazardous and nonhazardous is very contradictory and incomplete. 13-67

Commissioner Heckeroth commented, on Page 3-52, it states that there has been only one test on the fly ash and he felt there should be additional testing. 13-68

Commissioner McCowen commented, regarding Impact 3.5.2 on Page 3-53, that it says the applicant is in the process of development of the site's health and safety plan. Commissioner McCowen felt that this should have already been developed. 13-69

Commissioner McCowen commented that on Page 3-52 it states that amendments and additives may include wood, fly and scrubber ash. He requested a more complete breakdown on what might be in the fly and scrubber ash. He felt a comprehensive listing of all of the amendments that are contemplated to be used should be provided. He also requested some discussion regarding which amendments or feedstocks are necessary for processing the animal wastes. Would it be allowed by right to add whatever amendments you want to make the commercial product. There is some confusion on what is allowed by right and what is allowed by convenience. 13-70 13-71

Commissioner McCowen commented, on Page 3-55, it discusses potential hazards to facility workers. It is inconsistent with no hazardous materials. 13-72

Commissioner McCowen commented on Page 3-58 there is a discussion of vectors and storage of carbon rich materials and he asked if these will provide habitat for vectors and what specific controls are they using. He noted that he is particularly concerned with rats. There is also a discussion in the paragraph that flies may become a problem due to the static pile composting. The applicant is saying in 1996, the fly populations were reduced. Do they again become a problem in 1997? 13-73

Commissioner McCowen commented on Page 3-59 in the last paragraph a problem is discussed that, unless properly handled, the sewage sludge biosolids can be re-infected with non processed materials. The applicant would need to develop an operating plan which minimizes the potential to re-infect treated materials with contaminated biosolids. Perhaps as Commissioner Barth stated, the introduction of biosolids would warrant a separate EIR to specifically address it. A lot of problems are raised with regard to biosolids and it has been lumped in with the rest of this as if it is just one minor amendment to the plan and yet to him it is a very major feature of this project that warrants far more thorough discussion than the EIR contains. 13-74

Commissioner McCowen commented that on Page 3-59 the last paragraph states that the applicant shall develop a detailed operating plan to be reviewed by the LEA prior to accepting any sewage sludge biosolids. The plan shall identify likely sources of material and material characteristics. Commissioner McCowen felt that we should have some knowledge of the material characteristics as part of the EIR.

Commissioner McCowen noted on Page 3-62, the last paragraph refers to the fact that it is estimated that approximately half of the trucks delivering feedstock would backhaul out the finished compost. This was taken into account in calculating the peak daily truck trips. Since the applicant presumably has been keeping records regarding the truck activity, it should be a simple matter to review the records and see what percent of the trucks hauling incoming feedstocks backhaul the finished product. That would help determine whether the estimate of one-half is accurate. Depending on whether the estimate is accurate, it could dramatically affect the calculations for air quality. 13-75

Commissioner McCowen commented, on Page 3-64 traffic impacts in the second paragraph, he felt the DEIR has not adequately analyzed the impact not only of the additional truck trips related to the project but also the fact that this will be conducted during a major construction project contemplating replacement of the bridge. The construction is expected to last two years. This is a dangerous section of roadway. The discussion of the potential impacts have not been adequately addressed. 13-76

Commissioner McCowen commented on Page 3-65 in the second complete paragraph it discusses instances when trucks would back up on the County road and the way to relieve this is to declare a no parking zone along the County road. He felt that a better mitigation would be to require a stacking area inside the applicant's property. There was available room immediately inside the gate. That is better than depending on the Sheriff's office to monitor the area to make sure no one parks in this area. People will park in this location as they have historically done. 13-77

Commissioner McCowen questioned how steep the grade on the access road is at its steepest point. He asked if there were any areas of the access road that exceed 15 percent grade. 13-78

Commissioner McCowen commented, regarding Page 5-6, that he noticed a discussion about potential exposure of facility workers to human pathogens from the sewage sludge biosolids that would be carried by vectors. They state there will be no exposure to facility workers but we are concerned about indirect exposure through vectors. He felt that this was very confusing. 13-79

Commissioner McCowen commented that something that shows a hint of bias on the part of the author was on Page 4-3 in the last paragraph which contains a discussion about the desirability of this facility in helping to meet AB 939 mandates. He stated that he is not sure that it is appropriate to this section. It may be appropriate to place somewhere else. 13-80

Commissioner McCowen stated, on Page 4-4 , that he is mystified why land use plans and policies were not a controversy with regard to this project. 13-81

Commissioner McCowen stated on Page 5-1 there is a discussion regarding alternatives. He commented that it is ludicrous that the off site alternative is located in Covelo. If you wanted to have a legitimate discussion of an off site alternative there should have been a better effort to identify an off site alternative more centrally located in Mendocino County. Mr. Zotter explained that off site alternatives are dictated somewhat by what the applicant can reasonably acquire. In this case he owns property in Covelo. There is some obligation to look at other sites but the Supreme Court seems to have limited alternative sites for private projects. Commissioner McCowen pointed out that he was able to find a site at the Guntly Ranch and the applicant has indicated that the Covelo site is not an economically viable site so the consultant has not identified an economically viable alternative. 13-82

Commissioner McCowen questioned, regarding the No Project alternative discussion in Section 5.1 on Page 5-4 whether the applicant has the right to use amendments and additives even if he has the right to process the animal waste. 13-83 At the top of Page 5-4 it states that the impacts analysis of the alternatives does not consider the potential benefits of the project to divert solid wastes from going to landfills and produce a product with agricultural benefits. Commissioner McCowen stated that the alternative projects also produce beneficial products so if you are only considering the discussion of beneficial products with regard to the project and not with regard to the alternatives, you are skewing the discussion. 13-84

Commissioner McCowen commented, on Page 5-6, under Public Health and Safety, the first paragraph states the potential for facility workers to be exposed to hazardous materials, noise, dust, Aspergillus fumigatus, and physical hazards would be the same under the No Project Alternative and the project. The no project alternative would not include biosolids so he felt that introducing the biosolids would result in some increase in the potential for facility workers to be exposed to hazardous materials. 13-85

Brief discussion followed regarding the amount of time necessary to complete Commissioner comments on the project.

Upon motion by Commissioner McCowen, seconded by Commissioner Berry and unanimously carried (7-0), IT IS ORDERED that the Planning Commission continues review and comment on the Draft Environmental Impact Report for #U 26-93 to June 19, 1997. (Note: later in the session, it was the consensus of the Commission to place this as the last regular calendar item on the agenda.)

PUBLIC HEARING MINUTES

1. PANO STEPHENS

1-1 The commentor is correct in determining that animal waste processing is permitted "by right" on land zoned Rangeland. Processing of sewage sludge, ash, and vegetative materials is not a right on land zoned Rangeland. The Use Permit could allow this conditional use at the CCCI facility. Because this is a discretionary action, this EIR is required by CEQA to assess the environmental impacts of those potential uses.

1-2 Whether the applicant is M&M Feed and Supply, Martin Mileck, or Cold Creek Compost, Inc. has no bearing on the analysis of environmental impacts. CEQA does not require an analysis of the applicant's financial status, nor of the possible consequences if the applicant declares bankruptcy. These considerations may be taken up by the Planning Commission in deliberations over approval of the project. However, the County has not routinely required financial assurances from project applicants, except to the degree required by law, such as for mining operations.

1-3 The Guntly Ranch is not described as timberland in the DEIR. A description of the character of the site on page 3-2 states, "The project site and surrounding area are characterized by rolling topography. The hills contain a mixture of dense woodlands and open grasslands, punctuated by scattered rock outcrops." (page 3-2, first paragraph). Page 2-12 of the DEIR, under 2.2.8 Land Use Within 1000 Feet of Site Boundaries states that, "The surrounding lands are primarily used for cattle, crop production, and timber land. The nearest residence to the project site is located approximately 4,800 feet west of the project site." (page 2-12, first paragraph). As stated in the project description, the project is not an "industrial manure factory". Furthermore, the project site is not in a "residential neighborhood," but is located on the Guntly Ranch, a 3,700 acre working ranch. The facility site is approximately 4,800 feet (measured point to point, as the crow flies) from the nearest residence.

1-4 Page 3-16 of the DEIR states: "The facility is expected to use a maximum of 21,000 gallons of water per day, though this would occur only under unusual circumstances and would likely be only a one-day event. The expected average daily summertime water demand is 15,000 gallons per day." See also discussion of water rights in response to Comment Q30.

1-5 The commentor gives no details regarding evidence that he believes has been ignored. See response to Comment DD4.

2. BETTY BALL

2-1 Comment noted. The commentor believes the DEIR is inadequate. The commentor's written comments are contained in Comment letter "Q" and responded to in this Final EIR (FEIR).

2-2 and 2-3

The commentor's concerns regarding toxicity of grape pomace, Masonite ash, and biosolids are responded to in responses to her written comments. See response to Comments Q5 and Q38. See also responses to Comment OO1. Untreated wood waste may, when ground, have the potential to leach some toxic substances, such as tannins, turpins, and esters. Of more concern, however, is potential toxicity of treated wood. This includes painted wood, which may contain lead, and pressure-treated wood, which may contain zinc arsenate or copper arsenate. Painted or treated wood, when ground, have the potential to leach these pollutants, and could potentially contaminate stormwater runoff. These materials are unsuitable for use as a compost feedstock, and should not be accepted at the facility. The DEIR assumes that the facility would only process clean wood waste. Discussions with the applicant reveal that painted wood has been mixed into loads received at the site, although it is segregated from the feedstocks.

Mitigation Measure 3.5.3 (page 3-59 of the DEIR) is hereby amended as follows:

k. Only clean woodwaste shall be accepted as a feedstock or bulking agent. The facility operator shall specify in contracts with suppliers of woodwaste that no painted, varnished, or pressure-treated wood will be included in loads delivered to the site. Any contaminated wood brought to the site shall be segregated from feedstocks and disposed of properly, pursuant to state compost regulations.

3. FRANCINE LONG

3-1 Comment noted. The commentor notes that project neighbors were not brought into the planning process for the facility until after it was built.

3-2 The commentor submitted written comments, refer to responses to Comment letter JJ in this FEIR. Regarding odors, refer to response to Comments J4, DD29 and DD50.

3-3 Regarding the commentor's concerns about noise impacts, see response to Comment Q47. Regarding property values, see responses to Comments JJ2, JJ12.

3-4 Regarding truck safety, see response to Comment JJ5.

3-5 Regarding noise, see responses to Comment Q47.

3-6 Regarding public input, see response to Comment JJ10. Regarding the Off-Site Alternative, see responses to Comments JJ14 and Q54

4. CATHY HENRY

4-1. Comment noted. The environmental review team determined that given the operations and throughput of the facility that the trip generation could be up to 40 truck round-trips per day. The EIR then analyzed this reasonable worst-case situation. As stated on page 3-63 of the DEIR, increases in traffic volumes on area roadways associated with the proposed project would fall within the normal fluctuations of traffic on those roadways,

and would not significantly disrupt traffic flow or increase congestion on those roadways. It is on that basis that the project-generated traffic increase is regarded as a less than significant impact.

5. LOULA MILLER

5-1 Early morning and late night operations are not in accordance with the terms of the facility's existing Use Permit and Solid Waste Facility permit, both of which are in effect. The commentor should direct these concerns to the Local Enforcement Agency. Dust from truck traffic is analyzed in Impact 3.3.1, page 3-30 of the DEIR and found to be a less than significant impact. Truck noise is analyzed in Impact 3.4.1 and found to be less than significant. See added noise mitigations in response to Comment Q47.

6. DALE MCCULLEY

6-1 this commentor submitted written comments, labeled MM in this FEIR. He expresses a similar concern about noise in Comment MM4. Please refer to response to Comment MM4.

6-2 The commentor expresses a similar concern about air movement in Comment MM3. See response to Comments H2, H3, DD29 and DD50.

6-3 Comment noted. The commentor expresses his negative opinion of the applicant, and of the project planning process.

7. CLARKE MILLER

7-1, 7-2

The commentor is under the mistaken impression that the Potter Valley Road bridge replacement project is being undertaken to accommodate additional truck traffic associated with the compost facility. This is not the case.

8. VICKI OLDHAM

8-1 This commentor submitted written comments, labeled OO in this FEIR. Please refer to this letter and responses.

9. JOHN HAWTHORN

9-1 Regarding distance to neighbors, please refer to response to Comment Q6 (and the aerial photo with that comment; Figure C&R 1).

9-2 The commentor's concerns regarding fencing of animals is unclear. Fencing at the site now keeps range animals out of the facility (see responses to Comment O44).

9-3 Odor impacts are discussed in Impact 3.3.2 and Mitigation Measure 3.3.2, on pages 3-31 through 3-33 of the DEIR. See also response to Comments J4, 10-2, DD29, and DD50.

9-4 Water quality impacts are discussed in Hydrology and Water Quality, Section 3.2 of the DEIR (commencing on page 3-7 of the DEIR). See also responses to Comments E1 and DD38.

9-5 Dust from truck traffic is analyzed in Impact 3.3.1, page 3-30 of the DEIR and found to be a less than significant impact. The applicant states (Martin Mileck, CCCI, telephone communication, August 8, 1997) that the only materials received in a condition sufficiently saturated to produce free liquid is grape pomace. He surmises that any liquid oozing out of delivery truck beds is, therefore, grape juice. If, however, the commentor has evidence to the contrary, this should be referred to the LEA.

9-6 Clean-up of spills would be the financial responsibility of the applicant. County or State law enforcement could order a spill clean-up.

10. ERIC ANDERSON

This commentor represents the project applicant. This commentor submitted written comments, Comment letter "O" in this FEIR.

10-1 Comment noted. This comment does not require response.

10-2 The Local Enforcement Agency and the Air Quality Management District confirm that there have been no confirmed odor complaints to date (John Morley, Local Enforcement Agency, telephone communication, August 1, 1997; Philip Towle, Mendocino County AQMD, telephone communication). Mr. Towle indicated that it is likely that on rare occasions in the past odors from the facility probably affected nearby residences (although the source of the odors could not be specifically identified as the CCCI facility). He is not aware of any such incidences occurring in the past six months (Philip Towle, Mendocino County AQMD, telephone communication, December 11, 1997).

10-3 Regarding ash, see response to Comment OO1.

10-4 Comment noted. Cold Creek Compost, Inc., is proud of mitigations that have been implemented at the facility and will continue to be an environmentally responsible company.

11. MARY GOODWIN

This commentor submitted written comments. Please refer to Comment letter "DD", and responses, included in this FEIR.

11-1 Odor complaints were attached to the written comments. None of the odor complaints were confirmed. See also response to Comment 10-2.

11-2 Comment noted. The Public Hearing on the DEIR was properly noticed.

11-3 See response to Comment Q30.

11-4 Toxicity and pathogenicity (of leachate) is considered a potentially Significant impact on water quality. See Impact 3.2.1 on pages 3-19 through 3-20 of the DEIR; see also water quality discussion on pages 3-10 through 3-15 of the DEIR. Potential toxicity of ash is analyzed in the repines to Comment OO1. Impact 3.5.1, 3.5.2 and 3.5.3 (pages 3-52 through 3-60) identify potential impacts to public health, including possibility of impacts related to toxicity and pathogenicity of feedstocks, additives, and amendments.

11-5 See response to Comments O1, and DD4.

11-6 The DEIR includes a No-Project Alternative, Off-Site Alternative, and Reduced Project/Mitigated (No Biosolids) Alternative (Section 5 of the DEIR). Regarding the No-Project Alternative, see response to Comment Q53.

11-7 Visual impacts are evaluated in Section 3.1, Visual Resources, on pages 3-2 through 3.6 of the DEIR. See also response to Comment DD32 and DD36.

12. ROB ANDERSON

12-1 See response to Comment OO1.

13. PLANNING COMMISSION COMMENTS, JUNE 5, 1997

13-1 The DEIR identifies many agencies responsible for monitoring and regulating various aspects of the project. The County Local Enforcement Agency is responsible for monitoring compliance with the Solid Waste Facility Permit. The County Planning and Building Services Department is responsible for the overall monitoring of Use Permit conditions.

13-2 See the revised description of Monitoring in the response to Comment E1. If stormwater monitoring indicates that any contamination is present, the operator must identify and mitigate the source of contamination. If this is a continuing problem, the NCRWQCB has the authority to cease operations at the site. Typically the neighbors would not be informed unless the monitoring indicated that their properties could be affected. The sampling locations are close to the compost pad so that any contaminants leaving the pad will be identified. The NCRWQCB or County could require monitoring for heavy metals if they determine it is necessary. As noted in the DEIR, page 2-16, state regulations require a minimum of one composite sample will be taken for every 5,000 cubic yards of compost produced. These samples are tested for 10 heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc).

13-3 See response to Comment OO1 for additional information on ash.

13-4 Regarding the access road, see response to Comment JJ8. There is considerable information regarding biosolids presented in the DEIR as well as in this Response to Comments document. The Commissioner does not indicate what additional information would be needed.

13-5 Please refer to Tables 13-1 and 13-2 that follow. Tables 13-1 contain information provided by CCCI regarding the origin of truck trips over an 18-month operating period, including a break-out of the information by "in-County" vs. "out-of-County". Table 13-2 then projects this information to the CCCI facility operating at full capacity.

For the period January 1, 1996 to June 30, 1997, 64 percent of the material delivered to the site originated from outside Mendocino County. Based on the average load size of 19 tons per load (calculated from actual delivery records from July 1, 1996 to December 31, 1996 and from April 1, 1997 to June 30, 1997), these deliveries generated truck round trips during the 18-month period of 924 (out-of-County) and 520 (in-County). The average for the period (from Table 13-1) was 1.9 truck round trips from out-of-County and 0.9 truck round trips from in-County. This is based on an average of 300 operating days per year.

Table 13-2 provides more actual operating experience in predicting what the actual traffic of the facility is likely to be at full capacity. Over the entire year there would be and average of 12.4 truck roundtrips per day. This is considerably less truck trips than was analyzed in the DEIR. The DEIR analyzed a peak day of 40 truck roundtrips. What the actual operating experience shows is that the 40 truck roundtrips would be a peak day that would be expected to occur rarely if ever for the project.

The information in Tables 13-1 and 13-2 does not change the conclusions of the analysis in the DEIR of traffic or air quality impacts. Also, it should be noted that the County may not legally restrict commerce and therefore may not control the place of origin or destination. See response to Comment 13-24.

The number of truck trips originating outside Mendocino County was not quantified as part of the Traffic and Circulation analysis for the DEIR. As stated on page 3-63 of the DEIR, however, the great majority of project-generated truck trips are anticipated to access the project vicinity from south of the project site on Potter Valley Road (from State Route 20) because of the relative position of potential locations of feedstock sources and market areas for finished compost in the Counties of Mendocino, Humboldt, Lake, Sonoma and Yolo. The actual number of truck trips assigned to each of the respective counties would not change the distribution of trips on study roadways.

13-6 Some of the questions raised by this comment were answered by the applicant in the last half of the response. Regarding ash, also see response to Comment OO1.

TABLE 13-1: HISTORIC ORIGIN OF TRUCK TRIPS

Total Tonnage Incoming Material	Out of County				In County			
			Truck Trips:				Truck Trips:	
	Tons of Material	Percent of Total	Total	Daily Average	Tons of Material	Percent of Total	Total:	Daily Average
1/1/96 - 12/31/96 17,502	13,562	77%	714	2.4	3,940	23%	207	0.7
1/1/97 - 6/30/97 9,945	4,002	40%	211	1.4	5,943	60%	313	2.1
Totals for 1/1/96 - 6/30/97 27,447	17,564	64%	924	2.1	9,883	36%	520	1.2

Notes:

1. Tonnages include all materials (feedstocks, additives, and amendments).
2. Truck trips for the total and daily average are based on 300 days per year and 19 tons per load.
3. The formula used to calculate average daily truck traffic (total roundtrips), based on 300 days per year, at full operational capacity is: [estimated total trips incoming + (20% x total deliveries outgoing)] / 300
4. Nine months of data were reviewed to determine average tons per truck incoming and ther percentage of materials leaving the site by backload. The nine months chosen to determine these factors were 7/1/96 to 12/31/96 and 4/1/97 to 6/30/97. This time span includes the second and third quarters of the year, which are typically CCCI's busiest months. Total incoming tonnage during the period was 18,556. Tonnage per load was 19.2 (18,556/996). We rounded and used 19 tons per load to calculate in county/out-of-county trips for the period 1/1/96 - 6/30/97 and total truck trips if the facility were to operate at the maximum capacity analyzed in the EIR.
5. During the period mentioned in 4 (above), the backhaul factor was determined. There were 966 deliveries in and 289 deliveries out during the period. 58 of these outbound trips (or 20% of the outbound trips) were deliveries made by a truck that arrived empty at the facility.

TABLE 13-2: TRAFFIC ANALYSIS AT FULL OPERATIONAL CAPACITY

Incoming Material	Tons per Year	Tons per Load	Trips per Year	Trips per Day
Feedstock	50,000	19.0	2,632	8.8
Amendments/additives	10,000	19.0	526	1.8
Brewery Water	3,000	15.5	194	0.6
TOTALS:	63,000	18.8	3,352	11.2
Outgoing Material				
All Materials	40,000	22	1,818	6.1
Total Roundtrips/Trucks				12.4
Other Traffic				
Employee Trips:				6.0
Equipment In/Out			30	0.1
Other: Service, trucks, deliveries, public agencies, visitors.			200	0.7
Total Roundtrips per Day				18.5

Note: Outgoing loads average about 22 tons per load, since all outgoing loads are shipped in large trucks. Also 80% of outgoing loads are by backhaul.

Source: CCCI, 1997; reviewed by ESA.

13-7 Regarding the definition of the rainy season, see response to Comment J2.

Regarding contact with material under the roof from blown-in rain, see Mitigation Measure 3.2.1 (d) on page 3-20 of the DEIR. With regard to comments by the applicant in the Planning Commission hearing that mitigation is hereby amended as follows:

d. During ~~the rainy season~~ periods of wet weather, the project applicant shall keep the ends of the windrows ~~in and away from the edge of the roof structure to reduce production of leachate~~ within the perimeters of the drainage system under the roof.

13-8 See response to Comment DD3. The second to the last paragraph on Page 2-9 of the DEIR is hereby amended as follows:

> During the Planning Commission ~~previous~~ hearing ~~leading to the approval~~ on November 17, 1994, of the Use Permit #U 26-93, resolutions supporting the project were received from the Mendocino Solid Waste Authority and City Council of the City of Ukiah.

The first sentence in the last paragraph on page S-1 of the DEIR is hereby amended as follows:

> In February 1995, the Mendocino County Board of Supervisors upheld an appeal ~~from~~ of the Planning Commission's decision on ~~of~~ of a Negative Declaration and use permit (#U26-93) to compost the proposed range of feedstocks.

The first sentence in the second paragraph on page 1-1 of the DEIR is hereby amended as follows:

> In February 1995, the Mendocino County Board of Supervisors upheld an appeal ~~from~~ of the decision of the Planning Commission and approved a Negative Declaration and Use Permit (#U26-93) to compost the proposed range of feedstocks.

13-9 Item 7 on page 2-8 of the DEIR discusses replacement of the leachate ponds with the roof structure. See also 2.3.19 on page 2-20 of the DEIR and the discussion of leachate in Section 3.2, Hydrology and Water Quality.

13-10 The facility now has four 22,000 gallon tanks. One is dedicated to storage of fresh water from the nearby well. This water originates from the same well as the water that is stored in the drinking water tank. However, since the storage tank was formerly used as a gasoline tank and is not used as drinking water storage, it is referred to as the fresh water tank rather than the potable water tank.

The second paragraph on page 2-9 of the DEIR is revised as follows:

> 22,000 gallons for ~~potable well~~fresh water (only);

13-11 See response to Comment J1. The last sentence in the first paragraph under Impact 3.1.1 on page 3-5 should be revised to read:

> In addition, nighttime operations will be limited to occasional deliveries of feedstocks during times of the year when it becomes dark before the close of regular operating hours of 6 p.m. The facility is not currently using, nor is there a proposal to use, on-site lighting that would generate off-site ~~not be conducted at the facility, so no lighting will be used which could cause~~ glare.

The following mitigation measure is added to Mitigation Measure 3.1.1 on page 3-6 of the DEIR.

> d. Any facility lighting shall be directed downward so that direct light does not shine off the site.

13-12 Page 3-18 (paragraph four) of the DEIR is hereby amended as follows:

> No flow studies of Cold Creek have been conducted. According to the project applicant, during the summer Cold Creek is dry above the Guntly Ranch. There are several springs on the Ranch that feed the creek. The ~~Guntlies~~ Guntlys have installed a 250-gallon-per-minute pump in a catch basin which is fed by one of these springs. The water is used for irrigation. The ~~Guntlies~~ Guntlys estimate that even during the most extreme drought conditions they could easily develop additional pumping capacity of at least 750 gpm from other springs on the ranch (Anderson, 1997; Mileck, 1997)

13-13 Please refer to changes to this Mitigation Measure in response to Comment O28. Please also refer to response to Comment 13-20.

13-14 Comment noted. The reference style on page 3-25 of the DEIR is consistent with the other sections of the DEIR. At this time, it is not deemed appropriate to attempt to footnote all references in the DEIR.

13-15 & 13-16 The commentor is referred to page 3-62 of the DEIR, which describes the estimated trip generation for the project. As stated on that page, there would be a peak generation of about 36 truck round-trips per day associated with delivery of incoming feedstock and outgoing compost. In addition, there would be a peak generation of about 3 truck round-trips per day associated with delivery of brewery wastewater to the facility. Thus, there would be a total of about 40 truck round-trips per day. The 40 truck round-trips referred to on page S-2 of the DEIR, under Number 8, are those trips associated with incoming feedstock and outgoing compost. Similarly, the 40 truck round-trips referred to in Footnote "a" of Table 3.3.1, page 3-31 of the DEIR, are the haul trucks used for delivery of incoming feedstock and outgoing compost. The above-cited 36 truck round-trips were, in each case, rounded to 40 truck round-trips. This minor rounding upward of the project's estimated truck trips does not affect the conclusions of the analysis of potential project impacts associated with those trips.

See also response to Comment 13-5, which further indicates that 40 truck roundtrips per day is a worst case assumption.

13-17 The brewery wastewater truck trips are included in the 40 truck round-trips described under Number 8 on page S-2. See the response to comments 13-15 and 13-16, above, for clarification of project truck trip generation estimates.

13-18 According to the applicant (Memo for CCCI to ESA, January 7, 1997), "This property, currently in use as a County parkway, is only 25% in County ownership. The remaining 75% is still owned by the Guntly's. Full ownership will revert to the Guntly's should the County not maintain the property." Parkway is not defined in the County General Plan.

13-19 The 40 truck round-trips referred to in Impact 3.4.1, page 3-44 of the DEIR, include trucks delivering brewery wastewater. See the response to comments 13-15 and 13-16, above, for clarification of project truck trip generation estimates.

13-20 The intent of the mitigation measures is that they "shall" be implemented if they are required to reduce a significant impact of the project to less than significant. Mitigation measures that are required will be included as conditions of the Use Permit and/or included in the Mitigation Monitoring and Reporting Program.

At the request of the Planning Commission, mitigation measures that are required to reduce impacts to less than significant levels are amended to read that they "shall" be implemented. These mitigation measures are for impacts 3.2.1 (beginning on page 3-20 of the DEIR), 3.2.2 (page 3-22), 3.2.4 (beginning on page 3-23), 3.2.5 (page 3-24), 3.5.2 (beginning on page 3-56), and 3.5.3 (page 3-59).

13-21 Mitigation Measure 3.6.3, on page 3-65 of the DEIR, did not include the California Highway Patrol (CHP) as a source of enforcement of the recommended "No Parking" regulation because Potter Valley Road is a County roadway, and enforcement of parking regulations on local roads was viewed as a local responsibility. The CHP is, however, empowered to enforce laws on all roadways within the State, and if requested would assist the Mendocino County Sheriff's Department in the enforcement of this parking prohibition.

It should be noted, however, that the intersection of the project access road with Potter Valley Road will be relocated as part of the County's replacement of the East Side Potter Valley Road Bridge, at which point Mitigation Measure 3.6.3 will become unnecessary. See response to Comment L3 by Stanley Townsend (Deputy Director of the County of Mendocino Department of Public Works) regarding accommodation of incoming facility trucks that sometimes make use of the existing road cutout while waiting for an outgoing truck to exit the facility access road.

13-22 Under the No Project Alternative, i.e., the denial of the Use Permit, the facility would be able to continue operation under the rangeland zoning, but would only be able to accept manure. There would also be no requirement for a Use Permit. There would be no need for nighttime deliveries of grape pomace. The applicant has clarified that the project shall not have nighttime deliveries of feedstocks outside of the hours of 7 a.m. to 6 p.m. Any deliveries outside of the normal operating hours would be restricted to deliveries that occur during daylight hours.

13-23 Comment noted.

13-24 Energy use was not noted in the Court Order, in the public scoping session, or considered by the EIR preparers to be a potentially significant impact of the project (given considerable experience with projects that included trucking of materials). Please refer to response to Comments DD21, and EE2.

The U.S. Supreme Court has ruled in recent years that cities, counties, and states cannot limit the flow of waste materials across jurisdictional boundaries, as this is a violation of the Interstate Commerce Clause of the U.S. Constitution. It would, therefore, seem unlikely that a condition of use restricting importation of feedstocks from other counties would be legal.

13-25 See response to Comment OO1.

13-26 See response to Comments DD21, and EE2 for a discussion of decentralized composting operations.

13-27 The Masonite facility is less than 10 miles from the composting facility. The issue as to whether Masonite should be required to "take care of its waste ..." is outside the scope of the EIR – this is, in fact, one way that Masonite plans to "reuse" its wastes.

13-28 Comment noted. The comment does not address specific issues in the EIR.

13-29 Comment noted. See responses to Comment 13-11.

13-30 Comment noted.

13-31 Comment noted.

13-32 See response to Comment B1.

13-33 The state would not supersede the County, but would require only notification if the project was otherwise permitted at the local level for manure composting.

13-34 See response to Comment Q53.

13-35 The facility's compost product that contains no ash is California Certified Organic Farmers (CCOF) approved. See response to Comment Q2. CCOF has indicated that compost derived from sewage sludge biosolids would not be CCOF approved (CCOF Newsletter, Winter 1997, page 8).

13-36 See also responses to Comments DD24 and DD27.

13-37 The facility has obtained all necessary permits, including a Conditional Use Permit. According to the LEA, the facility is currently in compliance with the terms of its SWFP, but was in violation for storing additives and amendments, and grinding and screening, and windrowing on the uncovered portion of the pad before the end of the rainy season, as defined in the SWFP (the facility was, however, operating in accord with its SWPPP, which defines wet weather operations differently). On September 30, 1997, the LEA signed Stipulated Order of Compliance and Agreement #97-03, which ordered the facility in compliance with the revised SWPPP and Waste Discharge Requirements (WDRs) that may be issued in the future. #97-03 also indicated that the LEA would inspect for compliance with the revised SWPPP and any future WDR.

The Court determined that the Negative Declaration on the Conditional Use Permit was inadequate, and the County has been required to complete an EIR. Many of the mitigations presented in the EIR are from the facility's RCSI, or are required in the facility's CUP, SWFP, or SWPPP. These represented the County and agencies' best judgement about environmental protection. However, where the EIR consultant found these existing measures inadequate to protect the environment from specifically identified impacts, other mitigations are suggested. Please see response to Comment 13-20.

13-38 The volume of one ton of compost is approximately 1.5 cubic yards; therefore one cubic yard of compost weighs approximately 2/3 of a ton, or 1332 pounds. Therefore, 5,000 cubic yards of compost weighs approximately 3,330 tons.

13-39 According to the applicant, no other additives are planned to be used at this time. Storage of commercial fertilizers for use in an agricultural operation is permitted in an agricultural zone. The negative impact of commercial fertilizers on the site would generally be from their introduction into the drainage leaving the site. As such the Best Management Practices would include containing all leachate in contact with any on-site commercial fertilizers.

13-40 Best Management Practices to control leachate and prevent contamination of stormwater runoff are required in the facility's SWPPP and are proposed as mitigations. If monitoring shows these measures are inadequate, they will have to be revised to prevent contamination. If contamination were to continue, the NCRWQCB would have the authority to require the facility to cease operations until the problem is corrected.

13-41 The figure of 40 round trips per day is a conservative estimate of daily peak truck traffic. Please refer to responses to Comments 13-5 and 13-11. For the purposes of the air quality analysis, it was assumed that there would be a peak of 40 truck round-trips per day. This number represents the maximum peak season delivery of 400 tons of incoming feedstock per day. This is design capacity of the facility; the physical limitations of the facility and the number of employees would limit the ability to process more than 400 tons of feedstocks per day.

13-42 Please refer to response to Comment DD57.

13-43 Masonex, the dust suppressant used at the site, is a product extracted from the wood fibers that are used in the production of Masonite Corporation's Hardboard products. The molasses-like material is composed of wood sugars and is used as a commercial feed supplement for beef and dairy cattle under regulations of the State Department of Food and Agriculture. According to the Material Safety Data Sheet for Masonex, the product does not contain hazardous components and is non-toxic (Masonite Corporation, 1989). In a letter to Masonite Corporation, David Snetsinger of the California Regional Water Quality Control Board, North Coast Region stated that "we believe that Masonex can continue to be used as a dust control agent without adversely affecting water quality" provided that the application method be designed to prevent runoff to surface water drainage channels and the product shall not be applied immediately prior to a foreseeable storm event (Snetsinger, 1992). The guidelines for Masonex application provided by the Masonite Corporation also specify that the product shall not be applied immediately prior to a foreseeable storm event.

SOURCE:

Masonite Corporation, Material Safety Data Sheet for Masonex, prepared April 6, 1989.

Snetsinger, David, California Regional Water Quality Control Board North Coast Region, letter to Robert Scaglione of Masonite Corporation, April 16, 1992.

13-44 Since no loads have been rejected to date, such a monitoring effort is probably unnecessary. However, the County could require CCCI to report details of any future loads that are rejected.

13-45 Wild animals are not generally attracted to compost leachate as a water supply, particularly when other, cleaner, more sheltered water sources exist nearby and the EIR preparers do not consider this a potentially significant impact. Please refer to response to Comment O44. The County could require wildlife-proof fencing.

13-46 Additional inspections of the surrounding areas have confirmed that the views in Figure 3.1.2 of the DEIR show the most affected view of the site from publicly accessible locations. Viewpoint #2 (on page 3-4 of the DEIR) from Burris Lane shows the expansion area for the roof. It does not appear that the view would change dramatically when the roof is expanded.

13-47 Impact 3.2.1 (page 3-20 through 3-21 of the DEIR) and Mitigation Measure 3.2.1 (a) discuss the potential impacts of additives stored outside of the roof structure, and mitigations to ensure that stormwater runoff is not contaminated. Mitigation Measure 3.2.1 (a) is modified in response to Comment O28. See also response to Comment J2.

13-48 Please refer to the fourth paragraph on page 3-9 of the DEIR regarding test pits and borings on the compost pad.

13-49 Prior to mitigation, Impact 3.2.1 (page 3-20 through 3-21 of the DEIR) is a significant impact.

13-50 Please refer to the discussion of site geology and groundwater hydrology on pages 3-11 through 3-12, which form the basis for the conclusion that Impact 3.2.3 regarding the possibility of groundwater contamination is less than significant. Minor ditching between the compost rows to ensure collection and channeling of leachate into the leachate collection system will not affect the integrity of the pad, as long as the remaining pad material is intact.

13-51 The DEIR identifies the possibility of the leachate tank overflowing as a significant impact (impact 3.2.4, page 3-23). Mitigation Measure 3.2.4 (d) addresses the need to develop a method for monitoring the tank level and draining it when necessary. The level indication system has recently been modified and secondary containment has been constructed around the leachate tank. Refer to response to Comment Q25.

13-52 Seismic hazards are discussed in the DEIR (page 3-14, second to last paragraph), and toppling of the leachate tank is identified as a potentially significant impact.(Impact 3.2.4). Mitigation Measures to protect the tank from toppling are discussed in Mitigation Measure 3.2.4, and in the response to Comment M3. Secondary containment has been constructed around the leachate tank.

13-53 It is projected that brewery process water and well water will be adequate (see response to Comment 13-54). However, if not, then the applicant will be required to process less material commensurate with water supplies. In the event that more water is desired, the applicant may drill additional wells or use riparian water if Guntlys have this right.

Although originally proposed by the applicant as an alternative water supply, the Commissioner is correct, details of ponds to collect winter runoff have not been presented, nor evaluated in this EIR and the use of water storage ponds is not part of the project or a mitigation to the project that can be implemented as part of this EIR. Such ponds, if considered in the future, would require a County Use Permit, additional environmental review and would be developed in accordance with guidelines from the State Water Resources Control Board.

Mitigation Measure 3.2.5(a) is deleted from page 3-24 of the Draft EIR as shown below.

~~a. If other existing sources of water are insufficient, the applicant will develop winter runoff collection ponds in accordance with guidelines from the State Water Resources Control Board to mitigate potential environmental impacts of ponds.~~

13-54 As stated on page 3-16 of the DEIR, the average daily summertime water demand is 15,000 gallons per day if the facility is running at proposed capacity. As stated on page 3-15 of the DEIR, the facility expects to receive 3,000 to 12,000 gallons per day of brewery process water. The balance of the water need is expected to be met with well water. Well water would therefore account for 3,000 to 12,000 gallons per day.

13-55 Please refer to responses to Comments 13-51, E5 and E9.

13-56 Toxicity and pathogenicity of leachate are discussed on pages 3-10 through 3-11 of the DEIR. See also response to Comment E2. Possible contamination of stormwater runoff with leachate is identified as a significant environmental impact (Impact 3.2.1, pages 3-19 through 3-20 of the DEIR).

13-57 Please refer to response to Comment 13-20

13-58 Mitigation Measure 3.2.1 (h) states, in part, "Use of biosolids leachate shall be restricted to application to fresh piles of compost that have not yet undergone thermophilic decomposition." Any leachate produced before biosolids have undergone thermophilic decomposition, or before windrows to which biosolids leachate has been applied, should be considered biosolids leachate and handled accordingly.

13-59 The DEIR identifies biosolids as a proposed feedstock in the Project Description and analyzes the potential impacts of biosolids where relevant in the DEIR. Mitigation measure 3.2.1 (h) on page 3-21 of the DEIR identifies several measures to address the hydrology and water quality impacts of biosolids. In the Public Health and Safety section, federal pathogen reduction regulations (Part 503) are discussed on pages 3-47 to 3-48. Biosolids are further discussed in the Public Health and Safety section on pages 3-50, 3-55 to 3-56, 3-58, and in Mitigation Measure 3.5.3 (j.) on page 3-59. Both the No-Project Alternative (beginning on page 5-4) and the Reduced Project / Mitigated Alternative (No Biosolids) analyze project alternatives that would not include biosolids as a feedstock.

13-60 The larger roof should protect more of the materials under the roof from becoming saturated, but this will depend on the direction of the winds and intensity of rainfall.

Mitigation measure 3.2.4 (d.) on page 3-23 of the DEIR addresses leachate collection during storm events. This mitigation measure will still be required if the roof area is enlarged. The applicant will have to balance the size of the roof with total leachate storage capacity that will be needed during storm events.

13-61 Currently, the roof drains empty into natural drainages to the southeast and southwest of the pad, and from there into Silver Creek. As noted in the DEIR (page 3-13, third paragraph), the drainage channels are rock lined and show little sign of erosion or sediment transport. Impact 3.2.2, a significant impact, addresses sediment transport off the site, including sediment from concentrated runoff from the roof. Mitigation Measure 3.2.2 (page 3-22 of the DEIR) states that, proposed as a part of the project, energy dissipaters are used at the outfall of the roof drains, and the channels into which these empty are rock-lined.

13-62 An earthen berm has been constructed below the leachate tank to contain the leachate if this tank should fail. See Comments E6 and M3 and responses.

13-63 See response to Comment 13-20.

13-64 See responses to Comments 13-5 and 13-41.

13-65 See responses to Comments DD29, DD50, H2, and H3.

13-66 To date, no sewage sludge biosolids have been accepted at the site, in accord with the terms of the current SWFP and CUP. Please see response to Comment 13-67.

13-67 Mitigation Measure 3.2.1(h) on page 3-21 of the DEIR states that only sewage sludge biosolids that meet certain federally established criteria for pathogen reduction and metals concentrations should be accepted at the site, if in fact biosolids are to be accepted at the site. Biosolids that meet these standards are not considered hazardous materials or hazardous wastes. No other feedstocks accepted at the site are considered hazardous materials or hazardous wastes. However, certain materials accepted or planned to be accepted at the facility, such as agricultural lime, which is proposed as a composting additive or amendment, may be the source of blown dust that may be hazardous to the health of workers and others at the site. Therefore, the Public Health and Safety Section considers exposure to hazardous materials brought to the site a less than significant impact (Impact 3.5.1, page 3-52 through 3-53 of the DEIR), and considers worker exposure to hazards, including dust, a significant impact (impact 3.5.2, pages 3-53 through 3-56).

13-68 Please refer to the discussion of Masonite ash in the response to Comment OO1.

13-69 Comment noted. Proposed Mitigation Measures 3.5.2 (a.) to (i) will be required as conditions of approval of the Use Permit.

13-70 Regarding constituents of fly and scrubber ash, please refer to the response to Comment OO1. Amendments and additives are not generally necessary for successful composting of animal wastes. Instead, they are added to increase the levels of certain nutrients, in order to make the finished compost a more marketable product.

13-71 The No-Project Alternative envisions use of fertilizers as additives and amendments in an animal waste composting facility. There is no County ordinance prohibiting storage or blending of agricultural amendments on lands zoned rangelands.

13-72 Please refer to response to Comment 13-67.

13-73 Please refer to responses to Comments Q51, DD57, and TT3.

13-74 Please refer to responses to Comments 13-58 and 13-59. As the applicant does not yet have a source of biosolids, it would not be possible to analyze the quality of particular biosolids.

13-75. As stated on page 3-62 of the DEIR, the basis for the estimation that approximately half of the trucks delivering incoming feedstock would backhaul out the finished compost was the facility's experience in these matters provided by the General Manager of the facility, in a December 18 1996 telephone conversation.

Further review of operating information (see response to Comment 13-5) found that during a 9-month period 80% of the finished product leaving the site was backhauled by trucks that delivered feedstock. Only 20% of the finished product was hauled off the site by trucks that did not deliver feedstocks. This is more efficient than what was predicted in the DEIR and would reduce potential air quality impacts in comparison to the 50% estimate.

13-76 As per the Mendocino County Department of Public Works (DPW), the agency that will oversee construction of the Potter Valley Road Bridge Replacement Project, maintenance and protection of traffic during construction will entail traffic control measures that are standard for roadway construction projects. Maintaining access for trucks traveling to/from the compost facility will be treated the same as it is / will be handled for access for any other land use. That is, access will be maintained at all time, but delays could occur. It is anticipated that there will be periods of time during construction hours when traffic flow on affected roadways will be maintained by flaggers directing vehicles on alternating one-way flow on half of the road, while the other half is being reconstructed. Two-way traffic flow will be maintained during non-construction hours. Traffic (including compost trucks) will be subject to delays. The effects will be temporary and intermittent.

It is recommended that the compost facility operator coordinate with the County DPW and the Bridge Project Contractor to minimize delays for compost trucks to the greatest extent possible. For example, the facility could check on the timing of construction work on a continuous basis so that compost truck movements possibly could be timed to avoid unnecessary delays.

The commentor's assertion that the DEIR has not adequately analyzed the impact associated with the added truck trips generated by the project does not identify specific inadequacies, and therefore, a specific response to that part of the comment can not be provided.

13-77 See response to Comment L3 by Stanley Townsend (Deputy Director of the County of Mendocino Department of Public Works) regarding accommodation of incoming facility trucks that sometimes make use of the existing road cutout while waiting for an outgoing truck to exit the facility access road.

13-78 The County Planning and Building Services Department issued a grading permit for the access road, in which the project Engineer indicates "approximate maximum grades are in the range of 10 - 12% with a few sections having limited grades of approximately 16%."

13-79 Impact 3.5.3, a significant impact, discusses possibility of exposure of workers to pathogens, either through direct contact with biosolids or through vectors (pages 3-58 through 3-59 of the DEIR). Mitigation Measure 3.5.3 (g, i, and j) (page 3-59 of the DEIR) and Mitigation Measure 3.2.1 (h) (page 3-21 of the DEIR) address these issues.

This comment refers to text on page 5-6 of the DEIR, which is a discussion of the No-Project Alternative. Because the No-Project Alternative would not include biosolids as a feedstock, there would be no impacts related to potential exposure to biosolids.

13-80 As stated on page 2-9 of the DEIR (second to last paragraph; see response to Comment DD2 for revisions to this paragraph), the Mendocino Solid Waste Authority, County of Mendocino, and Cities of Ukiah, Willits, and Fort Bragg all passed resolutions supporting the project (presumably because it is perceived as helping to meet AB 939 goals). The discussion of AB 939 referred to by the commentor does not, therefore, indicate the alleged "bias" of the preparers of the EIR, but rather the general consensus of the government bodies in the County responsible for compliance with AB 939.

13-81 As stated in the passage that the commentor refers to, on page 4-4 of the DEIR, Land Use, Plans, and Policies were not identified as areas of concern by the Superior Court or commenting agencies.

13-82 The intent of Chapter 5, Alternatives, is to provide a range of reasonable alternatives to a project that would feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives (CEQA Guidelines, §15126 (d)), even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly. Since all the impacts of the project could be mitigated to a less than significant level, the Alternatives discussion was not mandatory in the DEIR, but was included to provide decision makers and the public with comparative analyses of the project and a range of alternatives. Mr. Zotter is correct in stating the obligation of EIRs to look for alternative sites for private projects.

The selection of the Off-Site Alternative is described on pages 5-7 to 5-10 of the DEIR. The selection process included the applicant's siting requirements (pages 5-7 to 5-8) and a description of potential off-site alternative locations considered but rejected (pages 5-8 to 5-10). The discussion of rejected sites included a thorough review of sites identified in the *Mendocino County Landfill Siting Study Final Report.* As noted in the DEIR in the middle paragraph on page 5-8, "Although some of the specific technical criteria for locating a landfill would be different than for a compost facility (e.g., siting a landfill would require specific geotechnical considerations and sufficient size to accommodate long-term landfill capacity), many other factors (e.g., zoning and land use compatibility) would be pertinent to both types of facilities."

See also response to Comment Q54.

13-83 Please refer to response to Comment 13-71.

13-84 This statement indicated the assumption that the project would probably divert more waste from landfills and produce more products with agricultural benefits than any of the three alternatives. Neither the No-Project Alternative nor the Reduce Project/Mitigated Alternative would divert the full range of feedstocks of the proposed project.

13-85 Any biosolids accepted at the site would not be considered hazardous materials. The second paragraph under Public Health and Safety on page 5-6 of the DEIR discusses the elimination of biosolids from the No-Project Alternative and the reduced potential for spread of human pathogens (see also the ranking for impacts 3.5.2 and 3.5.3 in the alternatives matrix in Table 5.1 on page 5-2 of the DEIR).

MENDOCINO COUNTY PLANNING COMMISSION
JUNE 19, 1997 FINAL MINUTES

6B. #U 26-93 - GUNTLY/MILECK/COLD CREEK COMPOST - South of Potter Valley

Request: Review and comment on the Draft Environmental Impact Report for a use permit to establish a mixed solid waste composting facility.

Commissioner McCowen commented, regarding Page 3-5, that he would like to see an expanded discussion of vectors and the need for secure fencing to limit contact between on-site vectors and wildlife. 14-1

Commissioner McCowen commented, regarding Page 4-3, that it states in the last paragraph that use of the site for composting is serving to assist local communities in complying with State waste diversion mandates and it also refers in the last sentence to limited land fill capacity for Mendocino County but this project is designed to serve at least a six county market area. The available land fill capacity remaining in Mendocino County is already very limited and there is very little left to conserve. Whatever benefit this facility might have for Mendocino County land fill capacity is negligible so the argument is somewhat specious. On that same page, he stated that he would like to see some discussion of what percentage of the material going to this facility is generated within Mendocino County. 14-2

Commissioner Heckeroth asked if an issue is brought up by more than one Commissioner if it carries more weight because the comment made by Commissioner McCowen is important. Mr. Falleri responded that the consultant must address all questions. If a question is asked more than once, they may respond to the second question by referring the reader back to a previous response.

Commissioner McCowen commented, regarding Page 5-6 under the discussion of Biological Resources that it states that potential impacts would be the same as the project -- the no project alternative would have the same potential impacts to wildlife but the no project alternative would not include sewage sludge, therefore, there would be significantly fewer pathogens for vectors to be exposed to. 14-3

Commissioner McCowen commented, regarding the second paragraph on Page 5-16, that the DEIR raises the issue of rabies and attacks by bears. He asked if this impact was discussed with regard to the project itself. If not, it is another indication of skewed analysis. We bring up these potentially remote hazards with regard to the project alternative when we did not consider them with regard to the project. 14-4

Commissioner McCowen commented, regarding the last paragraph on Page 5-17, that the DEIR states elimination of biosolids under the reduced project mitigated alternative would result in slightly less environmental and safety impacts. He questioned whether it would be only slightly less. He stated that this is a skewed analysis. 14-5

Commissioner McCowen made the following additional comments:

> "The DEIR should contain a comprehensive listing of every amendment and feedstock that is presently being used, has been used or is proposed to be used. I would like to see the inclusion of a chart which would show exactly which feedstocks and amendments have been or are presently being used by the project, which ones are proposed for use by the project and which ones would be allowed for each alternative. 14-6
>
> Fishery waste, street sweepings, restaurant food waste and grocery food waste are proposed as feedstock materials and the draft EIR contains occasional mention of them but I see little or no 14-7

discussion about the possible impacts, especially regarding odors, pathogens and ground water pollution. I would also like to see discussion about specific mitigations and special handling that might be required for these particular feedstocks.

The Project Description in Appendix A indicates that a Negative Declaration and use Permit (#U 26-93) considered the range of feedstocks for the project except for streetsweepings. No mention is made of sewage sludge biosolids. This omission and the reference to the Negative Declaration have the effect of minimizing the potential impacts of the project in general and the sewage sludge in particular. 14-8

Has this project used or does it intend to use native soil from the project site or the Guntly ranch as an amendment and what are the potential impacts likely to be? 14-9

I would like to see a comprehensive discussion of what feedstocks and amendments are allowed by right in order to "process" animal waste and what feedstocks and amendments are used as part of a commercial composting operation. What criteria are used to determine what is allowed by right? Where is the line drawn between processing animal waste and conducting a commercial composting operation? In other words, not all the additives and amendments used are required in order to "process" animal waste so by what "right" are they used for commercial composting? 14-10

I would like additional discussion of potential impacts to users of McKee County Park with regard to dust, noise and aesthetics. 14-11

The full page photograph at the end of Appendix A seems to show the ends of windrows extending beyond the roof area in January of 1996. In response to questions the applicant indicated that he had no concern about extending windrows to the edge of the roof. Since blown in water is a major cause of leachate production, I would like to see some discussion about partially enclosing the sides of the roof structure." 14-12

Commissioner Heckeroth commented, regarding Pages 3-52 and 3-53, that similar operations on the coast destroyed several organic farms because the ash brought in from L-P had traces of 2-4-D that they sprayed on the forest to destroy insects and broad leaf vegetation . Traces of dioxin were found. If found in compost used on an organic farm, it could make them lose their certification. To say the fly ash was collected on September 4, 1996, and found to have no problem and use that as justification for not continuing testing is very short sighted given the ramification that this could have on the organic farming industry. He suggested that mitigation measures on Page 3-53, include a testing program rather than having facility staff visually inspect incoming materials. He noted that there was testimony that there was goo coming from a truck, yet the facility staff said they had not seen it. He stated that it is not in their interest to police themselves. This is like the wolf guarding the hen house. Any inspections should be paid for by Cold Creek but should be monitored by an outside agency – probably the County. Inspections should be done at random to make sure that they are in compliance with the hazardous materials that could be potentially brought into the site. The fly ash in particular should be tested for possible contaminants on a more regular basis to be determined by the County. 14-13

Commissioner Thomas commented that she thought it said on Page 5 that ash is an organic decomposed material. She asked it this means that ash does not decompose. Commissioner Heckeroth responded that it is concentrated material and can contain things that are actually enhanced by the burning process which changes some herbicides into dioxins. 14-14

Commissioner Berry questioned the role of the Planning Commission in the certification of the product to the applicant's customers. He noted that he grows grapes. He stated that he has a contract which 14-15

requires that he identify all chemicals which he puts on the grapes. There is no County agent checking the chemicals to make sure there is nothing else in the product. He questioned what the difference is with this application. He commented that we need safeguards to insure that we are protecting the public health and safety but there is no overriding issue that requires that the Planning Commission protect the applicant's organic farm customers.

Commissioner Calvert reminded the Commission that their comments should address the Draft EIR and she felt that some of the comments are going beyond the Draft EIR. If the consultant does not feel a comment is appropriate, the comment may be ignored or the consultant may indicate that it is not appropriate. As an example, Commissioner Calvert noted that her comments regarding forestry issues were ignored in the Brooktrails EIR.

Commissioner Barth noted that the neighbors are very concerned about the materials being stored at the site. She suggested that the EIR include an appendix with an analysis of the feedstocks and amendments and an analysis of wood, fly and scrubber ash. The report does address biosolids and, therefore, an analysis of the contents of biosolids should be included. The monitoring of the substances on the site is not well addressed. 14-16

Mr. Falleri reminded the Commission that they should be focusing on the Draft EIR and making comments about what is wrong with the document and what is insufficient in order to help the Commission make a decision when hearing the project. The Commission does not need to make observations or comments about the merits of the project. Once all of the comments are complete, the consultant will respond to those comments.

Commissioner Thomas commented that the DEIR should identify how many trucks are being brought in from outside the County. She expressed concern that the road facilities may not be capable of handling the amount of truck traffic to be generated by the project. 14-17

Commissioner McCowen felt that the DEIR should address the percentage of materials generated from within the County. 14-18

Commissioner Thomas clarified that she would like to know the amount of material being brought in identified by each specific County – not just within County or outside County. 14-19

Commissioner Heckeroth commented, on Page 3-63 under air quality and trip generation, the DEIR indicates that no mitigation measures are required. He disagreed with the statement. The impacts on air quality from this project could be tremendous and there should be many mitigation measures. There could be a tremendous expense to the County from non-attainment. The impacts caused by the trucks to air quality and impacts on the County roads should be addressed as well as the distances they travel and the weight of those vehicles. 14-20

In response to Commissioner Berry, Commissioner Heckeroth commented that the person supplying the chemical or compost should be responsible for testing. Organic farmers need to rely on the person supplying the soil amendment and the EIR should require that the applicant perform the necessary testing to insure that the compost is certified. Commissioner Berry commented that he agrees that the County should know what is coming out of the site but he does not agree that the County should be required to perform the testing. 14-21

Commissioner McCowen commented that Mary Goodwin testified, as reflected on Page 4 of the Planning Commission minutes from June 5, 1997, that the DEIR wrongly and illegally limits the scope of its analysis but that the court order was amended to be comprehensive. He stated that he would like to 14-22

make sure that the point does not get lost and he would like to make sure that the comment is responded to by the consultants.

Commissioner Heckeroth commented that he could not find a location in the DEIR where it requires a program for monitoring and testing ground water around the site and he felt that testing of ground water should be required. Commissioner McCowen responded that the DEIR does require testing, however, there is a questions regarding the things they will be testing for and it may be necessary to expand the test. 14-23

Commissioner Barth commented, regarding Period of Analysis on Page 1-5, that a use permit can be issued for a limited time. That statement should be included within this section. A use permit would have to be renewed every "X" number of years. 14-24

Commissioner Barth commented, regarding Section 2.2.8 on Page 2-12, that the section should reflect that there are neighboring residences within 600 feet of the access road. The access road is closely related to the project and without the access road, there would be no project. 14-25

Commissioner Barth questioned, regarding Page 2-17, whether night time deliveries will go on all night or will they stop at a specific time. Also, there is a conflict with the statement in Section 3.1.1 on Page 3-5 regarding night time operations and lighting. 14-26

Commissioner McCowen added that he would also like to see some discussion on the length of time that the night time deliveries are anticipated to occur (i.e., 2 weeks, 3 weeks or one month). 14-27

Commissioner Berry questioned the need for night time deliveries during crushing. Wineries crush all night long but the materials are normally held. He requested that the consultant identify the need for night time deliveries. 14-28

Commissioner Barth commented, regarding noise on Page 3-37, that, at maximum capacity, the neighbors would have to listen to the trucks every six minutes at a level of 55 dba. This would be the equivalent of heavy traffic at 300 feet. The development of an alternative access road to Highway 20 should be discussed. 14-29

Commissioner Barth commented, regarding Sewage Sludge Biosolids on Page 3-58, that the DEIR states "However, unless properly handled, treated (i.e., composted and pathogen-reduced) sewage sludge biosolids can be re-infected with non-processed materials. The statement indicates pathogen reduced rather than eliminated. She would like to have the consultant address the issue of reducing the pathogens so that they are only a little bit dangerous. She commented that the mitigation requires that, if there is a problem, we just do another plan which seems to be an example of buck passing. 14-30

Commissioner McCowen commented, on Page 1-1, that there is a sentence in the first paragraph which states that "Current operations at the site include composting operations of similar materials as those proposed in the Use Permit." Presently the uses proposed in the use permit include biosolids, street-sweepings, restaurant waste, etc. He questioned if the current operation really includes composting operations of similar materials as those proposed. The problem arises from the fact that biosolids were thrown into this relatively late. The DEIR was probably substantially written and the consultant tried to go back and retrofit biosolids into the DEIR and they did a lousy job of it. 14-31

Commissioner Heckeroth commented that a reclamation plan should be required to insure that the property is properly reclaimed and not left as a blight up on the hill if the operation were discontinued. 14-32

14. PLANNING COMMISSION COMMENTS, JUNE 19, 1997

14-1 It appears that the correct page reference for this comment is page 3-58. Comment noted. Vectors are identified in Impact 3.5.3 as a potentially significant impact. Fencing at the site now keeps range animals out of the facility. The need for fencing is addressed in mitigation measure 3.5.3 (f.) and has been addressed (see response to Comment O44).

It is unclear what types of wildlife are attracted to the facility and how to keep them away from the compost. If wildlife were to be attracted to the facility, fencing would be a possible way to exclude them. As discussed in response to Comment TT3, vertebrates should not be that attracted to a compost facility, and there is no information from the LEA to suggest that this has been a problem.

14-2 Comment noted. As suggested in the last paragraph on page 4-3 of the DEIR, AB 939 requires diversion of materials from landfill, irrespective of the amount of landfill capacity remaining locally. Please refer to the information in response to Comment 13-5. During the period from January 1, 1996 through June 30, 1997, approximately 9,900 tons of incoming material originated from within Mendocino County[1]. Mendocino County-generated materials accounted for approximately 36% of all materials coming into the facility.

14-3 Vector attraction and exposure of humans to pathogens through vectors is considered a Public Health and Safety impact, not a Biological impact. Public Health and Safety impacts of the no-project alternatives, including different impacts if biosolids are eliminated as a feedstock, are discussed in the third paragraph on page 5-6 of the DEIR.

14-4 We agree with the commentor that this is a potentially remote hazard (or unlikely event). The discussion on page 5-16 indicated that the impact would generally be the same as the project. The LEA would be expected to address any issues related to vector attraction in the monthly facility inspection.

14-5 The DEIR identifies Mitigation Measures (Mitigation Measure 3.2.1 (h)) that, if implemented, should protect surface water quality from potential contamination from biosolids, if biosolids are used as a feedstock. This Mitigation Measure would mitigate the potential impact of biosolids on water quality to a level below significant. Therefore, elimination of biosolids as a feedstock in this alternative would slightly lower the impact on water quality, when compared to the project (with the inclusion of mitigations measures for biosolids).

14-6 Please refer to the Project Description, page 2-1, first paragraph, of the DEIR for a complete list of currently used and proposed feedstocks. For a complete list of additives and amendments, see Section 2.3.4, Additives, on page 2-15 of the DEIR. There were no specific impacts related to individual additives or amendments that indicated they should be excluded from the project alternatives and hence, the project alternatives have no specific restrictions related to additives or amendments.

[1] Cold Creek Compost, Inc., letter from Eric Anderson to ESA, December 11, 1997.

14-7 The DEIR discusses potential impacts, including odors, pathogens, and groundwater pollution, of all proposed feedstocks. In general the potential impacts are quite similar from the materials mentioned.

14-8 The commentor apparently refers to the original Notice of Preparation. At the time of the original Notice of Preparations, the applicant had not yet proposed adding biosolids as a feedstock. The revised Notice of Preparation (dated January 16. 1997) is provided at the beginning of Appendix A, and includes, as item 4, addition of biosolids as a feedstock.

14-9 Native soil is not proposed as a compost feedstock, additive, or amendment. CCCI has recently used some native soil from the Guntly ranch for the purpose of a planter mix. The soil did not come from the project site and thus would be covered by the SWFP (telephone communication, Eric Anderson, CCCI, December 4, 1997). The impact of using native soil from the ranch would depend on the amount and original location of the soil. The potential negative impact would be erosion of exposed soil into local waterways. The Guntly ranch would need to obtain any required County permits for this, if any are required. Whereas this EIR considers runoff sediments from the compost site and the haul road, as well as cumulative sediment already caused by other actions upstream of this project, the EIR does not specifically address, nor provide environmental clearance, the use of native soil from the Guntly ranch.

14-10 Please refer to response to Comment 13-71.

14-11 Please refer to response to Comment OO4 and JJ4.

14-12 Please see response to Comment 13-7. If the windrows are within the drainage system, to the degree that they absorb rainwater they will reduce the production of liquids going to the leachate collection tank.

14-13 As noted in the responses to Comments OO1 and UU1, Cold Creek Compost's "Agrow Blend Plus" product, which contains Masonite ash, is not an approved material by California Certified Organic Farmers. The County LEA inspects the facility monthly. Masonite tests its ash annually and sends the results to the County LEA. The County could require more frequent testing of the ash to determine that it is non-hazardous.

14-14 The reference here is to the end of comment 13-6. Ash is best described as the solid residue left when combustible material is thoroughly burned (oxidized). Burning usually results in almost complete break down (or decomposition) of the organic materials. Please refer to the response to Comment OO1 regarding Masonite ash.

14-15 Comment noted. This comment does not address specific issues in the DEIR.

14-16 Regarding ash, please refer to response to Comment OO1. Regarding biosolids, please refer to response to Comments 13-67 and 13-74. Please refer to response to Comment E1 regarding groundwater monitoring and page 2-16 of the DEIR for a list of required sampling of the finished compost.

14-17 See response to comment 13-5, above, regarding truck trips originating outside Mendocino County.

14-18 Please see responses to Comments 13-5 and 14-2.

14-19 The information provided by CCCI (in response 13-5) separated the trips by in-County and out-of-County, but does not show the specific County in each case. Traffic impacts are discussed in the response to Comment 13-5. The percentage of trips from specific Counties will change based on contracts with CCCI. See also response to Comment 13-24.

14-20 As noted in the Air Quality Section significance criteria are established by the Mendocino County Air Quality Management District (page 3-30, third paragraph of the DEIR). See also Comment H1. A quantification of criteria air quality pollutants generated by the project is presented in Table 3.3.1 on Page 3-31. As can be seen from the table, emissions of criteria pollutants are below the Mendocino County Air Quality Management District's thresholds of significance. Because there are no significant air quality impacts from the project, no mitigation measures are required to reduce the impacts below levels of significance. Because the levels are below the District's thresholds of significance it can be assumed that this project would not result in the County being designated as a non-attainment area. For additional information related to truck trips please refer to response to Comment 3-5.

14-21 Comment noted. The comment does not address deficiencies or inaccuracies in the DEIR. The state will require the testing of final compost per the requirements identified on page 2-16 of the DEIR.

14-22 Please refer to response to Comment DD4.

14-23 The DEIR does not include a mitigation requiring testing of groundwater, for the reason that groundwater contamination is considered a remote possibility (because of the impermeability of the compost pad), and that contamination of any domestic water wells is considered an extremely remote possibility. See discussion of groundwater hydrology on pages 3-11 through 3-13 of the DEIR, and Comments E3, E4, and responses.

14-24 Page 1-5 of the DEIR is hereby amended as follows:

PERIOD OF ANALYSIS

The compost facility is currently operating at about 25% of the expected average of 200 tons per day. This EIR assumes that construction of additional improvements to the proposed compost facility would be completed and fully operational by 2000. There are no limits placed by the applicant on the life of the project. A use permit may, however, have a time limit.

14-25 Section 2.2.8 on page 2-12 of the DEIR is hereby amended as follows:

2.2.8 LAND USE WITHIN 1000 FEET OF SITE BOUNDARIES

The surrounding lands are primarily used for cattle, crop production, and timber land. The nearest residence to the project site is located approximately 4,800 feet west of the project site. The CIWMB EIR Checklist for composting facilities recommends identifying land uses within 1,000 feet of the site boundary. The closest residence to the facility access road is approximately 400 feet.

14-26 Please refer to the response to Comment 13-11.

14-27 Please refer to the response to Comment 13-11.

14-28 Comment noted. Please refer to the response to Comment 13-11.

14-29 Please refer to response to Comment JJ8. Please refer to response to Comment 13-5, which gives a better perspective on truck roundtrips. On average it is likely that there would be slightly more than 1 truck roundtrip per hour. There will be peak periods of activity when several trucks come and go during one hour, but this will not be the average condition. Because of the limitation of the facility throughput total feedstock deliveries are limited.

14-30 State and federal regulations require thermophilic decomposition regimes that ensure that pathogens will be reduced below prescribed limits. The limits are found in Section 17868.3 (Pathogen Reduction) of the California Composting Regulations. Limits are established for fecal coliform and *Salmonella sp.* bacteria. If the limits are exceeded there is a requirement for disposal of the compost, or additional processing.

14-31 The current operation composts many, though not all, of the proposed feedstocks. The Commissioner is correct in noting that biosolids are not currently being composted at the CCCI facility.

14-32 Please refer to Section 2.2.10, on page 2-12 of the DEIR, which discusses the requirement (in the Facility's existing SWFP) for a final site closure plan.

CHAPTER III

WRITTEN COMMENTS AND RESPONSES

Chapter III contains copies of all written comments received. Each comment has been labeled with an identification number for reference to its response. Immediately following each comment letter are the responses to the written comments.

Some comments and responses have resulted in text that should be changed in the Draft EIR. Text with a line through it (strikethrough) is removed from the Draft EIR; underlined text is added to the Draft EIR.

A

State of California

GOVERNOR'S OFFICE OF PLANNING AND RESEARCH

PETE WILSON
GOVERNOR

1400 TENTH STREET
SACRAMENTO 95814

LEE GRISSOM
DIRECTOR

RECEIVED
AUG - 1 1997
SCIENCE ASSOC.

July 28, 1997

RECEIVED
JUL 30 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

PAMELA TOWNSEND
MENDOCINO COUNTY
501 LOW GAP ROAD, ROOM 1440
UKIAH, CA 95482

Subject: UDE PERMIT FOR MIXED SOLID WASTE COMPOSTING FACILITY SCH #: 96032033

Dear PAMELA TOWNSEND:

The State Clearinghouse has submitted the above named draft Environmental Impact Report (EIR) to selected state agencies for review. The review period is now closed and the comments from the responding agency(ies) is(are) enclosed. On the enclosed Notice of Completion form you will note that the Clearinghouse has checked the agencies that have commented. Please review the Notice of Completion to ensure that your comment package is complete. If the comment package is not in order, please notify the State Clearinghouse immediately. Remember to refer to the project's eight-digit State Clearinghouse number so that we may respond promptly.

Please note that Section 21104 of the California Public Resources Code required that:

> "a responsible agency or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency."

Commenting agencies are also required by this section to support their comments with specific documentation.

These comments are forwarded for your use in preparing your final EIR. Should you need more information or clarification, we recommend that you contact the commenting agency(ies).

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact Kristen Derscheid at (916) 445-0613 if you have any questions regarding the environmental review process. A1

Sincerely,

Antero A. Rivasplata

ANTERO A. RIVASPLATA
Chief, State Clearinghouse

Enclosures
cc: Resources Agency

NOTICE OF COMPLETION

Appendix F

Mail to: State Clearinghouse, 1400 Tenth Street, Sacramento, CA 95814 916/445-0613

See NOTE below

SCH# 96032033

Project Title: Use Permit for Cold Creek Compost Facility (#U 26-93)

Lead Agency: Mendocino County Planning & Building Services | Contact Person: Pamela Townsend

Street Address: 501 Low Gap Road, Room 1440 | Phone: 707-463-4281

City: Ukiah, CA | Zip: 95482 | County: Mendocino

Project Location:

County: Mendocino | City/Nearest Community: Potter Valley

Cross Streets: East Side Potter Valley Road | Total Acres: 10+ of 4,000 ac ranch

Assessor's Parcel No. 177-150-02,03,177-280-11 | Section: 7, 8, 17 | Twp. 16N | Range: 11W | Base: MDB&M

Within 2 Miles: State Hwy #: 20 | Waterways: Russian River/Cold Creek

Airports: | Railways: | Schools:

Document Type

CEQA: ☐ NOP ☐ Early Cons ☐ Neg Dec ☒ Draft EIR ☐ Supplement/Subsequent ☐ EIR (Prior SCH No.): ☐ Other:

NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI

Other: ☐ Joint Document ☐ Final Document ☐ Other:

Local Action Type

☐ General Plan Update ☐ General Plan Amendment ☐ General Plan Element ☐ Community Plan ☐ Specific Plan ☐ Master Plan ☐ Planned Unit Development ☐ Site Plan ☐ Rezone ☐ Prezone ☒ Use Permit ☐ Land Division (Subdivision, Parcel Map, Tract Map, etc.) ☐ Annexation ☐ Redevelopment ☐ Coastal Permit ☒ Other: Solid Waste Facilities Permit

Development Type

☐ Residential: Units | Acres
☐ Office: Sq.ft. | Acres | Employees
☐ Commercial: Sq.ft. | Acres | Employees
☒ Industrial: Sq.ft. | Acres 10+ | Employees 2 - 6
☐ Educational:
☐ Recreational:
☐ Water Facilities: Type | MGD
☐ Transportation: Type
☐ Mining: Mineral
☐ Power: Type | Watts
☒ Waste Treatment: Type Compost Facility
☐ Hazardous Waste: Type
☐ Other:

Project Issues Discussed in Document

☒ Aesthetic/Visual ☐ Agricultural Land ☒ Air Quality ☐ Archaeological/Historical ☐ Coastal Zone ☒ Drainage/Absorption ☐ Economic/Jobs ☐ Fiscal ☐ Flood Plain/Flooding ☒ Forest Land/Fire Hazard ☐ Geologic/Seismic ☐ Minerals ☒ Noise ☐ Population/Housing Balance ☐ Public Services/Facilities ☐ Recreation/Parks ☐ Schools/Universities ☐ Septic Systems ☐ Sewer Capacity ☒ Soil Erosion/Compaction/Grading ☐ Solid Waste ☒ Toxic/Hazardous ☒ Traffic/Circulation ☐ Vegetation ☒ Water Quality ☒ Water Supply/Groundwater ☐ Wetland/Riparian ☐ Wildlife ☐ Growth Inducing ☐ Land Use ☐ Cumulative Effects ☒ Other: Public Health/Safety

Present Land Use/Zoning/General Plan Use

Ranching, classified Range Land (RL); applicant is operating a compost facility for mixed solid wastes

Project Description

Use Permit to establish mixed solid waste compost facility - see attached description for further details.

State Clearinghouse Contact: Ms. Angel Howell (916) 445-0613

State Review Began: 4-16-97

Dept. Review to Agency 5-23

Agency Rev to SCH 5-28

SCH COMPLIANCE 5-30

Please note SCH Number on all Comments

96032033

Please forward late comments directly to the Lead Agency

AQMD/APCD____ (Resources: 4/19)

96032033

Project Sent to the following State Agencies

- X Resources
- ___ Boating
- ___ Coastal Comm
- ___ Coastal Cnsv
- ___ Colorado Rvr Bd
- ___ Conservation
- X Fish & Game # 3
- ___ Delta Protection Commission
- X Forestry
- ___ Parks & Rec/OHP
- ___ Reclamation
- ___ BCDC
- ___ DWR
- ___ OES

Bus Transp Hous

- ___ Aeronautics
- X CHP
- X Caltrans # 1
- ___ Trans Planning
- ___ Housing & Devel

Health & Welfare

- X Dept. of Health
- ___ Medical Waste

State/Consumer Svcs

- ___ General Services
- ___ Cal/EPA
- ___ ARB
- X CA Waste Mgmt Bd
- ___ SWRCB: Grants
- ___ SWRCB: Delta
- X SWRCB: Wtr Quality
- ___ SWRCB: Wtr Rights
- X Reg. WQCB # 1
- ___ DTSC/CTC

Yth/Adlt Corrections

- ___ Corrections

Independent Comm

- ___ Energy Comm
- ___ NAHC
- ___ PUC
- ___ Santa Mn Mms
- X State Lands Comm
- ___ Tahoe Rgl Plan
- ___ Other: _____

111-3

STATE AND REGIONAL AGENCIES

A. GOVERNOR'S OFFICE OF PLANNING AND RESEARCH

A1 Comment noted. The Governor's Office of Planning and Research acknowledges that the County has complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to CEQA (SCH# 96032033).

State of California

California Environmental Protection Agency

RECEIVED
JUN 1997 B
BUILDING SERVICES

MEMORANDUM

To: Angel Howell
State Clearinghouse
1400 Tenth Street
Sacramento, CA 95814
(916) 445-0613

Pamela Townsend
Mendocino County Planning and Building Services
501 Low Gap Road, Room 1440
Ukiah, CA 95482

Date: May 27, 1997

From: Marcia Kiesse
Marcia Kiesse
Environmental Review Section
Permits Branch
Permitting and Enforcement Division
CALIFORNIA INTEGRATED WASTE MANAGEMENT BOARD

Subject: SCH# 96032033 - Draft Environmental Impact Report (DEIR) for the Cold Creek Compost Facility (23-AA-0023) County of Mendocino

California Integrated Waste Management Board (CIWMB) staff thank the Mendocino County Planning and Building Services (Lead Agency) for the opportunity to comment on the scope and content of the draft EIR.

The following represents CIWMB staff's understanding of the scope of the proposed project based on the project description provided by the Lead Agency.

PROJECT DESCRIPTION

Background

The Cold Creek Compost Facility is located on the Guntly Ranch, approximately 10 miles northeast of Ukiah in Mendocino County. The 3,700-acre Guntly Ranch is devoted to rangeland for cattle, crop production, and timber land. Topographically, the project site varies from 1,500 feet to 1,550 feet above mean sea level.

The Applicant, Cold Creek Compost, Inc.(CCCI) has been composting at this site since July 1995. The facility's service area includes Mendocino, Humboldt, Lake, Napa, Sonoma, and Yolo Counties. The facility's maximum design capacity is 50,000 tons per year of incoming material, an average of approximately 200 tons per day, with a maximum of 400 tons per day of incoming material. Currently the facility operates at about 25% of its expected average or 50,000 tons per year.

A Negative Declaration was prepared to support issuance of the project's Use Permit # U26-93. In February 1995 the Mendocino County Board of Supervisors upheld the Negative Declaration on appeal from the Planning Commission. At that time, the feedstocks did not include street sweepings and sewage sludge biosolids. This EIR is being prepared pursuant to Superior Court Order No. CV71886, *Preserve County Neighborhoods v. County of Mendocino.*

Proposed Action

The EIR will focus primarily on the issues specified by the Court. It will also assume that construction of additional improvements to the proposed compost facility will be completed and fully operational by the year 2000.

The Superior Court Order summarized its concerns as follows: the effect of compost leachate on domestic water wells in the area, the Russian River and Lake Mendocino; the effect of the construction of a roof (shed) over a 3.5-acre portion of the compost pad; public health impacts to ground and surface water; impacts due to the fungus *Aspergillus fumigatus;* and impacts related to traffic noise, safety, and odors.

The project which is the subject of this EIR incorporates several changes to the original project approved and litigated as Use Permit 26-93. On January 21, 1997 a revised Notice of Preparation (NOP) was circulated, replacing the earlier March 4, 1996 NOP. The Report of Composting Site Information (January 15, 1996), together with the September 27, 1996 Amendment and other information provided by the Applicant represents the revised project.

1) Facility size is reduced from 12.5 acres to 10 acres to reflect elimination of leachate ponds. The compost pad is increased from an estimated 5.5 acres to 6.0 acres. The project site to include an area lying 1,800± feet easterly of the 10-acre project site for three 22,000 gallon storage tanks (set on concrete pads) for process water and potable water, and one 2,500 gallon tank at the wellhead for potable water;

2) A floor drain system under the roof to capture and channel rain water that blows under the roof to a 22,000 gallon tank;

3) Project site to include auxiliary areas near the 6-acre compost pad for storage of lime and gypsum, additives and amendments may also be stored outside the roof structure on the compost pad;

4) Addition of biosolids and street sweepings as feedstocks;

5) Process water may include brewery process water from an off-site source and rain water collected by the floor drain system; and

6) Maximum daily load capacity/design capacity is increased from 200 tpd (250 days per year) to 400 tpd. Maximum truck traffic

generation is estimated to be 40 round trips (80 one way trips) per day, an increase from the previous estimate of 12 round trips per day.

Additional feedstock materials may include: manures from chicken ranches, dairies, turkey farms and other agricultural facilities; other agricultural materials, including grape pomace, plant trimmings, and culled fruit); green material; animal stall bedding; grocery store food waste; restaurant food waste; street sweepings (primarily from autumn leaf collections); fishery waste; and sewage sludge biosolids. Amendments and additives may include wood ash (including fly ash and scrubber ash), lime, rock phosphate, gypsum, or other commercial fertilizers. No contaminated soils would be accepted at the site.

The proposed project is intended to provide CCI a new production facility that will:

- Replace its former production sites in Covelo and Hopland, California;
- Allow CCI to consolidate its compost production facilities at one location;
- Provide the additional capacity necessary to meet the needs of an expanding market for compost products;
- Be sited and permitted such that it can provide public jurisdictions within its market area a facility that is available to assist in meeting the goals and objectives of AB 939; and
- Possess the necessary site characteristics to ensure the facility can meet the permitting requirements of the CIWMB and other regulatory agencies, while minimizing impacts to off-site receptors.

Environmental Evaluation

The Lead Agency determined that mitigation measures described in the EIR would reduce the following potential environmental impacts to less than significant: Visual, Hydrogeology and Water Quality, Air Quality, Noise, Public Health & Safety, and Traffic Safety. For some of the impacts labeled "Less Than Significant", the Lead Agency has also included mitigation measures recommended to create a project that further minimizes project environmental impacts.

GENERAL COMMENTS

One purpose of CIWMB staff's review of an environmental document is to help decision-makers identify potential impacts from proposed projects, evaluate whether any such impacts are

significant, and determine whether significant impacts can be mitigated to a level of insignificance in compliance with the CEQA statutes and guidelines.

CIWMB's Environmental Review Section (ERS) staff must also ascertain that the subject environmental document is adequate for use in the permitting process. The proposed project must be described in sufficient detail to allow estimation of the *facility's ability to meet the standards to prevent environmental damage and to provide long-term protection of the environment*, the primary consideration in issuing, modifying, or revising any permit (See Title 14 Section 18201). To that end, ERS staff offer the following comments:

- ☐ It was not clear to ERS staff which elements constituted the proposed project that was evaluated in this DEIR. For example, on page 1-3 the addition of biosolids as a feedstock is listed as a change to the project since the March 4, 1996 NOP was issued. Later, *street sweepings* and sewage sludge biosolids are listed as added feedstocks (see page 2-5). ERS staff recognizes that the project has changed several times and that the Lead Agency sought to document these changes and how and when they came about. The "composite" project description included at the beginning of this comment letter represents ERS staff's understanding the project. It would be helpful if the finalized EIR included a more concise presentation of the elements of the project that were evaluated. B1

- ☐ In the last paragraph of page 1-4 the Lead Agency states that California Code of Regulations Section 17850 et seq allows the applicant to "compost an unlimited amount of manure upon notification of the local enforcement agency", then states that "[t]his activity is exempt from CEQA." This statement is somewhat misleading. Since the described activity would not require a permit from CIWMB, the Board would not have discretionary authority over the project and thus would not require compliance with CEQA. Although the project might be considered "exempt" from the perspective of the CIWMB, this activity may still be considered a "project" as defined in CEQA and would be subject to its requirements. B2

- ☐ With regard to mitigation measures, Title 14 California Code of Regulations Section 18208 requires that the permit issued include conditions necessary to specify a design and operation for which "the ability to control the adverse environmental effects of the facility" have been demonstrated.

  As the Lead Agency is aware, descriptions of potential environmental impacts or consequences associated with this project and proposed measures to minimize or mitigate adverse environmental effects must be included in a B3

Mitigation Reporting or Monitoring Program (MRMP) and adopted as part of the project. The MRMP should be designed to ensure compliance during project implementation and include measures to track the effectiveness of the mitigation measures. These factors may be used in determining the effectiveness of the proposed mitigations. Public Resources Code Section 21081.6(b) requires the public agency to "provide that measures to mitigate or avoid significant effects on the environment are fully enforceable through permit conditions, agreements, or other measures."

CIWMB staff request that the EIR specifically indicate which mitigations measures must be placed in the SWFP and suggest that the final environmental document establish enforcement procedures and penalties, as well as develop conflict resolution provisions.

- A major purpose of an EIR is "to demonstrate to an apprehensive citizenry that the agency has, in fact, analyzed and considered the ecological implications of its action" (CEQA Guidelines § 15003[d]). Does the Lead Agency's proposal, including the mitigation measures to be adopted as a part of the project, adequately address concerns brought forth by the public and other governmental agencies? B4

Written proposed responses to the preceding comments must be provided to CIWMB at least ten days prior to certification of the EIR (Public Resources Code Section 21092.5[a]). B5

If you have any questions regarding these comments, please contact me at (916) 255-3880.

cc: John P. Morley, LEA for Mendocino County
Russ Kanz, CIWMB - Permits

B. CIWMB

B1 The project that the DEIR analyzes includes all revisions to the project listed on page 1-3, as well as the revisions to the project listed on pages 2-5 through 2-9 of the DEIR. The latter is the complete list.

B2 As stated in the DEIR on page 1-4, the County has determined that composting manures on the site is permitted by right by the zoning of the property. It is possible that other agencies such as the North Coast Regional Water Quality Control Board (NCRWCB) or the Mendocino County Air Quality Management District (MCAQMD) could determine that their issuance of permits would require CEQA.

The text of the DEIR page 1-4 (ninth paragraph, sixth sentence) is hereby revised as follows:

> ~~This activity is exempt from CEQA~~ In this case, the project would not be subject to further regulation by the California Integrated Waste Management Board (CIWMB). The project may, however, still be required to undergo environmental review under CEQA, if it were to involve a discretionary action by another government agency, such as the granting of a permit.

The table on page 2-13 of the DEIR is hereby revised as follows:

	Level of CEQA Review	
Feedstock	Exempt from Review	Environmental Review
Animal manures	State-Notify local enforcement agency	*
	County-Allowed by right in RL zone	
Other agricultural wastes	State-Notify local enforcement agency	County Use Permit*
Green waste		County Use Permit*
<1,000 cy	State-Notify local enforcement agency	
1,000-10,000 cy	State Registration Permit	
>10,000 cy		State Solid Waste Facilities Permit*

*May require environmental review by agencies other than CIWMB or the County

B3 Comment noted. If the Lead Agency approves the project, it will, prior to final adoption, produce a Mitigation Reporting or Monitoring Program that will be adopted as part of the project. The County will coordinate with the LEA to determine mitigation measures that can be monitored by the LEA and therefore may be included in the SWFP. The County has the ability to rescind the Conditional Use Permit if the mitigations are not implemented. The County has not in the past imposed fines or penalties in a Conditional Use Permit.

B4 This Response to Comments Addendum is intended to address all environmental concerns brought forth by the public and other governmental agencies.

B5 The Response to Comments Addendum will be provided to the CIWMB at least ten days prior to certification of the EIR.

MAY-23-1997 16:50 FROM CDF-JDSF 707-964-0941 TO 4635709 P.01

Post-it™ brand fax transmittal memo 7671 | # of pages ▸

To Pam Townsend	From Tess Albin
Co. Mendo Co Planning	Co. Smith CDF
Dept.	Phone # 707 964-5674
Fax # 463-5709	Fax # 964-0941

C

State of Cal

The Resources Agency

Bradley

Memo

To: G1
Coast-Cascade Region

Date: April 23, 1997

R46

Telephone: (916) 657-0300
CALNET 437-0300

Attention: Environmental Coordinator
Mendocino Ranger Unit

From: Department of Forestry and Fire Protection

Subject: 5300 ENVIRONMENTAL PROTECTION
Environmental Document Review

Name: Use Permit for Cold Creek Compost Facility
County: Mendocino
Type: Drft EIR
SCH # 96032033
DUE DATE: 5/23/97

The above referenced environmental document is attached for your review and comment. Please note the day on which comments are due back to me. If you will be unable to complete your review by that time, please contact me at least seven days before that date so I can request an extension of the review period.

( ) Commented or consulted with local government.

( ) Comments attached.
If you have comments, attach them using DEPARTMENT OF FORESTRY letterhead.

(X) No Comment
If you have NO COMMENT, explain briefly on the lines below or use the back of this form.

4290 Fire Clearance discussed as approved. Conversion to non-agricultural uses of 3.5 acres may need county approval. No timberland jurisdiction for CDF other than end-use of trees removed. (Firewood?) C 1

Name of Reviewer: Tess Albin-Smith

Phone: (707) 964-5674 ext 115 Forester RPF #2150

Allen S. Robertson
Environmental Coordinator

tb
Attachment

TOTAL P.01

C. CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION, APRIL 23, 1997

C1 See response to D2 regarding fire clearance. There is no proposed conversion to non-agricultural uses. The site remains zoned as Rangelands (R-L). No commercial timber species were removed during site preparation. Some of the hardwoods growing on the site were sold for firewood.

DEPARTMENT OF FORESTRY AND FIRE PROTECTION
Mendocino Unit
17501 N. Hwy. 101
Willits, Ca. 95490
((707) 459-7414

D

RECEIVED
JUN 05 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

June 3, 1997

County of Mendocino
Dept. of Planning & Bldg. Services
ATTENTION: Pamela Townsend
501 Low Gap Road, Room 1440
Ukiah, CA 95482

REFERENCE: #U 26-93, Charles Guntly, Owner (6/5/97)

Dear Ms. Townsend,

Regarding the above-named plan, the California Department of Forestry and Fire Protection (CDF) concerns are spontaneous combustion and fire spread. We would require a 10,000 gallon water tank on site with a 2 ½" fire department connection. They may run a standpipe connection from a tank that is not on site. This standpipe or tank must be labeled "Fire fighting purposes only." They may also have two 5,000 gallon tanks placed per our specifications with fire department connections on both. D1

A maintained 200 ft. minimum clearance around piles and a 30 ft. minimum clearance around structures is required, as is continual maintenance of roads year-round. D2

If you have any questions, please contact the CDF Fire Prevention Office at (707) 459-7414.

Sincerely,

LOYDE JOHNSON
UNIT CHIEF, ACTING

By Tracy Boudreaux
TRACY BOUDREAUX
FIRE PREVENTION BUREAU STAFF

TB:bg

D. CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION, JUNE 3, 1997

D1 The DEIR analyzes the possibility of spontaneous combustion of the piles and finds this a distinct, though unlikely possibility (DEIR, pages 3-57 through 3-58). The facility currently has 90,500 gallons of water, leachate, and brewery waste water storage capacity, as indicated on pages 2-8 and 2-9 of the DEIR. This includes one 2,500 gallon tank and one 22,000 gallon tank for fresh water only. According to Tracy Boudreaux of CDF Fire Prevention Bureau in Willits (telephone communication, July 25, 1997), a fire department connection to the 22,000 gallon fresh water tank would be an acceptable measure, if the tank always contains at least the minimum water requirements.

Mitigation Measure 3.5.3 (h) on Page 3-59 of the DEIR is hereby amended as follows:

> The applicant shall install a standpipe on the compost pad with a 21/2 inch fire department connection, leading from the 22,000 gallon fresh water tank. The tank shall be kept filled with at least 10,000 gallons year-round. The standpipe will be labeled ," Fire Fighting Purposes Only". The applicant shall maintain a 200 foot minimum clearance around piles, a 30 foot minimum clearance around structures, and shall maintain roads for fire access year-round. ~~The applicant shall meet with the Fire Marshal of the local fire department to develop a Fire Prevention Plan specific to the characteristics and activities of the site. The applicant shall obtain verification from the California Department of Forestry that the revised project meets the requirements of the Final Clearance.~~

D2 According to Tracy Boudreaux, CDF (telephone communication, op.cit.), the 200 foot clearance need not be bare earth, but can consist of mowed grass. According to Ms. Boudreaux, the facility is already in compliance with this requirement. See response to previous comment.

E

STATE OF CALIFORNIA - CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY PETE WILSON, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
NORTH COAST REGION
5550 SKYLANE BLVD. SUITE A
SANTA ROSA, CA 95403
PHONE: (707) 576-2220

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 13

To PAM TOWNSEND	From DAVE EVANS
Co. PLANNING	Co. WATER QUALITY
Dept.	Phone # 576-2703
Fax # 463-5709	Fax #

June 13, 1997

Ms. Pamela Townsend
Mendocino County Planning and Building Services
501 Low Gap Road, Room 1440
Ukiah, CA 95482

Dear Ms. Townsend:

Subject: Cold Creek Compost Company, EIR (SCH#96032033)

This letter transmits comments by Regional Water Board staff on the Cold Creek Compost EIR. Specific comments are as follows:

1. Page 2-15 contains a description of storm water monitoring which has been changed since the writing of the EIR. Three sample stations have been selected for storm water monitoring. Two are located to the east and southeast of the compost pad. The stations are just far enough below the pad for channeled flow to begin with a minimum of dilution from waters flowing off other adjacent grassy slopes. The third station is in the drainage to the west of the site above the compost pad. This station was selected as a background station so that sampling results from above and below the site can be compared to see if the compost operation is adversely affecting surface water quality. E1

2. Page 3-11 contains a description of some of the constituents known to be present in compost leachate. Ammonia (another nitrogen compound) should be included because of the toxic effects it can have on aquatic biota. There is another description of compost leachate on Page 3-20 which should address ammonia toxicity as well. E2

3. Pages 3-11 and 3-12 contain a discussion of on site geologic and hydrogeologic conditions which is based on assumption rather than actual information from borings or well logs. This comment is to clarify that the Regional Water Board bases its belief that groundwater is adequately protected on the high clay content and low permeability of native soils rather than on presumed underlying hydrogeologic conditions. E3

4. Page 3-12 contains a discussion of the likelihood of contaminants from the compost pad reaching domestic water supply wells. This discussion should include reference to attenuation which is a mechanism by which E4

contaminant levels in groundwater are reduced during travel through the subsurface environment. As water moves through soil or fractured rock many contaminants are filtered or combine chemically with the soil and rock to become immobile.

5. Page 3-13 contains a discussion of storm water "best management practices" employed at the site to control leachate discharges to surface waters. It also includes a discussion of how leachate is created by contact with rainfall, puddled water, and runoff. Regional Water Board staff observations at the site during wet weather conditions indicate that control of "fugitive" compost and feedstocks could be a major contributor to contaminated runoff. Fugitive material is that which is windblown or spilled onto the pad during various handling operations. This material generates leachate when puddles form on the pad and can be carried away when runoff flows across the pad. Some settles out at the edge of the pad where rock or hay bale barriers have been placed. Some settles out as the runoff flows through the grass on the slope below the pad. However, it may be necessary to develop a means to better remove fugitive material between the tarped piles on the pad. This would be over and beyond the annual pad cleaning which occurs prior to each rainy season. These additional measures would be required if storm water monitoring data indicated that leachate is reaching surface waters and adversely affecting water quality. E5

6. Page 3-14 states that there is no secondary containment provided around the leachate storage tank. At the suggestion of Regional Water Board staff, Cold Creek Compost is in the process of constructing a containment berm. It should be completed later this summer. We also have verbal assurance that secondary containment will be provided for the three tanks above the compost pad but as yet have not received a construction schedule. E6

7. Page 3-21 discusses procedures for incorporating biosolids into the compost mix. Regional Water Board staff recommends that stockpiling of biosolids be minimized by working the material into active compost piles as soon as possible to begin the process of pathogen reduction. Biosolids should be stored under the roof or under tarps at all times until combined into an active pile. E7

8. Page 3-21 discusses the potential for sediment discharges from the site. Fortunately much of the earthwork necessary to build the Cold Creek Compost facility was completed in past years and the site is now stabilized. Any expansion such as enlarging the existing pad or constructing a new one would require attention to erosion control E8

measures to minimize sediment loss. Such construction activities need to be conducted in the summer such that the site is fully "winterized" by the 15th of October for any given year.

Comment #5 above addresses the matter of fugitive materials as an area where improved best management practices may be required if storm water monitoring shows that contaminated runoff is reaching and adversely affecting surface water. It is noted that the storm water program is based on implementing best management practices and monitoring to demonstrate effectiveness. Therefore, it is acknowledged that in the future modifications to the project may in fact be necessary. Some of the improvements mentioned in the EIR such as expanding the roof area, paving the pad and access road and better pad maintenance are examples of changes to the project which should be anticipated. E9

This concludes our comments of the Cold Creek Compost EIR. Please give me a call if there are any questions.

Sincerely,

David S. Evans

David S. Evans
Associate Water Resource Control Engineer

DSE:lmf/ccc3eir.doc

cc: Martin Milcek, Cold Creek Compost Company
Dave Koppel, Mendocino County Health Department
Mary Goodwin
State Clearinghouse

E. NORTH COAST REGIONAL WATER QUALITY CONTROL BOARD

E1 Comment noted. Page 2-15 of the DEIR (Section 2.3.5, paragraph 2) is hereby revised as follows:

> ~~Composite grab samples of the sheet flow runoff from the pad will be tested twice per year (at two locations, one just off the pad and the other outside the grass buffer area) to ensure the facility meets all requirements of its storm water discharge permit.~~ Three sample stations have been selected for storm water monitoring. Two are located to the east and southeast of the compost pad. The stations are just far enough below the pad for channeled flow to begin with a minimum of dilution from waters flowing off other adjacent grassy slopes. The third station is in the drainage to the east of the site above the compost pad. This station was selected as a background station so that sampling results from above and below the site can be compared to see if the compost operation is adversely affecting surface water quality. Sampling will occur at least two times per year, during the first major run-off event of the year, and during a significant runoff event later in periods of wet weather. Additional testing may be required by the NCRWQCB.

E2 The third sentence of the paragraph that begins in the DEIR at the bottom of page 3-10 and continues onto page 3-11 is hereby revised to read:

> Pollutants that are likely to occur in any leachate produced at the site include nutrients, especially nitrogen (including ammonia, which is toxic to fish and other aquatic biota) and phosphorous, bacteria, viruses and parasites, and oxygen demanding substances (Cold Creek Compost, Inc., 1995; Gergus, 1996, Evans, 1997). Leachate derived from manure or manure compost can be expected to have higher levels of these pollutants than leachate derived from raw or composted greenwaste or other feedstocks (Gergus, 1996).

The first full paragraph on Page 3-20 of the DEIR is hereby revised as follows:

> Leachate can potentially contain nutrients, nitrogen compounds such as ammonia, which is toxic to aquatic biota, inorganic pollutants, bacteria, viruses, and parasites (including human pathogens if the leachate is derived from sewage sludge biosolids), and can have a high biological oxygen demand.

E3 As stated in the DEIR (page 3-9), the project applicant has stated that during drilling of 24 foundation piers for the roof structure in August through October of 1995, no groundwater was encountered at a depth of approximately 10 feet. Furthermore, a recently dug well located 1,800 feet from the pad has a static water level of 50-60 feet. The last paragraph on page 3-11 of the DEIR, beginning with the second sentence, is hereby amended as follows:

> The pad is constructed of compacted soil and is paved with crushed rock. According to engineers at the Regional Water Quality Control Board, this design, if intact, should be sufficient to prevent percolation of any leachate produced on the site through the pad, given the high clay content and low permeability of the

native soils at the site (Gergus, 1996; Tancreto, 1996). In addition, t~~T~~he water table is thought to be quite deep at the site, as previously noted, and the site is underlain by shale and other bedrock materials that appear to be more intact and more massively jointed, and therefore more impervious, with depth (Conway, 1994). It is therefore likely that, in the event that the integrity of the pad is compromised, any leachate that did penetrate the pad would migrate laterally along an impervious bedrock layer, and would emerge locally through a spring or into a stream channel, and would not reach any groundwater reservoir. In the unlikely event that any leachate did reach groundwater, it would have to flow approximately one mile underground before it reached the nearest domestic water well. As groundwater moves through soil or fractured rock, many contaminants are filtered or combined chemically with the soil and rock to become immobile. This process, known as "attenuation," reduces the contaminant levels in groundwater as it travels through the subsurface environment. While the geology of the site has not been well studied, it is likely that bedrock in the area slopes toward the East Fork Russian River. It is furthermore likely that the river dominates the groundwater hydrology in the bottom of its valley, seasonally contributing to, or drawing from the water table depending on the season. Because of attenuation and the dominance of the East Fork Russian River over the groundwater hydrology between the project site and nearby wells, ~~Therefore,~~ even if contaminated groundwater did flow down gradient toward the river, it is unlikely that it would have a discernible impact on groundwater drawn through wells dug on the other side of the river, or on the river itself.

E4 See response to E3.

E5 Comment noted. The issue of residual or "fugitive" material is addressed in the DEIR (page 3-13) as a possible source of leachate observed on the compost pad during a site visit in December, 1996. Mitigation Measure 3.2.1 on page 3-21 of the DEIR is hereby revised as follows:

i. If stormwater monitoring indicates that incidental or "fugitive" compost material is found to be a source of leachate contaminating runoff from the site, additional steps will be taken to ensure that exposed portions of the compost pad are kept free of such material during periods of wet weather. This may require a revision of the facility's SWPPP, and approval by the NCRWQCB.

E6 The suggestion of Regional Board Staff to construct secondary containment berms is included in the DEIR (Mitigation Measure 3.2.4 (c), page 3-23). The secondary containment berm for the leachate storage tank has been completed.

E7 The DEIR includes mitigations for biosolids similar to those suggested in this comment (see Mitigation Measure 3.2.1 (h), page 3-21 of the DEIR).

E8 Expansion of the compost pad, construction of a new pad, or other major grading activities are not proposed as a part of this project, and are therefore not analyzed in this DEIR.

E9 Comment noted. The facility's Stormwater Pollution Prevention Plan (SWPPP) is an important means of regulating the facility and ensuring that the facility will not cause contamination of ground or surface waters. The SWPPP is largely performance based, and has few specific prescriptions for operations. It is acknowledged that, whether or not the project is approved, the facility will need to continue to comply with the provisions of its SWPPP, and to adjust management practices as necessary to ensure compliance with water quality standards.

Mitigation Measure 3.2.1 is amended as follows:

The following measure is added after item (d) on page 3-20 of the DEIR:

d1. The facility shall maintain compliance with its SWPPP and, when they are developed, its Waste Discharge Requirements.

G

University of California

Cooperative Extension • Mendocino County

Ag. Center/Courthouse • 579 Low Gap Road • Ukiah, Ca., 95482 • 707-463-4495 • fax 707-463-4477 • e-mail gagiusti@ucdavis.edu

RECEIVED
JUN 04 1997
BY_____
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

Planning Commission
County of Mendocino County
501 Low Gap Road, Rm. 1440
Ukiah, Ca., 95482

June 2, 1997

Dear Planning Commission Members,

I am submitting this letter of support for the Cold Creek Compost facility which I understand you will be visiting on Thursday, June 5. A scheduling conflict prohibits me from personally attending the public hearing.

I have had the opportunity to visit the compost site on a number of occasions under various weather conditions. In each visit I have been positively impressed by the measures taken by the management of Cold Creek Compost, Inc. to minimize the impacts of their operations to water quality, air quality, scenic viewsheds and other resources associated with oak woodlands.

I fully appreciate the concerns that have been raised regarding possible negative impacts to the environment from the compost facility. However, in every case, when I have visited the site, I have not witnessed any situation that would support some of the concerns being raised regarding negative environmental impacts. G1

Though I have long supported alternative, commodity production for agricultural lands, I have never supported any operation that I believe would have long-lasting negative impacts on the environment. Given the measures that have already been instituted by Cold Creek Compost, Inc., the length of time they have been operating and first hand experience of witnessing their facility I have no qualms in continuing to support their efforts to diversify agricultural activities on their property.

I am personally very please that you are visiting the site. I think the visit will help alleviate your concerns and allow you to personally assess the situation.

Thank you for the opportunity to address this issue. If any member of the Commission has any questions or concerns regarding my comments, please feel free to call on me.

Sincerely,

Gregory A. Giusti
Forest & Wildlands Ecology Advisor

cc: Board of Supervisors
Cold Creek Compost, Inc.

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G. UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION -- MENDOCINO COUNTY

G1 Comment acknowledged. The commentor supports approval of the project and believes that the facility has minimal environmental impacts.

MENDOCINO COUNTY
Air Quality Management District

H

MEMORANDUM

DATE: June 5, 1997

TO: Pamela Townsend
Planning & Building Dept.

FROM: Philip Towle
Air Quality Specialist II

SUBJECT: Comments, Cold Creek Compost Use Permit Draft EIR

The District has reviewed the above mentioned Draft Environmental Impact Report (DEIR) dated April 11, 1997. I have also gone back and reviewed work previously done by myself relative to the modeled dispersion of airborne pollutants from the Cold Creek Compost, Inc. (CCCI) facility. Based upon my review I have the following comments.

1. According to the DEIR emissions of criteria pollutants from operation of the composting facility are less than significant. However, in the case of nitrogen oxides and respirable particulate matter (PM-10), the DEIR predicts project emissions levels that are very close to the significance levels as set in Mendocino County Air Quality Management District Regulation 1, Rule 130(S2). Exceeding these emissions levels would subject the source to MCAQMD Regulation 1, Rule 220 (b) New Source Review and require a more extensive air quality impact review. It thus becomes important that the District review CCCI's Authority to Construct/Permit to Operate and ensure that it contains conditions that both reflect the increase in daily throughput (200 tpd to 400 tpd) and operating standards that strictly limit emissions such that they remain below the significance threshold. The District intends to do this. Please include as a condition of any Use Permit issued the requirement for CCCI to apply for and obtain the necessary modification to their current Authority to Construct/Permit to Operate. H1

2. After further review of the air dispersion modeling I conducted in January of 1995 in response to the original request for comment I believe the work I did relative to the dispersion of *Aspergillus Fumigatus* is flawed. I am still of the opinion that the dispersion of *Aspergillus* over the distance to the nearest receptor (nearly one mile) to be substantial. This belief is supported by actual on site measurements made by the California Integrated Waste Management Board at various facilities and presented in Table 3.3.2 of the DEIR as well as other similar studies. However, while both the empirical evidence and the modeling indicate a substantial dilution due to dispersion over the distances involved I question my original assumption as regards the quantity of *Aspergillus* actually emitted from the source at any given moment. H2

Until this variable and the conditions under which the emissions actually occur is better defined, I must regrettably state for the record that full confidence in my earlier work is not justified.

To address the issue of *Aspergillus Fumigatus*, the final EIR should include analysis by acknowledged experts in fungi and spore dispersion. H3

Thank you. If you have any questions, please call the District office at 4354.

COUNTY AND LOCAL AGENCIES

H. MENDOCINO COUNTY AIR QUALITY MANAGEMENT DISTRICT

H1 Comment noted. In response to this comment the County will include as a condition of project approval that CCCI apply for and obtain the necessary modification to their current Authority to Construct/Permit to Operate.

H2 In follow-up conversations with Mr. Towle, he clarified that the second sentence of his response said what he intended to say, but might be more skillfully stated as follows, "I am still of the opinion that the ~~dispersion~~ dilution of *Aspergillus* over the distance to the nearest receptor (nearly one mile) to be substantial."

A modeling study was performed by ESA using the most recent version of the EPA's Industrial Source Complex - Short Term Model 3 (ISCST3) version 96113. Since no representative set of meteorological data exists for this site, an array of hypothetical meteorology was assumed. These meteorological data cover the range of hourly meteorological conditions for stability classes A to F and wind speeds from 1 m/sec to 20 m/sec as appropriate for each stability class. ESA found that the dilution factor of 100,000 to one (the original MCAQMD estimate) is probably higher than what would actually occur. Without accounting for many factors that could further increase the dilution factor (and hence decrease the concentration of Aspergillus at receptors) the model indicated that the dilution factor would be in the range of 36 to one (36:1) to 260 to one (260:1). Although it is difficult to determine "empirical" dilution ranges because in most cases the downwind concentrations are very similar to the upwind concentrations, a review of Table 3.3.2 in the DEIR would indicate that these dilution ranges are probably more accurate than 100,000 to one.

Although the DEIR includes *Aspergillus* dilution calculations from the MCAPCD, which the Air District now questions, the DEIR primarily relied upon information (including empirical studies) in the California Integrated Waste Management Board (CIWMB) LEA Advisory No. 6 in determining that the effect of *Aspergillus* would be less than significant at the location of off-site residences (see DEIR pages 3-33 to 3-36). LEA Advisory No. 6 included considerable information on the natural levels of Aspergillus in the environment. In Table 3.3.2, the DEIR summarized empirical studies (as described in LEA Advisory No. 6) of *Aspergillus* concentrations upwind, on-site, and downwind of compost facilities. As indicated in the DEIR the studies reported in the LEA Advisory No. 6 indicated that at distances approximately 1 mile downwind of compost facilities the *Aspergillus* concentrations were well within background levels in an agricultural setting (DEIR, page 3-35). As the DEIR indicates on page 3-34:

> "*Aspergillus* is ubiquitous in the everyday environment, and is especially common in agricultural settings. Activities providing exposure to the fungus include lawn mowing, gardening, potting of household plants, and raking leaves."

H3 *The Science of Composting* (Epstein, 1997)[1], reviews (in Chapter 9; on file with the Department of Planning and Building Services) the finding of the most comprehensive investigations on *Aspergillus fumigatus* in and around composting facilities in the United States. Seven studies of biosolids composting facilities were reviewed, as well as studies from yard waste composting facilities and one municipal solid waste (MSW) composting facility. The graphs of the *Aspergillus* concentrations are elevated on the composting sites but drop off dramatically off site and in all cases the concentrations of *Aspergillus* were similar to background levels at about one mile downwind. In fact, in the conclusion of this extensive review, the author states that:

> "*Aspergillus fumigatus* and other bioaerosols are found in composting feedstocks and are also generated during composting. The levels of *A. fumigatus* in the air of composting facilities are related to the type of process used and the specific activity. For example, windrow and agitated processes release greater numbers of bioaerosols. With aerated static pile systems, more bioaerosols are generated during pile teardown and material movement. Screening also generates considerable bioaerosols. High levels are found at a composting site but levels generally drop to background levels between 100 meters and 200 meters from the center of the site."

[1] Epstein, Eliot, *The Science of Composting*, Published in the Western Hemisphere by Technomic Publishing Company, Inc., Lancaster, Pennsylvania, 1997.

I

MENDOCINO EMERGENCY SERVICES AUTHORITY
175 SOUTH SCHOOL STREET #175 UKIAH, CALIFORNIA 95482
TELEPHONE: (707) 463-5630 FAX: (707) 467-2504 EMAIL: mesaofc@pacific.net

DATE: 15 May 1997

MEMORANDUM FOR: Mendocino County Department of Planning and Building Services

FROM: Rick Paige, Executive Director

SUBJECT: Cold Creek Compost, Inc. Case U 26-93

Applicant Martin Mileck, Cold Creek Compost, Inc. has requested a permit to establish a mixed solid waste composting site. I have reviewed the comments furnished and made a preliminary map study of the area. There are major areas of concern which would lead me to recommend that the site and project NOT be approved, unless significant mitigation measures are taken. Items to be addressed include:

GEOLOGY:. Based upon the information provided on the Mendocino County Hazard Map, the site is located immediately North of an unnamed earthquake fault which runs immediately adjacent to, and parallel with Silver Creek. Adjoining sections are also listed as landslide hazards. This would indicate that the site is located on or near a geologically unstable area which posses potential hazards to the facilities and the composting storage area (particularly the potential for liquefaction of the compost and the resulting slide into a water way). I1

LOCATION: The site is located immediately up stream of a major water source for the general population (Russian River and Lake Mendocino). Heavy rains can produce run off which could carry matter from the compost site into the main water source for the area. The concentrated levels of contaminates could pose a significant health hazard. Common lore teaches that you never put your garbage or waste up stream of your living site. I2

Use of levees or other containment devices is not adequate as was demonstrated in San Mateo County at the Browning-Farris Industries site near Half Moon Bay. This site had a retaining dam which collapsed after winter rains and flooded/mudded out SR 92 and destroyed several businesses more than a mile away. I3

RECOMMENDATION: Unless the applicant can prove:

1. That the area is geologically stable, or
2. That the facilities are constructed to withstand a significant earthquake on the immediately adjoining fault and/or the other faults located within five miles of the proposed site, and,
3. The site can contain its contents and eliminate contaminated run-off under any adverse conditions

I4

I recommend disapproval of the application.

RICHARD C. PAIGE, JR.
Executive Director

RECEIVED
MAY 16 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

111-28

I. MENDOCINO EMERGENCY SERVICES AUTHORITY

I1 The preparers of the DEIR were not aware of the presence of an unnamed earthquake fault "which runs immediately adjacent to, and parallel with Silver Creek," but did evaluate the potential environmental impacts of the site with the assumption that the facility will be subjected to severe ground shaking during its design life (DEIR, p.3-14, second to last paragraph). The analysis identifies potentially significant impacts associated with the water, brewery wastewater, and leachate collection tanks, in the event that they should topple during an earthquake.(Impact 3.2.4, page 3-23 of the DEIR), and includes mitigations to ensure the stability of the tanks in an earthquake, and the containment of the liquids they hold in the event that they topple or leak (Mitigation Measure 3.2.4, pages 3-23 through 3-24 of the DEIR). It is highly unlikely that active compost piles, finished compost piles, and stockpiled feedstocks, additives, and amendments, would experience liquefaction even during a severe, sustained earthquake, for the following reasons:

1. Liquefaction occurs in saturated materials. Compost windrows, however, are kept fairly dry (active composting piles are maintained at 40-60% moisture; finished material somewhat less; additives and amendments, would have to be received in a dry condition) so that, even if piles were to lose their structural integrity during an earthquake, they would be very unlikely to flow across a nearly level pad and down slope into a waterway.

2. Liquefaction occurs in fine-grained materials. Feedstocks used in the composting process are larger and coarser than materials most prone to liquefaction. Compost windrows may settle during an earthquake, but are unlikely to liquefy. Fine-grained additives and amendments, if received and kept in a dry condition, would be too dry to liquefy.

3. The piles are typically 8 feet high and 20 feet wide, with space in-between piles. Materials are not piled near the edge of the pad. If piles were to settle in an earthquake, they would likely spread out on the compost pad. In this case, they would require reconstruction after the earthquake, but would not pose a serious threat to surface water quality.

I2 Contamination of stormwater runoff with leachates and sediment are identified as significant impacts of the project (Impact 3.2.1, page 3-19, and Impact 3.2.2, Page 3-21 of the DEIR). However, both of these impacts are mitigatable. Application of mitigation measures 3.2.1 and 3.2.2 should be sufficient to prevent any contaminated runoff from entering surface waters. Stormwater monitoring will indicate if these measures are not sufficient to protect surface water quality. If not, the facility's SWPPP requires additional measures to ensure protection of surface water quality. See also responses to E1, E3, and E5.

I3 Mitigation Measure 3.2.4 includes construction of earthen berms with sufficient capacity to hold all of the liquid from the storage tanks in the event of a catastrophic failure. The NCRWQB must approve the design of the berms.

I4 As noted, the DEIR considers the fact that the site is not geologically stable. Mitigation measures include retrofitting of the storage tanks to prevent and contain a spill in the event of an earthquake. Other site features are not considered as posing a potential threat to the environment in the event of an earthquake. As noted in the response I2, the mitigation measures proposed should be sufficient to prevent contamination of surface water.

J

May 9, 1997

RECEIVED
MAY 12 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

To: Angel Howell
State Clearinghouse
1400 Tenth Street
Sacramento, CA 95814

Pam Townsend
Dept. Of Planning & Building Services
501 Low Gap Road #1440
Ukiah, CA 95482

From: John P. Morley, REHS III
Mendocino County
Local Enforcement Agency

Subject: Draft Environmental Impact Report For Cold Creek Compost, Inc.

The Mendocino County Division of Environmental Health acting as the Local Enforcement Agency (LEA) for the California Integrated Waste Management Board has completed review of the Draft Environmental Impact Report for Cold Creek Compost, Inc. The LEA offers the following comments for consideration.

1. HOURS OF OPERATION

a) Page 2-17, 7a.m. to 6 p.m. Monday through Saturday.
b) Page 2-17, nighttime deliveries during grape crush.
c) Page 2-17, may occasionally be open on Sundays.

J1

There appears to some ambiguity to the hours and days of operation. CUP #26-93 and SWFP 23-AA-0029 have as permitted hours of operation 7a.m. - 6 p.m. Monday through Saturday. Proposed changes to hours and days of operation were not identified in DEIR Section 2.1.3 Changes To Previous Project. Would changes to hours and days of operation constitute a change in the project?

2. WINTER OPERATIONS

a) Page 2-8, compost operations will be maintained under roof structure.
b) Page 2-9, facility operations will occur under the roof structure.
c) Page 2-20, composting operations will be conducted under the roof.
d) Page 3-19, the most important mitigations to conduct active composting and storage of feedstock under the roof structure..... Eventually all composting operations will be moved under the roof structure.
e) Page 3-20, the project applicant shall conduct active composting and storage of feedstock under the roof structure.

J2

f) Page 3-22, the most important of these measures are storage and processing of materials under the roof during the rainy season.
The applicant plans..... and to perform all operations and storage under the roof year round.

Please define winter operations, facility operations, and processing. Operations (windrowing, aerating, screening, blending, storage, grinding) to be limited to under the roof structure during winter months need to be clarified. Also, are winter/wet weather operations to be defined by calendar month or by individual storm events.

3. MATERIAL VOLUME

a) Page 2-11, average daily **feedstock** volume will be 200 tpd.

It is my understanding the compost pad is designed to accommodate an average daily throughput of 200 tpd material (feedstock, additives, and amendments). The facility is currently permitted to accept a total of 50,000 tons of feedstock per year. With the proposed auxiliary area included what is the design capacity for all material at the facility? Also, if the auxiliary storage area is outside the permitted facility boundary and is described as part of the project should the facility boundary be adjusted to include the auxiliary area? J3

4. ODOR CONTROL

a) Page 3-31, inversions and winds blowing toward the northwest (page 3-27) most commonly occur during the winter months. Composting odor can be controlled at the source by implementing best management practices and good processing control. These include **prompt and thorough processing** of incoming feedstock. On page 3-13, ESA notes during December inspection, "in the area in front of the roof structure, ESA observed ruts apparently caused by vehicles and heavy equipment across the pad. ESA observed that some of the ruts were filled with water and saturated manure or compost. In places, this material was four to six inches deep, and had a **strong odor**." J4

Does ESA consider static pile composting to be prompt and thorough processing? Also, in the event winter operations outside the roof structure cause ponding and rutting, and the compost pad is nutrient rich from summer operations, what is the mitigation for possible odors from the ponded liquid?

HAZARDOUS MATERIALS

a) Page 3-52, amendments and additives may include wood ash, lime..... Page 3-11, J5

lime and wood ash are of particular concern because of their extremely high pH. If storm water were to contact lime or ash..... The run off would have a high pH, which would be hazardous to humans, wildlife, and aquatic organisms.

Calcium hydroxide/hydrated lime: mildly toxic by ingestion. A severe eye irritant. Dust is considered to be a significant industrial hazard. (Dangerous Properties of Industrial Materials, Sax, 1989).

Please clarify what type of lime is to be used at the facility?

J. MENDOCINO COUNTY LOCAL ENFORCEMENT AGENCY

J1 Occasional nighttime deliveries and limited Sunday operations were discussed in the DEIR as part of the proposed project. Information about the operating hours has been clarified in comment O20 by the applicant and additional information sent to the ESA. The extended hours of operation requested by the applicant for spring planting (March, April, and May) and the grape crush (September, October, and November) will extend during times of natural lighting and will not extend into the nighttime. Because of the additional costs associated with working extended hours, the applicant will always attempt to avoid the need for such deliveries (CCCI Memo to ESA, December 11, 1997).

The following paragraph is hereby added to page S-3 and page 2-9 of the DEIR:

12. The regular operating hours of the facility remain 7 a.m. to 6 p.m. Monday through Saturday. However, the project proposes occasional deliveries during spring planting and the fall grape crush, and occasional, limited Sunday operations such as turning windrows and monitoring windrow temperatures. Any deliveries outside of the normal operating hours would be restricted to deliveries that occur during daylight hours.

Mitigation measure 3.4.3(b) on page 3-45 of the DEIR is hereby revised to read:

b. Operations at the site are ~~strictly~~ limited to 7 a.m. to 6 p.m., except ~~during periods of the~~ for when extended daylight allows for material deliveries after 6 p.m. in the spring planting season (March to May) and in the fall grape crush (September to November) ~~when nighttime deliveries will occur~~.

Section 2.3.8 (page 2-17 of the DEIR) is hereby amended as follows:

2.3.8 HOURS/DAYS OF OPERATION, DAYS/WEEKS OF OPERATION

The existing use permit for the facility ~~will be~~ limit~~ed to~~ operation from 7 a.m. to 6 p.m. Monday through Saturday. The facility will be closed on Sundays and holidays. The extended hours of operation requested by the applicant for spring planting (March, April, and May) and the grape crush (September, October, and November) will extend during times of natural lighting and will not extend into the nighttime. ~~It should be noted that during the period of the fall grape crush, the facility will receive nighttime truck deliveries. This is unavoidable due to the around-the-clock nature of the grape crush. It is expected that no more than one or two nighttime deliveries per hour will occur.~~ In addition, some operational activities, such as taking temperature readings or turning windrows, may occasionally occur on Sundays in order to meet State regulatory requirements for composting.

The applicant has indicated that for the maximum benefit, the dust suppressant (Masonex) needs to be applied to a haul route that is saturated with water. Practically, this requires a water truck to apply water to the haul route for several hours (4-10 hours,

depending upon conditions) during the night before the Masonex is applied. Because this will occur only a couple of times each year, it would not be considered a significant environmental impact.

J2 Currently, the facility's SWFP and SWPPP differ on the point of operations during periods of wet weather. The SWPPP refers variously to "wet season" (dates undefined) and "wet weather periods." The SWFP refers specifically to "winter operations, October 1 through May 15). Neither specifically define "operations". For the sake of clarity and consistency the second sentence of number 7 on pages 2-9 and S-2 of the DEIR are hereby amended to add the following:

7. Addition of a 3.5-acre roof structure covering about 65% of the compost pad; a 1.14-acre roof has already been constructed. To eliminate leachate production, compost operations will be maintained under this structure during ~~the rainy season;~~ periods of wet weather, and any finished compost stored on the pad will be securely covered consistent with the facility Storm Water Pollution Prevention Plan. A 2.55-acre roof structure was administratively approved by the Planning Director on May 12, 1995. It should be noted that currently Condition 6 of the Solid Waste Facilities Permit allows for the storage of finished compost outside of the roof during winter operations (October 1 through May 15), but this condition does not mention additives or amendments.

In addition, the following is added to page 2-22 of the DEIR:

2.3.27 Wet Weather Operations

The Facility's Stormwater Pollution Prevention Plan requires that, during periods of wet weather (not defined in the SWPPP, but assumed here to mean any time of the year when rainfall is sufficient to cause runoff from the compost pad), the facility operator will takes steps to ensure that no feedstocks, finished, or unfinished compost, additives, or amendments, will come in contact with rainwater. During periods of wet weather, all operations will take place either under the roof structure or under tarps on the unroofed portion of the composting pad and unsaturated additives and amendments may be stored at the auxiliary storage area, securely tarped.

Operations, for this purpose, encompass any activity that may result in the contact of feedstocks, composted or uncomposted material, additives, or amendments, with rain, and include windrowing materials, including construction and turning of windrows; screening, grinding, and blending compost feedstocks or compost (including additives and amendments); stockpiling or storage of feedstocks, additives, amendments, and finished product; and loading and unloading of feedstocks, additives, amendments, and finished products.

Throughout this document, any references to operations, facility operations, compost operations, or composting operations during periods of wet weather refer to the above definitions.

The second sentence of the first paragraph under Impact 3.2.1 on page 3-19 of the DEIR is hereby amended as follows:

The most important mitigation is to conduct active composting and storage of feedstock under the roof structure during ~~the rainy season.~~ periods of wet weather.

Mitigation Measure 3.2.1 on page 3-20 of the DEIR is hereby amended as follows:

Mitigation Measure 3.2.1:

Proposed as Part of the Project

a. The project applicant shall conduct active composting and storage of feedstock under the roof structure during ~~the rainy season.~~ periods of wet weather. Finished compost, compost additives, and compost amendments including lime, wood ash, and gypsum, that have the potential of causing contaminated storm water runoff, should be either stored under the roof structure or, if appropriately tarped during ~~the rainy months,~~ periods of wet weather, outside on the compost pad or at the designated auxiliary storage site ~~elsewhere at the project site~~. Storm water monitoring will be performed at the site to determine if tarping prevents production of leachate and contaminated storm water runoff. Additionally, additives and amendments that would normally be stored on the pad outside of the roofed area should not be accepted during the winter months in a saturated condition. Saturated materials will dewater on site and create leachate even if adequately tarped or placed under a roof. The project applicant shall specify in contracts or arrangements with the supplier of these materials that they will be delivered in a dry condition.

The following Table J-1 is added to clarify restrictions for operation in periods of wet weather.

	Location	
Operation	Dry Weather	Wet Weather
Receive Feedstock	Compost Pad, roofed or open	Compost Pad, roofed
Receive Biosolids	Compost Pad, roofed, impermeable, cleanable surface	Compost Pad, roofed, impermeable, cleanable surface. Do not receive when raining.
Stockpile Feedstocks	Compost Pad, roofed or open	Compost pad, roofed
Grind wood waste, greenwaste	Compost Pad, open	Compost Pad, roofed
Blend Feedstock	Compost Pad, roofed or open	Compost Pad, roofed
Windrow	Compost Pad, roofed or open	Compost pad, roofed
Processing Pile	Compost Pad, roofed or open	Compost Pad, roofed
Maturing Piles	Compost Pad, roofed or open	Compost Pad, roofed or open if tarped
Screen Finished Material	Compost Pad, roofed or open	Compost Pad, roofed
Blend Finished Material	Compost Pad, roofed or open	Compost Pad, roofed
Store Finished Material	Compost Pad, roofed or open	Compost Pad, roofed or open if tarped
Store additives and amendments	Compost Pad, roofed or open, auxiliary storage area	Compost pad, roofed or open if tarped, auxiliary storage area if tarped

Section (a) of Mitigation Measure 3.2.2 (page 3-22 of the DEIR) is hereby amended as follows, beginning with the second sentence:

> The most important of these measures are storage and processing of materials under the roof during ~~the rainy season~~ periods of wet weather, tarping of finished product stored on the unroofed portion of the pad during ~~the rainy season~~ periods of wet weather, maintenance of a grade from the center of the pad outward in all directions, and maintenance of a grass buffer around the perimeter of the pad.

The Glossary (commencing on page 7-1 of the DEIR) is hereby amended as follows:

> First Major Run-off Event of the Year: First time during the season (season begins July 1 and ends June 30) that discernible surface run-off is produced, usually during the first significant storm event of the fall or winter.
>
> Wet Weather: any time of the year when rainfall is sufficient to cause runoff from the compost pad.
>
> Wet Weather Operations: any activity that may result in the contact of feedstocks, composted or uncomposted material, additives, or amendments, with rain, such as windrowing materials, including construction and turning of windrows; screening,

grinding, and blending compost feedstocks or compost (including additives and amendments); stockpiling or storage of feedstocks, additives, amendments, and finished product; and loading and unloading of feedstocks, additives, amendments, and finished products.

J3 The DEIR notes on page 2-9 that the project applicant proposes receiving up to 10,000 cubic yards of amendments and additives at the facility annually. The applicant actually requested to receive up to 10,000 tons annually. This is in addition to the 50,000 TPY of feedstocks proposed. Ash and lime, the principal additives and amendments proposed, are both quite dense materials. The applicant estimates their density at 1.25-1.4 tons per cubic yard (Martin Mileck, CCCI, telephone conversation, ESA, August 8, 1997). Assuming a density of 1.25 tons per cubic yard, the 10,000 tons of additives and amendments translates to 8,000 cubic yards of material. The potential environmental impacts of this material are evaluated in the DEIR. The permitted facility boundary should include the auxiliary storage area. The DEIR identifies this area as an addition to the 10 acres identified as the size of the facility (DEIR, page 2-5, last paragraph). Revised Figures 2.2 and 2.2a provide more detail of the auxiliary storage area.

J4 The following text from CCCI will further explain more about their proposed initial processing and use of "static piles" or large processing piles. This following text is added to the end of section 2.3.2 on page 2-14 of the DEIR.

Initial feedstock processing

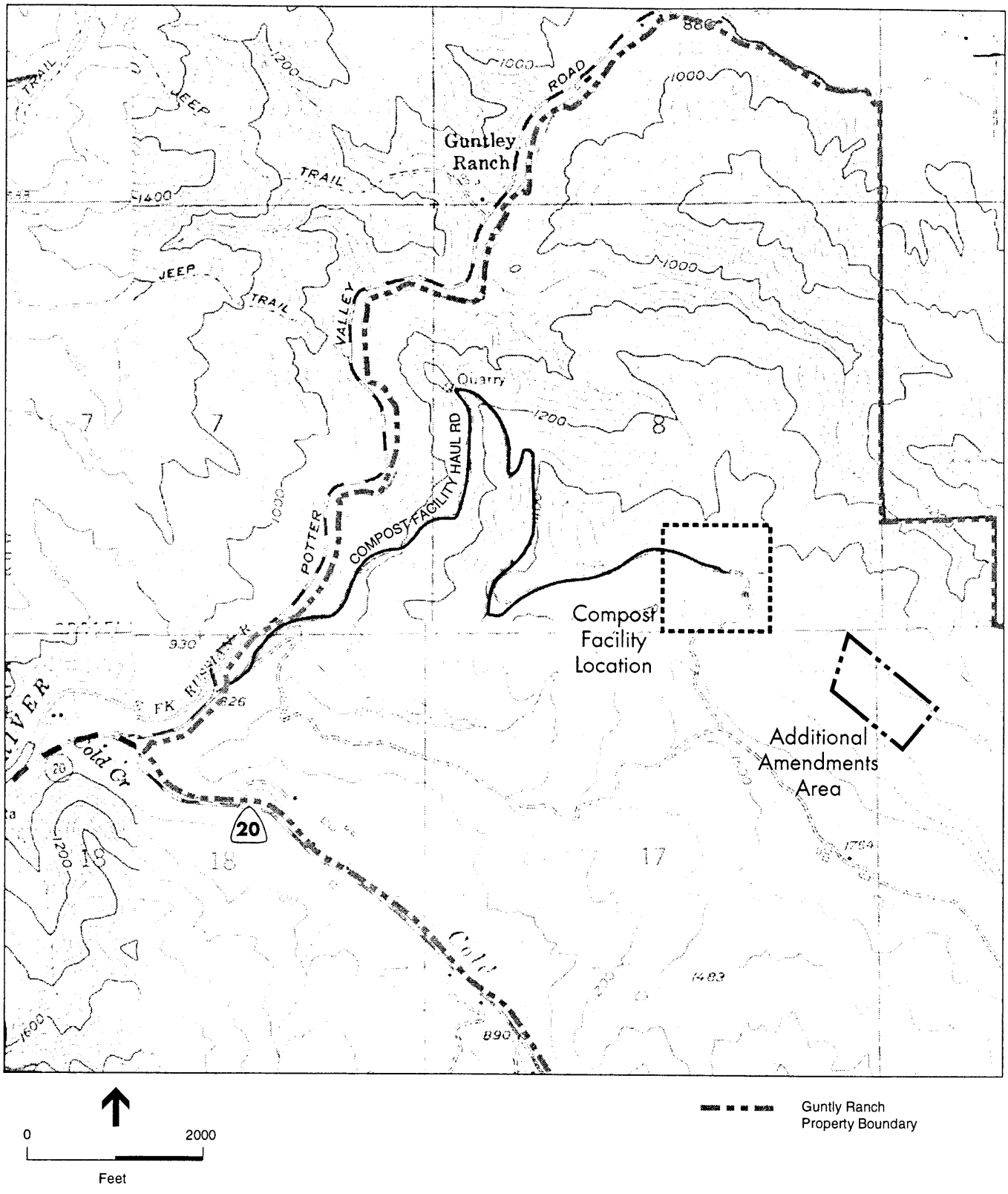
Materials requiring grinding – yard trimmings and wood materials – are stockpiled on the open pad prior to grinding. Following grinding, these materials are moved under the roof for mixing with manures, pomace and other nitrogenous feedstocks. The ground wood and green material may also be stored on the pad prior to mixing. If stored on the open pad during wet weather they are tarped if conditions so require.

Manures, pomace and other nitrogenous materials are always delivered to the roofed portion of the pad. These materials are mixed with ground woody materials to achieve the required carbon:nitrogen ratio for composting and to help absorb the moisture in the other feedstocks.

Additional feedstock processing and composting

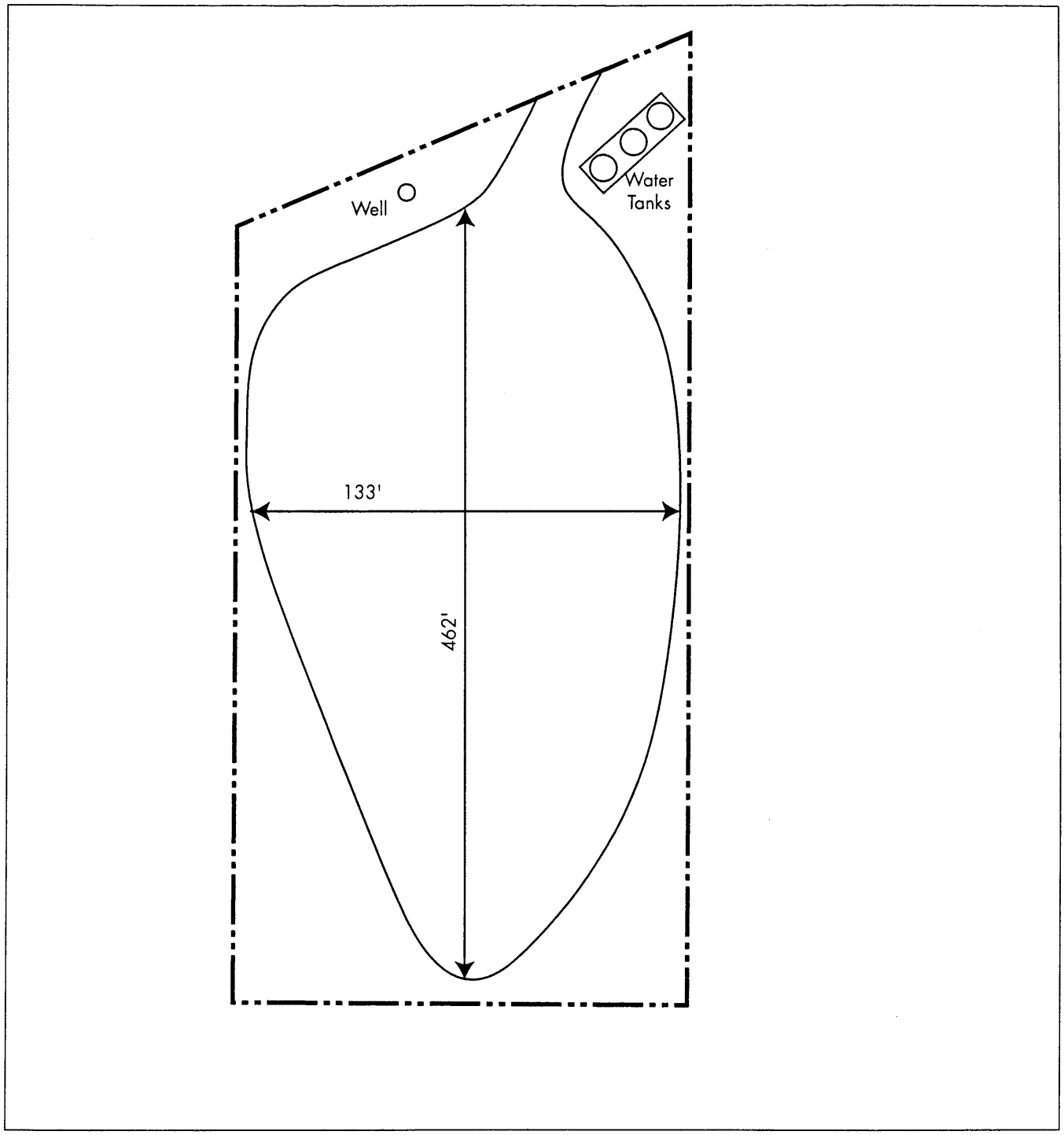
The mixed materials are maintained in the large processing pile to ensure adequate mixing and are then placed in windrows for the pathogen reduction and active composting phases. The feedstock mixing pile is monitored for moisture content and temperature and is turned periodically.

During the wet weather season the pathogen reduction and active composting phases always occur under the roof. During the dry season these composting activities are also conducted on the unroofed portions of the pad. If unseasonable storm events occur any



Cold Creek Compost EIR / 960106 ■

Figure 2.2
Project Area Topography



0 50
Feet

Figure 2.2a
Additional Amendments Area

such materials on the unroofed portion of the pad are securely tarped and managed as are other materials stored on the unroofed portion of the pad.

After the pathogen reduction and active composting phases are complete the compost is moved onto the uncovered portion of the pad for the curing phase. The compost is placed over 4" perforated pipe and forced aeration is applied to maintain adequate oxygen in the piles during the curing phase. The use of the forced aeration during the curing phase reduces the need for material turning and moving and thus reduces equipment operation and material spillage on the pad.

Following the curing stage the compost is screened and stockpiled until it is delivered to buyers.

The major environmental concerns with the static piles relates to their size and the inability of the operator to control the biological processes within the piles. Even tended windrows have pockets of anaerobic activity. The larger the pile, the greater the likelihood of a significant anaerobic problem occurring, and the greater the difficulty in detecting it before it is too late. As oxygen levels in the pile decrease and the anaerobic bacteria spread, the problem will grow. This will likely only become an acute environmental impact when the pile is finally broken down. Then, highly odorous gasses will be released. The applicant has indicated that the facility operator now mixes coarsely ground wood chips with other feedstocks before building the feedstock mixing piles. This apparently increases convection and decreases odors (Martin Mileck, CCCI, telephone conversation, August 8, 1997).

Another potential impact of the feedstock mixing piles is vector attraction. Since the outside of the pile is cooler, and is not turned into the middle of the pile where it is exposed to higher heat, vectors may be able to breed successfully in the outer layers of the pile. The State composting regulations require aerated static piles to be covered with a layer of insulating material (to ensure thorough pathogen reduction). Although pathogen reduction is accomplished at CCCI through windrow composting, the use of an insulating material would help ensure more uniform heating throughout the feedstock mixing pile, and would help prevent vectors from contacting fresh material.

A third potential impact of the feedstock mixing piles is increased fire hazard. In unaerated piles there are typically pockets of anaerobic activity and areas of aerobic activity. Some of the gasses produced by anaerobic bacteria, such as methane, are inflammable. The aerobic bacteria, meanwhile, produce heat. If airflow through the piles is not controlled, either through forced aeration or through turning of the piles, composting material can reach quite high temperatures. This combination of high heat and inflammable gasses increases the possibility of spontaneous combustion.

Finally, the static piles allow the facility to fit more material under the roof than wood be possible with windrows (since the static piles are higher and there are no aisles through them). If an anaerobic problem occurs, the material should be formed into windrows that it can be turned regularly and aerated to encourage growth of aerobic bacteria. If an anaerobic problem occurs during the winter, however, there may be insufficient room under the roof to accommodate all of the active material in windrows. This would lead

to a situation in which there is a huge pile of highly odorous compost, and no place to put it out of the rain.

To date, there have been no confirmed odor complaints linked to the operation, no fires at the site, and vectors, while periodically a problem, have been controlled. So far, the feedstock mixing piles appear to be relatively benign. This method does, however, increase the potential for environmental impacts associated with the active phase of the composting process.

In order to ensure that the potential impacts of these feedstock mixing piles are mitigated, Mitigation Measure 3.3.2 on page 3-33 of the DEIR is hereby amended to add the additional mitigation measures as follows:

f. Fresh materials shall be managed to decrease odors. Management practices for odor control for fresh materials shall include rapid incorporation into windrows or feedstock mixing piles, covering of fresh material with finished compost, treatment with odor control products, or other methods.

g. Feedstock mixing piles shall be managed to control odors from becoming an offsite nuisance. Management practice for odor control of the feedstock mixing piles may include forced aeration of the piles, channeling of exhaust from piles through a biofilter, or other methods.

h. Feedstock mixing piles with odor strength that could affect site neighbors (such as an identified aerobic pile) shall not be broken down when atmospheric conditions may carry odors to neighbors.

i. If feedstock mixing piles cause recurring validated odor problems for off-site receptors, their use will be discontinued, until an effective operating method to manage these piles is developed offsite and its use approved by the County.

In addition, Mitigation Measure 3.5.3, on page 3-59 of the EIR is hereby amended as follows:

i. If vectors become a problem, the project applicant shall implement a vector eradication program using a professional pest control service. If vectors become a problem in the feedstock mixing piles, in order to reduce vector attraction, the applicant shall discourage the vectors by covering the feedstock mixing piles with a 6-12 inch layer of insulating material, such as finished compost,.

The best mitigation for odor from ponded liquid is to prevent ponding of liquid and to keep the pad thoroughly cleaned. (See Mitigation Measure 3.2.1 (a, b, c, and e) on page 3-20 of the DEIR). Commercial products are available to control odors, if leachate does accumulate between windrows or in ruts (see Mitigation Measure 3.3.2 (e) on page 3-33 of the DEIR).

Impact 3.3.2, on page 3-32 of the DEIR (first paragraph, beginning with the second sentence) is hereby amended as follows:

> These include prompt and thorough processing of incoming feedstocks, adequate blending of materials and turning of the windrows, ~~and~~ maintaining appropriate moisture in the windrows, and prevention of standing water or leachate. The mitigation measures described below would ensure the minimization of odors at the site. These mitigation measures would help reduce the generation of odors. Proper management of feedstock piles and processed green material would reduce nuisance odors generated from raw materials. Frequent windrow turning and the application of process water would maximize aerobic decomposition and reduce anaerobic conditions which foster the production of odorous compounds. Mitigations in the Public Health and Safety section require rapid incorporation of sewage sludge biosolids into the windrows. Mitigations in the Hydrology and Water Quality section require maintenance of compost pad grade and integrity to prevent ponding of contaminated water and leachate.

J5 The facility intends to use agricultural lime, or calcium carbonate, not calcium hydroxide (hydrated lime) (see response to O26). Tarping of additives and amendments, as necessary, to prevent contact with stormwater and blown dust is included as part of the project (page 2-9, item 11). See also Impact 3.5.2, on page 3-54 (last paragraph), which is revised to be consistent with the EIR:

> Storage of amendments and additives would be confined to the compost pad or auxiliary storage area.

The following is added after item (l) of Mitigation Measure 3.5.2 on page 3-57 of the DEIR:

m. As necessary to prevent visible dust, additives and amendments shall be securely tarped.

L

FAX TRANSMITTAL
SHEET 1 OF 2

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☐ COPY IN MAIL

R. V. PARKER, ACTING DIRECTOR

Ex-Officio
Road Commissioner
County Engineer

COUNTY OF MENDOCINO
DEPARTMENT OF PUBLIC WORKS

UKIAH, CALIFORNIA 95482
(707) 463-4363
FAX (707) 463-5474

DIVISIONS

Administration & Business
Airports
Engineering and Technical Assistance
Land Improvement
Transportation/Roads

RECEIVED
MAY 29 1997
ENVIRONMENTAL SCIENCE ASSOC.

27 May 1997

TO: Alan Falleri, Chief Planner
Department of Planning and Building Services

FROM: Stanley Townsend, Deputy Director
Department of Public Works

SUBJECT: USE PERMIT APPLICATION NO. U 26-93 (GUNTLY)
PROJECT COORDINATOR — PAMELA TOWNSEND

We have reviewed the Draft Environmental Impact Report (DEIR) for the above referenced project, dated 7 April 1997, prepared by Environmental Science Associates (ESA) and received under cover of your NOTICE dated 11 April 1997. We offer the following comments for your consideration.

1. In our 31 January 1997 memorandum we commented on traffic issues based by the Revised Notice of Preparation which anticipated a substantial increase in traffic levels. In our 4 March 1997 memorandum we expanded on these comments based on the Administrative Draft Environmental Impact Report (ADEIR). We bring both of these memorandums to your attention. L1

2. Because the *existing* project access road approach onto East Side Potter Valley Road was designed, evaluated and the constructed based on lower proposed traffic volumes, in our 4 March 1997 memorandum we recommended that an engineer's evaluation be provided addressing the adequacy of the approach. The DEIR addresses the existing approach, but stops short of providing such an evaluation. The DEIR (page 3-64) states:

> [T]he addition of project trips would increase interaction between project traffic and other motor vehicles on project *[sic]* roadways at this location, and thus would increase the potential for conflicts. However, project-generated trips would not be expected to result in a significant increase in the potential for accidents.

We believe that the intent of the preparer was to address the potential for interaction on the public roadway, not on project roadways as stated. We continue to recommend that the adequacy of the existing approach be *specifically* addressed by the Professional Traffic Engineer. See item 5 below. L2

3. Because the *future* (after bridge replacement) project access road approach onto East Side Potter Valley Road was being designed based on lower proposed traffic volumes, in our 4 March 1997 memorandum we recommended that the preparer of the traffic analysis coordinate with the engineer performing design services for the planned bridge replacement to allow the preparer to perform an analysis of the proposed approach to assess the

feasibility of designing and constructing an approach capable of safely accommodating the increased volumes. In response, the DEIR (page 3-64) states:

> Aspects of the proposed project (e.g., number of truck trips and types of trucks) are being taken into account in the design of the realignment/bridge replacement project, including the placement and design of the compost facility access road connection to the realigned Potter Valley Road (Rockway, 1997).

L3

"Rockway" is identified as Chris Rockway, the County's bridge design consultant. With assurance of professional evaluation (see item 5 below), this statement will satisfy our concerns regarding the design of the future road approach.

4. The DEIR (Impact 3.6.3) identifies the potential for vehicles parked along the County Road to interfer with queuing of inbound trucks, and recommends mitigation measure 3.6.3:

> Post "No Parking" signs on northbound approach to the project access road on Potter Valley Road (east shoulder of roadway).

L4

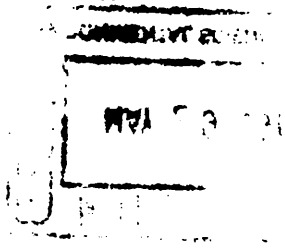
Note that (based on consultation with County Counsel) such parking restriction will require an amendment to Chapter 15.12 of the Mendocino County Code.

5. In our 4 March 1997 memorandum we commented that the traffic engineering qualifications of the ADEIR preparer were not indicated, and there was no traffic study to backup the conclusions made. In the DEIR the preparers of the traffic section are identified and include Jack Hutchison, a Professional Traffic Engineer, but no signature or seal appears. We have recommended an evaluation (item 2 above) and evidence of coordination (item 3 above), both critical to the decision on certification of this EIR. In our opinion the information requested constitutes a "report" in the context of Business and Professions Code §6735, necessitating the signature and seal of the professional preparer. We strongly recommend that the requested evaluation and statement regarding coordination be provided (either within the EIR or as an accompanying document) under the signature and seal of the appropriate professional.

L5

If you have any questions regarding this, please contact me at your convenience.

cc: Charles Guntly
Martin Milleck
Paul Miller, ESA
U 26-93 File



L. MENDOCINO COUNTY DEPARTMENT OF PUBLIC WORKS MAY 27, 1997

L1. Comment noted.

L2. The adequacy of the existing project access road approach onto East Side Potter Valley Road was specifically addressed by the preparer of the Traffic and Circulation section of the EIR (who is a Professional Traffic Engineer, as noted in Chapter 6 of the Draft EIR). The conclusion of that evaluation is that project-generated traffic would not be expected to result in a significant increase in the potential for accident because the majority of project vehicle trips would occur during off-peak traffic periods, and because existing "Truck Crossing" signs are present on Potter Valley Road on the approaches to the project access road, alerting drivers and bicyclists of the presence of project trucks. That conclusion is presented on page 3-64 of the Draft EIR.

The use of the term "project roadways" was intended to refer to roadways used by project-generated traffic. The commentor is correct, however, that those roadways are "public", and readers may substitute "public roadways" for "project roadways" in the sentence referenced by the commentor.

L3. Evaluation of the proposed future project access road approach onto East Side Potter Valley Road by the EIR's Professional Traffic Engineer consisted of his review of a draft preliminary bridge project design plan (with handwritten roadway dimensions) sent by URS/Greiner, the County's bridge design consultant, which was the best material available at that time, and of consultation with Chris Rockway of URS/Greiner, as referenced in the Draft EIR. It is the EIR consultant's professional opinion that the design of the new Potter Valley Road / Compost Facility Access Road intersection would not be affected by a truck trip generation of 80 trips per day for the compost facility (as estimated in the Draft EIR) instead of the 20 daily truck trips that the facility operator had previously estimated. URS/Greiner corroborated that opinion, stating that they used truck turning templates to design turning radii at the intersection, and the level of change in generated truck trips would not have affected the intersection design. In addition, in response to a concern raised by the EIR's traffic engineer about future accommodation of incoming (northbound) facility trucks that sometimes make use of the existing road cutout on the east side of Potter Valley Road while waiting for an outgoing truck to exit the facility access road, the bridge design engineer stated that the new intersection design will contain a wide throat on the project access road leg of the intersection that will provide an approximate 80-foot length of road where incoming trucks could safely pause, if needed, until an outgoing truck cleared the road.

The conclusions of the above evaluation of safety conditions are presented under Impact 3.6.2, pages 3-63 and 3-64, of the Draft EIR. A copy of a phone memo of that conversation, prepared by the EIR consultant, is on-file with the County of Mendocino Planning & Building Services Department.

L4. Comment noted.

L5. See responses to comments 2 and 3 above regarding requested evaluation and coordination. The commentor's opinion about the necessity of the signature and seal of the EIR's Professional Traffic Engineer is noted.

M

Mendocino County Water Agency
Memorandum

RECEIVED
MAY 20 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

May 16, 1997

To: Pamela Townsend, Planning Department

From: Dennis Slota, MCWA

Subject: U 26-93, Cold Creek Compost Draft EIR

Water Agency staff has reviewed the subject document and accompanied Dave Evans with the Regional Water Quality Control Board (RWQCB) on a site visit to the project this afternoon. We met Jim Guntly and Martin Milick at the site. The site exhibited very good house keeping, soil amendments were tarped and composting material was under the roof. I discussed the issue of quality control on the water quality samples and have assurance that additional samples will be collected by RWQCB staff as a verification system. This assurance alleviates several potential concerns.

Overall, this Draft EIR does a good job of describing the potential hydrologic and water contamination impacts of the project. Enclosed below are suggested modifications to protect ground and surface water from potential negative impacts. M1

The brewery waste water may not be a secure source of water. The preferred alternative for additional water, if needed, is the capture of winter runoff by ponds. The less desirable alternative is the use of riparian water rights on the East Fork Russian River and Cold Creek. The diversion of water from either the East Fork Russian River or Cold Creek should be limited to those times when flows in the East Fork Russian River equal or exceed 200 cfs. This requirement will reduce the impact to riverine resources during periods of drought or very low flow. Also, any diversions should be properly screened according to current Fish & Game regulations. M2

The leachate tank should have a secondary containment structure sufficient to hold the entire contents of the tank. The secondary containment structure should also be structurally sound to withstand the pressure of a catastrophic tank failure in which the entire tank contents are suddenly emptied, as for example during toppling in an earthquake. There are some site constraints at the leachate tank due to the access road. An acceptable method of containment could be a drain around the tank that empties into a containment pond outside the access road. Also, provisions to prevent overflows from the leachate tank during storm conditions should be identified. M3

The most likely source of leachate runoff will be from between rows of tarped compost (or compost amendments) on the compost pad during winter operation. The ideal solution will be the construction of a concrete pad with a roof. The applicant states that this is the desired final condition. Meanwhile, the potential stormwater runoff contamination issue should be closely monitored to determine the level of significance. If the stormwater samples indicate a contamination problem, additional measures must be taken to control the runoff. M4 M5

Thank you for the opportunity to review this project. Please contact this office at (707) 463-4589, if there are any questions or concerns regarding these comments.

cc: Mendocino County Board of Supervisors, Route File

C:\DATA\WP\REVIEWS\U26_93.MEM

M. MENDOCINO COUNTY WATER AGENCY

M1. Comment noted.

M2. See response to Comments N1 and N3.

M3. See Mitigation Measure 3.2.4 (c) and (d). Mitigation Measure 3.2.4 (c) on page 3-23 of the DEIR is amended as follows:

c. Secondary containment structures shall be constructed around the tanks. The structures shall have the capacity to hold all of the liquid held in the tanks, and will be engineered to withstand the pressure of a ~~in case of~~ catastrophic tank failure, in which the entire tank contents are suddenly emptied. ~~Earthen berms would be sufficient to prevent a catastrophic spill.~~ Secondary containment structure design shall be reviewed and approved by the NCRWQCB. The berms shall be seeded and mulched to prevent erosion and maintain their integrity.

M4. Comment noted. See response to Comment J4.

M5. See response to comment E1.

N

RECEIVED
JUN 24 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

Mendocino County Water Agency
Memorandum

To: Pamela Townsend, Planning Department

June 19, 1997

From: Dennis Slota, MCWA

Subject: May 16, 1997 comments on U 26-93, Cold Creek Compost Draft EIR

An error in my original comments on the subject document has been identified. My intent was to recommend a minimum by-pass flow of 20 cfs (not 200 cfs as submitted) in the East Fork Russian River, below which water diversion for the project should not occur. N1 The applicant should be aware that the issue of PG&E flow diversions from the Eel River to the East Fork Russian River is currently an issue of discussion and a possible result may be some decrease in these flows. N2 The applicant can obtain flow information from the U.S. Geological Survey in Ukiah by calling 462-8479.

In discussing this project with a Department of Fish & Game Biologist, I have been informed that the department stocks catchable rainbow trout in the East Fork Russian River. This section of the river also supports other fishery and habitat values. The Fish & Game recommended screen size is 5/32 of an inch for any diversion with suction velocities to not exceed 0.33 cubic feet/second (cfs). The Draft EIR states (page 3-16) that the 4,000 gallon tank truck takes approximately 20 minutes to fill and this translates to 0.45 cfs. Please note that this diversion rate exceeds that recommended by the Department of Fish & Game. Staff recommends that the proposed diversion conform to Fish & Game recommendations. At 0.33 cfs it would take 27 minutes to fill a 4,000 gallon truck. N3

Water Agency staff strongly supports the Department of Fish & Game screen and flow recommendations as presented here and recommends that these become part of the permit conditions for this project. Please call at ext. 4589 with any questions or concerns regarding these comments. N4

cc: Mendocino County Board of Supervisors, Route File

C:\DATA\WP\REVIEWS\U26_93.ME2

N. MENDOCINO COUNTY WATER AGENCY

N1. The standard of a minimum by-pass flow of 20 cfs, below which water diversion for the project should not occur, is a reasonable one, though it may be outside of the County's jurisdiction to limit diversions if, in fact, the property owner has riparian rights to the East Fork Russian River. (See response to Comment Q30). Mitigation Measure 3.2.5 (b) on page 3-24 of the DEIR is amended as follows:

b. The applicant shall ~~could~~ limit diversions from the East Fork Russian River, and from springs feeding Cold Creek to times when the flow of the East Fork Russian River is a minimum of 20 cfs.~~of normal flows, and avoid diverting water during unusually low flows associated with severe drought.~~

N2 The mitigation measure suggested in the previous comment should, if implemented, be adequate to protect beneficial uses of the stream, even if diversions from the Eel River are decreased. Also, regarding Guntly Ranch's use of riparian water from the East Fork Russian River, see the response to Comment Q30.

N3 and N4

Mitigation Measure 3.2.5 on page 3-24 of the DEIR is hereby amended as follows:

c. Any water diversions from the East Fork Russian River shall be limited to a suction velocity not to exceed 0.33 cubic feet per second (cfs). All diversion inlet pipes should be screened according to California Department of Fish and Game recommendations. A screen size of 5/32 of an inch is recommended.

0

Cold Creek Compost, Inc.

M & M Feed and Supply, Inc.

RECEIVED
JUN 18 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

June 5, 1997

Planning Commission
County of Mendocino
501 Low Gap Road, Room 1440
Ukiah, CA 95482

Re: Comments on Cold Creek Compost, Inc. DEIR.

- Page S-2, first paragraph; page 2-5, 2.1.2, #1. 01

  The Court's ruling did not mention, "the effect of construction of a roof (shed) over a 3.5 acre portion of the compost pad."

- Page S-2, #7; page 2-8, #7.

  The LEA has interpreted Condition 6 of the SWFP, which relates to composting, to include additives and amendments. RCSI, page 10, describes the storage of additives and amendments, securely covered on the compost pad. 02

  (Condition 6, as written, is outside of the scope of authority of the Integrated Waste Management Board and the LEA. The SWFP, as written, is inconsistent with current state law in a number of areas, including references to sections of the California Code of Regulations that do not exist.) 03

- Page S-2, #8. 04

  Seasonal peak delivery truck traffic, was previously estimated at "20 to 25 round trips per day" not "12 round trips per day," (RCSI, page 5.)

- Page S-3, #11. 05

  Add to last sentence, "consistent with the facility's Storm Water Pollution Prevention Plan and air and water quality regulations."

- Page 1-4, LEVEL OF ANALYSIS, first paragraph; page 1-5, PERIOD OF ANALYSIS.

  1. Facility operated at approximately 25% of capacity in 1996. We expect final incoming feedstock volumes for 1997 will reach approximately 40% of the facility's capacity. 06

  2. What is the meaning of second sentence: "EIR assumes construction of additional improvements ... by 2000?" There is no relationship between construction of additional 07

111-52

roof area and facility's ability to operate, only that annual operating capacity to use open windrow composting during the wet weather season is limited by amount of roof area.

Facility capacity is limited by operational requirements of the SWPPP, i.e., feedstock and active compost windrows (uncovered) are required to be under the roof during the wet weather season. Facility can operate for an unlimited amount of time given current construction albeit at a lower volume than would be possible absent the additional roof structure or other composting methods which could be performed outside even absent the additional roof area. For example, covered aerated static piles or "ag bag" windrows could be managed outside during the wet weather season without causing adverse impacts (leachate generation.)

The EIR should not be prescriptive regarding best management practices, e.g., "build a roof", but should rather be performance-based in terms of the prevention of adverse impacts. O8

- Page 2-1, first paragraph.

  Feedstocks, for purposes of the EIR and facility operations, should not be specifically prescriptive, but should rather be considered generally in terms of similar impacts. O9

  Description of feedstocks should include wood waste.

  Description of feedstocks should include, "and others consistent with the facility's Solid Waste Facility Permit."

- Page 2-1, second paragraph.

  Property description - Martin. O10

- Page 2-9, first paragraph.

  Replace first sentence with: "Incoming feedstock will be processed as needed and placed in windrows, or other composting operations until the active composting period is complete. O11

  Add to beginning of second sentence: "For windrow composting, windrows will be ... ." O12

- Same paragraph.

  "During wet weather months, ... covering the compost pad."

  Change to: "During wet weather periods, all facility operations will be conducted consistent with the facility's Storm Water Pollution Prevention Plan." O13

- Same paragraph.

  "The roof structure will minimize storm water run-on to pad."

  Roof structure does not minimize "run-on." Given site typography and construction, there O14

is no "run-on" to pad. The roof reduces the amount of rain that falls directly on pad.

- Page 2-10, clarification of development stages.

  Successful operation of the facility is not conditioned on additional roof construction. As described above, lack of additional roof construction may limit production volumes when open windrow composting is used for operations. Other composting processes may be implemented outside the roof structure consistent with the facility SWPPP and other appropriate regulatory requirements. 015

- Page 2-14, last paragraph.

  "The finished product will be screened, as necessary, and processed ... ." 016

- Page 2-15, 2.3.5, second paragraph.

  Delete parenthetical description of sampling points and replace with attached description as per the Regional Water Quality Control Board. 017

- Page 2-15, 2.3.5, third paragraph.

  Pathogen reduction period as described is for windrow composting. Also these regulations are subject to change. EIR should either simply state "pathogen reduction period as prescribed by the state composting regulations'" or if current regs included as is should acknowledge other PRP standards, as for static pile. 018

  Perhaps the EIR should include the complete state regs as an appendix.

- Page 2-17, 2.3.7, paragraph 1, sentence 2.

  Change to, "Sorting and grinding operations will be conducted both on-site and off-site," to accurately describe operations. 019

- Page 2-17, 2.3.8, Times of operations.

  Applicant would like to have truck traffic hours extended during the spring - March-May - and fall - September-November - to accommodate the agricultural nature of our business. During the spring the additional hours would be used occasionally, primarily for product deliveries, and during the fall, for the grape crush and fall compost deliveries. 020

  It should be noted on-site operations other than truck traffic do not have off-site nuisance impacts.

  This would not increase the total number of truck trips to the site. Total trips are limited by the material volume limits in our Solid Waste Facility Permit.

- 2-18, 2.3.10, paragraph 2 and Page 3-58, paragraph 3.

  When do flies become a problem? 021

It is unclear what the LEA is concerned about. The facility has operated in this manner for two years without vector problems.

- Page 2-19, 2.3.13

  The 70-foot truck scale has been installed and is operating. 022

- Page 2-19, 2.3.14

  Grinding and screening operations do not generate odors. 023

- Page 2-19, 2.3.15

  The pad has been rock surfaced. 024

- Page 2-20, 2.3.17, first sentence.

  "Since all operations involving <u>active</u> compost ..." 025

- Page 3-11, paragraph 2.

  We use agricultural lime, calcium carbonate, in our products. This should not be confused with other types of lime such as calcium hydroxide.

  The wood ash we use has never tested at a pH as high as 12. 026

- Page 3-14, paragraph 3.

  Based on lab analysis provided by the brewery, solids content will be approximately 1%-2%. 027

- Page 3-20, 3.2.1, a., last sentence.

  This is neither a reasonable or necessary mitigation. Saturated feedstocks of concern are placed under the roof within the perimeter of the leachate collection system, controlling any potential off-site impact. Our feedstocks range in moisture from 20% - 70% as is standard with these kinds of common compost feedstocks. 028

- Page 3-20, 3.2.1, e.

  This mitigation is ongoing and has been implemented. 029

- Page 3-21, 3.2.1, f.

  This mitigation was discussed with the RWQCB and the LEA during a site inspection and has been implemented. 030

- Page 3-21, 3.2.1, g. 031

As above, we do take steps to prevent ponding and rutting. As is common with this kind of pad, for the first year or two, there will be some settling as has occurred at our site. We did additional extensive pad work in the spring following the consultant's site visit and rutting and ponding have been significantly reduced and such situations are repaired quickly on an as needed basis.

As note, in previous comments it is unclear what effect paving this area would have. The consultant has not provided information to support that mitigation is either necessary or desirable. As discussed with consultant during site visit, paving this area would be problematic given the nature of the heavy equipment movement into and out of the roof structure area and might cause more problems than the relatively insignificant occasional ponding and rutting which we are able to easily repair. 032

- Page 3-22, 3.2.2, a.

  Processing of materials will not occur outside during wet weather periods. Material processing and storage will occur outside of the roof structure during the rainy season as described in our Storm Water Pollution Prevention Plan. 033

- Page 3-22, 3.2.2, b.

  Applicant does not intend to perform all storage and processing under the roof year-round after completion of the roof. The roof will cover approximately 60% of the pad upon completion, and the unroofed portions of the pad will continue to be used for storage and processing. 034

- Page 3-22, 3.2.2, f.

  Has been implemented. Applicant currently uses ground wood mulch, similar to erosion control material, for this purpose. 035

- Page 3-23, 3.2.3, c.

  Implemented as standard operating procedure at the facility as noted above. 036

- Page 3-23, 3.2.4, a, b & c.

  Mitigations a & b have been completed; mitigation c is currently under construction. 037

- Page 3-44, 3.4.1, paragraph 1.

  Air brakes should be jake brakes. 038

- Page 3-51, Approach to Analysis, paragraph 1.

  Composting processes may change consistent with state regulations and best management practices. 039

- Page 3-52. paragraph 2, sentence 2. 040

End of sentence, "and other feedstocks consistent with the facility's SWFP."

- Page 3-53, 3.5.2

  End of last sentence, "as necessary." 041

- Page 3-54, last paragraph.

  The majority of grinding may or may not occur on-site. 042

- Page 3-58, paragraph 1.

  On-site mobile water equipment is available. 043

- Page 3-59, 3.5.3, f.

  This mitigation is in place. 044

- Page 3-62, 3.6.1, paragraph 2.

  References to incoming materials should state feedstock materials. The traffic estimates as described in this section for number of truck trips included amendment and additive deliveries of up to 10,000 tons per year. 045

- Page 3-62, 3.6.1, paragraph 3.

  We intend to haul the brewery water, whenever possible, with a truck/trailer unit with a 7,000 gallon capacity which would reduce the number of truck trips. 046

- Page 3-66, 3.6.4, d

  This is applicant's current responsibility. 047

- Page 4-1, GROWTH INDUCING IMPACTS

  It should be noted this facility has the long-term benefit of helping preserve the Guntly Ranch as one property consistent with county policy goals of preserving large open space tracts and agricultural lands. 048

- Page 5-5.

  The DEIR should quantify the statements regarding heavy metals and biosolids. Just about everything contains heavy metals. 049

PROJECT APPLICANT AND PROPERTY OWNER

O. COLD CREEK COMPOST, INC.

O1 Comment noted, see also response to Comment DD4. The fourth paragraph of the Superior Court's December 11, 1995 ruling states:

> "The most significant and unanswered question is what effect the compost leachate will have on the domestic water wells in the area, the Russian river and Lake Mendocino. In that regard the Court is concerned, that after approval of the project, a "new" mitigation measure of constructing a shed over a portion of the leachate ponds was done in response to leachate runoff. There are too many unanswered problems concerning the leachate that can only be properly addressed by an Environmental Impact Report.
>
> "The Public Health impacts of the ground and surface water, Aspergillus fumigatus and the impacts related to traffic noise, safety and odors demand an Environmental Impact Report."

O2 The following text is hereby amended to the end of the two paragraphs noted in the comment on pages S-2 (item 7) and 2-8 (item 7) of the DEIR.

> However, the LEA currently interprets Condition 6 of the SWFP to include additives and amendments.

O3 Comment noted. The comment does not address the DEIR, but the scope of authority of the California Integrated Waste Management Board and the LEA.

O4 Comment noted. Point #8 in the DEIR on page S-2 and page 2-8 is revised to read:

> ..., compared with the previous estimated ~~12~~ 20-25 round trips per day.

O5 Comment noted. However, neither of the existing permits specifically address the Auxiliary Storage Areas.

O6 Page 1-4 and 1-5 of the DEIR are hereby amended as follows:

> **LEVEL OF ANALYSIS**
>
> The compost facility ~~is currently operating~~ operated at about 25% of the expected average of 200 tons per day or 50,000 tons per year in 1996. The projected level of operation for 1997 is approximately 40% of the facility's capacity.~~.~~ This EIR assumes that construction of additional improvements to the proposed compost facility would be completed and fully operational by 2000.

PERIOD OF ANALYSIS

The compost facility ~~is currently~~ operate~~ding~~ at about 25% of the expected average of 200 tons per day in 1996 and is expected to operate at about 40% of capacity in 1997. This EIR assumes that construction of additional improvements to the proposed compost facility would be completed and fully operational by 2000. There are no limits placed by the applicant on the life of the project.

O7 As noted by the commentor, the facility is limited by the terms of its Solid Waste Facility Permit and Storm Water Pollution Prevention Plan to compost only under cover during wet weather (see response to Comment J2) Presumably, this limits the capacity of the facility during periods of wet weather, and therefore the overall annual capacity of the facility. Active composting outside the roof area during periods of wet weather, using an in-vessel system such as "Ag-Bag," was not evaluated in the DEIR, as it was not a part of the Project Description.

O8 Prescriptive practices are noted where they were relayed to the EIR preparers by regulatory agencies, or by the project applicant. Although the mitigations provide flexibility for adaptation through Best Management Practices, CEQA requires that mitigations are descriptive to a degree allowing the public and decisionmakers to judge the effectiveness of the measure, and to assign responsibility for implementation and enforcement.

O9 It is important for the EIR to describe all known feedstocks that the facility currently accepts or intends to accept, since different feedstocks present different types and levels of potential impacts on the environment. The first paragraph on page 2-1 of the DEIR is hereby amended as follows (these revisions also respond to Comment DD16):

> Feedstock materials are proposed to include manure from chicken ranches and dairies, turkey farms and other agricultural facilities; and other agricultural materials, including grape pomace, plant trimmings and culled fruit. In addition, proposed non-agricultural feedstocks include green material (including municipal yard waste); animal stall bedding; grocery store food waste; restaurant food waste; street sweepings (primarily from autumn leaf collections); fishery waste; ~~and~~ sewage sludge biosolids, wood waste, and others feedstocks with similar characteristics. The LEA should determine what feedstocks not explicitly noted in the SWFP are acceptable.

O10 Unclear what this comment refers to. CCCI has since indicated that the property description is complete and CCCI the applicant is unsure is also not sure what was meant.

O11, O12

Please refer to response to Comment J4.

O13, O14

The text on page 2-9 of the DEIR (second paragraph, eighth and ninth sentences) is hereby changed to read:

> During wet weather ~~months~~ periods, all facility operations will be conducted consistent with the facility's Storm Water Pollution Prevention Plan. ~~will occur under the roof structure covering the compost pad.~~ The roof structure will minimize storm water contacting ~~run-on to~~ the pad. Storm water runoff from the roof will be carried beyond the pad perimeter and released to natural drainages.

O15 Comment noted.

O16 Page 2-14, last paragraph of the DEIR is hereby amended as follows:

> The finished product will be screened as necessary and processed to remove any objectionable materials, and mixed with other additives as required by specific customer orders.

O17 See response to Comment E1.

O18 Page 2-15, last paragraph, of the DEIR is hereby amended as follows:

> Pursuant to the current version of the State compost facility regulations for windrow composting, active compost will be maintained at 55 degrees Celsius for a period of 15 days or longer for pathogen reduction.

O19 Page 2-17 of the DEIR (Section 2.3.7, second sentence), is hereby amended as follows:

> Sorting and grinding operations will be conducted both on-site (on the compost pad) and off-site (off the Guntly ranch).~~limited to small quantities of green waste (most yard waste will be sorted and ground off site at the generator's location).~~

O20 See response to Comment J1; this information was used in that response.

O21 The LEA determines when flies become a problem.

O22 Section 2.3.13 of the DEIR is hereby amended as follows:

> A 70-foot truck scale ~~will be~~ has been installed near the entrance of the facility as indicated on the site plan (see Figure 2.4).

O23 Grinding and screening operations have the potential for odor creation, though generally less than other composting operations, such as receiving some feedstock, and building and turning windrows.

O24 Section 2.3.15 (page 2-19) of the DEIR is hereby amended as follows:

2.3.15 DUST CONTROL PROVISIONS

Several provisions have been incorporated into the facility design to minimize dust emissions from the facility. These provisions are discussed in detail elsewhere in this document. The compost pad ~~will be~~ has been rock surfaced to minimize dust entrainment.

O25 See response to Comment J2. Page 2-20 of the DEIR (paragraph 1, first sentence) is hereby amended as follows:

Since all ~~composting~~ operations involving active compost will be conducted under the roof or tarped during periods of wet weather, contact of uncomposted materials with storm water will be minimized, and will occur only when rain is blown in under the roof or when piles are not properly tarped.

O26 Comment regarding the pH of wood ash is noted. However, the reference is a valid one, and the pH of wood ash remains a concern if the material contacts stormwater. Page 3-11 of the DEIR (second paragraph) is hereby amended as follows:

The project applicant plans to stockpile compost amendments and additives, including agricultural lime (calcium carbonate), gypsum, and wood ash, at designated auxiliary storage areas on site or on the compost pad.

O27 Page 3-14 of the DEIR (paragraph 3) is hereby amended as follows:

According to the project applicant, lab analysis of the brewery process water indicates that it will ~~is expected to~~ contain approximately ~~0.5%~~ 1-2% solids. ~~(Mileck, 1996).~~

O28 Mitigation Measure 3.2.1. (a), on page 3-20 of the DEIR is hereby amended as follows:

a. The project applicant shall conduct active composting and storage of saturated feedstock under the roof structure during periods of wet weather~~the rainy season~~. Finished compost, compost additives, and compost amendments including lime, wood ash, ~~and~~ gypsum, and dry feedstocks, including ground wood waste and ground greenwaste, that have the potential of causing contaminated storm water runoff, ~~should~~ shall be either stored under the roof structure or, if appropriately tarped during periods of wet weather ~~the rainy months~~, outside on the compost pad or ~~elsewhere at the project site~~ at the designated auxiliary storage area. Storm water monitoring will be performed at the site to determine if tarping prevents production of leachate and contaminated storm water runoff. Additionally, additives and amendments that would normally be stored on the pad outside of the roofed area, ~~should~~, if received ~~not be accepted~~ during periods of wet weather ~~the winter months~~ in a saturated condition, shall be ~~.~~ ~~Saturated materials will dewater on site and create leachate even if adequately tarped or~~ placed under ~~a~~the roof so that any leachate will be collected by the leachate collection system. ~~The project~~

~~applicant shall specify in contracts or arrangements with the supplier of these materials that they will be delivered in a dry condition.~~

O29 The applicant notes that Mitigation Measure 3.2.1 (e) has been implemented.

O30 The applicant notes that Mitigation Measure 3.2.1 (f) has been implemented

O31, O32

Comment noted. Mitigation Measure 3.2.1 (g) does not prescribe paving, but only suggests it as one possible means of eliminating the rutting, ponding, and leachate production problems observed at the site. See also response to comment E5.

O33 Please see response to Comment J2.

O34 Mitigation Measure 3.2.2 (b), on page 3-22 of the DEIR is hereby amended as follows:

b. The applicant plans to expand the existing roof structure to three times its current size, to cover approximately 60% of the pad. Unroofed portions of the pad will continue to be used for storage and processing during periods of wet weather as long as materials are securely tarped to prevent contact of composted or uncomposted material with rainwater, as stated in the facility's Storm Water Pollution Prevention Plan. ~~and to perform all operations and storage under the roof year-round. This will further reduce contact of materials by rainwater and stormwater runoff~~.

O35 The applicant notes that Mitigation Measure 3.2.2 (f) has been implemented.

O36 Comment noted.

O37 The applicant notes that Mitigation Measures 3.2.4 (a) and (b) have been implemented, and that Mitigation Measure 3.2.4.(c) is currently under construction.

O38 The second sentence of the first paragraph under impact 3.4.1 of the DEIR (page 3-44), is hereby amended as follows:

The diesel-powered heavy trucks would generate the most noise by using ~~air~~ jake brakes on the descent down the access road.

O39 Comment noted. See also response to Comment O18.

O40 Please refer to response to Comment O9.

O41 Impact 3.5.2 of the DEIR (page 3-53, last sentence on page) is hereby amended as follows:

The following safety equipment would be provided for site personnel and visitors, as needed: hard hats, gloves, earplugs, dust masks/respirators, safety goggles, and disposable coveralls.

O42 Impact 3.5.2 of the DEIR (page 3-54, last paragraph) is hereby amended as follows:

> Dust conditions are highly dependent on the types of operations that occur at the facility and how materials are stored on site. ~~While some g~~Grinding of green material and wood waste would occur on site.~~, most grinding operations would occur off site.~~ Although dust generation from the grinding operation would be minimal due to the high moisture content of the incoming material, the grinding operations would be closely monitored and moisture suppression would be employed to minimize any excessive dust generation. Storage of amendments and additives would be confined to the compost pad. During unloading and mixing operations, moisture suppression would be used as needed to control dust and particulate emissions. Stored materials would be securely covered. The high moisture content of most incoming material would prevent windblown distribution. Dry materials that could generate dust, including additives and amendments, would be covered immediately after delivery.

O43 Comment noted: mobile water equipment is available on-site.

O44 The project applicant notes that Mitigation Measure 3.5.3 (f), fencing adequate to exclude range animals, has been implemented.

O45. See also response to Comment 13-5 for additional projections of future traffic based on the last 18 months of CCCI operating experience. The discussion of Trip Generation in Impact 3.6.1, on page 3-62 of the DEIR is hereby amended as follows, beginning with the second paragraph:

> The proposed facility design capacity is a maximum 50,000 tons per year (tpy) of incoming feedstock material; based on an estimated 250 days of receiving feedstocks in the year, this amounts to an average of 200 tons per day (tpd) of incoming materials. In addition, the facility operator is proposing to accept an additional 10,000 tons, or approximately 8,000 cubic yards per year of additives and amendments. This amounts to an average of an additional 40 tons per day of additives and amendments. The facility could be open 312 days a year, ...

O46. Comment noted. The assumed 4,000-gallon capacity truck had been previously identified by the facility operator as the appropriate truck size to use for Draft EIR analysis. The difference in truck trips generated to haul 12,000 gallons of brewery water per day using trucks with a 7,000-gallon capacity versus a 4,000 gallon capacity, as assumed for the traffic analysis (see page 3-62 of the DEIR) would not be substantial, and would not affect the conclusion that project effects on traffic flow on roadways serving the project site would be less than significant. See also response to Comment 13-5 for additional projections of future traffic based on the last 18 months of CCCI operating experience.

O47 Comment noted.

O48 Comment noted. The DEIR states on page 4-1 that the project will not foster the construction of additional housing, either directly or indirectly.

O49. Page 5-5 of the DEIR (first paragraph) is hereby amended as follows, beginning with the fourth sentence:

> As discussed in Section 3.2 of this EIR, leachate derived from sewage sludge biosolids can ~~be expected to have~~ contain human pathogens and hazardous levels of heavy metals, which are contaminants of special concern. Contamination of water sources by animal wastes would have less environmental and safety impacts than contamination of water sources by biosolids, because biosolids have the additional concerns related to their potential for containing hazardous levels of heavy metals and human pathogens.

P

COLD CREEK RANCH
5010 Highway 20
Ukiah, CA 95482

RECEIVED
JUN 04 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

June 2, 1997

Planning Commission
County of Mendocino
501 Low Gap Rd.
Ukiah, CA 95482

Dear Commission Members:

I am the owner of the property where the Cold Creek Compost is located. As a long time Potter Valley resident, we would like you to know that we are just as concerned about the environment as anyone else in the community. In the beginning I also had many concerns about the operation of the facility. I am now satisfied that this facility has done everything possible to correct any problems that have come up during their growth process. P1

We believe the county should be pleased to have such a fine composting facility right in the center of this agriculture area. The benefit of this facility is they are able to use all of the waste material that otherwise would be filling the local landfills. P2

In regard to the smell, the process in which the compost goes through creates very little odor. Also, because of the upgrading of the old quarry road, we have alleviated several problem areas on the road by constructing culverts. This is a much needed benefit for the environment by improving the land erosion that would have washed into the Russian River. P3

I hope the commission can see the benefits of this composting facility. The benefits to the environment definitely outweigh any other concern. P4

Sincerely,

Charles C Guntly

Charles Guntly

P. CHARLES C. GUNTLY, PROPERTY OWNER

P1 Comment noted. The commentor owns the property where the facility is located.

P2 Comment noted.

P3 The commentor notes that the composting process creates very little odor, and that upgrading of the access road alleviated several erosion problems.

P4 The commentor expresses his support for the project.

Q

MENDOCINO
ENVIRONMENTAL CENTER
106 W. STANDLEY ST.
UKIAH, CA 95482 •707/468-1660

May 26, 1997

Pamela Townsend, Project Coordinator
County of Mendocino
Department of Planning and Building Services
501 Low Gap
Ukiah, CA 95482

RE: Case #U 26-93, Martin Mileck, Cold Creek Compost, Inc.

Dear Ms. Townsend:

Thank you for sending us the DEIR for the Cold Creek Compost Project. We wish to begin our comments on the DEIR with a few brief general observations and concerns.

1) We wish to remind the decision-makers for this application that Mr. Mileck began construction of his facility and road in the Spring of '94 **prior** to having any of the required permits. Q1

2) Mr. Mileck and his Consultant, Eric Anderson, have made misleading statements about his product being certified by California Certified Organic Farmers (CCOF). Far from being certified organic, CCOF has classified Mr. Mileck's "Agro-Blend Plus" as **prohibited**, because it contains many toxic and potentially toxic substances. Q2

3) In December of 1996, when applying to the Ukiah City Council for their "Green Waste Contract", Mileck misrepresented the status of the litigation which resulted in this DEIR, claiming it was completed, when, in fact, there was to be a hearing just a few days later. Q3

We call these concerns to your attention to point out why our level of trust in Mr. Mileck is low, and why we are skeptical about the environmental soundness, and safety of his compost facility, even with mitigations. Even if we believed the recommended mitigations were adequate (which we do not) we have little trust that he would actually adhere to them (or any others) without exceedingly close monitoring and very strict enforcement procedures.

Given his history with this project, and, given that he has never received anything but a slight slap on the wrist for his past violations, we cannot trust that he will do other than continue to operate in any way he deems convenient and profitable, and worry about regulations, mitigations, and other requirements if, or when, he "gets caught". Therefore, this project must have much closer scrutiny regarding its environmental and social impacts than it has had to date, and a very rigid monitoring and enforcement system must be devised and implemented if there is to be any hope of environmental protection with this potentially hazardous project.

Will the EIR require that the air quality, the leachate (and all water run-off) be tested on a very regular basis, monthly if not weekly, by an independent testing firm approved both by the plaintiffs who sued to get this EIR mandated, and by the County Department of Environmental Health. Will they require the results of these tests must to be made public? Q4

(4) Throughout the DEIR the consultants state that Mileck will not accept any hazardous materials - or if such are detected, they will be returned to the source and/or disposed of "properly". However, it is acknowledged that "fly ash" from Masonite (and other sources), grape pumice, manure, and, potentially, "biosolids", among other materials, are, or will be accepted.

Yet, there is **no data** to substantiate that these materials are indeed free from toxicity and non-hazardous. It seems to just be assumed that they are benign, with no evidence presented. Historically, probably it is not usually within the scope of the Planning and Building Department to test for toxicity and chemical composition of materials to be utilized in a planned project. However, in cases such as this, to do so is mandatory. Outside, well-reputed testing firms must be called in to conduct extensive testing of such materials, and these test results must become part of the EIR. If they are not, the EIR is inadequate, on its face, and must be rejected until such test results are forthcoming. Without such test results, there is no way to adequately judge the impacts of the project. Q5

So, on this basis alone, we must ask that the DEIR be redone - with test results of composition and potential toxicity of fly ash, grape pumice, manure and biosolids, at a minimum, included. Then, if the County has an expert in the Department of Environmental Health who can adequately interpret the results, they must be asked to do so. If no such qualified person is employed by the County, the County must retain a qualified expert(s) to provide an analysis and recommendation, before consideration of the adequacy of the DEIR/EIR can proceed.

Now on to concerns with specific references in the DEIR.

(5) Page 2-12, (2.2.8) Nearest residence 4,800 feet from project. How was this determined? Do the nearest neighbors concur with this Q6

distance estimate?

(6) Page 2-14, (2.3.1) It is our understanding that Regional Water Qaulity has some concerns about recent developments and procedures at the facility. What action is Regional Water Quality taking to insist on closer monitoring and stricter enforcement? Q7

(7) Page 2-15, (2.3.4) We consider all of the listed additives and amendments to be serious potential, if not ongoing, problems. Should these amendments and additives be prohibited, especially on the scale that is being proposed, in the location that is being proposed? What amount of "dust control" or "measures to prevent contact with stormwater" are sufficient to avoid all risks from these materials - especially given Mileck's demonstrated history? Q8

(8) Page 2-15, (2.3.5) Twice per year monitoring with "grab samples" is totally inadequate. As we already stated - all leachate and water run-off must be monitored at least monthly, if not weekly, by an independent testing agent, and the results made public. Q9

(9) Page 2-17, (2.3.7) One of the most problem causing of air pollutants is PM^{10}, which is not visible. Another standard is needed to ensure more adequate particulate control. Q10

(10) Page 2-17, (2.3.8) Contrary to assurances that truck traffic noises will not be problematic, noise is already an issue with the neighbors. To simply state that during the grape crush, nighttime truck deliveries will be unavoidable, is not acceptable. Obviously, this would be the most convenient for the grape growers and the project proponent, but a way must be found to make nighttime truck trips avoidable, in order to prevent this potential nuisance from impacting the neighbors. Q11

(11) Page 2-18, (2.3.10) Vectors are traditionally a problem in rural areas. A composting facility of this magnitude, using the materials proposed -such as food wastes, manures, biosolids, etc.- will only increase this problem. We believe it will be very difficult to mitigate vector problems, but mitigations far greater than those proposed in the DEIR must be found, if we are to prevent the potential of disease and death from vectors. Q12

(12) Page 2-18, (2.3.12) Again, avoidance of the effects of PM^{10} must be more adequately addressed. The problems associated with exhaust, as opposed to just dust, must be addressed. Q13

(13) Page 2-19, (2.3.14) The neighbors are already impacted by odor. Mileck denies there is a problem, so no mitigations occur. We doubt that the neighbors concur that the "remote location of the site will minimize odor impacts to off-site receptors". Q14

(14) Page 2-20, (2.3.17) Who is going to monitor to ensure all Q15

compost operations occur under the roof, and who is going to monitor to see that the grasses trap all the sediment? Twice a year inspections are woefully inadequate! What about the run-off from additives and amendments not stored under the roof?

(15) Page 2-20, (2.3.18) Erosion controls. Woefully inadequate analysis. Again, who is going to monitor, and how frequently? Q16

(16) Page 2-20, (2.3.19) Runoff is not the only problem with leachate. Won't it also sink into the ground and ground water, as well? Q17

(17) Page 2-20, (2.3.20) No monitoring of leachate? The very idea is asurd on its face. Obviously, the leachate must be monitored - and not just by Mileck! Q18

(18) Page 2-21, (2.3.21) We have already expressed concern about the potential, if not actual, toxicity of "approved" materials, additives and amendments, as opposed to "disallowed hazardous materials". Where is the evidence to substantiate that these approved materials, additives and amendments are not toxic? Who is going to monitor to see that hazardous materials don't inadvertently enter the composting process, through accident or carelessness? Q19

(19) Page 2-22, (2.5.1) Employee training. Who will supervise to make sure this happens as outlined? In virtually every workplace, management is haphazard, at best, in adequately training workers in regards to safety. And what about non-English speaking workers? Will materials and training in their native language be provided? How frequently will Cal OSHA inspect the project. Hopefully before there is an accident? Q20

(20) Page 3-7, (3.2) Compost pad drains into Silver Creek and Bear Creek thence to East Fork Russian River. Are these not both tributaries to drinking water supply? Does this meet the terms and conditions of the Clean Water Act, for waste discharge from the pad to enter drinking water supply? Would it not be more advisable to locate the facility so as to prevent drainage into a source of drinking water? Q21

In addition, Mendocino County is known to have a very high water table. That is the major reason the County decided against situating a new landfill anywhere in the County. Please have the EIR consultant address the potential for and ramifications of ground water contamination for all beneficial uses of groundwater, especially in view of the fact that Mileck is proposing storing amendments and additives on the ridge by the water storage tanks - which also drains into Silver and Bear Creeks. Q22

Mileck says a spring was opened during construction of the haul road. What did he do to mitigate damage to the spring - and is the damaged spring causing erosion of the haul road or any other ongoing problems? Q23

(21) Page 3-11, Paragraph 4 "As noted above..." Because it is the top of a ridge, it is not subject to stormwater run-on or flooding. However, what about run-**off**? Pad is sloped, but pad is not even concrete! It is compacted soil! Water Quality says "if pad is intact, it **should** be sufficient to prevent percolation of any leachate". What factors could compromise the pad and allow percolation of leachate? What is the liklihood of these factors occurring?

It also says that the water table is **thought to be quite deep** at that site....That is not even known for sure? Please ask the EIR consultant to find and provide data relative to the depth of the water table in this vicinity. How can an adequate assessment be made without even knowing how deep the water table is? "It is **unlikely** leachate will reach groundwater." Not acceptible. Please ask the EIR consultant to provide the data so that it can be accurately determined whether or not leachate will reach the groundwater. It says that, instead it "emerges locally through a spring or into a stream channel" Why is that acceptable? What is the evidence that this is not damaging the spring and stream channel? Q24

It is admitted that the geology of the site is not well-studied. Does lack of this information and data meet the terms and conditions of an EIR as per CEQA?

Without adequate knowledge of the geology of the site, how can we possibly assume the credibility of the conclusions, such as that it is **unlikely** that it would have a discernable impact on groundwater through wells dug on the other side of the river or on the river itself? Please provide the data and information so that sound conclusions can be drawn.

(22) Page 3-13 Even the EIR consultants observed "ponding between piles" of tarped funished product and ruts in the pad that Water Quality has said could compromise the inegrity of the pad. This confirms our concern about contamination from leachate - and these observations were made when Mileck knew that there was going to be an inspection! The EIR consultants also observed and opined that some sediment may not be trapped in the buffer and may be carried into Bear Creek. What a surprise! Why is this not stressed as a problem, especially in view of the magnitude and location of the project? Q25

Mileck installed floor drains and collection tanks to collect leachate. Even that oveflowed during one storm. What were the impacts of this overflow? How can the impacts be remedied, and how can this be prevented in the future? All of this verifies our concern that the project is too large and in the wrong location!

(23) Page 3-14 We believe it is unacceptable to not have seconary containment around the tank. Also, it is necessary to have secondary containment around the brewery process water storage tanks. Q26

(24) Page 3-14 The brewery process water is expected to contain .5% solids. While it "can be **expected** to have low or no toxicity", the organic constituents of the solids would have a biological oxygen demand and therefore are considered a pollutant in the event the process water entered surface drainages or groundwater. What is the verifiable evidence that the process water will not enter surface drainages or groundwater? In fact the DEIR lists three conditions under which a spill might occur, all of which seem likely, given the nature and location of the project. This again confirms our contention that this project is too large and in the wrong location. Q27

(25) Page 3-15 (First paragraph) Sedimentation from roads. ESA observed that mitigations of ditch relief culverts higher than necessary, and the channel into which they empty is unprotected - allowing some erosion and sediment transport. This is a problem which must be eliminated. Q28

(26) Page 3-15 (Water Supply) EIR consultants state the well, which is one of three water sources for project is currently 15 gpm. However, the extent of the aquifer from which this water is drawn is not known, but it is expected to be a limited resource, and drawing from it at this rate could deplete it. They state that depletion of it is not expected to significnatly affect groundwater resources elsewhere in the area significantly. What would be the impacts of depleting this source? What are all of the beneficial uses of water from this source, and how would they be impacted? Q29

(27) Page 3-16 (Paragraph three) If water from brewery, well, and recirculated leachate is not sufficient, applicant plans to use Guntly water rights from East Fork Russian River. What are the impacts of continued granting of diversion of Russian River water? The MEC has been asking the State Water Board for years to issue a moratorium on all diversions from the Russian River and its tributaries until a thorough study determines whether or not the River and its sources are already over-appropriated. Should not approval of diversion of water from the Russian River be withheld until the results from such studies are available? Q30

(28) Page 3-18 (Paragraph two) Confirms our request to not approve water from Russian River, as during periods of severe drought, pumping out of East Fork could have significant deleterious effect. And, if diversions from Eel River are curtailed, effects of pumping could be significant even during normal low flows. Does this not indicate that diversion from Russian River or its tributaries should not be approved for this project? Q31

(29) Page 3-18 (Paragraph four) No flow studies of Cold Creek. Unacceptable. Please provide this data. How can the DEIR be adequate and complete without this data? Q32

(30) Page 3-18 (Paragraph five) Pumping out of Cold Creek could have negative impact on other beneficial uses of Cold Creek. Does this not mean that pumping this water should not be approved? Q33

(31) Page 3-19-20-21 (3.2.1) Should prevent. Should be sufficient. Not adequate. Who monitors, and how frequently? Cannot rely on Mileck's self monitoring. Q34

Who checks delivered loads to ensure they arrive in dry condition? What happens if they are not dry? Q35

Mitigation (c) Clean pad of compost and feedstock before first storm of the year. Should it not be more frequent, especially in the event of "accidents"? Q36

Mitigation (e) Too vague. delete "take steps". Q37

Mitigation (h) Please delete Biosolids from this proposal completely. Please ask EIR consultant to read "Toxic Sludge is Good for You", by John Stauber, and incorporate the findings from that book into the EIR. In addition, we incorporate by reference into these comments the attached paper entitled "Sewage Sludge Fact Pack" compiled by Hannah Gillelan of the Environmental Research Foundation. We request that the information and data in this fact pack be studied and incorporated into this EIR process. In essence, Biosolids cannot be rendered "safe"for use in compost which will be used on food under any circumstances. It is questionable whether it is safe to use it at all. Q38

(32) Page 3-22 (3.2.3) Leachate could percolate through the compost pad and contaminate groundwater. What does "Unlikely" occurrence mean? Could not this still happen? What is the liklihood? Even if this does not reach domestic wells, what would the impacts on groundwater be? What impacts might it have on wildlife? Q39

(33) Page 3-23-24 (3.2.4) Contamination from spill from storage tanks. (c) What is the data to substantiate that earthen berms would be sufficient to prevent a catastrophic spill? Q40

(d) What about overflow that occurs before detection and draining? We do not agree that application of the specified mitigation measures reduce 3.2.4 to less than significant levels. Q41

(34) Page 3-24 (3.2.5) (b) No approval of diversions from East Fork Russian River or Cold Creek until adequate studies of effects of current appropriation are completed. At a minimum, change "could" to "shall". Q42

(35) Page 3-27 Criteria Air Pollutants. Ukiah Valley is in non-attainment for PM^{10} and close to non-attainment for Ozone. Has this been taken into account? How does this project contribute to the oveall ozone of the Ukiah Valley? Q43

(36a) Page 3-28-33 Odors. Have you consulted the neighbors regarding nuisance from odors? Has the LEA been in contact with the Q44

neighbors? Could Mitigations (d) and (e) be made more specific? Too much left up to the discretion of Mileck. We propose moving the project to a site farther from neighbors, and where the wind will not blow odors to "sensitive receptors". Also, limiting the incoming materials and deleting those which are the most odoriforous should be considered.

(36b) Page 33-35 Aspergillus fumagatus. While the Mendocino County Air Quality Management District did initial projects, based on original data from the project, they are in no way experts in the field of Aspergillus Fumagatus. Because of the rise of disease from Aspergillus resulting from increased human exposure to landfills and compost facilities, there are experts who should be consulted regarding this issue to provide more complete and sound information for consideration. We request that this be done. Q45

(37) Page 3-36 Mitigation Measure 3.3.3 (a) Could this be made stronger? i.e., eliminate "to the extent possible". Q46

(38) Page 3-44 Mitigation 3.4.1 Ambient Noise. The DEIR does not consider that the trucks are operating non-typically. They are lugging up a three-mile-long hill with engines emitting an ear-splitting roar as they creep up the steep grades, their stacks spewing tons of noxious emissions into the air of their neighbors., And when they come downhill the air releases are incredibly loud and blaring, and echo throughout the canyons in the vicinity. How are the neighbors already impacted by noise? Q47

What are the decibels, and are they within the limits for the zoning in this area? To state that no mitigation is required is totally unacceptable.

(39) Page 3-45 Mitigation 3.4.3 (b) Again, to simply state that nighttime deliveries are unavoidable during the grape crush is absurd. Please explore and discuss viable alternatives. Q48

(40) Page 3-52-53 (3.5.1) Impact on workers. We believe it is wrong to assume that Masonite (and other sources') fly ash and scrubber ash are not hazardous. More testing is necessary and the results need to be made public. Given the toxics Masonite uses in its processes, it is very difficult to believe the ash is toxic-free. Manure is posing more and more problems, given what the cattle and sheep are fed. It is unlikely that it is safe to be around large quantities of manure.

Does the grape pumice contain any residue from herbicides and pesticides? If so, does this not then make grape pumice hazardous waste.? Q49

There is no way that biosolids are not toxic. If workers are properly educated about the composition of the materials, additives and amendments, it is doubtful they will want to work at the facility. More data is needed about all of these substances before their DEIR can be considered complete.

(41) Page 3-53 (3.5.2) Last sentence should be changed to read: The following safety equipment would be **required** for site personnel and visitors:...." Q50

(42) Page 3-59 (3.5.3) Mitigation (i) It can be assumed that vectors **will** become a problem. A professional pest control service **shall** be contracted to implement a **non-toxic** vector control program. Q51

(43) Page 4-4 (4.4) We disagree that there are no unavoidable significant effects of the project that cannot be mitigated. A viable alternative to the proposed project must be developed in order to avoid significant impacts. Q52

(44) Page 5-1 Alternatives:

Alternative A. No Project Alternative. We do not agree that CCCI should be able to continue animal waste composting on its site as "permitted under the existing land-use zoning of the site". We do not share the County's interpretation of that Ordinance. Therefore, we do not concur that this constitutes a "No Project Alternative". A "No Project Alternative" would mean "No Project", and restoring the site to its condition prior to the impacts of the operation as it exists today. Please consider a real No Project Alternative. Q53

Alternative B. Off Site Alternative. To consider the Covelo site as the only off-site alternative is absurd. It is so frought with problems as to render it not even a consideration. Why were not some reasonable alternative sites considered - such as elsewhere on the Guntly Ranch, for example? Q54

Alternative C. Reduced Project / Mitigated Alternative (No Biosolids). This more closely approximates a realistic approach. However it does not go far enough in reducing quantity and kind of "feedstock", additives and amendments. Q55

The Mendocino Environmental Center wishes to propose two additional alternatives:

Alternative D. Reduce the size and scope of the project, limiting the amount and kind of feedstock, additives and amendments, **and** move the project site to another location, further from residences, further from creeks and the river. (Could another location on the Guntly Ranch be considered?) Prohibit manure, biosolids, fly ash, and other feedstock and amendments that can be toxic. Accept only grape pumice that does not contain herbicide/pesticide residues. No imported waste from out of he county. Q56

Alternative E. Establish an instructional program to get people to compost locally in their own neighborhoods. Avoid hauling large quantities of organic materials to one central location. Keep projects small

and localized. Perhaps Mr. Mileck could be the consultant to establish such a program, getting his "sources" to compost their own materials in an environmentally safe manner. He could then either instruct them to re-use this compost themselves, or help them market the product.

Please include an analysis and in-depth consideration of these alternatives in the Final EIR.

Conclusion: One of the major flaws in the DEIR is the lack of adequate discussion of cumulative impacts of any and all aspects of this project, in view of other activities in the area, and any proposed projects that may be being planned. Please provide an in depth section on cumulative impacts. Q57

Given the drastic omissions and inadequacies we have discussed relative to this DEIR, we believe it should be redone, incorporating our concerns, and the concerns of the many others who will be responding to this DEIR. Then, a second review period should be held prior to drafting the Final EIR. Q58

Thank you for your consideration of our concerns,

Gary Ball Betty Ball

Gary and Betty Ball for the
Mendocino Environmental Center

cc: Susan Brandt Hawley, Attorney at Law

COMMUNITY ORGANIZATIONS

Q. MENDOCINO ENVIRONMENTAL CENTER

Q1 Comment noted. This EIR analyzes the potential impacts of the project, defined as a use permit to allow a compost facility handling several feedstocks other than manure.

Q2 California Certified Organic Farmers (CCOF) certification was not considered in the EIR, as it does not itself have a bearing on the environmental impacts of the project. However, CCOF has confirmed that Cold Creek Compost's Agrow-Blend product is allowed for use by its certified growers, while Agrow-Blend Plus is prohibited.

Q3 Comment noted. This comment does not address environmental analysis of the project. The County is required to implement a Mitigation Monitoring and Reporting Program to track the required mitigations of the project.

Q4 The facility's Storm Water Pollution Prevention Plan requires twice-per-year testing of storm water runoff, and remedial action if testing indicates that stormwater runoff from the site is polluted. Results of the stormwater monitoring will be available for public inspection at the North Coast Regional Water Quality Control Board offices in Santa Rosa. The air quality permit for the facility is not expected to require regular air testing. Odors would be observed during the LEA monthly inspection.

Q5 Regarding the potential toxicity of ash from Masonite Corp., please refer to the response to Comment OO1. Regarding toxicity of grape pomace, it can be assumed that concentrated runoff from grape pomace would have a high BOD. There is the possibility that runoff may contain a low level of pesticide residues. Contamination of stormwater runoff is considered a significant impact in the DEIR (see impact 3.2.1, page 3-19 through 3-20). Pesticide residues present in the grape pomace would not tend to contaminate the final compost product for the following reasons:

a. Pesticide use is regulated, including the length of time between pesticide application and harvest. Most pesticides are designed to degrade quickly in the environment. Any pesticide residues in the pomace would also be in the wine which is produced and wine in not considered to considered to contain hazardous levels of pesticides.

b. Any residual pesticides remaining in the pomace would tend to break down quickly into less toxic substances in the hot, moist, aerobic conditions present in active composting piles.

To date, no biosolids have been received at the facility, and the facility's Solid Waste Facility Permit does not allow acceptance of biosolids. Acceptance and processing of biosolids is recognized in the DEIR as potentially causing water quality and public health and safety impacts: Impact 3.2.1 (page 3-20), Impact 3.5.2 (page 3-55 through 3-56) and Impact 3.5.3 (page3-58 through 3-59). Stringent mitigation measures are included in the DEIR that, if diligently implemented, should reduce these impacts to a level below significant.

In order to clarify which feedstocks may contain potential contaminants, the following Table Q-1 has been prepared:

TABLE Q-1: Potential Pollutants from Compost Materials

Material Type	Environmental Concern
Feedstocks	
Manure	Nitrogen-containing compounds (ammonia), pathogens, BOD, odors, possible chemical residues
Green Waste	Dust (when ground), possible pesticide residue, BOD
Biosolids	Human pathogens; heavy metals; odors
Grape Pomace	BOD, possibility of pesticide residue
Wood Waste	Metals (in treated wood); tannins; turpens; esters, dust (during grinding)
Food waste	BOD, odors, vector attraction
Fishery waste	BOD, odors, vector attraction
Additives and Amendments	
Wood ash	Heavy metals, dioxins, dust, high pH
Lime and gypsum	pH, dust
Other	
Brewery Process Water	Solids, BOD
Compost Leachate	Nitrogen-containing compounds (ammonia), phosphorous, inorganic pollutants, bacteria, viruses, human pathogens (if biosolids are a feedstock), odor, BOD

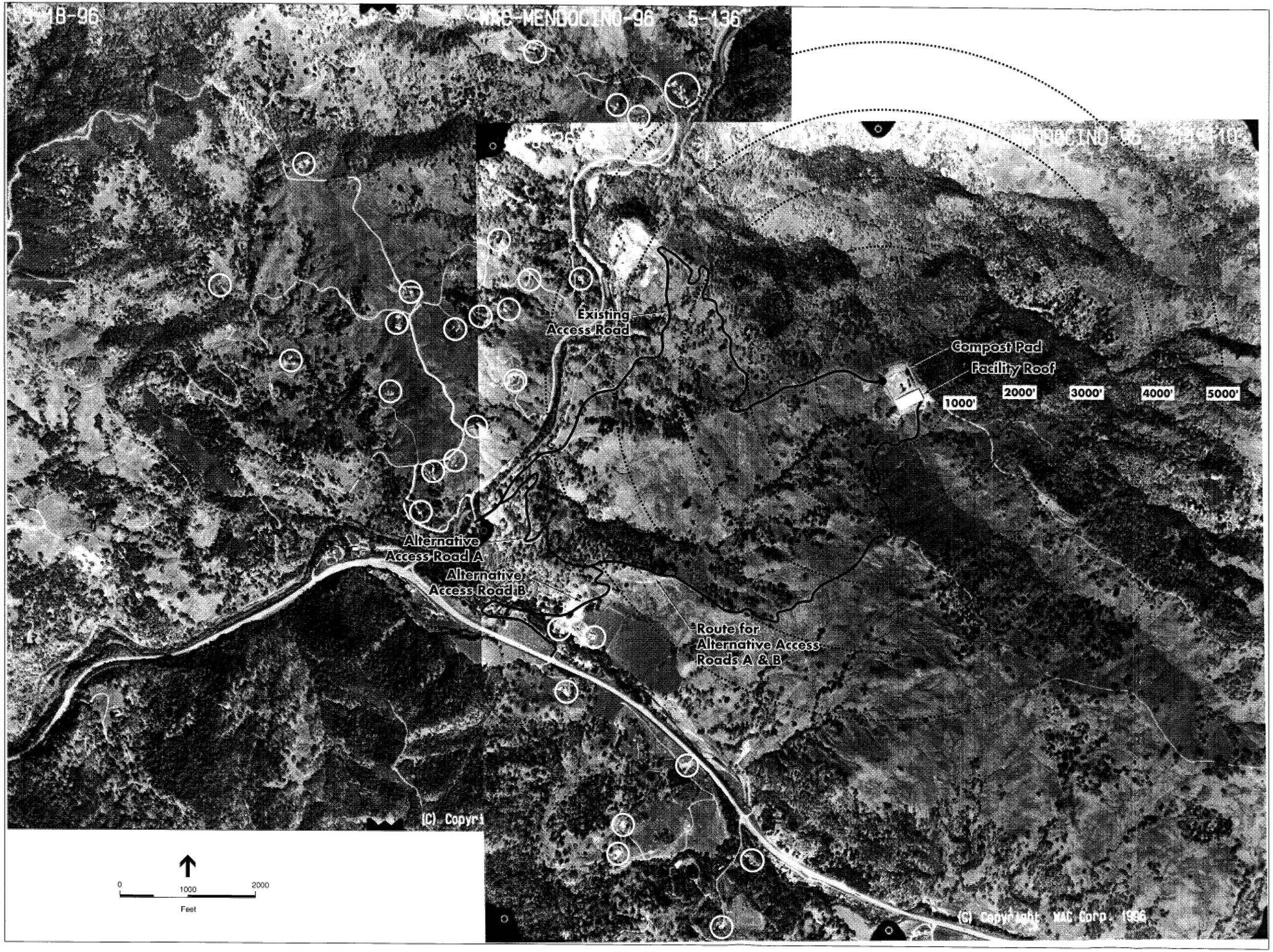
Key to abbreviations: BOD: Biological Oxygen Demand

Q6 The distance of 4,800 feet from the compost pad to the nearest residence was originally determined from USGS topographical maps (7.5 minute series, Potter Valley Quadrangle). The linear distance from the edge of the compost pad to the nearest point on the East Fork Russian River is approximately 4,200 feet. To check this measurement ESA ordered aerial photos of the area, which are included in this Response to Comments Addendum as Figure C&R 1. The aerial photos confirm the distance of 4,800 feet as being a good measurement.

Q7 See Comments E1 through E9.

Q8 The DEIR evaluates potential environmental impacts associated with receiving, storing, and blending all of the additives and amendments included in the project description. Please refer to response to comment O28, which discusses Mitigation Measure 3.2.1 (a); and Impact 3.5.2 (page 3-54 of the DEIR) and Mitigation Measure 3.5.2 (c), on page 3-56 of the DEIR.

Q9 Please refer to response to Comment E1. See also response to Comment Q4.



Location of Nearby Residences

SOURCE: Environmental Science Associates
Air Photo reproduced with permission of WAC Corporation, Eugene, OR., 1997

Figure C&R 1
Aerial Photo of Project Area

Q10 PM10 is a fraction of total particulates (or dust). The larger fraction is visible and the sighting of "visible dust" will be the cue to water an area. In watering to control visible dust, the generation of PM10 would also reduced.

Q11 Please refer to response to Comment 13-22 and Q47.

Q12 Please refer to Impact 3.5.3 on page 3-58 of the DEIR, and Mitigation Measures 3.5.3 (g), (i), and (j).

Q13 Project PM10 emissions are estimated in Impact 3.3.1 of the DEIR and were found to be less than the significance criteria for the Mendocino County Air Quality Management District. The air quality analysis conducted for the project included PM10 emissions from exhaust particulate, entrained road dust, and tire wear (see Table 3.3.1, page 3-31 for further clarification).

Q14 Please see responses to Comments J4, DD29, DD50 and 10-2.

Q15 Stormwater monitoring for contaminated runoff and sediment will be performed by the facility operator according to the terms of the SWPPP and SWMP. This monitoring will be subject to verification and crosschecking by the RWQCB and the County LEA.

Q16 The commentor seems to confuse description of existing and proposed erosion controls stated in the project description with analysis of potential environmental impacts associated with erosion. The latter is analyzed in Section 3.2, Hydrology and Water Quality (see analysis of Impact 3.2.2 on pages 3-21 and 3-22 of the DEIR). Responsibilities for erosion controls would be identified in the Mitigation Monitoring and Reporting Program (MMRP).

Q17 The potential for groundwater contamination from leachate is analyzed in Section 3.2, Hydrology and Water Quality (see analysis of Impact 3.2.3 on pages 3-22 and 3-23 of the DEIR).

Q18. Stormwater will be monitored for contamination with leachate. See Comment E1 and response.

Q19 See response to Comment Q5.

Q20 See Impact 3.5.2 and Mitigation Measure 3.5.2 (pages 3-53 through 3-57 of the DEIR).

Q21 Please refer to the discussion of Significance Criteria for the Hydrology and Water Quality section on pages 3-18 and 3-19 of the DEIR, and Impact 3.2.1, and Mitigation Measure 3.2.1 (on pages 3-19 through 3-21 of the DEIR.)

For the sake of clarity, the third sentence of the second paragraph on page 3-19 of the DEIR is hereby amended as follows:

> Therefore, any leachate, wastewater, or sediment from the project that enters the East Fork Russian River <u>or any of its tributaries</u> should be considered a significant impact.

Q22 Please refer to the discussion of ground water on pages 3-11 and 3-12 of the DEIR, Impact 3.2.3, and Mitigation Measure 3.2.3, as well as response to Comment E3.

Q23 According to the applicant, the construction of the road exposed subsurface water flow, creating a spring. The applicant reports that there is no erosion associated with the spring. The spring has gone dry during the dry season the past two years.

Q24 Stormwater runoff is thoroughly analyzed in Section 3.2, including Impact 3.2.1 and Mitigation Measure 3.2.1

Page 3-9 of the DEIR notes that, "Depth to groundwater is unknown, but test pits dug at the site before it was graded encountered no groundwater at depths ranging from three to nine feet.... According to the project applicant, during construction of the roof structure in August through October 1995, 24 holes were drilled to a depth of 10 feet in the compost pad for foundation piers. No water was encountered at that depth. A well dug some 1,800 feet from the compost site has a static water level of 50-60 feet...." See also response to Comments E3 and E4. Given the distance of the site to the nearest domestic water wells, the hydrology of the area, what is known of geology and groundwater hydrology at the site, and the design of the compost pad, it is reasonable to assume that the project will have no significant impact on groundwater quality. The NCRWQCB bases its belief that groundwater is adequately protected on the high clay content and low permeability of native soils at the site, without regard to underlying geology (see comment E3). Factors that could compromise the integrity of the pad, such as rutting from heavy equipment, are addressed Impact 3.2.3 and Mitigation Measure 3.2.3. See also response to Comments O29, O31, O32. The conjecture regarding what would happen to groundwater if it were contaminated is not intended to indicate a potentially significant impact. This was included in the analysis to support the conclusion that there is very little likelihood of a significant impact from the project on groundwater.

Q25 Ponding, rutting, and sediment migrating off site are all noted in the DEIR as significant impacts (Impacts 3.2.1 and 3.2.2) Performance-based mitigations are noted to address these impacts (Mitigation Measures 3.2.1 and 3.2.2). If the mitigations are implemented successfully, they will mitigate the impacts. If not, the impacts will continue. If the impacts were to continue, the regulatory agencies (the Local Enforcement Agency and the North Coast Regional Water Quality Control Board) can and should require changes in operating practices to protect ground and surface water quality .

No samples were collected after the overflow of the leachate tank, and the impacts of the overflow are not known. Mitigation Measure 3.2.4 requires the applicant to prepare an amendment to their SWPPP describing procedures for monitoring the level of leachate collected in the tank and preventing overflows. See response to Comment E6.

Regarding the potential for the leachate tank to again overflow: a simple analysis of the potential for leachate production during a 100-year storm event indicates that, if the level of the leachate tank is being monitored, its capacity should be sufficient. The south side of the roof, the side most likely to receive direct blow-in, is 150 feet long, 20 feet high at the ends and 34 feet high at the peak for an average height of 27 feet. If rain is falling at a 45 degree angle then the width of the column of rain entering the building would be equivalent to half of the hypotenuse of an equivalent right triangle formed by the

average height of the roof and an equal distance from the edge of the building. Thus, each of the equivalent legs of the triangle would be about 27 feet, the hypotenuse would be about 39.5 feet, and the width of the column of rain would be about 20 feet (half of the 39.5 foot long hypotenuse). Therefore the amount of rain entering the south side of the building would be equivalent to the amount falling on a level surface 150 feet by 20 feet, or 3,000 square feet. Information provided by the County Water Agency for a rain gauging station close to the Guntly Ranch shows a 100 year event would produce approximately 6 inches of rain in 24 hours. Six inches of rain on 3,000 square foot surface equals 1,500 cubic feet of water. There are 7.481 gallons in a cubic foot of water, so this would be 11,221.5 gallons of water. The tank's capacity is 22,000 gallons. This calculation assumes no surface water running across the pad and contacting the piles under the roof. This implies that there should be little danger of the tank overflowing during a one-day, 100 year event if the system is properly maintained. An additional mitigation suggested by Dennis Slota at the County Water Agency is to install roll-up tarps along the south side of the roof structure.

Mitigation Measure 3.2.1 is hereby amended as follows:

j. If leachate production from winter storms overwhelms the capacity of the leachate tank and the ability of the facility operator to prevent overflowing of the tank, the project applicant shall install roll-up tarps or other devices to prevent rain from blowing in under the roof structure.

Q26 Please refer to Impact 3.2.4 and Mitigation Measure 3.2.4. See also responses to Comments E6, M3, and O37.

Q27 Please refer to Mitigation Measure 3.2.4, and Comments E6, M3, O37 and responses.

Q28 Please refer to Impact 3.2.2 and Mitigation Measure 3.2.2 (pages 3-21 and 3-22 of the DEIR).

Q29 No other known beneficial uses are made of this groundwater. Since the groundwater is quite deep (static water level is 50-60 feet), it is unlikely that depletion of the well would have a significant effect on vegetation. It is possible that the aquifer that the well taps into also supplies wells elsewhere on the Guntly Ranch, such that depletion may affect beneficial uses of groundwater elsewhere on the property. The well itself is used exclusively by the facility

Q30 The applicant has stated that the Guntly Ranch has riparian rights to the East Fork Russian River. The State Water Resources Control Board, Division of Water Rights, has no record of this claim, but does not have the jurisdiction to confirm or refute it. (Personal communication, Laura Vasquez, SWRCB, ESA, July 25, 1997) Diversion of water from the East Fork is considered a potentially significant impact in the DEIR (Impact 3.2.5, page 3-24), and mitigations are included (Mitigation Measure 3.2.5, page 3-24; see also Comments N1, N3, and responses). According to the State Water Resources Control Board (Laura Vasquez, op.cit.), the East Fork Russian River, except where it flows through Potter Valley, is fully appropriated. If, however, the Guntly Ranch has riparian rights to the *riparian* water in the East Fork, the fully appropriated

designation would not have an effect on the Guntly's ability to draw *riparian* water from the stream.

Most of the flow in the East Fork, particularly during the dry season, is water diverted from the Eel River. This diverted water is appropriated water, and cannot be claimed by downstream riparian right holders. Therefore, in the dry season, assuming that the Guntly Ranch does have riparian rights to the East Fork, the water that could be claimed would be limited to the "natural" (riparian) flow of this stream, and would not include water diverted from the Eel River.

Furthermore, one commentor notes that flow diversions from the Eel River to the East Fork Russian River are currently an issue of discussion and a possible result may be some decrease in these flows (see Comment N2).

It is not within the scope of this EIR to determine whether the Guntlys have riparian or other rights to the East Fork or to Cold Creek. Since the applicant identified these two streams as potential water sources, the EIR analyzed the potential environmental impacts of drawing water out of these sources, found the impacts to be significant, and identified appropriate (and effective) mitigation measures. These measures are further refined in Comment N1 and response, which suggests a minimum bypass flow for the East Fork Russian River, if the facility uses this as a water supply. The applicant has identified other, preferable sources of water for the facility that are discussed in the document.

Q31 See response to Comment Q30.

Q32 Cold Creek is not gauged by the United Stated Geological Survey. A flow study of Cold Creek is beyond the scope of this EIR. However, Impact 3.2.5 (page 3-24) identifies water diversions from springs feeding Cold Creek as a potentially significant environmental impact and includes mitigations (Mitigation Measure 3.2.5, page 3-24 of the DEIR). See response to Comment N1.

Q33 See response to Comment Q32.

Q34 Please refer to Comment E1 and response.

Q35 Please see Comment O28 and response.

Q36 The comment is unclear, as "accidents" are not defined. However, see Comments E5, E9, and responses.

Q37 It is not the intent of the EIR to dictate the exact operating practices that might mitigate an impact. Maintenance of the grade and integrity of the pad are not only included as mitigations in this EIR, but are also are required in the facility's SWPPP, which is approved and regulated by the NCRWQCB. For the purposes of this EIR, it is sufficient to note that rutting is a significant impact, and that the facility operator must take steps to repair or prevent it in order to mitigate its potential environmental impacts. There are a range of options that are feasible and effective.

Q38 The DEIR analyzes the potential environmental impacts of the use of sewage sludge biosolids. The preparers of the DEIR are well aware of the variable nature of biosolids and the potential for biosolids to contain hazardous levels of heavy metals as well as other toxic constituents (see discussion of biosolids on pages 3-47 through 3-48 and page 3-50 of the DEIR). Impact 3.2.1. identifies leachate from biosolids as of particular concern for water quality. Mitigation Measure 3.2.1 (h) would reduce the potential environmental impact of the use of biosolids as a feedstock by prescribing several limitations on its use. These include a requirement that any biosolids used for feedstock must meet US EPA standards for pathogen reduction, vector attraction reduction, and pollutant concentrations (including heavy metals); the facility must not accept biosolids containing free liquids, and must not accept biosolids during wet weather; when received, biosolids must be tipped onto a cleanable surface that is thoroughly protected from stormwater contact; the careful management of operations to reduce the possibility of cross contamination, including cleaning of equipment and treatment of leachate derived from biosolids in the leachate collection system; and rapid incorporation of biosolids into windrows after they are received.

Taken together, these measures should adequately protect water quality from the potential effects of biosolids. Once biosolids are subjected to thermophilic decomposition (according to requirements in State and Federal regulations), pathogen levels must be reduced below regulatory limits. Restriction of biosolids feedstocks to those that meet the highest federal and state standards for pollutant limits ensures that the finished product will not pose a threat to public health, either through direct exposure, through production of leachate from finished biosolids compost, or from land application to food crops. As the applicant would be likely to blend biosolids with other materials, pollutant concentrations would be further diluted.

Q39 "Unlikely" means that the design of the compost pad, the quality of the native soils, and the depth to groundwater can reasonably be expected to protect groundwater quality. See also Comments E3, E4, and responses.

Q40 See Comment E6, M3, O37, and responses.

Q41 Spillage of leachate is prohibited by the facility's SWPPP. The operator has devised a means of monitoring the tank level and preventing flows. Enforcement of this provision will be by the NCRWQCB. See Comment E6, M3, O37, and responses.

Q42 See Comments N1, N3, and responses.

Q43 The DEIR indicates that the North Coast Air Basin (NCAB) is in attainment with all Federal air quality standards (see DEIR, page 3-27). The DEIR also notes that the area is non-attainment for PM10 with regard to the State standards (see DEIR, page 3-28, paragraph 2).

The DEIR estimated the emissions of the project on a maximum day with regard to truck trips and the estimate was below significance threshold established by the Mendocino County Air Quality Management District (see Impact 3.3.1 on page 3-30 of the DEIR and Table 3.3.1 on page 3-31 of the DEIR).

Because NOx levels are below the significance threshold on a maximum day, the project would not have a significant impact on ozone levels. In this regard the project looked at all emissions related to the project without determining what the "net" emissions might be (because this is usually quite speculative). Without the project, many of the feedstock materials would still be transported by truck within the Ukiah Valley; either transported to the City of Ukiah landfill, and out-of-County landfill or to another facility that could process the materials.

See also response to Comment DD21.

Q44 Please see responses to Comments J4 and 10-2.

Q45 Please refer to responses to Comment H2 and H3. The commentor mentions the rise in disease from Aspergillus resulting from increased human exposure to landfills and compost facilities, but the most recent reports related to Aspergillus do not indicate a "rise of disease from Aspergillus". In fact, the conclusions of an extensive review of Aspergillus near compost facilities indicates that nearly all of the cases reported of Aspergillosis (the disease caused by the Aspergillus organism) have occurred in hospitals (primarily affecting debilitated or immunocompromised individuals)[2]. The preparers of the EIR are also unaware of any information indicating a rise in Aspergillosis near landfills, and note that the project is a compost facility not a landfill.

Q46 The information known about *Aspergillus* dispersal (see responses to Comments H2 and H3 and Q45) does not support a total ban on turning the windrows.

Q47 Please refer to the discussion of noise level measurements on pages 3-40 to 3-41 of the DEIR. Noise measurements were taken of background traffic noise levels along Potter Valley Road, of trucks entering the access road, and of a truck descending the access road and using jake brakes. No specific short-term measurements were taken of trucks ascending the access road for the DEIR, though 24-hour measurements were taken at a location above the valley floor and directly across from the access road where it passes a rock quarry. In the short-term measurement of the truck descending the access road, the dBA level did increase. The maximum noise level recorded during the descent of the truck was 54 dBA, well within the normally acceptable standard of 60 dBA for residential-low density areas, as stated in the Mendocino County General Plan.

In order to address this comment and others, the EIR consultants collected noise measurements of three trucks ascending and descending the access road on September 8, 1997. The consultants surveyed the exposure of homes (in the area of Horseshoe Circle) to noise impacts from the CCCI access road, and collected noise measurements from a location thought to represent maximum impact of the areas across the canyon. The trucks take about 7 minutes to go up or down the access road. The maximum noise levels recorded were in the range of 47 to 52 decibels, which is consistent with the measurements recorded in the DEIR (described above).

[2] Epstein, Eliot, *The Science of Composting,* Published in the Western Hemisphere by Technomic Publishing Company, Inc., Lancaster, Pennsylvania, 1997, page 291.

In order to further reduce the noise of truck traffic, and therefore to lessen the impact of truck noise on the facility's neighbors, Mitigation Measure 3.4.1 (page 3-44 of the DEIR) is hereby added as follows:

Mitigation Measure 3.4.1:

~~None required.~~

Identified in this EIR

Although the impact is less than significant, the following mitigations would further reduce the impact of vehicle noise on the facility's neighbors.

a. To reduce noise from trucks descending the facility access road, empty trucks shall not use their jake brakes. Loaded trucks may continue to use their jake brakes as a safety measure. The facility operator shall instruct truck drivers not to use their jake brakes if they are leaving the site empty. In addition, a sign shall be posted at a point on the road above where trucks normally apply their jake brakes, stating that empty trucks shall not use their jake brakes.

b. The speed limit on the access road shall be set at 20 MPH. The facility operator shall post the speed limit at both ends of the access road.

Q48 Please refer to response to Comment 13-11. There should be very few if any truck trips occurring in the nighttime. These will be limited to times that it is dark between the hours of 7 a.m. and 6 p.m.

Q49 See response to Q5 and OO1. Worker exposure to hazards, including hazardous materials, is considered in Impact 3.5.2, and is considered a significant impact. Mitigations for this impact are discussed in Mitigation Measure 3.5.2.

Q50 Please see response to Comment O41. The level of activity at the site should be the primary determinant of the safety equipment. If there is no activity on the site, neither site personnel or visitors should be required to wear all the safety equipment.

Q51 The following sentence is added to the end of item (i) of Mitigation Measure 3.5.3 on page 3-59 of the DEIR:

If feasible, non-toxic methods shall be implemented.

Q52 Commentor disagrees with the conclusion in Section 4.4 (on page 4-4) of the DEIR.

Q53 According to the CEQA Guidelines (15126 (d)(4)):

""No Project" alternative. The specific alternative of "no project" shall also be evaluated along with its impact. The "no project" analysis shall discuss the existing conditions, as well as what would be reasonably expected to occur in the foreseeable future if the

project were not approved, based on current plans and consistent with available infrastructure and community services. ..."

The CEQA Guidelines do not call for the No-Project Alternative to analyze the restoring of the project site to its pre-development condition, nor is there any provision to require the Guntlys or the project applicant to do this, if the use permit is denied.

Q54 The commentor does not state why considering the Covelo site, which the applicant operated as a commercial composting operation, is "absurd." According to the project applicant, the existing site was selected partly because of its remote, isolated location. The Off-Site Alternative section of the DEIR (Section 5.2, pages 5-7 through 5-10) describes three sites considered as alternatives and rejected: the City of Ukiah Landfill, the City of Willits Disposal Site, and the Mendocino Solid Waste Management Authority Solid Waste Transfer Station site. In addition, the former processing site in Hopland had been ruled out by the applicant as infeasible.

In addition, the preparers of the DEIR did not believe that neighbors to the project would want the EIR to analyze an Off-Site Alternative that was on the Guntly Ranch. The discussion of the Off-Site Alternative in the DEIR (pages 5-7 through 5-16) is much more informative to the decision-makers about reasonably available sites than to look just at other areas on the Guntly Ranch.

Please also see responses to JJ8 and Q6 which discuss alternative access roads to the project site and the why the access routes limit other locations on the ranch as potential sites for CCCI.

Q55 The commentor believes the Reduced Project / Mitigated Alternative (No Biosolids) more closely approximates a realistic approach -- but the commentor would also reduce the quantity and kind of feedstocks, additives and amendments.

Q56 Mendocino County Environmental Center Proposed Alternatives. The Guntly Ranch appears to be entirely within the East Fork drainage, so moving the project somewhere else on the ranch would have no effect on water quality impacts. Existing reduced project alternative considers restricting feedstocks. Grape pomace --see response to Comment Q5. Importation of waste is allowed under recent Supreme Court rulings; the County does not have the authority to restrict this (see response to Comment 13-24).

Home composting program is a good thing, and would reduce some of the materials that the facility is interested in handling. Home composting would not, however, process materials from wineries, dairies, chicken farms, where the manure and pomace come from.

Q57 The DEIR addresses the cumulative impacts of the project in Section 4.2. The list of past and reasonably foreseeable projects (see page 4-2) was compiled by the Mendocino County Planning and Building Services Department specifically for analysis by this DEIR.

Q58 Comment noted.

ALDER SPRINGS RANCH & VINYARD

R

RECEIVED
JUN 09 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

June 6, 1997

Planning Commission
501 Low Gap Road, Room 1440
Ukiah, California 95482

RE: Cold Creek Compost

Dear Sirs:

I am writing in support of granting Cold Creek Compost permits to operate their composting business. This company is an invaluable asset to Mendocino County for many reasons.

There is far too much waste produced by our society and we need to find better ways to deal with this waste then just dumping it into land fills. Cold Creek Compost has done that. They convert materials that would otherwise fill our land fills or worse, pollute our rivers and streams. They handle and process this material in a safe and professional manner and they adhere to government regulations while doing so. Without Cold Creek Compost these waste materials would end up in our streams, buried illegally or filling in our scarce landfill space. R1

The compost produced by Cold Creek Compost is an important resource to Mendocino agriculture. The compost is competitively priced and is an excellent product.

Cold Creek Compost is an important tax payer and employs within the county.

The opponents of this facility don't like the truck traffic or the roof of the building but that is a small price to pay to insure that our recycled materials are handled safely and properly.

Other counties are desperate to get someone like Martin Mileck to come in and risk his own capital to solve the county's organic recycling problem. Most counties spend millions of dollars just to set up such facilities and then subsidize them in addition.

Martin Mileck is a great asset to Mendocino County and we should applaud his efforts and approve his request.

Sincerely,

R. Stuart Bewley

RSB/hs

111-88

P.O. BOX 1074
LAYTONVILLE, CALIFORNIA 95454
PHONE: (415) 435-1961 • FAX: (415) 435-1724

BUSINESSES

R. ALDER SPRINGS & VINEYARD

R1 Comments noted. This letter is supportive of granting permits to operate their composting business. The letter does not discuss the EIR but identifies a variety of benefits of the project to the County.

BELLS ECHO VINEYARDS

3 June 1997

Planning Commission of Mendocino County
Via Fax 463 5709

Gentlmen:

I support Cold Creek Compost at the site where it is currently located. I cannot imagine a better site in this county.

I urge your support of this project. Further I hope that you and the other various government agencys can cooperate to facilitate this project.

S1

Sincerely.

Garry Dodd

111-90

3580 Feliz Creek Road • Hopland • California 95449 • Phone & Fax: 707 • 744 • 1260

S. BELLS ECHO VINEYARDS

S1 Comment noted. The commentor is in favor of the project.

T

Glen's TIRE & TOTAL SERVICE CENTER

A DIVISION OF BURGESS TIRE, 1790 S. MAIN ST., WILLITS, CA 95490, (707) 459-4626

June 2, 1997

Planning Commission
County of Mendocino
501 Low Gap Road, Room 1440
Ukiah, CA 95482

RECEIVED
JUN 04 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

To Whom It May Concern:

This letter is to show support for Cold Creek Compost's compost facility.

As business people and taxpayers in Mendocino County, we would like to see the Planning Commission do everything possible to help businesses and not let anyone hinder them or shut them down. These businesses increase the Mendocino County tax base and create employment and profits for all. T1

I am sorry that we will be unable to attend the hearing on June 5, because we as business people have to work so all of our employees can work.

Once again we would like to reiterate that we support this project and hope the planning commission takes this letter very seriously.

Sincerely,

Glen's Tire — Wayne Sawyer (Rancher)
Samantha Newell Kickin Ostrich Co. — Arbuckle's Cafe
Glen's Tire — Country Town TRAVEL
Susan Hunter — Social Concerned
Robert Baker (Baker Trucking) — (FAA AVIATION)

111-92

T. GLEN'S TIRE

T1 Comment noted. This comment letter is signed by eight individuals in favor of the project. The signatories to the letter are: Glen A. Glen, Glen's Tire; Samantha Newell, Kicking Ostrich Co.; Mark L. Snedoka, Glens Tire; Susan Shanteo; Robert Baleen, Bob's Trucking; Warren H. Samepas, Rancher; Diane Ford, Grebaldo's Cafe; Trapper Benlow, Country Tour and Travel; (last two names are illegible)

U

Ceãgo Vineyards
Post Office Box 309
Calpella, CA 95418-0309
Accounting Office (707) 485-1293/FAX: (707) 485-0635
Vineyard Office (707) 468-0377/FAX: (707) 468-1314

June 2, 1997

Planning Commission
County of Mendocino
501 Low Gap Road, Room 1440
Ukiah, CA 95482

SENT VIA FAX: (707) 463-5709

Dear County of Mendocino Planning Commission:

In regard to the composting performed by Cold Creek Compost, Inc. I personally feel there is a great need for this type of operation in Mendocino County in order to pursue a more environmentally friendly way of farming grapes. The Fetzer family currently farms 1,200 acres under organic conditions in which this type of compost replaces other synthetic fertilizers that are much more harmful to the environment and watershed areas. U1

I have personally visited the Cold Creek Compost operation on several occasions and was very impressed with their facilities. If you have any further questions regarding my use of organic composting materials that I purchase from Cold Creek Compost please do not hesitate to contact me at the address and telephone number listed above. U2

Sincerely,

Ceãgo Vineyards

James Fetzer

James Fetzer
Owner

JF/drw

cc: Cold Creek Compost, Inc.

111-94

U. CEAGO VINEYARDS

U1 Comment noted. The commentor is of the opinion that there is a great need for the compost from Cold Creek Compost Inc.

U2 Comment noted. The commentor has visited the Cold Creek Compost operation and was impressed with the facilities.

V

The Howland Agency
Fax 707-468-0910 Phone 707-468-5342
419 Talmage Rd. Suite C Ukiah Ca. 95482

RECEIVED
JUN 05 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

Date: 6/4/97 Time : 1600

To: Planning Commissioners
County of Mendocino

Fm: Richard Howland

Re: Cold Creek Compost, Inc.

I favor full licensing of this project without further delay. It is my opinion that Cold Creek has shown they are ready willing and able to comply to all (normal, conforming) mitigations within reason.
The area chosen for the composting process is one of the best sites available. It is my personal opinion and that of many of my friends and colleagues that the Guntleys are honest and capable stewards of the property concerned. They care about this county and about the people surrounding their project.(it should be noted that no one lives at or near the compost site)
My letter has a two fold purpose. One, to give my encouragement to you the commission for approval of this process without further delay and to advise you, of facts that I am sure you are already aware. V1

There have been two recent court cases,(state and federal) that has held if an entity, in this case the County of Mendocino, deprives a citizen of their ability to operate their business on their land, that entity could and should be held responsible for costs, damages, and loss of future income. Commissioners, while we were all working, the tide has turned. The laws are now being interpreted more "Constitutionally" than before, especially when it comes to personal property rights.

Having set on the Planning Commission for the City of Ukiah, I am aware of the many challenges that commissions face, from hearings to E I R's and back again. But being somewhat comfortable with the process I can see that there is no overwhelming reason, legal or otherwise to stop or hinder this project any further. The draft E I R lists few mitigations with the note that there are no "adverse" impacts that cannot be mitigated. Your prompt approval would seem to be warranted for this project at this point in time without any major delays.

111-96

I thank you for your time and I ask you to remember that composting is a must for this country, and this community. It is what has to be done, and the longer we (you) delay the larger the problem. We are all a part of this country. Another persons problem is our problem. It makes little difference that composting comprises waste material from other locations outside Mendocino County. We are all in this together. V2

111-97

V. THE HOWLAND AGENCY

V1 The letter supports the approval of the EIR and the project. The commentor believes the area chosen for the composting process is one of the best sites available.

V2 Comments noted. The commentor indicates strong support for composting including waste material from locations outside Mendocino County.

W

KEITH'S FAMILY FOOD CENTER
P.O. BOX 575
COVELO, CA 95428
707-983-6633
FAX 707-983-8147

RECEIVED
JUN 16 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

June 12, 1997

To: Mendocino Board of Supervisors

I'm writing to you in regards to the problems Cold Creek Compost is having securing all their necessary operating permits from the county. I'm frankly at a loss as to why the county is not doing everything that they can to help this project along. According to the EIR all potential impacts have already been mitigated and their is a multitude of benefits to the County such as;

1. Saving local Government disposal costs.
2. Reduce agricultural use of petrochemical fertilizers by providing an alternative.
3. Stable local payroll.

I have done business with the Milecks for many years and am happy to say that they are great to deal with and have made a substantial investment in Round Valley. I believe that they are the Valley's 3rd largest private employer. I only wish that they could put their composting facility in Round Valley. Please do what you can to help this great project to be successful.

W1

Sincerely,

Brian K. Hurt

111-99

W. KEITH'S FAMILY FOOD CENTER

W1 Comments noted. The commentor is in favor of the project and believes that it will benefit the County.

X

MASONITE CORPORATION

BUILDING PRODUCTS
300 FORD ROAD
UKIAH CA 95482
PHONE 707 462 2961
FAX 707 462 9348

June 3, 1997

Planning Commission
County of Mendocino
501 Low Gap Road, Room 1440
Ukiah, CA 95482

RECEIVED
JUN 04 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

RE: Cold Creek Compost, Inc. Draft EIR

This letter is to express support for continued operation of the Cold Creek Compost facility located in Potter Valley. As we understand it, the facility is undergoing review of a Draft Environmental Impact Report (EIR) submitted in conjunction with their operating permit.

Cold Creek produces an agricultural product to meet specific needs of it's customers by utilizing what would otherwise be waste materials. This process is beneficial in several ways. First, it is an efficient method of providing needed nutrients without the use of purchased chemicals being put into the environment. Secondly, the material helps to establish a good soil base for plant growth while replacing depleted minerals from previous crops. Third, and most importantly, the materials used in the compost process would otherwise take up valuable shrinking landfill space or require being hauled a great distance. X1

With industry, regulators, and private citizens calling for, and practicing, more environmental awareness, it is important to keep responsible recycling and reuse a priority. As landfills close and disposal options diminish, recycling and composting otherwise nonhazardous materials makes more sense than ever for the economy and environment. Having visited the Cold Creek Compost site, I feel that the facility has been operated in a responsible manner and encourage your approval of the EIR.

Sincerely,

MASONITE CORPORATION

Robert A. Scaglione
Environmental Engineer

cc: Michael Delbar - County Board of Supervisors
Martin Mileck - Cold Creek Compost

A subsidiary of INTERNATIONAL PAPER

X. MASONITE CORPORATION

X1 The commentor expresses his support of the project and it is his opinion that the compost products provide several benefits.

Y

Rcvd 6/12/97

MENDOCINO COUNTY EMPLOYERS COUNCIL
245 A. EAST PERKINS STREET
UkIAH, CALIFORNIA 95482

PHONE (707) 462-5021
FAX (707) 462-0318

AL BELTRAMI
EXECUTIVE DIRECTOR

June 08, 1997

Mendocino County Planning Commission
% Mr. Ray Hall, Planning Director and Secretary
501 Low Gap Road, Rm. 1440
Ukiah, CA 95482

Dear Commision Members:

M.C.E.C. understands that the compost facility E.I.R. issue has been continued to your meeting of June 19. We submit this letter in support of the Cold Creek Compost operation and the submitted draft E.I.R.

The need for such a facility to provide a sensible and environmentally acceptable method of disposal of waste is probably generally accepted by most parties. The issue then becomes one of location and impact on environment and neighbors.

Y1

Based on our review of the draft EIR document, we believe that the adverse impacts identified can be mitigated in a reasonable and safe fashion. Visual and odor issues for neighbors appear to be responsibly answered. The site is remote and utilizses marginal land . The operation provides a badly needed environmental service to the general community while also producing needed soil amendments and fertilizers for our agricultural members.

M.C.E.C. urges acceptance of the EIR as adequate and thanks you for the opportunity to comment.

Sincerely,

Al Beltrami

Al Beltrami
Executive Director

Y. MENDOCINO COUNTY EMPLOYERS COUNCIL

Y1 The commentor supports the project, believes that it is appropriately sited, and provides important benefits to the County.

Z

RECEIVED
JUN 05 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

MOUNTAIN MAPLES

P.O. Box 1329
Laytonville, CA 95454
(707) 984-6522

June 4, 1997

Planning Commission
County of Mendocino
501 Low Gap Road, Room 1440
Ukiah, CA 95482
FAX 707 463 5709

RE: Cold Creek Compost, Inc.

Gentle people:

I understand that there is opposition to the composting facility operated by Martin Mileck as Cold Creek Composting. We have been buying our growing media from them for the past few years, and are very pleased with the quality of their product and their close location. We had been bringing our media in from Sonoma County, adding considerable cost to the nursery.

Z1

We are a small specialty nursery, propagating, growing and mail-order selling Japanese Maples. We provide jobs for 4 people full time and are a growing business. Our business was created because we wanted to live and work in this beautiful remote location, and we have received wonderful support from the business community, including West Company and Mendocino Private Industry Council. It is however difficult at times to do business here. We have struggled through the problems of getting PG & E to provide service, and now learn that the county is trying to close down the only reliable provider of soiless growing media available to us locally. PLEASE consider the difficulty you will be causing a growing horticulture industry, not to mention the jobs and money you will be sending out of the county.

Please know that I consider myself an environmentalist, and do not wish you to OK any project that will harm the water or cause other environmental problems. If this is simply a NIMBY problem, however, I ask that you put the greater good of the community ahead of individual concerns. No one will want this project in their back yard., and we will lose another local business. We need to compost the yard and farm wastes and get them out of the land fills, and we need a good supply of compost for local farmers, nurseries and gardeners.

Thank you for your consideration of my comments.

Sincerely,

Nancy N. Fiers

cc: Martin Mileck @ Cold Creek Compost

111-106

Z. MOUNTAIN MAPLES

Z1 The commentor depends on compost from Cold Creek Compost for her business. They used to import a similar material from Sonoma County. She urges the Planning Commission to put the greater good of the community ahead of individual concerns, if the project will not cause environmental harm.

AA

Warbonnet Rock Products
12901 Eel River Road
Potter Valley, CA 95469

RECEIVED
JUN 02 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

June 1, 1997

Planning Commission
County of Mendocino
501 Low Gap Road
Ukiah, CA 95482

Dear Commission Members;

As a small business owner/operator, and long time member of the Potter Valley community, we would like to express our support for the Cold Creek Compost venture. It is our opinion they will provide a service and product for Potter Valley and the adjacent areas. Additionally, this enterprise provides an important benefit to the environment...responsible management and recycling of waste products.

We think the Cold Creek company is making a notable effort to create a viable operation which complies with todays stringent environmental standards. Likewise, they have spent valuable resources on a Draft Environmental Impact Report, to fulfill the information requests of the public and governing agencies.

AA1

Please consider the advantage of any competent business to our community, and the long term benefit to the environment, in your assessment of this new venture.

Sincerely,

Hank Oberfeld

Hank Oberfeld

AA. WARBONNET ROCK PRODUCTS

AA1 The commentor supports approval of the project. The commentor notes several benefits that the facility provides, and is of the opinion that it is well-run and complies with environmental standards.

BB

ODELL & ELIZABETH COMBEST
56350 Hill Road
Covelo, California 95428

June 2, 1997

Mendocino County Planning Commission
501 Low Gap Road, Room 1440
Ukiah, California 95482

Re: Support for Approval of Martin Mileck's Cold Creek Compost Permits

Mr. Mileck has lived in Round Valley for approximately 10 years, dedicating himself to establishing M & M Feed, one of the very few bright spots in the valley's economy. He succeeded at building a business that is not only a significant employer in our valley, but also provides a much need farm supply resource. M & M Feed and its ancillary agricultural operations are well maintained and are a credit to Mr. Mileck's effort to be a good neighbor and a positive influence in our valley. BB1

I am not as familiar with Mr. Mileck's Cold Creek Compost operation as I am with his business in Round Valley. However, I have seen the facilities in Potter Valley and Mr. Mileck is obviously running a professional, first-class operation - I wish we had it in Round Valley. Not only is he helping with the County's very serious waste disposal problem, but he is also generating a much needed organic soil additive that is of great benefit to our local agricultural industry. He is also generating much needed employment and revenue within Mendocino County.

I know Mr. Mileck to be a very responsible businessman and farmer. He is concerned with the environment and also with the need for jobs, a growing economy, and responsible waste management. I believe, considering all of these factors, you should reach a favorable decision for Cold Creek Compost.

Sincerely,

Odell E. Combest

Odell E. Combest

111-110

INDIVIDUALS

BB. ODELL AND ELIZABETH COMBEST

BB1 The commentors express their support of the project and attest to Mr. Mileck's character.

CC

RECEIVED
JUN 04 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

June 4, 1997

14250 Powerhouse Road
Potter Valley, CA 95469

Mendocino County Department of Planning and Building
501 Low Gap Road, Room 1440
Ukiah, CA 95482

RE: Case No. U 26-93, Mileck Regional Solid Waste Facility, aka "Cold Creek Compost"

We want to express our support of the Draft Environmental Impact Report on the above numbered project and our total support of the project itself. CC1

We have been driving the road to Ukiah every weekday and do not recall ever seeing the large turquoise reflective metallic structure placed on this mountaintop. Our son states he has seen it from Highway 20 for about 15 seconds as he drove down the road. The project seems a very suitable one for an agricultural area since it provides two needed services—compost for growers and a productive use of waste products. In addition to that the business creates jobs and income for the county. CC2

The illegal road the opposition complains of has been in existence for several years. It was in fact used to haul great quantities of rock and fill for the Coyote Valley Dam in the fifties. CC3

We don't have any actual statistics but the traffic created by this business appears to us to be less than that previously experienced when the mill was operating on the Eel River, We certainly don't have the impression that traffic will be increased 25% in cumulative truck traffic. Especially in view of the fact that the trucks are not even entering the valley floor! Previously trucks traveled on East Road and Eel River Road, affecting both residents and visitors to the McKee County Park. How can this be construed as an increased nuisance. CC4

Public health issues are regulated by the County and the business would be expected to meet any legal standards regarding health impacts. Sewage sludge must meet mandated standards for marketing and labeling.. Agencies are in place to assure these standards are met. CC5

The industrial project is not visible from McKee Park and it will be no less serene than it has in the past. The reports we have read in the newspaper stated that additional parking will be created with the realignment of the road. CC6

We request that this letter in its entirety be included as Comment on the Draft Environmental Impact Report and that all Comment be addressed and incorporated into the final Environmental Impact Report. CC7

Rose Ellis
Ray Ellis

Raymond and Rose Ellis

CC. RAYMOND AND ROSE ELLIS

CC1 The commentors express their support of the DEIR and of the project.

CC2 The commentors note that they have not noticed the roof structure while driving the "road to Ukiah", but that their son has seen the roof structure briefly while driving on Highway 20. They note the benefits the project provides to County agriculture, that the project provides a means of using wastes productively, and that the project provides employment.

CC3 The commentors note that facility access road has been in existence for years, and was used as a haul road for rock and fill for the construction of Coyote Dam.

CC4 The commentors note that traffic impacts will not be felt in Potter Valley proper, since trucks will enter from Highway 20 and turn onto the access road, and that the impact of truck traffic will be less than that from the lumber mill that formerly operated on the Eel River, and used East Road and Eel River Road for access.

CC5 The commentors are correct in their statement that public health issues, including the handling and beneficial use of sewage sludge, are regulated by the County, specifically by the Local Enforcement Agency, the Air Quality Management District, the Planning and Building Department. Public health issues are also regulated by the North Coast Regional Water Quality Control Board, the U.S. EPA, the California Integrated Waste Management Board, the State Department of Toxic Substances Control, and other agencies.

CC6 The commentors do not believe that the project will affect recreational use of McKee Park.

CC7 Comment noted.

DD

P.O. Box 321
Calpella, CA 95418
June 4, 1997

Mendocino County Department of Planning and Building
501 Low Gap Road, Room 1440
Ukiah, CA 95482

RE: Case No. U 26-93, Mileck Regional Solid Waste Facility, aka "Cold Creek Compost," Draft Environmental Impact Report

Gentlepeople:

The attached is submitted as public comment on the above-numbered DEIR. I request that this comment in its entirety and all attachments and all other comment received be included and addressed in the final Environmental Impact Report.

Sincerely,

Mary Goodwin

RECEIVED
JUN 05 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

COMMENT

ON

DEIR

111-115

DATE: June 4, 1997

FROM: M. Goodwin
P.O. Box 321
Calpella, CA 95418

TO: Mendocino County Department of Planning and Building
501 Low Gap Road, Room 1440
Ukiah, CA 95482

RE: Case No. U 26-93, Mileck Regional Solid Waste Facility, aka "Cold Creek Compost," Draft Environmental Impact Report

This is submitted as public comment on the above-numbered Draft Environmental Impact Report (DEIR).

I object to approval of the above-referenced DEIR and I object to the project itself. The DEIR relies upon incomplete, erroneous, misleading, and deliberately deceptive information with regard to historic and present fact, CEQA, Court and other legal mandates. The DEIR fails to accurately list or describe project alternatives including NO PROJECT, misstates and underestimates significance of adverse impacts, and fails to analyze significant unmitigatable adverse impacts on the environment. DD1

The following are examples (not inclusive) of errors of fact in the DEIR:

S-1, 1.1, 2-9(2.1.3), 2-10 (2.1.3), 2-11 (2.2.6), etc.: DEIR states "applicant has been composting on the project site since July, 1995." In fact, Mileck, (the applicant) illegally developed both the site and the road to site and several off-site locations with no permits in spring of 1994, and began hauling waste materials to site from the spring of 1994 to the present date. Prior to this time, this site was undisturbed oak forest and meadowland on a pristine mountaintop. Prior to the applicant's illegal roadblading, his present approach road did not exist as excavated on the east bank and above the east bank of the Russian River. This was, prior to his illegal project, undisturbed riparian landscape fronted by the McKee County Park. DD2

S-1,1.1, etc: DEIR states "In February 1995, the Mendocino County Board of Supervisor (sic) upheld an appeal from the Planning Commission of a Negative Declaration and use permit (#U26-93) to compost the proposed range of feedstocks." The applicant went before the Mendocino County Planning Commission in November, 1994 to seek a retroactive Regional Solid Waste Facility Use Permit for his already-operating, illegally constructed Waste Facility. The County Planning Commission turned down his application, at which time the applicant stomped out of the proceeding shouting, "Let them build their own damn facility." In December, 1994 the applicant submitted an appeal of the decision of the Planning Commission, which was scheduled without adequate public notice in violation of the Brown Act, for DD3

January 4, 1995. Despite this, 200 neighbors showed up at this hearing to protest the Mileck Facility. However, the Board of Supervisors turned a deaf ear to their protests and voted 3-2 to grant Mileck's application for a Regional Solid Waste Facility Use Permit. A number of mitigations were discussed. However, at the February, 1995 Supervisors' hearing, all mitigations were waived.

In April, 1995 neighbors and the Mendocino Environmental Center filed a CEQA lawsuit against Mileck and the County. In December, 1995 the Court ruled in their favor, requiring Mileck to obtain an Environmental Impact Report (EIR). The Court's ruling was later clarified to require the EIR to cover ALL potential impacts -- not just two.

S-2, 1.1, 1.2, 2.1.1, etc.: DEIR states: "The Court summarized their concerns into the two issues shown directly below. 1. The effect of compost leachate on domestic water wells in the area, the Russian River and Lake Mendocino, and the effect of the construction of a roof (shed) over a 3.5-acre portion of the compost pad. 2. The public health impacts on ground and surface water, aspergillus fumigatus, and impacts related to traffic noise, safety, and odors." In fact, the Court amended its order to include all aspects of the project with potential to affect the environment. DD4

S-2, 2.1, 2.1.3.1, etc.: DEIR states the following are added as "feedstocks": "Street sweepings (primarily from autumn leaf collections)" The Fact is that the applicant has contracted for all-inclusive yard waste streetsweepings from numerous municipalities in Mendocino County and from other Counties. DD5

S-3, 2-15 (2.3.3), 3-15, 3-16, 3-17, 3-18, 3-24, etc.: DEIR states: "Potential water sources have been further identified as being: Cold Creek: The Guntly Ranch has riparian rights to water in Cold Creek that could be made available for CCCI use." The fact is that the landowner possesses only extremely limited appropriative rights to remove waters from Cold Creek. These rights are not transferable to a lessee. These rights may only be used for the purposes prescribed, which are "Irrigation and stockwatering." These rights are restricted to a total of 26 acres in the immediate vicinity of the Cold Creek Location mapped in Permit #13237. No other uses or locations are permitted under this Permit, including the applicant's, which site is more than two miles from the licensed diversion. DD6

S-3, 2-8 (2.1.3.9), 2-15(2.3.3), 3-15, 3-16, 3-17, 3-18, 3-24, etc.: DEIR states: "The Guntly Ranch has riparian rights to water in the East Fork Russian River." The fact is the Guntly Ranch does NOT have riparian rights to the East Fork of the Russian River. Furthermore, no water rights may be leased to a commercial enterprise more than 2 miles from the source. The Russian River is fully appropriated at this time, and there has been a moratorium by the Division of Water Rights on any DD7

permitting for many years. With pending legal disputes regarding diversion of the Eel River into the East Fork Russian, as well as forthcoming Endangered Species Act listing of the coho salmon and steelhead trout, there is certain to be an extension of this moratorium for the foreseeable future.

S-4, 3-29, etc.: DEIR states "The extensive buffer area (approximately 4,800 feet) between the composting pad and the off-site receptors is sufficient to reduce (dilute) odors and fungus to almost background levels at the property boundary." The fact is that the nearest off-site receptors are as close as one-quarter air mile, and only a few hundred feet from the approach road. DEIR does not define "diluted" odors and fungus. DD8

S-4, etc.: DEIR states: "The No Project Alternative assumes that the CCCI would continue animal waste composting on its site as permitted under the existing land use zoning of the site, and would not expand feedstocks to the extent proposed by Use Permit #U26-93." A No Project Alternative means NO PROJECT on this site. Regardless of DEIR's semantic machinations and bias on behalf of applicant, NO PROJECT means removal of the entire illegally developed existing project of the applicant, and restoration of the site, road to site, and illegally-developed off-site expansion to their former condition of oak forest and riparian landscape. DD9

S-5, etc.: DEIR states: "In this EIR, the analyses are simplified by analyzing the 'entire project' against a baseline of no composting on the site." This is in direct contradiction to DEIR's "analysis" of "No Project Alternative" as "animal waste composting on site." DD1(

1.4,, 2.1.1, etc.: DEIR fails to cite ALL issues raised at March 20, 1996 scoping session. DD11

1.5, etc.: DEIR states "This project is more complicated than most to analyze because it is difficult to determine incremental effects of the project. The uncertainty is primarily in determining what will be the change to the environment if the project is approved. Most of the uncertainty is in determining the future environment if the project is not approved. The applicant has indicated that CCCI will continue to compost manures on the site...This activity is exempt from CEQA." The referenced County ordinance was not intended for purposes of importing waste materials for a commercial "composting" enterprise. Moreover, volumes of manures, additives, yard waste and other waste materials defined as "additives" far exceed the 10,000 cubic yard threshold and require environmental review under CEQA. It is, moreover, ridiculous to base an "analysis" under CEQA on unsure information. It is the responsibility of the EIR consultant to base its analysis on concrete facts and figures, not on hypothetical presumptions about what the applicant may or may not do with the project. DD12

1.5, etc.: DEIR fails to delineate an Area of Potential Effects, which in cases of waste facilities, including "composting" waste facilities should be at least a five-mile radius from the site, the road to site, and all off-site operations. Without defining the Area of Potential Effects, the DEIR cannot accurately identify impacts, analyze their significance, set forth "mitigations," or describe and analyze alternatives. DD13

1.5, 1.6, etc.: DEIR states "CEQA also requires that a Lead Agency establish a monitoring or reporting program at the time of project approval...Accordingly, a mitigation monitoring and reporting program will be prepared after the EIR is certified..." The monitoring program should be fully described, analyzed and considered in the EIR, as required by CEQA. DD14

2.1, etc.: DEIR states the "project is a Use Permit (#U 26-93) for a commercial composting facility." The Project is by definition a Regional Solid Waste facility, with all plans describing storage exceeding 10,000 cubic yards at any given time, and with past practice far exceeding that amount. DD15

2.1, etc.: DEIR describes the following as "agricultural materials": "grocery store food waste; restaurant food waste; street sweepings; sewage sludge biosolids..." These are by no definition "agricultural materials." These materials are sewage and garbage and refuse. DD16

2.1, 2-9 (2.1.3.11), etc.: DEIR states "The main composting operations are located ... on a 40-acre parcel (AP #177-150-03); a small portion of the operations may be on the adjoining 120-acre Parcel, number 177-150-02." No auxiliary sites have been applied for, described in planning documents or any other documents, or permitted for this project. Therefore, such sites represent an unpermitted expansion of operations. Furthermore, stating that there "may" be this or there "may" be that is presents an unsatisfactory evaluation of impacts, their significance, mitigations or alternatives to this project. DD17

2.1, 2.1.1, 4-3, etc.: DEIR states "The applicant indicates that the facility will provide an important public benefit by providing local access to a municipal organic waste recycler, helping local communities comply with the waste diversion requirements of ...AB 939." The Mileck Regional Solid Waste Facility will offer no access or benefit to the public. The project is not open to the public. The project will import most of its material from other counties and therefore will create far more waste inside Mendocino County than it will divert, thus working directly counter to the objectives of waste diversion requirements of AB939. DD18

2.1, 2.1.1, etc.: DEIR states "The organic wastes used in composting would probably otherwise be disposed of in a Class III landfill, or left to decompose in a destabilized, uncontrolled condition. In addition to having potential economic benefits, DD19

composting reduces the amount of waste going to landfills. Since Mendocino County has limited remaining permitted landfill capacity, the project has the regional benefit of helping to conserve the remaining permitted landfill capacity in the region." Agricultural and organic waste materials were NOT previously disposed of at local landfills. Materials such as yard waste and winery waste generated in Mendocino County were diverted to other facilities, not buried in landfills. The project, furthermore, will import the vast proportion of its waste materials from OUTSIDE Mendocino County, thus creating MORE waste and concomitant environmental impacts and problems which did NOT exist prior to the project. This project will NOT extend the life of ANY landfill in Mendocino County or anywhere else.

2.1, etc.: DEIR states "Agricultural waste by-products are often considered a liability, and commonly cause water quality problems ...This regulated facility would provide a service to several industries that normally do not have the resources to manage their compostable solid waste by-products in an environmentally sound way...This compost produced by this facility would also provide a necesary farm input to growers who are...trying to decreasse their reliance on chemical fertilizers.." This project has been and remains virtually unregulated and is a flagrant example of irresponsible waste disposal. It has been cited both by the County Department of Environmental Health and by the Regional Water Quality Control Board for storing materials without cover and conducting illegal operation during the wet season, endangering the water supply of one half million people whose water source is the Russian River. The ingredients in this "compost" including heavy metals, dioxins, furans, hospital sewage waste, pesticides, and other toxins and carcinogens found in the Masonite petroleum ash waste, sewage sludge, and winery waste are prohibited by the California Certified Organic Farmers (CCOF). In the unlabelled product of the applicant these toxins themselves present cumulative adverse impacts on the environment. DD20

2.1, etc.: DEIR states "Finally, this facility could reduce fossil fuel consumption and traffic in the region by providing a local facility for recycling wastes generated in Mendocino County." The fact is the vast proportion of wastes imported to the project come from distant sources in other Counties, with only a small proportion coming from Mendocino County. This represents a vast increase in fuel consumption and traffic in Mendocino County and specifically the community of Potter Valley. DD21

2-9(2.1.3.11), etc.: DEIR describes Masonite petroleum ash as "wood ash." The twenty to thirty tons per day of Masonite boiler and scrubber ash are the end product of burning petroleum products and waste from Masonite's own toxic resin-based glueboard product, NOT from burning wood. Masonite co-generates power by burning vast volumes of a refinery sludge waste called "Fuel Oil #6" as well as recycled motor oil. Lab analyses of Masonite's boiler and scrubber ash waste has turned up toxic and carcinogenic heavy metals, dioxins and other substances not found DD22

in "wood ash."

2-11(2.2.4), (2.2.9), 3-49, 3-50, etc.: DEIR states "As of December 10, 1996, no hazardous wastes had been identified in materials brought to the site." EIR must identify hazardous materials proposed for transport to site as of current date, including but not limited to heavy metals contained in petroleum ash waste and sewage sludge, lime, etc. DD23

2-11(2.2.5), etc.: DEIR fails to specify life span of facility, or responsibility for clean-up and restoration of site. DEIR fails to describe specific requirements of restoration of site to its pre-project condition. DD24

2-11(2.2.7), etc.: DEIR states "project site is currently zoned as Rangelands (R-L)." DEIR fails to state that pre-project zoning was AGRICULTURAL PRESERVE. A No Project Alternative must restore previous zoning. DD25

2-12 (2.2.8), etc.: DEIR states "The surrounding lands are primarily used for cattle, crop production, and timber land." Land uses in surrounding Area of Potential Effects are rural residential, public park (recreational), Mendocino National Forest, and agricultural. DD26

2-12 (2.2.10): DEIR states a "final site closure plan shall...provide for restoration of its natural state...including removal of all nonpermanent structures..and reseeding and replanting with native or native-like vegetation." Restoration must include removal of ALL structures and planting with native-only vegetation to restore site to its natural pre-project state. DD27

2-17 (2.3.8), etc.: DEIR states, "It should be noted that during the period of the fall grape crush, the facility will receive nighttime truck deliveries. This is unavoidable due to the around-the-clock nature of the grape crush." Extension of hours of operation to "nighttime"as well as additional volume of waste importation during the wet season presents a new set of environmental impacts which is not analyzed in DEIR. Furthermore, such extension of hours and additional volume is not "unavoidable." DD28

2-19(2.3.14), etc.: DEIR states, "Compost facilities of this size will have odors on the site.." during all operations. DEIR states, "The remote location of the site will minimize odor impacts to off-site receptors." Project site lies one-quarter air mile from nearby residences, and road to site lies only a few hundred feet from residences. Odor complaints have been received by County agencies since summer, 1994. No mitigations have helped, and at times residents complain they are unable to go outside of their homes due to sickening odors generated by project. Odors also destroy the recreational uses of the McKee Park. This is a significant, unmitigatable impact on the environment. DD29

2-19(2.3.16), etc.: DEIR states incoming and outgoing volume and source" records will be available for inspection by the appropriate regulatory authorities at the facility offices." The public's right to know under the Clean Water Act and Clean Air Act mandate that such records be kept in a publicly accessible public place. DD30

3-2(3.1), etc.: DEIR states, "The project site is currently developed with a composting facility. This includes a one-acre roof that covers a portion of the compost pad. The surrounding area generally is undeveloped rangelands." This site was, before illegal development of this project, oak-forested woodland on top of a ridge. There was no structure present. The natural state of surrounding lands include oak forest, pine belt and Douglas fir forest lands, meadowlands, natural riparian vegetation, and park lands including the McKee County Park and the Mendocino National Forest, all of which lie within areas affected by the visual impacts of this project. DD31

3-2 (3.1), etc.: DEIR quotes County General Plan objectives: "Goal: The County shall protect and enhance its rural character and natural resources...Policy 1c. All discretionary development proposals, rezonings and use permits should reflect the need to protect the visual character of scenic areas." This provision does not require "scenic areas" to be officially designated. By any measure the surrounding areas of the beautiful Potter Valley are scenic areas. DD32

3-2 (3.1), etc.: DEIR states the existing roof is only visible from "a few locations." Hundreds of residents of greater Potter Valley living on the valley floor as well as the hills above it are able to see the hideous existing structure. This structure represents a substantial, unmitigatable degradation of the view of hundreds of residents and visitors. This structure is an unnatural turquoise reflective color, which produces a blinding, laser-like glare every afternoon when the western sun hit it. Proposed expansion of this structure will cause this to be one of the largest industrial structure complexes in Mendocino County. There were formerly NO structures on this site. DD33

3-5 (Impact 3.1.1), etc.: DEIR states, "The project site is only visible from to major public roadways within Potter Valley." DEIR fails to state that these are the ONLY major roadways in and out of Potter Valley as well as a major ingress-egress for the Lake Pillsbury Resort and the Mendocino National Forest. As such the 5,000 residents and additional thousands of visitors on these scenic roads cannot avoid the significant unmitigatable visual impacts of this project. DD34

3-5(3.1.1), etc.: DEIR states, "While light reflecting off the roof may be visible periodically, these reflections will not interfere with sight nor attract attention to a greater degreee than would a roof of an agricultural building at a closer DD35

distance." This ludicrous statement fails to note that this structure and proposed expansions to three times that size are many times the size of most barns or other agricultural structures. Furthermore the ridgetop topography represents a magnification of visual degradation due the ugliness and industrial character and use of the structure, its incompatibility with surrounding landscape and former landscape of project site, and blinding glare produced during all afternoon hours the year round. This structure and proposed expansions present a substantial, demonstrable negative aesthetic effect and are therefore a significant adverse impact on the environment. DD36

3-11, etc.: DEIR's analysis of potential toxins in leachate fails to include heavy metals, dioxins, radioactive hospital waste, and other carcinogens and toxins contained in Masonite's petroleum-based boiler and scrubber ash and in sewage sludge. DEIR contains no scientific analysis or breakdowns of components of these and other waste materials, without which their potential for contamination cannot be analyzed. DD37

3-12, etc.: DEIR contradicts itself and all documents of Regional Water Quality Control Board which state project site definitely drains into the East Fork Russian River. Both site topography on a ridgetop adjacent to the Russian River, and the fact that this section of the Russian River is the source of clean water for one-half million residents of Mendocino, Sonoma and Marin Counties, causes this site to be a preposterously impractical choice for any Solid Waste Facility, including this project, and is adverse to the public interest. This project, even at its present operational limiatations has already been cited for allowing rain to come into contact with waste materials by at least two regulatory agencies. DD38

3-14, etc.: DEIR presumes tanks for brewery activated sludge waste are legal and permitted over 1800 feet from project site. Tanks were installed with NO permits and were cited by the Planning and Building Department. DD39

3-14, etc.: DEIR states, "the brewery process water is expected to contain approximately 0.5% solids (Mileck, 1996). While this material can be expected tohave very low or no toxicity, the organic constituents of the solids would have a biological oxygen demand (BOD), and would therefore be considered a pollutant..." Documents from Mendocino Brewery, the source of the brewery sludge, indicate this material will be composed of up to 33% solids. DD40

3-16, 3-24, etc.: DEIR states, "The landowner of the site will allow the operator to construct ponds to collect winter runoff (Anderson, 1996)." Neither the landowner nor the operator may determine the legality of constructing ponds or water diversions DD41

in this area, and such legality must not be taken for granted.

3-19, etc.: DEIR states, "Eventually all composting operations will be moved underneath the expanded roof structure." This contradicts plans on same page providing materials may be stored outside "if appropriately tarped." A more accurate analysis of whether tarps suffice to prevent leachate and run-off must be required to analyze potential impacts to water quality from this ridgetop site. DD42

3-21(h), etc.: DEIR states, "When biosolids are received, they should be tipped onto a surface that is thoroughly protected from stormwater contact, and that is completely cleanable. such as a concrete pad." No concrete or impermeable surface exists at project site; nor is any proposed. Furthermore, the impacts of placing a huge concrete structure on a formerly natural topography would in itself be an adverse impact, which would hinder any restoration of the site to its natural condition. DD43

3-22 (3.2.3), etc.: DEIR states potential for percolation is Less than Significant. Without doing a geological study or considering the porosity of ground on site, this conclusion is lacking in substantiation. DD44

3-27(3.3), etc.: DEIR states "annual rainfall averages 35 inches." Rainfall in Potter Valley averages 40 or more inches per year. DD45

3-27(3.3), etc.: DEIR states, "Prevailing summer winds come from the northwest." Prevailing summer winds in Potter Valley come from the southwest, if there are any winds. DD46

3-27, etc.: DEIR states, "The residential areas closest to the site are located on the west side of Potter Valley Road, approximately 4,800 feet from the project site." Residences in this area and to the north of project site are within one-quarter AIR mile from project site. Furthermore, the McKee Park and residences lie only a few hundred feet from the approach road to the project. Substantial, verified complaints of foul odors have been received with no mitigation action taken. This represents a significant adverse impact. DD47

3-31, Table 3.3.1, etc.: DEIR calculations fail to include increased truck emissions for trucks hauling brewery activated waste sludge and sewage sludge in unspecified volume. ANY additional trucks will cause NOx and PM10e emissions to exceed significance by County Standards. Furthermore, significance should be measured against existing air quality in the immediate area, not as dispersed County wide, in order to accurately determine impacts on the immediate environment. DD48

3-31(3.3.2): DEIR erroneously states odor impacts are Less than Significant, and repeats myth that offsite receptors lie thousands of feet away. The fact is that the mountaintop DD49

topography of this site causes residences to be only one quarter air mile from project. Substantial, verified complaints of odor have been received with no mitigation. DEIR states "inversions rarely occur during summer months, when the facility is likely to produce its worst odors." This facility produces odors affecting residents and visitors to the McKee Park all year round. In summer, local residents state they cannot enjoy their decks or go outside when sickening odors pervade this area and beyond. This is a significant adverse impact.

3-32, etc.: DEIR states, "'Because of the elevated terrain upon which the site is located, ventilation of the site will be almost constant. Under normal conditions these ventilating winds wil both aid gretly in the dispersal of and carry most emission above nearby receptors.'" Project site is on a ridgetop with offsite receptors to west on another ridge of equal or greater height. Thus, odors and pathogens blow directly to them. Prevailing winds also carry odors, pathogens, and particulates to offsite receptors to the north. Quoting speculations of local team players is no substitute for impartial scientific analysis of environmental impacts. DEIR should be an impartial document which seriously considers environmental impacts and quality-of-life (cumulative) impacts of air quality and odor issues. DD50

3-33, 3-34, 3-35 (3.3.3), etc.: DEIR presumes a distance to offsite receptors of "4,000 feet." Once again, residences lie within one-quarter air mile of project, and within a few hundred feet of road to project. Fungal pathogens including aflatoxins (aspergillus) should be measured at these sites, not just projected from abstract theory which in most cases has been compiled by or for such waste industries as the applicant's. DD51

3-37, 3-38, 3-39, 3-40, (3.4), etc.: DEIR states, "Nearest residences to the project site are ...approximately 4,800 feet" from project." One again, these residences lie on an adjacent ridge approximately one-quarter air mile from project. DD52

3-40, 3-41, etc.: Measurements of noise were not taken for an adequate time period to determine level of impacts. Nor was noise from equipment on-site measured, including grinder. Noise from night operations was not measured against lessened background noise occurring at night. Neighbors have registered complaints on noise of jake brakes, with no action taken to prohibit use of jake brakes. DEIR must also take into account the type and pitch of noise generated by project to determine its nuisance and disturbance of residents and visitors to McKee Park. Incursion of industrial noise where it did not previously exist represents a significant impact, regardless of whether temporary "measurements" state level is 3 decibels short of "significance." (DEIR states project levels at 52 decibels, with "significance threshold at 55 decibels.) Again, the quality of life and environment of hundreds of people have been adversely affected by this project. DD53

3-44 (3.4.2), 3-45, etc.: Calculations of grinder noise incorrectly assess distance to nearest residences at "4,800 feet." Once again, the nearest residents are approximately one-quarter air mile from project, and on an elevation parallel with project. This topography causes sound to carry. Grinders can be heard miles from their site, and generate an irritating high-pitched air-raid type noise. DEIR must measure decibels of grinder to nearby residences in order to determine level of significance. DD54

3-47, 3-48, etc.: DEIR describes land-application of biosolids "without restriction." Land-spreading of biosolids is not permitted or described under project's Use Permit or under regulation of Regional Water Quality Control Board. DD55

3-57, 3-58, etc., "Fires": DEIR presumes availability of on-site water to extinguish fires. DD56

3-58, etc., "Vectors": DEIR presumes applicant is objective source of information on public health impacts and presence and prevention of vectors. DEIR should analyze all impacts independently of applicant's statements. DD57

3-59, etc.: DEIR proposes clearcutting to create a "firebreak" as "mitigation" for fire hazard created by project. DEIR does not analyze impacts on the environment, including visual impacts, wildlife, soil productivity, and other impacts, from vegetation removal. DD58

3-59, i, etc.: DEIR states, "If vectors become a problem, the project applicant shall implement a vector eradication program using a profession pest control service." DEIR fails to analyze impacts on environment from such "eradication program," especially if poisons are used. DD59

3-59, j., etc.: DEIR states applicant shall develop a "detailed operating plan prior to accepting any sewage sludge biosolids." DEIR fails to subject such plan to environmental review for adverse impacts. DEIR fails to require applicant to give specific information as to volume and source of proposed importation of sewage. Thus DEIR cannot analyze impacts in any meaningful way and illegally exempts applicant from environmetnal review by simply stating he must come up with some paperwork. DD60

3-61, 3-62, 3-63, 3-64, etc.: DEIR implies that project access road was "existing" prior to project's illegal development in 1994. DEIR states that "Due to the safety issues associated with the alignment of Potter Valley Road in the vicinity of the bridge, and structural deficiencies identified with the bridge, the County is proposing to realign Potter Valley Road and replace the...bridge." The County proposed to replace the Bridge because porkbarrel funds were made available, not because of any identified "structural deficiencies." Because Bridge Project would illegally alter a public park, this issue is in dispute. DD61

3-62, etc,: DEIR cites CEQA Guidelines which state that "a project could have a significant impact if it would result in an increase in traffic hazards to motor vehicles, bicyclists, or pedestrians." The DEIR then states that traffic impacts from project would be "less than significant." By any measure, the 25% INCREASE in truck traffic generated by this project must be regarded as a significant impact. DD62

3-63, etc.: DEIR fails to count double-trailer big rigs properly, as MORE than a smaller vehicle such as a car. DEIR states 80 truck trips by 18-wheel double-trailer big rigs will present No Significant Impacts on traffic, noise and the serenity, safety, and environment of residents and visitors to McKee Parkway. DD63

3-64, 3-65, etc.: DEIR states, "During periods of peak use of McKee County Parkway (primarily on weekends, during warmer months), McKee Parkway's limited parking areas do not meet the parking demand." Existing legal parking does meet demands of recreational users of McKee Parkway and does not impinge on Potter Valley Road. DD64

3-65, 3-66, etc.: DEIR fails to analyze significant hazards from steepness of illegally-constructed access road, including potential for spillage into Russian River in event of accident. DD65

4-2, etc.: DEIR fails to analyze cumulative significant visual and land use impacts from other projects, including a 150-foot cellular microwave tower on the Guntly land. Combined with project, cumulative impacts represent a significant adverse visual impact, transforming a natural landscape into an ugly, industrialized visual degradation. DD66

4-2, etc.: DEIR states Bridge Replacement Project will have no cumulative impacts. Bridge Project will obliterate approximately one mile of the McKee Parkway, replacing a natural riparian landscape and public park with pavement. Combined with illegally bladed project access road, this will create significant adverse cumulative impacts including but not limited to visual, noise, land use, and recreational uses. DD67

4-4(4.5), etc.: DEIR states, "Effects that were not found to be potentially significant for the proposed project and were not identified as areas of concern by the Superior Court or commenting agencies (and therefore not focused on in this EIR) include: Geology and Seismicity, Land Use, Plans and Policies, Biological Resources, Cultural Resources, Population, Housing and Employment, and Community Services." The DEIR provides no rationale for finding these effects "not potentially significant." Furthermore, at the EIR "Scoping Session" of March 20, 1996 these impacts and many others were set forth by the public in attendance and in writing, and must therefore be thoroughly analyzed. DD68

5-1 (A), 5-2, 5-3, 5-4, 5-5, 5-6, etc.: DEIR states, "The No-Project Alternative assumes that the CCCI would continue animal waste composting on its site as permitted under the existing land use zoning of the site, and would not expand the feedstocks to the extent proposed by Use Permit #U 26-93." No Project means NO PROJECT. No Project means removal of the project from site, and restoration of site and road to site to former, pre-project natural state. Failure to properly define No Project leads DEIR to silly and false conclusions regarding impacts of alternatives on the environment, and violates CEQA. DD69

5-8, etc.: DEIR dismisses Northeast Ukiah Landfill Site as possible alternative site, though it was technically deemed the best of all sites in the Anderson Study of 1992. (It was dismissed in that study for non-technical-political reasons.) The DEIR also dismisses the City of Ukiah Landfill based upon potential sensitive receptors closer than 4,800 feet. Residences built near the Ukiah landfill were constructed after the landfil and with full knowledge of a nearby landfill. By contrast, residences in Potter Valley were constructed with expectation of a clean and serene country environment. DD70

For all the above reasons I object to any approval of this DEIR. DD71

Additionally, I agree with all comment contained in the attached letter. DD72

The DEIR in its present form is an erroneous and flawed document, which is clearly biased toward the applicant. In fact the DEIR did not speak with or consider any input from the public or "off site receptors." It only interviewed and considered the applicant's point of view. DD73

On the positive side, the DEIR does analyze and present "The Off-Site Alternative" in a convincing manner. The DEIR's proposal for "The Off-Site Alternative" on the applicant's own land in Covelo, presents a real alternative to the present project, which unlike this project would have minimal impacts on the environment. The "Off-Site Alternative" is well-presented and analyzed, and merits serious consideration. DD74

Thank you for considering this comment and attached letter, and for addressing these and all other comment.

Signed,

Mary Goodwin

Mary Goodwin

DATE: 6-4-97

FROM: M. GOODWIN
P.O. Box 321
CALPELLA, CA 95418

TO: Mendocino County Department of Planning and Building
501 Low Gap Road, Room 1440
Ukiah, CA 95482

RE: Case No. U 26-93, Mileck Regional Solid Waste Facility, aka "Cold Creek Compost"

We object to approval of the Draft Environmental Impact Report (DEIR) on the above-numbered project and we object to the project itself. The DEIR relies upon incomplete, erroneous, misleading, and deliberately deceptive information with regard to historic and present fact, CEQA, Court and other legal mandates. The DEIR fails to accurately list or describe project alternatives including NO PROJECT, misstates and underestimates significance of adverse impacts, and fails to analyze significant unmitigatable adverse impacts on the environment from this project, including but NOT LIMITED to:

1. Toxicity and pathogenicity of materials transported, stored and handled in mass volume. Due to unique sensitivity of site and road to site above the Russian River, the water source for one half million people in three counties, materials should be analyzed alone, in combination with other materials, and in combination with water. Materials with potential for contamination of air and water include but are not limited to raw animal waste, street sweepings, winery waste, brewery "activated sludge waste," lime, gypsum, human sewage sludge, and the boiler and scrubber ash from the Masonite Corporation, and all other materials.

2. Visual impacts of large turquoise reflective metallic structure placed in a formerly pristine, natural setting. Prior to project, this site was an oak-forested mountaintop. With described expansion this will be one of the largest industrial structure complexes in Mendocino County. Because of its position on a mountain top and because of its incompatibility with all surrounding land uses, this presents significant visual degradation affecting residents and visitors up to 15 miles away. During afternoon hours, the reflective metal structure produces a blinding glare visible to thousands of residents and visitors to greater Potter Valley.

3. Visual, noise, water quality, and air quality impacts of illegally bladed road to project, including hillside slicing, debris dumped into Russian River, removal of natural vegetation on east bank of River, erosion, and cumulative visual degradation of a natural riparian and rural-forest setting.

4. Geology, topography and seismology of site, including but not limited to ridgetop location, steepness of slope and approach, porosity of shale formation, stability, potential for earthquake (estimated at 100% in Conway Report), erosion, compaction, and soil productivity impacts from site and road excavation, and off-site development.

5. Impacts on air, water, soil, wildlife, aquatic life, and humans from proposed land-spreading of industrial petroleum waste ash, greenwaste, brewery "waste-activated sludge," human sewage, and other substances disposed of by land-spreading off-site.

6. Traffic impacts, including impacts of 80 big rig truck trips per day-- a 25% increase in cumulative truck traffic--on safety and serenity of residents, visitors and users of the McKee County Park.

7. Site-specific and cumulative Impacts of site, road to site, and off-site operations on birds, fish and wildlife, including Endangered, Threatened, and Sensitive species, and other proposed-listed and unique species.

8. Site-specific and cumulative impacts of removal of native vegetation, including old growth oak and other vegetation on site, on road to site and at off-site operations.

9. Air quality impacts from transport, dumping, and turning of waste materials, including dust, stench, diesel fumes, spillage, and air and windborne particulates and pathogens on site, on road to site, and within a five-mile radius of site. Residences lie within one-quarter AIR mile of site, and only a few hundred feet from road to site. Ridgetop topography will cause winds to carry pathogens, odor and particulates far into the Potter Valley, affecting hundreds of residents to the north, west, east, and south of project.

10. Noise, including truck, equipment, and grinder operation on site, on road to site, and at offsite operations to residences as close a one-quarter AIR mile and visitors to the McKee County Park.

11. Public health impacts, including pathogenic contamination of air and water generated by transport and storage of huge volume of waste material, including but not limited to aflatoxin (aspergillus), salmonella, e. coli and other contaminants, on residents as close as one-quarter AIR mile and as far as five miles from site, and users of McKee County Park.

12. Public health impacts from heavy metals, dioxins, furans, benzene and other carcinogenic and toxic substances found in Masonite boiler and scrubber ash. Masonite ash is not "wood ash," but is the end product of burning millions of gallons of petroleum waste products such as "Fuel Oil #6"and recycled motor oil, as well as remnants of Masonite's own toxic glueboard.

13. Public health impacts from carcinogens and toxins contained in treated sewage sludge, including but not limited to pathogens including salmonella and e.coli, heavy metals, and radioactive hospital waste.

14. Impacts of illegally pumping up to 21,000 gallons per day of water from the Russian River and/or Cold Creek. Neither project nor landowner has legal right to pump and/or transport water to a leased commercial enterprise more than two miles from source; nor does landowner possess rights to water from the Russian River.

15. Fire hazard from lack of on-site water source.

16. Air quality and public health impacts from inability to properly handle and moisten materials due to lack of on-site water source.

17. Spread of contaminants by vectors to wildlife, domestic livestock, and human residents from one-quarter AIR mile to 15 miles distant.

18. Impact of spread of contaminants, toxins and pathogens through marketing of toxic ingredients in "mulch" and "compost." Failure to label contaminants, heavy metals, and sewage sludge on materials sold as safe for food production.

19. Impacts of non-permitted storage of waste materials far beyond perimeters of 10-acre compost pad, including storage of brewery "waste-activated sludge," yard waste, lime, gypsum, Masonite ash and other materials stored over 1800 feet from site.

20. Odor, public health, and other impacts of "static-pile" composting, i.e., failure to turn and moisten raw materials.

21. Noise, traffic, public health, odor, and cumulative impacts from expanding hours of operation from 13 hours per day to 24 hours per day, including unannounced night operations at project's discretion.

22. Incompatibility of project's industrial use with surrounding land uses including rural residential, recreational (McKee County Park and the Mendocino National Forest), and its own previous zoning as Agricultural Preserve.

23. Archaeological, historical and cultural impacts.

24. Responsibility for monitoring of water quality, air quality, odor, and public health, and the public's right to know under the Clean Water Act and Clean Air Act. Responsibility for clean-up of potentially toxic spillage and contamination on site, on road to site and at off-site operations.

25. Impacts on recreational uses of the McKee County Park, including noise, dust, visual degradation, public health impacts of potential air and water contamination, reduced parking and access, and incursion of industrial operation and traffic into formerly serene riparian public Park.

26. Cumulative impacts on water quality, including degradation of the source of water of one half million humans served by water from the Russian River adjacent to and below this project.

27. Cumulative impacts on air quality from generation of particulates, dust, odor and diesel fumes.

28. Cumulative impacts of project including but not limited to impacts of importation of waste into Mendocino County from six or more other counties, degradation of environment and quality of life to residents of Potter Valley, a community of 5,000 people from waste-truck traffic, odors, visual degradation, wildlife impacts, and other cumulative impacts.

29. DEIR contemptuously proposes mitigations which are ineffectual and/or which exacerbate significant adverse impacts, e.g., eliminating parking along McKee Park, and posting a "windsock" at compost site as "mitigation" of air quality impacts.

30. DEIR fails to accurately list or describe or offer alternatives to project including NO PROJECT. DEIR falsely describes NO PROJECT as existing project without permit, in contempt of CEQA. NO PROJECT means restoration of site, road to site and off-site operations to pre-project conditions of undisturbed natural oak forest, meadowland, and riparian landscape.

We request that this letter in its entirety be included as Comment on the Draft Environmental Impact Report and that all Comment be addressed and incorporated into the final Environmental Impact Report.

SIGNED,

Mary Goodwin

111-130

DD. MARY GOODWIN

DD1 The EIR attempts to be complete, accurate, unbiased, and informative with regard to historic and present fact, the requirements of CEQA, and Court mandates. The DEIR lists three alternatives: an off-site alternative, a reduced project/mitigated alternative, and a no-project alternative (see Chapter 5). Because the project is defined as a use permit, the no-project alternative analyzes the environmental effects if the use permit is denied. (However, the final EIR includes analysis if Mr. Mileck happened to pack up and leave; see response to comment Q53.) The DEIR establishes reasonable criteria for determining the significance of impacts, and to identify all impacts as significant that, based on investigation of the known and likely effects of the project, meet these criteria. The DEIR identifies six significant impacts of the proposed project (see Table 5.1, pages 5-2 and 5-3; Chapter 4 of the DEIR). The EIR, in accordance with the requirements of CEQA, identifies potential mitigations for the identified impacts, both those included in the project description, and those considered by the preparers of the EIR and included in the EIR. The determination of the effectiveness of the mitigations in reducing the impacts to a less-than-significant level is based on the expertise of the preparers of the EIR, literature research, and discussions with representatives of regulatory agencies. No significant unmitigatable adverse impacts on the environment are identified in the EIR.

DD2 The applicant indicates that although materials may have been hauled to the site prior to July 1995, the DEIR is correct in stating that composting started on the site in July 1995.

In response to the commentor, the road to the project site was in existence prior to its improvement for use as a facility access road. The lower approximately 1 mile of the road, from Potter Valley Road to the rock quarry, was constructed by the Army Corps of Engineers as access to the quarry, from which material was taken for the construction of Coyote Dam in the 1950's. This portion of the upper portion of the road, from the quarry to the project site, was an existing ranch road. Both were improved to provide all-weather access for large trucks to the project site. Grading permits were obtained for construction of the road and compost pad after they were built.

DD3 According to Deputy County Council Frank Zotter, " Mr. Mileck's application for a use permit to operate a mixed solid waste compost facility on approximately 12.5 acres of the Guntly Ranch in Potter Valley originally came before the Mendocino County Planning Commission on November 17, 1994. The Planning Commission voted 5-2 to deny the use permit, not because the Commission did not believe that Mr. Mileck's operation had insurmountable problems, but because the Commission originally had intended to continue the matter into early 1995 for Mr. Mileck to supply additional information. At the time, Mr. Mileck was under the assumption that he needed County action on his use permit application by December 31, 1994, or he would lose certain financial considerations.

"The Planning Commission's denial of the action allowed him to appeal the case to the Board of Supervisors, where the matter was initially heard on December 12. On a 3-2 vote, the Board tentatively approved the application, and a final hearing date of February 13, 1995. The Board then approved the project on February 13, again on a 3-2 vote, adopting a negative declaration" (Memo from Frank Zotter, Deputy County Council, to James Shupe, M&M Feed and Supply, June 26, 1995).

The Use Permit approved by the Board on February 13, 1995 included numerous conditions intended to mitigate the potential environmental effects of the project.

The Mendocino County Air Quality Management District first received an application for Authority to Construct/Permit to Operate a compost facility on the Guntly Ranch in September 1994. The Air District approved the application and issued the Authority to Construct/Permit to Operate May 1, 1995.

The County Local Enforcement Agency issued a Solid Waste Facility permit in July, 1995, and a second (revised) SWFP in October 1995.

Page 1-1 of the DEIR is amended as follows:

> In February 1995, the applicant appealed to the Mendocino County Board of Supervisors a decision by the County Planning Commission to deny the project a Use Permit. On appeal, the ~~Mendocino County~~ Board of Supervisors ~~upheld an appeal from the decision of the Planning Commission and~~overturned the Planning Commission decision and approved a Negative Declaration and Use Permit (#U26-93) to compost the proposed range of feedstocks. This EIR is being prepared pursuant to Superior Court Order No. CV71886, Preserve County Neighborhoods v. County of Mendocino. The EIR will focus primarily upon the issues specified by the court. The EIR preparers have considered other issues in this EIR that may have environmental impacts even though they were not specifically identified by the Court Order.

DD4 A minute order dated May 22, 1996 specifies that the court order is amended to strike "only" because the Court does not intend to limit the extent of the EIR. Nonetheless, the EIR does analyze the potential environmental impacts not "only" the two those issues identified by the Court, but also those brought up during the public Scoping Session held March 20, 1996, and comments on the two Notices of Preparation, dated March 4, 1996 and January 16, 1997. The EIR includes analysis of the effects of the project with potential to affect the environment, including the following issues not mentioned in the original court order:

- Visual impacts of the roof structure
- Water quality impacts other than those posed by leachate, including sediment and contaminated storm water runoff.
- Impacts on water supply (East Fork Russian River, Cold Creek, groundwater)
- Traffic impacts on local roadways
- Air quality impacts, other than odor and aspergillus
- Potential for impacts on wildlife and biological resources
- Public health and safety impacts beyond those cited in the court order, including worker health and safety, fire potential, vectors, hazardous materials, and dust.

Furthermore, as described on pages 1-4 and 1-5 of the DEIR (under Level of Analysis), the EIR analyzes the "entire project" against a baseline of no composting on the site, to clearly identify the potential impacts of the proposed project in its entirety.

A review of the Court order, prompted by this comment, found that the two issues that were identified were somehow expanded in the description of the Court order in the DEIR. The first issue as explained on pages S-2 and 2-5 of the DEIR should be revised to read:

1. The effect of compost leachate on domestic water wells in the area, the Russian River and Lake Mendocino, and~~; the effect of the construction of a roof (shed) over a 3.5 acre portion of the compost pad and,~~

DD5 It is unclear what the commentor means by "all-inclusive yard waste street sweepings." The DEIR includes in the list of proposed feedstocks on page 2-1, "...plant trimmings and culled fruit; and green material...."

DD6 The Guntly Ranch asserts to have water right as discussed on Page S-3 of the DEIR. See also response to Comment Q30. Rights to water from springs located on a property are equivalent to riparian or groundwater rights. The Guntly's also have an license to divert water from Cold Creek itself, as described by the commentor.

It is not within the scope of this EIR to determine whether the Guntlys have riparian or other rights to the East Fork or to Cold Creek. Since the applicant identified these two streams as potential water sources, the EIR analyzed the potential environmental impacts of drawing water out of these sources, found the impacts to be significant, and identified appropriate (and effective) mitigation measures. These measures are further refined in Comment N1 and response, which suggests a minimum bypass flow for the East Fork Russian River, if the facility uses this as a water supply. The applicant has identified other, preferable sources of water for the facility that are discussed in the document.

DD7 See response to previous comment. See also response to Comment N2, and responses to Comments Q30 and Q57. Coyote Dam effectively eliminates the possibility of use of the East Fork Russian River or Cold Creek by anadromous fish, including Coho salmon and steelhead trout. These streams are, however, home to resident rainbow trout (which are stocked by California Department of Fish and Game), as well as other fish. Protection of fish from water pumping is included in Mitigation Measure 3.2.5 in the Final EIR (see response to comments N3 and N4).

DD8 For clarification, the distance from the facility and the haul road to nearby residences, is shown on Figure C&R 1 (see comment Q6).

On page S-4 of the DEIR the word "dilute" is used as a synonym for "reduce". Dilute odors are ones that are weaker. The odorous compounds (or *Aspergillus fumigatus* spores) are in higher concentrations (or stronger) at the compost pad than at the property boundary because they are diluted by fresh air as they travel from the compost pad to the property boundary.

DD9 See response to Comment Q53.

DD10 Regarding the No-Project Alternative, see response to Comment Q53. The No-Project Alternative follows the CEQA Guidelines. By looking at all of the environmental effects that would occur from the operation of a the project (including animal waste processing)

the analysis of the project is even more "conservative" that might be required by the CEQA Guidelines. The two analyses are not a contradiction but are intended to be thoughtful approach to each case.

DD11 The commentor does not identify any issues raised at the March 20, 1996 Scoping session that are not addressed by the DEIR. Representatives from ESA and the County Planning & Building Services Department attended the Scoping session and have attempted to address all relevant environmental issues in the DEIR.

DD12 See comment B2 and response regarding feedstocks, the 10,000 cubic yard threshold, and the triggering of CEQA. Comment regarding the commentor's interpretation of the County ordinance is noted. Regarding the basing of an EIR on concrete facts and figures, most EIRs are not in the position of evaluating a project after it is built, and are therefore based largely on the project description and information provided by the applicant. This EIR is able to analyze the impacts of the project as it currently exists, and to project the effects of the project were it to be operated at the proposed full capacity and with the full range of proposed feedstocks. In that regard, because the project is already in partial operation, the potential effects of this project are much easier to predict than most projects.

DD13 CEQA contains no requirement to define an "area of potential effects." The EIR does not attempt to set a spatial limit on the potential impacts of the facility. The EIR attempts to identify and analyze all environmental impacts of the facility, no matter where they may occur. The EIR analyzes the impacts of the facility, the road to the facility, and traffic associated with the facility.

DD14 CEQA does not require that the Mitigation Monitoring and Reporting Program (MMRP) be included with the EIR and certainly does not require the MMRP to be fully described, analyzed, and considered in the EIR. Procedurally, the MMRP occurs after the EIR and incorporates all necessary mitigations identified in the EIR. The County intends to circulate the MMRP with the Final EIR as part of the staff report.

DD15 See response to DD12.

DD16 See response to comment O9

DD17 Short of conducting a geodetic survey of the site, which is beyond the scope of this EIR, it was not possible to determine the exact location of facility. A small portion of the facility may be on a parcel number 177-150-02. Whether or not a small portion of the facility is on this parcel has no bearing on the facility's potential environmental impacts. This information is provided to allow future permits to recognize all activities of the project.

DD18 Since the facility is a composting facility, and not a waste disposal facility, it will not create waste within Mendocino County, but rather will process waste into a commodity with beneficial uses. While it is likely that much of the agricultural waste materials that the facility proposes to compost (or that it already is composting) would not otherwise go to landfills, some of the material certainly would. This includes street sweepings, municipal yard waste (Cold Creek Compost, Inc., is already accepting yard waste from

Fort Bragg, and has a contract with the City of Ukiah to accept yard debris and wood waste), grocery store food waste, biosolids, and fishery waste. Furthermore, where agricultural wastes, particularly manures, accumulate at the point of generation at dairies, feedlots, poultry farms, wineries etc., they have the potential to create nuisances and environmental impacts, including water quality impacts, breeding of flies and other vectors, and odors. It may be beyond the technical ability of managers of some of these facilities to treat these wastes effectively on-site. The availability of a facility that accepts a wide range of organic materials, that uses approved and regulated composting methods to render these materials into a useful product, and that sells the finished product within the County, can be seen as an important public benefit.

DD19 The Mendocino County Waste Management Authority confirms that there is no record of agricultural wastes going to landfills in Mendocino County since 1990. The facility would, however, help conserve remaining landfill capacity by accepting other materials that do go to landfill in the County, and would provide an alternative for generators of agricultural wastes who are unable or do not wish to treat their materials on-site (see response to previous comment). It is unclear what the commentor means by "diverted to other facilities." There is currently one other permitted composting facility in Mendocino County, Bio Waste Enterprises, operated by Solid Waste of Willits on a ranch south of Talmage. This facility's solid waste facility permit, however, allows for only a much more limited capacity than the proposed capacity of the CCCI facility.

DD20 The facility was cited by the County Department of Environmental Health for storing additives and amendments on the uncovered portion of the compost pad during the rainy season, in violation of its Solid Waste Facilities Permit (SWFP) (see also response to Comment 13-37). The material was, however, tarped, in accordance with the terms of the facility's Storm Water Pollution Prevention Plan (SWPPP), and no citation was issued by the NCRWQCB. The applicant has applied for a revision of the SWFP to allow outdoor storage of additives and amendments in accordance with the SWPPP, but the application cannot be processed before completion of the EIR. In addition to regulation by the County Department of Environmental Health and the Regional Water Quality Control Board, the facility is regulated by the Mendocino County Air Management District, the California Integrated Waste Management Board, the California Department of Forestry and Fire Protection, and the Mendocino County Planning and Building Department. As to the alleged toxicity of additives, amendments, feedstocks, and the compost itself, testing of Masonite Ash, Cold Creek Compost Agrow-Blend (no ash) and Agrow-Blend Plus (10% ash) by CCOF in October, 1996, indicate very low or undetectable levels of heavy metals, and undetectable levels of aromatic hydrocarbons. These levels do not indicate any acute or cumulative long-term adverse environmental impacts. The State Department of Health Services, after reviewing extensive laboratory analysis of the ash, stated that the ash should not be classified as a hazardous material (see response to Comment OO1).

DD21 The overall analysis of how the facility would affect the overall fossil fuel consumption and traffic in the region is speculative because of the unknown forces of future market options for processing these materials and providing the finished compost materials: resulting in the conclusion that the facility "could" reduce fossil fuel consumption. In general the establishment of this facility will allow users an additional locational choice (the Cold Creek Compost facility) for processing their materials or buying the finished

product. It is generally assumed that if more convenient facilities are available, potential customers would use them. Comment letter Z is an example of a local operation that has reduced transportation fuel use because of the location of the Cold Creek Compost facility. Regionally, it can be assumed that transportation costs (labor and fuel) will help to determine which facility a customer will use.

It is acknowledged by this response fuel use and traffic would increase in the general area of the Cold Creek Compost facility as a result of the project, but this was not found to be a significant environmental impact of the project.

DD22 See response to Comment OO1.

DD23 According to the applicant, the facility has never received sewage sludge biosolids. The facility's SWFP prohibits use of sewage sludge as a feedstock. The lime received at the facility is agricultural lime (calcium carbonate), a common agricultural amendment. No "petroleum ash waste" has been received by the facility (see response to Comment OO1).

DD24 The life span of the site is indefinite. The existing SWFP has no time limit, though it must be reviewed every 5 years. As stated in the DEIR on page 2-11, "...use permit conditions will require preparation of a final site closure plan at least 90 days prior to closure. The closure plan will include the restoration of the site to its natural state to the maximum extent reasonably feasible." These are conditions of the existing permit. They have been made part of the applicant's project and would, on that basis, be incorporated into the revised use permit, if approved.

For the sake of clarity, Mitigation Measure 3.1.1(d), on page 3-6 of the DEIR, is hereby added as follows:

e. A final site closure plan shall be prepared for acceptance by Planning and Building Services and Environmental Health at least 90 days prior to closure. The plan shall provide for the restoration of the site to its natural state, to the maximum extent reasonably feasible, including removal of all feedstock, additives, equipment, and non-permanent structures; grading to natural and stable contours; and reseeding and replanting with native or native-like vegetation.

DD25 On April 20, 1995, Charles Guntly filed a Notice of Nonrenewal, Agricultural Preserve Contract, County of Mendocino. This takes out of Agricultural Preserve a portion of Agricultural Preserve #91, specifically, The SW 1/4 of the SE 1/4 of Section 8, T16N, R11W, a portion of AP number 177-150-03. The zoning remains the same for this parcel. The No Project Alternative has neither the intent nor the authority to "restore previous zoning."

DD26 The November 17, 1994 Staff Report for Use Permit lists the zoning adjacent to the Guntly Ranch:

North:	RL-160 & AG-40:FP
East:	RL-160 & PF
South:	RL and UR:L:40:FP
West:	RL-160, AG, UR:L:20, UR:L:20:FP

The rural residential properties to the West of the site are approximately (4,800 feet) from the compost pad, and approximately 780 feet from the access road.

This section of the EIR identifies land uses within 1,000 feet of the site (compost pad) boundaries.

DD27 The commentor does not cite the authority, nor is any such authority known, requiring removal of all non-permanent structures and reseeding with native-only vegetation as part of the site closure plan. The closure plan, when prepared, can be expected to restore the site consistent with the zoning of the parcels. Since structures and non-native vegetation are allowed under the rangeland zoning, there is no reason to believe that all structures will have to be removed. In fact, except to the extent necessary to mitigate significant impacts, there is no legal requirement that any site restoration be performed, as opposed to a landfill which does require a closure plan.

DD28 The impacts of occasional night-time operation are analyzed in the DEIR. However, the applicant has clarified the exceptions to regular hours and deliveries outside of the normal operating hours would be restricted to deliveries that occur during daylight hours. See response to Comment J1.

DD29 According to the LEA, there have been no confirmed odor complaints from the site. Occasional odors from the site can be expected, however. These can be mitigated through best management practices, and avoidance of certain operations, such as breaking down static piles, when winds are from the southeast, and during late afternoon calms when downslope air drainage occurs. Solving the existing problem of leachate in ruts and puddles on the compost pad during the wet season will also reduce odors. (see Mitigation Measure 3.3.2 on page 3-33 of the DEIR). See also response to Comment J4 and DD50.

DD30 The facility operator provides the LEA with quarterly records indicating feedstock type and volume. These records are available to the public. The LEA quarterly records do not include the source of feedstock materials.

DD31 Page 3-2 of the DEIR discusses the visual character of the area in which the project is located, and the landscape features and locations that could suffer visual impacts of the project.

DD32 Comment noted. The EIR notes that the *Mendocino County General Plan* Scenic Highways Element does not identify any scenic highways in the project area and that there are no identified scenic viewpoints near the project site (DEIR, page 3-2). Furthermore, the EIR provides a more detailed analysis of the views of the site that are available including views of the existing roof from major public roadways (color photos on page 3-4) and a qualitative analysis of the importance of these views (DEIR, page 3-5, last paragraph).

As the DEIR notes on page 3-5, a roof structure for agricultural purposes is permitted under the zoning, subject to building permits. The roof structure's visual impact is commensurate with that of other large agricultural buildings, such as a large barn. The

distance of the structure to the locations from which it is visible (approximately 1 mile to the west, and at least two miles to the North) attenuates its visual impact.

It should be further noted that the EIR preparers searched these public roadways for the views of the site that are presented on page 3-4. Other than the two viewpoints shown a great majority of the locations from the public roadways to the site have their views blocked by trees, vegetation and topography.

In response to this comment on the EIR preparers again searched for viewpoint in the project area that could be significantly affected by the project and they found no views that would have the serious negative effect described by this comment.

DD33 See response to previous comment.

DD34 See response to comment DD32.

DD35-DD36

See response to comment DD32. Photos of the structure were provided in Plates 1 and 2 of the DEIR in Appendix B and the last page of Appendix A of the DEIR shows and aerial view of the existing roof.

DD37 Page 3-10 of the DEIR states, "Compost leachate is a highly variable substance that may contain a range of organic and inorganic pollutants, including pathogens." Inorganic pollutants include heavy metals. For a discussion of pollutants in Masonite ash, see response to comment OO1. In regards to "radioactive hospital waste" in sewage sludge biosolids, hospitals are required to separate and "red bag" all pathogenic and toxic wastes, including radioactive wastes. A small amount of radioactive material may enter the sewer system from patients undergoing radiation treatments or diagnostic procedures involving radioactive isotopes. These materials, however, typically have a very short half-life, and would also be diluted by the total volume of liquid and solid waste entering the sewer system. According to Edgar D. Bailey, Chief, Radiological Health Branch, California Department of Health Services, radioactivity of sewage sludge may be a concern where there is a high concentration of health care facilities, where groundwater containing naturally occurring uranium or radon is used as the water supply, or in locales where there are nuclear facilities (personal communication, telephone conversation with Dan Sicular, August 1, 1997). Mr. Bailey suggests the following mitigation, hereby amended to Mitigation Measure 3.5.3 (page 3.59 of the DEIR) as a prudent measure to protect public health:

l. Sewage sludge biosolids sources accepted as a feedstock must be shown through analysis by a State certified analytical laboratory to have radioactivity no greater than 1 picocurie per gram.

DD38 Page 3-7 of the DEIR states that "all drainage from the site is into the East Fork Russian River." Figure 3.2.1 also indicates that all surface drainage from the site is into streams that are tributary to the East Fork. Page 3-12 of the DEIR, which the comment refers to, discusses groundwater hydrology of the site. As stated, the direction of groundwater

flow is not known, but is likely to follow the slope of the surface, that is, toward the East Fork.

Since all of Potter Valley drains into the East Fork Russian River, and from thence into Lake Mendocino, which the commentor and the DEIR (page 3-9, second paragraph) both note is a drinking water supply, all existing land use in Potter Valley has the potential of impacting water quality of these water bodies. Impacts on water quality may occur from stormwater contaminated by manure from stock grazing, domestic and commercial septic systems, agricultural runoff, and runoff from roads. Since water always runs downhill into waterways, and since most California waterways have beneficial uses that may be impacted by contaminated stormwater runoff, it is unclear what the commentor means when she says that this site is,"...a preposterously impractical choice for any solid waste facility." This EIR identifies pollution of stormwater runoff from the facility as a potential impact on water quality (Impact 3.2.1 and 3.2.2, and identifies several mitigation measures These include compliance with the terms of the facility's Conditional Use Permit, Solid Waste Facility Permit, and Storm Water Pollution Prevention Plan. If the facility is found to be in violation of these terms, the agencies enforcing these permits can shut down the facility.

DD39 Comment noted. There were issues related to permits for the tanks, but at this time the applicant is unaware of any outstanding permit issues. All permits have been granted although not all have been finalized.

DD40 See responses to Comments O27 and.VV19.

DD41 Comment noted. Please see response to Comment 13-53.

DD42 See response to Comments J2, O34. The facility's SWPPP allows storage of finished compost, additives, and amendments outside during wet weather, if the piles are appropriately tarped. Water quality monitoring, which the SWPPP requires the facility operator to conduct, and which may also be conducted by the LEA and the NCRWQCB, would indicate any problems of contamination of stormwater runoff. If this occurs, the facility operator will be required to mitigate the problems.

DD43 The existing compost pad, which consists of compacted clay, has a very low permeability. The pad was constructed under supervision of a registered engineer, who provided construction observation services and soils testing. A progress report for this work (September 12, 1995) is provided as "Attachment E" to this Response to Comments Addendum.

A concrete pad is not explicitly specified in the current project description, which states that ,"Compost pad permeability...is specified to conform to requirements of the Regional Water Quality Control Board." It is likely that a building permit would be required to install a concrete pad. A concrete pad would, however, mitigate many aspects of the project that have the potential for causing environmental impacts, especially drainage problems. Concrete surfaces can be removed, allowing for reintroduction of vegetation at the site.

DD44 See response to previous comment.

DD45 Comment noted. The analysis of environmental impacts would not change if this figure is correct.

DD46 According to Phillip Towle, Mendocino County Air Quality Management District, prevailing winds in the Potter Valley area are from the West and Northwest. These winds generally strengthen later in the day. When a winter storm is approaching, or when there is a low pressure trough off the coast, the winds typically acquire a southerly component. The area also has frequent periods of calm winds, during which time very light winds may blow from any direction, and periods of light and variable winds. (telephone communication, Phillip Towle, Mendocino County Air Quality Management District, July 30, 1997).

DD47 See response to comment Q6 on distance to neighbors. The Mendocino County Local Enforcement Agency and the Mendocino County Air Quality Management District have both stated that there have been no confirmed odor complaints definitively linked to the facility. See also responses to Comment J4, DD29, and DD50.

DD48 The trucks hauling brewery wastewater are accounted for under the water trucks (see footnote b of the table). Sludge hauling would fall under the category of feedstock trucks; the analysis of feedstock trips includes up to forty round trips per day. Significance thresholds for air quality were provided by the Mendocino County Air Quality Management District. Please also refer to response to Comment 13-5 which provides additional information on truck traffic.

DD49 See responses to Comments Q6 and DD47.

DD50 The context of this information is provided on page 3-32 of the DEIR. The information was quoted from the observation made by Phillip Towle in his 1995 evaluation of the project. Mr. Towle is an Air Quality Specialist with the Mendocino County Air Quality Management District and had enough interest in this type of facility that he visited two similar operating facilities and a grape pomace storage facility while evaluating this project. The conclusions reached regarding odors are not speculation but a forecasting of knowledgeable individuals of future conditions based on the review of similar operations, attendance at recent conferences focused on odors from composting facilities, the physical arrangement of the proposed facility, and experience with the odor history of a variety of projects.

DD51 For distance to neighbors, see response to comments Q6. The analysis of *Aspergillus* dispersion was not a projection of abstract theory, but relied on scientific studies compiled and reported by the California Integrated Waste Management Board (see DEIR impact 3.3.3 on pages 3-33 through 3-36). A review of a recently published book, *The Science of Composting*, by Elliot Epstein, 1997, also provides studies that indicate that at a distance approximately 1-mile downwind of composting facilities, the concentration of *Aspergillus* spores are similar to background concentrations. See also response to Comment H2 and H3.

DD52 See response to comment Q6.

DD53 For a noise analysis, baseline (existing) and project-generated noise levels must be determined. For the purposes of this analysis, the noise measurements for the analysis were conducted specifically to capture the noise levels generated by trucks descending the access road while using jake brakes. This noise level generated by truck activity was added to the baseline noise level at the site, and the resultant modeled noise level was found to be 52 dBA. This is within the 55 dBA, Ldn limit specified in the Conditions of Approval prepared in 1995. While the increased truck traffic may be noticeable, this impact is not considered significant under the CEQA Guidelines.

DD54 Please see response Q6 regarding distance to neighbors. The nearest noise-sensitive receptors to the project site are the residences located along the western side of Potter Valley Road. These residences are located approximately 4,800 horizontal feet from the project site. For a point source, in a "homogenous, loss-free atmosphere, over loss-free ground, the sound-pressure level drops off 6 dB for each doubling of distance" (Beranek, Leo, *Noise and Vibration Control, Revised Edition*, 1971). Therefore, a noise source generating 97 dBA at 20 feet would decrease to 55 dBA at a distance of approximately 2,600 feet, and 49 dBA at a distance of approximately 5,200 feet. This noise level, while noticeable, would be below the 55 dBA as specified in the project Conditions of Approval prepared in 1995.

DD55 The reference is to pages 3-47 and 3-48 of the DEIR. These pages provide an overview of the Part 503 federal regulation of biosolids. Direct Landspreading of uncomposted biosolids is not proposed nor discussed in the EIR. The EIR considers the potential environmental impacts of use of biosolids as a feedstock in the composting process, and the potential impacts of use of compost derived from biosolids as a soil amendment. Use of biosolids as a feedstock might require a revision to the facility's use permit, SWFP, SWPPP, or other regulatory actions.

DD56 See response to Comment D1.

DD57 The LEA inspects the facility monthly, and notes any vector problems at the site. According to the LEA, past vector management, using parasitic wasps and pheromone traps, has been effective. However, vectors are a recurring problem at the site that must be periodically managed (telephone communication, John Morley, Mendocino County Local Enforcement Agency, August 1, 1997).

DD58 The DEIR does not propose clearcutting to create a firebreak. The compost pad and a perimeter firebreak have already been cleared. Therefore, any immediate environmental impacts of vegetation removal have already occurred. Please refer to Appendix C of the DEIR, Biology Technical Memorandum for a analysis of potential biological impacts of the project.

DD59 To date, vector eradication has used biological controls and non-toxic traps. See response to Comment Q51.

DD60 Potential impacts of acceptance of biosolids as a feedstock are thoroughly analyzed in the Hydrology and Water Quality and in the Public Health and Safety sections. Stringent and specific mitigations are included in Mitigation Measure 3.2.1 (h). In addition, Mitigation Measure 3.5.3 (j) requires preparation and approval of a detailed operating

plan for handling and treatment of biosolids, prior to their acceptance to assure that they meet performance standards.

DD61 See response to Comment DD2 regarding previous existence of the access road. Comment regarding the purpose of the bridge replacement is noted. This portion of the comment has no bearing on this EIR.

DD62 While a percent increase in traffic generated by a project can be noticeable, it is not, in and of itself, necessarily an increase that would have a significant effect on traffic conditions. As stated on page 3-63 of the Draft EIR, increases in traffic volumes on area roadways associated with the proposed project would fall within the normal fluctuations of traffic on those roadways, and would not significantly disrupt traffic flow or increase congestion on those roadways. It is on that basis that the project-generated traffic increase is regarded as a less than significant impact.

DD63 The assessment of potential impacts did take the size of project vehicles into account. See response to comment DD62, above, for more discussion of the basis for the Draft EIR's conclusion regarding traffic impacts.

DD64 Comment noted.

DD65 See response to Comment JJ5 for a discussion of potential hazards associated with the project access roadway.

DD66 Please see response to Comment Q57. The DEIR does consider cumulative impacts, including visual impacts, of a 150 foot tall Cellular Tower located on the Guntly Ranch approximately two miles southeast of the CCCI facility, as well as two other projects in the vicinity that have gone through CEQA review. See page 4-2 of the DEIR. The commentor does not specify any other projects that should be considered.

DD67 It is unclear how the commentor believes the cumulative impact of the bridge together with the compost project would be significant with regard to their cumulative environmental impacts. The environmental document for the bridge replacement project did not identify any significant impacts that could not be mitigated.

DD68 See response to Comment DD4.

DD69 The commentor is incorrect. Under the *CEQA Guidelines*, the No-Project Alternative does not mean removal of the project from site, and restoration of site and road to site to former, pre-project natural state. See response to Comment Q53.

DD70 The purpose of the alternatives chapter of the EIR (Chapter 5) is to evaluate the comparative effects of a range of reasonable alternatives to a project that could feasibly attain the basic objectives of the project (CEQA Guidelines Section 15126(d)). This Off-Site Alternative analysis is to provide the decision makers with information about other locations that could attain the basic objectives of the project. The discussion of alternative locations is presented on pages 5-7 to 5-10 of the DEIR. Please refer to discussion of the City of Ukiah Landfill as a potential site for a compost facility on page 5-9 of the DEIR. Regardless of when they built or what their expectations were,

sensitive receptors are much closer to the City of Ukiah Landfill than they are to the Cold Creek Compost Facility.

DD71 Comment noted. The commentor objects to approval of the DEIR.

DD72 Comment noted. See responses to letter VV.

DD73 The preparers of the EIR attended the public Scoping session on March 20, 1996, spoke with several members of the public who objected to the facility, and reviewed comments from members of the public on the two Notices of Preparation. The preparers of the EIR inspected the facility and the area around the facility. The preparers of the EIR consulted with representatives of all of the government agencies regulating the facility.

DD74 Comment noted.

EE

17651-A Van Arsdale Rd.
Potter Valley, CA 95469
May 27, 1997

RECEIVED
JUN 02 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

Pamela Townsend
Mendocino County Planning Dept.
501 Low Gap Rd.
Ukiah, CA 95482

Dear Ms. Townsend:

I am writing to you to express my concern regarding the Cold Creek Compost in Potter Valley, where I live. It has come to my attention that the facility exists for the purpose of collecting and containing "biosolids" (sewage), manure, "process water" and "fly ash." It certainly makes me ask the question, "Why is hazardous waste being shipped into my community?" I am skeptical that these types of materials are really safe for the environment and for compost used for growing food! I believe that the presence and potential leakage of these materials will be certain to degrade the local environment, including air quality, groundwater, the Russian River, wildlife, and, not to forget, the local residents of Potter Valley. In addition, I would like to know if the Draft Environmental Impact Report (DEIR) adequately addresses my above concerns. EE1

I would also like to submit some alternative measures that can be taken. One possibility is decentralizing the "compost" by putting sites for collection in various locations. This will certainly relieve some of the impact. Another suggestion is to make the facility smaller, or even put it in a different place altogether, perhaps a place not so proximate to a main river and neighbors. EE2

Thank you for your time.

Sincerely,

Rebecca Grant

EE. REBECCA GRANT

EE1 The purpose of the composting facility is not for, "...collecting and containing 'biosolids' (sewage), manure, 'process water' and 'fly ash'". The purpose of the facility is to convert organic wastes into marketable product through composting, a controlled biological process. Biosolids should be distinguished from sewage, in that biosolids are the stabilized solid fraction of sewage. If these materials contain certain levels of pollutants, such as heavy metals, they may be classified as hazardous wastes. Cold Creek Compost Inc. does not intend to accept materials that are classified as hazardous wastes, and will reject any materials found to contain hazardous wastes (see section 2.3.21 of the DEIR, pages 2-20 through 2-21). Assuming that the levels of pollutants in materials used for feedstock are within safe limits, the finished compost product should be safe for application to land used for growing food. The EIR analyzes potential impacts of the facility on the local environment, including air quality, groundwater, the Russian River, wildlife, and local residents. See Chapter III of the EIR.

EE2 The DEIR analyzes a Reduced Project / Mitigated Alternative (No Biosolids), in which the effects of a smaller facility are analyzed (see DEIR pages 5-16 through 5-19). The DEIR also analyzes an Off-Site Alternative that considers the effects of a facility of similar size if it were to be located in Round Valley (see DEIR pages 5-7 through 5-16). Decentralizing composting operations has environmental advantages and disadvantages over a centralized facility. If widespread, small scale home composting can be very effective in reducing the amount of residential organic wastes requiring disposal. If properly managed, home composting can avoid potential impacts on water quality, vector problems, and odor problems. Medium scale composting, for example by ranches, farms, and wineries, can also be an effective way of treating larger quantities of organic materials. These smaller operations can, however, experience similar problems of impacts on water quality, odor problems, and vector problems. Furthermore, it is likely that smaller, decentralized operations will be much less scrutinized by regulatory agencies. The existing site for the Cold Creek Compost facility is located approximately 4,000 feet from the East Fork Russian River, and is closer to two ephemeral streams, and approximately 4,800 feet from the nearest residence. See response to DD38.

FF

Donald J. Hillard
Maureen Hillard
8051 Potter Valley Road
Ukiah, CA 95482

RECEIVED
JUN 09 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

May 17, 1997

Dept of Planning and Building Services
501 Low Gap Road, Room 1440
Ukiah, CA 95482

CASE # # U 26-93
OWNER: Charles Guntly
APPLICANT: Martin Mileck, Cold Creek Compost, Inc.
REQUEST: Use permit to establish a mixed solid waste composting facility
LOCATION: Via private road, 1 1/4+-miles NE of intersection of East Side Potter Valley Road (CR # 240) and State Highway 20, 5+- miles S of Potter Valley town center.: AP # 177-150-02, 177-150-03 and 177-260-11.
PROJECT COORDINATOR: Pamela Townsend

Are you going to discuss and decide on an approval of a smelly disease infected mountain? I don't believe it!!!!! Like your NOTICE OF AVAILABILITY OF DRAFT ENVIRONMENTAL IMPACT REPORT FOR PUBLIC REVIEW AND PUBLIC MEETING says a potentially significant adverse environmental impacts of the project addressed in the DEIR include: storm water runoff (leachates and sediments) to surface waters, spill of leachate from storage tanks, surface water pumping during low flows, work safety and hazards to public health. FF1

What first comes to my mind is - has the Army Corp of Engineers and the California Fish and Game been notified there is a potenially hazardous danger that the water flowing into their lake and the fish that is caught and eaten will be polluted from this greedy project? FF2

Next is my drinking water and fishing area for me, my family and many others that Mr. Guntly wants to pollute with other companies wastes is totally irresponsible of a human being. Have these people FF3

take their garbage of garbage to a more remote area and not near such a popular area where drinking water, swimming, fishing (fish that are ingested), and irrigation for produce that is eaten.

Next the smell during those hot days of summer will make it intolerable to put up with. It is much to close to our house. His fence divides our property which his cattle have come through several times because he, quote," Didn't have time to fix the fence till September". The cattle had been coming through for 4 months at that point and it would be another 4 months before he could have his men get to it. If he handles these small incidents like this what will he do with the compost company if something goes out of control? These cattle were destroying our property and out on the highway at least 7 times before the fence was put up. So I can't see that he would do anything about the smells and infestation that will be caused by leachate and sediments getting into the environment. FF4

Mr. Guntly, Martin Mileck, and the Cold Creek, Inc., have gone far enough with their projects. There is that unsightly abandoned quarry on the side of the hill viewed from Potter Valley. That half done and an unsafe entry to the road from Potter Valley Road for their trucks. That is enough of scarring for beautiful Potter Valley. FF5

I sincerely hope that you would not permit this project to get any larger. This composting should be much more remote to people and water. Thank you for reading this letter of concern. FF6

Sincerely,

Donald G'Hillard

Maureen Hillard

P.S. Our mailing address is: 1109 Fassler Ave.
Pacifica, CA 94044

111-147

FF. DONALD J. AND MAUREEN HILLARD

FF1 Comments noted. This letter is opposed to the expansion of the Cold Creek Compost, Inc. operations.

FF2 Notifications of state and federal agencies are coordinated by the State Clearinghouse. The Army Corp of Engineers is generally involved in projects that plan to fill wetlands and this project does not propose to fill any wetlands. The California Department of Fish and Game was sent a copy of the Draft EIR by the State Clearinghouse but did not submit any comment on the DEIR.

FF3 Please refer to Section 3.2, Hydrology and Water Quality, of the DEIR, where four significant impacts on water quality and water supply are identified and analyzed, and mitigations are recommended.

FF4 There is a concern for future odors and frustration that a problem related to fences and cattle was not addressed in a timely manner by the Guntly ranch. The concern is that odor problems if they occurred would not be addressed in a timely manner. Impact 3.3.2 of the DEIR (page 3-31 through 3-33 discusses odors). Mitigation Measure 3.3.2 page 3-33 discusses means of mitigating odors by implementation of a progressive odor management protocol. See also responses to comments J4, 10-2, DD8, and DD29). At a minimum the LEA will observe odor control during each monthly inspection.

FF5 Concern is raised about the unsightly abandoned quarry and the unsafe entry road. The Use Permit in question does not relate to quarry development or any additional construction of the entry road.

FF6 The letter again asks the County not to permit this project.

GG

MENDOCINO COUNTY DEPARTMENT OF PLANNING
AND BUILDING SERVICES
501 LOW GAP ROAD,ROOM 1440
UKIAH, CA 95482

ATTENTION; PAMELA TOWNSEND

RE; USE PERMIT #U 26-93 - COLD CREEK COMPOST FACILITY,
SCH# 96032033

AFTER READING THE ENVIRONMENTAL IMPACT REPORT, THESE THOUGHTS CAME TO MIND:

1. IN THE EVENT THAT TOO MUCH METAL CONTAMINATION IS FOUND - WHAT IS THE MITIGATING PROCEDURE? GG1

2. DOMESTIC WATER WELLS ARE OMITTED FROM THE MAP. THERE ARE THREE IMMEDIATELY WEST OF THE BRIDGE - NOT JUST ONE, AND THERE IS ONE SEVERAL HUNDRED FEET EAST OF THE BRIDGE. WHY WERE THESE OMITTED? GG2

3. IF ONE WATER TRUCK IS USED TO CARRY CONTAMINATED WATER TO WIND-ROWS, AS WELL AS DUST CONTROL, DOES THIS POSE A RISK OF CONTAMINATION? GG3

4. AS A POSSIBLE MITIGATION OF AIR BORN POLLUTANTS HAS A BAND OF TALL TREES BETWEEN THE FACILITY AND NEARBY RECEPTORS BEEN CONSIDERED? GG4

SIGVART HORNEMAN
6261 S. HORSESHOE CIRCLE
UKIAH, CA 95482
PHONE/FAX 485-0424

GG. SIGVART HORNEMAN

GG1 The state composting regulations require that "Compost product that contains any metal in amounts that exceed the maximum acceptable metal concentrations... shall be designated for disposal, additional processing, or other use as approved by state or federal agencies having appropriate jurisdiction" (Title 14, Section 17868.2).

GG2 Figure 3.2.1, Hydrographic Features, includes locations of five domestic water wells that could be located with information provided by Mendocino County Department of Environmental Health and the State Department of Water Resources. The list on page 3-12 of the DEIR identifies the six wells for which these agencies have records. Other wells near the bridge in this location are still over 4,000 feet from the project site and should not be significantly affected by the project.

GG3 Mitigation Measure 3.2.1 (h) is hereby amended by adding the following final sentence:

> All water equipment used for pumping, piping, and storage of water, including the tank truck, will be managed in a similar fashion if they are used for handling biosolids leachate.

GG4 Air quality effects from emissions from the composing site (primarily odor and the Aspergillus fumigatus) are expected to be diluted to background levels by the time air from the facility would reach off-site receptors. Although a band of tall trees would add a roughness factor to the terrain and might result in even more rapid dilution of on-site air contaminants, this mitigation does not seem necessary for this project. See also responses to Comments H2 and H3.

HH

June 2, 1997

RECEIVED
JUN 04 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

Mendocino County Dept. of Planning and Building
501 Low Gap Road, Room 1440
Ukiah, CA 95482

Re: Case No. U 26-93, Cold Creek Compost facility in Potter Valley

Dear Dept. of Planning and Building:

We object to approval of the Draft Environmental Impact Report on the Cold Creek Compost facility. This facility is already adversely affecting the local environment, and has the potential to create an environmental disaster. HH1

Composting is critical to the health of our planet, and we strongly feel compost facilities should be encouraged on principle. They are one answer to the waste disposal problems our society faces. We would be pleased and honored to have a compost facility of appropriate size and scope in our small community. However, this particular facility is a good idea poorly executed and supervised. HH2

Our objections are based on the following concerns:

1. Much of the material now being or planned to be trucked into this facility contains dangerous residual toxins: animal waste, agricultural waste laden with pesticides and herbicides, sewage sludge, and particularly Masonite boiler and scrubber ash, which contains heavy metals and other toxins. These toxins do not disappear in the composting process. HH3

2. The size and scope of this project are far too large for its setting. The traffic, noise and odors are already causing significant adverse impacts on the people of Potter Valley. The potential for degredation of water quality is enormous--the facility is located on a ridge directly above the Russian River. HH4

3. The project's access road and traffic have significant adverse effects on McKee County Park and its resident wildlife. HH5

4. The possibility of pathogenic contamination of the air in the area immediately surrounding the facility is very real; similar industrial operations of this size have resulted in such contamination of the air the neighbors have to breathe. HH6

5. We don't think the lines of responsibility for monitoring of the facility and its impacts on the environment are clearly drawn. HH7

Please consider these concerns, and do not hastily and mistakenly approve this draft report.

Sincerely,

Christina Kelly Bob Steiner

Christina Kelly and Bob Steiner
12851 Mid Mountain Road
Potter Valley, CA 95469

111-151

HH. CHRISTINA KELLY AND BOB STEINER

HH1 This letter objects to the approval of the Draft EIR. It indicates that the facility is already adversely affecting the local environment.

HH2 The commentors indicate a strong support for the principle of composting, but feel the Cold Creek Compost facility is poorly executed and supervised.

HH3 Please refer to responses to comments Q5 and DD22.

HH4 The issues identified in this comment were addressed in the Draft EIR and mitigations were identified for the potentially significant impacts in these areas. Please refer to the Draft EIR sections on Traffic and Circulation (Section 3.6), Noise (Section 3.4), Air Quality (Section 3.3), and Hydrology and Water Quality (Section 3.2).

HH5 Impacts from the access road and traffic are discussed in the Draft EIR in Traffic and Circulation (Section 3.6). Regarding potential traffic impacts on wildlife in McKee County Park, see response to Comment OO4.

HH6 The commentors do not identify the types of pathogens with which they are concerned. Potential impacts of *Aspergillus fumigatus* is discussed in the DEIR, Section 3.3, Air Quality. See Impact 3.3.3 and Mitigation 3.3.3 on pages 3-33 through 3-34, and response to comment H2.

HH7 Section 2.2.12 on page 2-12 through 2-13 of the DEIR identifies permits required for the project and regulatory agencies that enforce these permits. In addition, each section of Chapter 3, Environmental Setting, Impacts, and Mitigation Measures, identifies the pertinent regulatory agencies, standards, plans, and policies for each area of potential impacts. Mitigation Monitoring requirements are discussed on pages 1-5 through 1-6 of the DEIR.

II

PO Box 656
Laytonville, CA
95454
28 May 1997

Dept. of Planning & Building
501 Low Gap Road Room 1440
Ukiah, CA 95482

Re: Case # U26-93 Milick Regional Solid Waste Facility
aka Cold Creek Compost

I am a longtime Mendocino county resident and property owner. I am writing to strongly oppose the Milick / Cold Creek Compost facility & urge you to immediately shut down this menace to our county. II1

This operation is operating without legal permits & injuring its neighbors, & possibly those down river, adversely. It is too large for its present location & should not be allowed to bring in waste from 5 other counties. II2

The draft EIR, furthermore, does not address serious environmental impacts of toxicity, odor, pathogenicity, noise, & visual aesthetics. II3

I also object to spending taxpayers money to rebuild an historic bridge / parkway / road to service this private outfit. II4

This operation is a blight to the integrity of all that surrounds it. II5

Please help protect us from this monster & keep Potter Valley from being destroyed. Thank you.

Sincerely,
Patricia Kovner
PATRICIA KOVNER

II. PATRICIA KOVNER

II1 The commentor is strongly opposed to the project, and considers it a "menace to our county". She urges the Planning and Building Department to shut the facility down.

II2 The facility is operating with permits required by regulatory agencies. Section 2.2.12 on page 2-12 through 2-13 of the DEIR identifies permits required for the project and regulatory agencies that enforce these permits. On importation of wastes from other counties, see response to Comment 13-24.

II3 Odor and pathogenicity are addressed in DEIR Section 3.3, Air Quality. Noise is addressed in DEIR Section 3.4, Noise. Visual aesthetics are addressed in DEIR Section 3.1, Visual. Toxicity of feedstocks is discussed in Section 3.5, Public Health and Safety. See also the response to Comments Q5 and D22.

II4 The bridge replacement project is not being undertaken to service this project, but is to improve traffic safety on Potter Valley Road.

II5 The commentor amplifies her stringent opposition to the project.

JJ

June 4, 1997

Francine Long
6700 N. Horseshoe Circle
Ukiah, Ca. 95482

RECEIVED
JUN 05 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

Mendocino County Department
of Planning and Building
501 Low Gap Road
Room 1440
Ukiah, Ca. 95482

RE: Case No. U 26-93, Milick Regional Solid Waste Facility, aka "Cold Creek Compost"

Dear Commission Members,

Attached is a copy of a form letter which I fully endorse and have signed. I ask that the attached form letter become a part of this letter and all the points enumerated therein to be considered as a part of this letter. JJ1

In order to save the Commission members the time and effort of reading the same items, but worded somewhat differently, I have simply chosen to integrate the existing letter into this one.

I have lived on my property for 27 years. We bought when there was nothing here, no water, no phone, no electricity....nothing. Over the course of years a great deal of money, planning, physical labor, tears, sweat and blood (my husband was killed in a tree falling accident on this property 13 years ago) has gone into developing this property.

When we bought the raw land from Max McKee we were assured by the county, which was anxious to increase the tax base by having the subdivision parcels added to the tax base, that this was to remain a fairly pristine area. The parcels are large, 10 to 40 acres for the most part. The surrounding area and the Guntly ranch were to remain "ranch property" or possibly be subdivided into similar large subdivision parcels. There was no hint that any commercial enterprise, much less a large, noisy, smelly and perhaps dangerously toxic enterprise would be considered in the area affecting our properties. JJ2

Most of us who live in the primarily affected area across the canyon from the "project" have been here for many years. I have been here 27 years. Others have been here for similar lengths of time, a few for 20 years, 12 years and so forth. This is a salient and relevant fact because we have invested very large portions of

our lives into our properties. We were building for what we anticipated would be our retirement years to be enjoyed on properties that we had built literally with our own hands.

We also were building an investment. We bought our properties because they were situated in one of the most beautiful areas of Mendocino County. We had the Russian River recreational park at the foot of our properties, we had Lake Mendocino just a few minutes away, Ukiah in 15 to 20 minutes. It's ideal...who could ask for more?

We fully expected that all our hard work would result in highly desirable properties which would, should the day arrive when we could no longer take care of our properties due to age or illness, be worth a good deal of money. It was our INVESTMENT for our futures.

The value of this investment is being ripped away from us. Not through any fault of our own nor with our consent, but with amazing unconcern by others who should be concerned with our welfare and wellbeing.

Our concerns have been pushed aside at every turn. Our complaints have been discounted. We have been branded NIMBYs and dismissed as malcontents standing in the way of "progress".

We are not any of the above. We want only to have our rights as citizens and property owners protected by the County officials entrusted with that responsibility.

The DEIR does NOT address some very serious concerns.

1. The DEIR concerns itself with the noise level from the composting pad area. It makes the point that the composting area is roughly one mile from the nearest homes and discounts any impact the noise may make on those properties.

However no mention is made of the access road noise WHICH IS OUR REAL COMPLAINT AND PROBLEM. The road winding up the side of the canyon is steep, and it is about 1/4 mile from our properties and homes IN A CANYON! There is no place for the roaring, laboring truck noises to go except to reverberate between the canyon walls and into our homes. JJ3

Then there are the trucks exiting down the steep incline using "Jake Brakes". When they start popping it sounds like a small war in Central America is taking place in our front yards.

2. This noise produced by the trucks is unacceptable to any rational person and disrupts our present peace and quiet and the enjoyment of our properties. We should no be asked to make this

sacrifice of the quality of our lives because anyone, whether Martin Milick or anyone else, wants to run a business and make money.

3. The noise from the trucks reduces substantially the value of our properties. People who buy property in the country with all the inconveniences of gravel roads and so forth, buy for the QUALITY OF LIFE. They buy for the beauty, for the pristine views, for the peace and quiet. They do not buy to have the sounds of a small war being waged on their patios.

Please explain why we should have to lose a substantial portion of the value of our properties so a new commercial, money making enterprise can operate. Are we not being asked to subsidize the "project" because it will make money at the cost of our property value loss?

4. Mr. Milick is asking that he be permitted up to 80 trucks per day to drive the canyon access road. That means ONE TRUCK APPROXIMATELY EVERY 5 MINUTES. There will be little respite from the noise. And I stress that the road winds up a canyon and is steep. Fully loaded trucks roar and the noise produced ruins the quiet enjoyment of our properties to which we are entitled.

Empty trucks coming down the steep grade use the Jake Brake and we might just as well have a gunnery range across the canyon.

And 80 trucks per day will result in CONSTANT, UNENDING NOISE. Do you think this is fair to the residents who will be forced to endure this cacophony? Would you want it in your life? Would you object? Would you try to defend your property and it's value? You know you would, so please don't look at us as though we were trying to impede a good project. We do not have a "Dog in the manger" attitude.

5. The quality of enjoyment for the area residents who come to the Russian River and McKee County Park for recreation will be severely damaged. People want to enjoy the quietness of the setting. They want to hear the birds and the sound of the water running over the rocks. They want to hear the sound of the leaves rustling in the breeze and they want to "get away from it all" and relax. The public does not want to hear heavy, unceasing traffic noise. The sound of mammoth trucks roaring up and down the canyon access road will eliminate the greater part of their enjoyment of the river and the park. JJ4

6. The trucks will be carrying various materials up the road containing fly ash, grape pumice, a variety of manures from different sources, restaurant wastes, fishery wastes, green waste and sewage, euphemistically called "Bio-solids". The chances of a big rig tipping over on a steep and narrow canyon road is very great. With the number of trips proposed and the steep, narrow, JJ5

very winding road, the odds are almost to a certainly that eventually a load will roll down the side of the hill and wind up in the river. What then? Will it crush people in the river? Will it pollute the river and possibly the lake? What will be the ramifications? Will the County as well as Milick be sued for who knows how much money because an innocent family was wiped out in the accident? Will they allege the county should have known better because it was warned and the danger pointed out but the warning was ignored?

It can easily happen. It's not wise to either tempt or deny Murphy's Law.

7. Mr. Milick is not supposed to be running his trucks except in the hours allotted to him by the county. Right now and for as long as that order has been in effect, he has ignored it. His trucks run whenever is convenient to him. Sometimes as early as 4 A.M. the roar of a big rig will wake the dogs and the rest of us. Often his trucks run at 8 or 9 or even 10 P.M. Sometimes all we can see are the running lights because it is too dark to see which truck it is. If he has the inclination now to disregard the terms under which he was to operate, why should anyone imagine that should he gain his permit to operate that he will abide by any terms or limitations the county may impose.

JJ6

Past actions predict future actions.

8. Mr. Millick runs his water truck up and down the roads at all hours of the night going down to the river for water and then up to the compost pad or in that vicinity. He makes trip after trip after trip. He is certainly not watering the road. Even if he were it is at an unreasonable time and out of accord with his terms of operation. It shows his disregard for the neighbors and for the authority of the County.

9. The smells which are produced by the composting operation have not been adequately addressed in the DEIR. In fact not every day, but often, the smell from the operation wafts over our properties. It is repugnant and disgusting.

It drives us indoors when we want to be outside enjoying or yards or working on projects. Sometimes we simply load up the car and leave.

JJ7

These are our homes. We shouldn't be driven out by anyone for any reason.

Let me ask you how you would react if you were to go to a campground for a week of fun with your family. You set up your tents, your camping equipment comes out, the chairs are out, the fire is lit and the barbecue has begun. Suddenly a truck appears with Portapottys and deposits them and their odor within a short

distance of your campsite. Soon you begin to smell the unforgettable odors emanating from the little buildings. Your barbecue doesn't smell so good anymore. Not so appetizing. I wonder what you would do and how you would feel.

After all, it's only for a week. You should be able to handle that. Why not? We are being asked to put up with something very similar for the rest of our lives.

We have had to abort cookouts when we invited friends over to spend the day with us. Even eating cold watermelon on the lawn becomes impossible as the vile smell fills the nostrils and affects the tastebuds.

This is not addressed in the DEIR. It should have been.

10. At one time the Guntly Ranch was being considered as a landfill site. It is my understanding that the plans called for the access road to come off of Highway 20 about 1 mile past the Potter Valley cutoff and it would have been placed much further back onto the ranch property.

The access would have bothered no one, or at least only Guntly as far as I understand the issue. Certainly on 4000 or so acres a spot can be found that will not be offensive and damaging to innocent neighbors. Certainly an access road can be located in a much more appropriate area that will not cause the problems this badly placed road has caused. JJ8

We, the neighbors adversely affected by the problems forced upon us by Mr. Milick's operation, bear Mr. Milick no ill will. We do not want to stop him from making an honest living. We do not want to cause him undue expense or problems. We want him and the county to consider our problems and help us solve a mutual problem. Perhaps relocation of the road and site would solve both our problems.

11. There was no pre-existing operation of any kind on the Guntly Ranch other than the raising of livestock. Mr. Milick began his operation without the benefit of a permit.

Without a permit and without notifying the neighbors who would be damaged by his operation, Mr. Milick bladed in a road destroying trees and ignoring proper protocol and procedure. JJ9

Those of us who are now paying a heavy price in the loss of value of our properties and in the loss of the quality of our lives due to Mr. Milick's operation were never given any opportunity to have any input at all at the projects inception.

When we called the Planning and Zoning office of the county and asked what all the blading activity going on was we were told that Guntly is just improving the ranch roads. Later when trucks

started hauling materials that stunk to high heaven we were told that Guntly is just spreading fertilizer on his ranch.

Both statements are absolutely misleading and prevented us, the neighbors, from being involved in any portion of the planning of Mr. Milick's operation. If we had been notified of his intentions and if we had been allowed input this whole very unpleasant situation would never have gotten to the unfortunate point at which it has arrived.

All our costs, our energies, our enjoyment of life would not have been wasted in litigation. None of the members of this Commission would now be involved in trying to solve a situation that did not need to evolve.

I am convinced that the DEIR is **NOT** a responsible work. It whitewashes everything and does not go into the problems sufficiently. It operates under the color of being a well thought out and professional study but it is obviously deficient.

An issue that greatly troubles me is that the neighbors, the people who brought the lawsuit to protect their properties, were never contacted by the people who prepared the DEIR. They did not so much as ask what our experiences were or what we observed or in any way show any concern for our problems. JJ10

How can they address those problems when they don't even know what they are? I consider the DEIR to be badly flawed and extremely biased. I cannot accept it as a professional, objective document.

It shows that the preparers of the DEIR had an absolute unconcern with the problems of the damaged neighbors and were concerned only with providing relief to Mr. Milick.

There are many other significant problems with the operation of this facility but I hope the items I addressed will be sufficient to cause you to think seriously about the ramifications this operation causes.

Also attached to this letter are the following articles and publications that I believe are vital to the understanding of the effects of bringing in human waste in the form of sewage sludge. JJ11

1. SLUDGE UNDER SUSPICION Farm Journal March 1992
2. WHAT'S IN THAT SLUDGE Farm Journal June/July 1992
3. SEWAGE SLUDGE FROM NEW YORK CITY Audubon Nov./Dec. 1996
4. THE NATURE AND PROPERTIES OF SOILS (See especially 18.7)

If Mr. Milick is granted the permit he requests and the access road is left in place and the damaging properties of his operation are not cured then I respectfully make the following request.

Since our lives and properties will be very adversely affected I propose that either Mr. Milick or the County of Mendocino purchase our properties for the reasonable amount they would be worth if they were not devalued by "the project". Allow us to relocate in a different area where we will not be forced to endure the problems being forced upon us. Pay for the packing and moving costs and other associated costs. JJ12

I am now 61 years old. My Mother is 84. We are both widows. It's a little late in life for us to simply move and start over!

However we are being left little choice.

I ask you to please carefully consider the points brought before you in this letter and in other letters you may receive.

We are genuinely concerned for our quality of life, for the value of our properties because they were our investment for our future.

Consider that Mr. Guntly's ranch is very large. There is no overriding reason why the project has to be so badly located nor any reason why the access road has to exist in a steep canyon across from our homes and over the beautiful Russian River. JJ13

This is a case where what is probably a good project is badly located. You can help solve this problem if you want to. You can devise a solution that will work for everyone if you choose to do so. Mr. Milick can have his composting operation and we can have the value of our properties and our quality of life preserved.

It's in your hands. You can act with the wisdom of Solomon and bring honor to your actions or you can refuse to mediate a reasonable solution and foster ill feelings, anger and a dozen other problems. JJ14

In my judgement probably the best and least costly and most effective solution would be the OFF SITE ALTERNATIVE contained in the DEIR. Allow Mr. Milick to relocate the operation to Covelo where he already operates a composting facility.

Since he already has an approved and ongoing business and is a member of the Covelo community he can easily include the materials planned for the Cold Creek Compost site to the Covelo site.

My understanding is that he would be welcome there and thus a host of problems would be alleviated for everyone.

I urge you to consider with all seriousness the OFF SITE ALTERNATIVE as a logical and fair solution. 8

I hope you choose the high road and protect the residents, property owners and citizens who are depending on you and your wisdom.

Thank you for taking the time to read this letter and the attached articles and form letter.

Sincerely,

Francine Long

Francine Long

DATE: JUNE 4, 1997

FROM: FRANCINE LONG
6700 N HORSESHOE CIR.
UKIAH, CA 95482

TO: Mendocino County Department of Planning and Building
501 Low Gap Road, Room 1440
Ukiah, CA 95482

RE: Case No. U 26-93, Mileck Regional Solid Waste Facility, aka "Cold Creek Compost"

We object to approval of the Draft Environmental Impact Report (DEIR) on the above-numbered project and we object to the project itself. The DEIR relies upon incomplete, erroneous, misleading, and deliberately deceptive information with regard to historic and present fact, CEQA, Court and other legal mandates. The DEIR fails to accurately list or describe project alternatives including NO PROJECT, misstates and underestimates significance of adverse impacts, and fails to analyze significant unmitigatable adverse impacts on the environment from this project, including but NOT LIMITED to:

1. Toxicity and pathogenicity of materials transported, stored and handled in mass volume. Due to unique sensitivity of site and road to site above the Russian River, the water source for one half million people in three counties, materials should be analyzed alone, in combination with other materials, and in combination with water. Materials with potential for contamination of air and water include but are not limited to raw animal waste, street sweepings, winery waste, brewery "activated sludge waste," lime, gypsum, human sewage sludge, and the boiler and scrubber ash from the Masonite Corporation, and all other materials.

2. Visual impacts of large turquoise reflective metallic structure placed in a formerly pristine, natural setting. Prior to project, this site was an oak-forested mountaintop. With described expansion this will be one of the largest industrial structure complexes in Mendocino County. Because of its position on a mountain top and because of its incompatibility with all surrounding land uses, this presents significant visual degradation affecting residents and visitors up to 15 miles away. During afternoon hours, the reflective metal structure produces a blinding glare visible to thousands of residents and visitors to greater Potter Valley.

3. Visual, noise, water quality, and air quality impacts of illegally bladed road to project, including hillside slicing, debris dumped into Russian River, removal of natural vegetation on east bank of River, erosion, and cumulative visual degradation of a natural riparian and rural-forest setting.

4. Geology, topography and seismology of site, including but not limited to ridgetop location, steepness of slope and approach, porosity of shale formation, stability, potential for earthquake (estimated at 100% in Conway Report), erosion, compaction, and soil productivity impacts from site and road excavation, and off-site development.

5. Impacts on air, water, soil, wildlife, aquatic life, and humans from proposed land-spreading of industrial petroleum waste ash, greenwaste, brewery "waste-activated sludge," human sewage, and other substances disposed off by land-spreading off-site.

6. Traffic impacts, including impacts of 80 big rig truck trips per day-- a 25% increase in cumulative truck traffic--on safety and serenity of residents, visitors and users of the McKee County Park.

7. Site-specific and cumulative Impacts of site, road to site, and off-site operations on birds, fish and wildlife, including Endangered, Threatened, and Sensitive species, and other proposed-listed and unique species.

8. Site-specific and cumulative impacts of removal of native vegetation, including old growth oak and other vegetation on site, on road to site and at off-site operations.

9. Air quality impacts from transport, dumping, and turning of waste materials, including dust, stench, diesel fumes, spillage, and air and windborne particulates and pathogens on site, on road to site, and within a five-mile radius of site. Residences lie within one-quarter AIR mile of site, and only a few hundred feet from road to site. Ridgetop topography will cause winds to carry pathogens, odor and particulates far into the Potter Valley, affecting hundreds of residents to the north, west, east, and south of project.

10. Noise, including truck, equipment, and grinder operation on site, on road to site, and at offsite operations to residences as close a one-quarter AIR mile and visitors to the McKee County Park.

11. Public health impacts, including pathogenic contamination of air and water generated by transport and storage of huge volume of waste material, including but not limited to aflatoxin (aspergillus), salmonella, e. coli and other contaminants, on residents as close as one-quarter AIR mile and as far as five miles from site, and users of McKee County Park.

12. Public health impacts from heavy metals, dioxins, furans, benzene and other carcinogenic and toxic substances found in Masonite boiler and scrubber ash. Masonite ash is not "wood ash," but is the end product of burning millions of gallons of petroleum waste products such as "Fuel Oil #6 and recycled motor oil, as well as remnants of Masonite's own toxic glueboard.

13. Public health impacts from carcinogens and toxins contained in treated sewage sludge, including but not limited to pathogens including salmonella and e.coli, heavy metals, and radioactive hospital waste.

14. Impacts of illegally pumping up to 21,000 gallons per day of water from the Russian River and/or Cold Creek. Neither project nor landowner has legal right to pump and/or transport water to a leased commercial enterprise more than two miles from source; nor does landowner possess rights to water from the Russian River.

15. Fire hazard from lack of on-site water source.

16. Air quality and public health impacts from inability to properly handle and moisten materials due to lack of on-site water source.

17. Spread of contaminants by vectors to wildlife, domestic livestock, and human residents from one-quarter AIR mile to 15 miles distant.

18. Impact of spread of contaminants, toxins and pathogens through marketing of toxic ingredients in "mulch" and "compost." Failure to label contaminants, heavy metals, and sewage sludge on materials sold as safe for food production.

19. Impacts of non-permitted storage of waste materials far beyond perimeters of 10-acre compost pad, including storage of brewery "waste-activated sludge," yard waste, lime, gypsum, Masonite ash and other materials stored over 1800 feet from site.

20. Odor, public health, and other impacts of "static-pile" composting, i.e., failure to turn and moisten raw materials.

21. Noise, traffic, public health, odor, and cumulative impacts from expanding hours of operation from 13 hours per day to 24 hours per day, including unannounced night operations at project's discretion.

22. Incompatibility of project's industrial use with surrounding land uses including rural residential, recreational (McKee County Park and the Mendocino National Forest), and its own previous zoning as Agricultural Preserve.

23. Archaeological, historical and cultural impacts.

24. Responsibility for monitoring of water quality, air quality, odor, and public health, and the public's right to know under the Clean Water Act and Clean Air Act. Responsibility for clean-up of potentially toxic spillage and contamination on site, on road to site and at off-site operations.

25. Impacts on recreational uses of the McKee County Park, including noise, dust, visual degradation, public health impacts of potential air and water contamination, reduced parking and access, and incursion of industrial operation and traffic into formerly serene riparian public Park.

26. Cumulative impacts on water quality, including degradation of the source of water of one half million humans served by water from the Russian River adjacent to and below this project.

27. Cumulative impacts on air quality from generation of particulates, dust, odor and diesel fumes.

28. Cumulative impacts of project including but not limited to impacts of importation of waste into Mendocino County from six or more other counties, degradation of environment and quality of life to residents of Potter Valley, a community of 5,000 people from waste-truck traffic, odors, visual degradation, wildlife impacts, and other cumulative impacts.

29. DEIR contemptuously proposes mitigations which are ineffectual and/or which exacerbate significant adverse impacts, e.g., eliminating parking along McKee Park, and posting a "windsock" at compost site as "mitigation" of air quality impacts.

30. DEIR fails to accurately list or describe or offer alternatives to project including NO PROJECT. DEIR falsely describes NO PROJECT as existing project without permit, in contempt of CEQA. NO PROJECT means restoration of site, road to site and off-site operations to pre-project conditions of undisturbed natural oak forest, meadowland, and riparian landscape.

We request that this letter in its entirety be included as Comment on the Draft Environmental Impact Report and that all Comment be addressed and incorporated into the final Environmental Impact Report.

SIGNED,

Francine Long 111-164

JJ. FRANCINE LONG

JJ1 For responses to the form letter, see responses to comment letter VV.

JJ2 Comment noted. The commentor feels that her concerns have not been taken seriously, and that the project decreases the value of her property. Decrease in property value as a result of a project is not generally considered a significant environmental impact under CEQA. This issue may, however, be considered in the decision making process for approval of the project.

JJ3 See response to Comment Q47. With regard to the frequency of truck traffic, see response to Comment 13-5. As can be seen in Table 13-2, the at full operational capacity there will be an average of 12.4 total truck roundtrips per day. The commentor is incorrect in stating that there will be one truck trip approximately every five minutes – this dramatically overstates the effects of the project.

JJ4 Potter Valley Road runs alongside the East Fork Russian River and McKee County Park. Truck traffic volume on Potter Valley Road, exclusive of all truck traffic associated with the composting facility, is roughly four times the peak level projected for facility-related truck traffic (310 trucks per day vs. 80 trucks per day). Therefore, the truck trips generated by the project on peak demand days would not introduce truck noise to Potter Valley Road, but would rather incrementally add to the existing truck noise originating from Potter Valley Road.

As stated under Impact 3.4.1, page 3-44 of the Draft EIR, the highest noise level experienced by people at the nearest residence on the western edge of Potter Valley Road when a truck descends the project access road would be below the 55 dBA, L_{dn} specified in the 1995 Conditions of Approval for the project. The resulting also be well within the normally acceptable standard of 60 dBA for residential-low density areas, as stated in the Mendocino County General Plan.

JJ5 The possibility of a loaded truck descending the access road to lose control and crash was raised at the March 20, 1996 Public Scoping Meeting. The EIR consultant considered the possible environmental impacts of this occurrence, and found them to warrant further investigation. The part of the access road that is close to the East Fork Russian River is flat and straight. The steepest, windiest, and therefore most dangerous portion of the road is above the quarry. This portion of the road is several hundred feet above and away from the River. In order to pose a safety threat to people in or along the River, or to pose a threat to water quality, a loaded truck leaving the access road out of control would have to roll several hundred feet over rough, varied terrain. Far more likely, the truck would spill its load on the hill side and come to rest well short of the River. The Draft EIR, on page 3-66 (under Mitigation Measure 3.6.4), identifies measures that the applicant shall implement to ensure the safe use of the project access roadway. These measures include posting a speed limit on the road, reviewing the current system of radio control to coordinate truck movements on the road, preparing an accident reporting system to allow immediate contact of emergency services, and maintaining the access road for safe driving conditions.

JJ6 Comment noted. The facility is currently limited by provisions in its SWFP and County Use Permit to operate from 7 a.m. to 6 p.m. Monday through Saturday. See response to Comment 13-22 regarding hours of operation. Very limited nighttime operation are now proposed. Any complaints regarding facility operations during off-hours should be directed to the County Department of Health Services, the Local Enforcement Agency.

JJ7 Please see responses to comments J4, DD29, and DD50.

JJ8 This EIR does not identify any significant, unmitigatable impacts associated with the access road or with the facility itself. The County as Lead Agency has, however, decided to evaluate other access routes to the site. Two alternative routes have been identified. These roads are shown on Figure C&R 1 (see comment Q6).

Alternative Route A would involve upgrading an existing ranch road that intersects with the existing access road several hundred feet north of its intersection with Potter Valley Road. The route would climb through the Silver Creek drainage to the ridge separating Silver Creek from Cold Creek. The road eventually intersects with another existing ranch road that accesses the facility location from the south. This route might have less of a noise impact on neighbors living across the East Fork Russian River and Potter Valley Road, since it climbs through a canyon perpendicular to the canyon of the East Fork, and away from the River. Because of the steepness of the road, however, loaded trucks would still, for safety, likely have to use jake brakes on the descent. The applicant originally considered this road as a possible route to the site, but rejected it because of its proximity to Silver Creek, and the likelihood of significant water quality impacts associated with improving the road for all-season access for large trucks. Upgrading this route would, furthermore, likely have some biological impacts, as it would involve tree removal, soil disturbance, and construction close to Silver Creek.

Alternative Route B would access the site from State Route (SR) 20. Approximately 1/2 mile east of the intersection with Potter Valley Road, SR 20 crosses Cold Creek. Just before the crossing, a small road intersects the highway and enters the Guntly Ranch. Alternative Route B would use this road, and extend it to connect to the road on the ridge between Cold Creek and Silver Creek. This would involve constructing a new road up to the ridge, a climb of approximately 300 feet. The ridge road is the same one used in Alternative Route A. This road would be improved, and again, access to the site would be from the south. This route would likely have several environmental impacts. One potential impact is traffic safety for trucks egressing and ingressing the access road to and from SR 20. Another is the potential biological impact associated with cutting a new, relatively high standard road into the hillside, and the lesser impacts associated with upgrading the existing ridge road. Since there are several residences on the ridge on the opposite side of Cold Creek, it is quite likely that they would be affected by truck noise in a similar fashion to the facility's neighbors who now hear trucks on the existing access road. The new road would also have some visual impact, as it would be visible to residents across the valley, and to motorists on SR 20. SR 20 has not, however, been designated as a scenic route in the County General Plan's Scenic Highways Element.

Although the two alternative access roads discussed above would reduce noise from the access road at some residences, the development and implementation of these access roads would result in construction-related environmental impacts that would not occur

with the project (since the access is developed already). Noise generated from the use of the Alternative Route B would have a less-than-significant affect on a new set of residential receptors.

JJ9 Comment noted. The commentor notes that the access road and the facility were originally built and operated without permits. She believes that public input into the planning of the facility would have helped avoid the litigation over the project.

JJ10 The commentor believes that the DEIR is deficient. She states that the EIR consultants who prepared the EIR did not contact neighbors of the facility. In fact, a representative of ESA, the EIR consultant, attended the Public Scoping Session, and the Public Hearing. ESA staff have also reviewed all correspondence from neighbors that have been received by the County Planning and Building Department. Several ESA staff have visited the Cold Creek Compost facility to observe operation and to make observations about the effect of the project at nearby sensitive receptors. ESA staff looked for and photographed key off-site viewpoints (that would be affected by the project), measured noise at nearby off-site receptors and observed the odor intensity at the compost pad and at locations just off the property.

Furthermore, in response to several issues raised in the comments on the DEIR, ESA staff and ESA's subconsultant composting expert again reviewed CCCI's facility and operations with regard to many issues brought up by the commentors (odors, dust, visual impacts, processing of incoming materials, secondary containment for the leachate tank, etc.).

JJ11 The articles attached to the comment letter were reviewed. None refer directly to this project.

JJ12 Comment noted. The Planning Commission and the Board of Supervisors should take note of the fact that this commentor feels that the facility has greatly diminished her ability to enjoy her home.

JJ13 The facility's nearest neighbor is approximately 4,800 feet away from the compost pad. This does not suggest that the facility is badly located. The commentor also feels that the access road is poorly located.

JJ14 The commentor urges selection of the Off-Site Alternative.

For responses to the form letter attached to this comment letter, see responses to VV.

KK

RECEIVED
JUN 05 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

176-180-01-00
Magruder Elizabeth JaneTTEE
Potter Valley, Ca 95469

June 5,1997

County of Mendocino
Department of Planning and Building Services
Room 1440
501 Low Gap Road
Ukiah, California

Re: CASE #U 26-93 DEIR - Commments invited.

As a landowner and neighbor I favor this Project. It will benefit the County; Those interested in Sustainable Agriculture;Those interested in the Envireonment. KK 1

Elizabeth Jane Magruder, TTEE
Elizabeth Jane Magruder TTEE
Elizabeth Jane Magruder Rev. Trust

KK. ELIZABETH JANE MAGRUDER

KK1 The commentor favors the project, and believes that it will benefit the County, sustainable agriculture, and the environment.

LL

JOHN MAYFIELD, Jr.
P.O. Box 1460
Willits, California 95490

RECEIVED
JUN 05 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

June 4, 1997

Tom Piper, Member
Planning Commission
County of Mendocino
501 Low Gap Road, Rm. 1440
Ukiah, CA 95482
Fax: 463-5709

Re: Cold Creek Compost Application

Dear Mr. Piper:

It is important that this compost facility which is scheduled for hearing on June 5 be approved and permits be issued so that it can continue to operate. This facility provides a much needed composting operation for the greater Eastern half of Mendocino County.

I recognize there has been much controversy and allegations made by people opposed to this project. In reading the public documents with regard to this application, I have found that most of the allegations and charges are not substantive but are the usual flack that any project attracts from the same group who opposes any progressive or new projects in Mendocino County.

LL1

I urge your favorable consideration and affirmative action regarding this proposal.

Sincerely yours,

John M. Mayfield, Jr.

JMM:lsa

LL. JOHN MAYFIELD, JR.

LL1 Comments noted. This letter supports the approval of the project.

MM

RECEIVED
JUN 02 1997
BY PLANNING & BUILDING SERVICES
Ukiah, CA 95482

DALE McCULLEY . 7360 POTTER VALLEY RD. . UKIAH, CA 95482
Voice 707-743-1168 . fax 707-743-1903 . email cavideo@pacific.net

The following comments pertain to the DEIR on Case#U 26-93, an application by Martin Mileck, Cold Creek Compost, Inc., for a mixed solid waste composting facility permit.

1. 3.1.1. (Visual impact) It is significant that the pictures of the compost site with its metal roof were taken from two of the lowest spots in the nearby area. Had they been taken from the deck of my home, which is at approximately the same elevation as the compost facility, the roofed area, which is proposed to be enlarged, would be clearly visible. Why is it not feasible to paint this structure in tones of brown and/or green to minimize its industrial character? MM1

2. 3.3.2 (odors) To speculate about potential odor problems resulting from an enlarged operation without a data base which includes future feedstocks, and varied combinations of feedstocks, is unscientific and blithely optimistic. MM2

3. 3.3.3.(Aspergillus) Analysis of wind patterns at the site overlooks a significant weather phenomenon, heretofore highly prized by residents in the hills on the west side of the valley. At night, cooler air slides down the slopes and collects on the valley floor. When the morning sun warms this cold air, it expands and moves up the slopes, creating a pleasant morning breeze. The implications of this air movement in terms of both Aspergillus spores and odors are ominous. All night long the air surrounding the composting site will migrate downward to collect and concentrate on the valley floor, where it will remain until the heat of the sun drives it uphill to nearby residences. There is no indication in the DEIR that any tests have been done to evaluate this potential hazard to homeowners. MM3

4. 3.4.1, 3.4.2., 3.4.3. (noise problems) The simplistic conclusion that because the present composting activity produced no signficant dBA increase there is therefore no noise problem completely ignores the **qualitative** aspect of sound. For example, it would be possible to record the agonized screams of a terminal cancer patient and play them back at a level that would scarcely tick the meter needle. But which of the ESA staff would find such a sound acceptable if it were broadcast outside his home for several hours a day? Conversely, waves crashing on the shore near a seaside home may significantly elevate the dBA, but few would find it objectionable; in fact, many residents pay premium prices for homes within earshot of the surf. Those of us who purchased property in areas now adjacent to the compost facility were prepared to accept the sounds normally associated with a rural environment. What we're not willing to accept is the kind MM4

of noise inevitably produced by an industrial complex, foisted upon us without prior knowledge or community input. A partial mitigation of this most egregious violation of our legitimate property rights might be achieved by relocating the access road. It's interesting to note that the map supplied with the DEIR shows jeep trails connecting Potter Valley Road with the compost site. Any consideration for nearby residents would have dictated such a route in preference to the one chosen by the applicant.

5. 3.5.3. (potential public health hazards) While monitoring of heavy metals is specified, there is no indication that end use conditions have been factored into the supposed acceptable levels. Low pH in the soil, for example, will result in a high crop uptake of many such metals. MM5

6. (Enforcement) It is not encouraging to discover that enforcement of the standards for the compost facility will be delegated to county agencies which in some instances seem to have colluded with the applicant to the detriment of the general welfare. Therefore the most stringent protective measures must be adopted at the outset, since little can be expected from regulatory agencies. MM6

Signed: _____ Date: June 1, 1997

Dale McCulley

MM. DALE MCCULLEY

MM1 Please refer to response to Comment DD32. To the best of our knowledge it would be feasible to paint the structure another color. Although the EIR does not recommend this mitigation, the EIR does not say that it is infeasible to paint the roof another color.

MM2 Odors are considered a less-than-significant impact because of the distance of the site to the nearest neighbors, and the requirement for the facility operator to follow best management practices for odor control. Please see also responses to Comments J4, DD29, DD50 and 10-2.

MM3 See response to Comments H2, H3, DD29 and DD50. These responses include information related to extensive *Aspergillus* tests conducted at a variety of composting facilities.

MM4 Noise levels were monitored and evaluated against the County's standards, as contained in the County General Plan. The recorded noise levels were not found to be a significant impact under CEQA. The qualitative aspect of noise impacts is also evaluated in a qualitative way by noise analysts. The qualitative aspects of noises do not seem significantly out of character of sounds normally associated with a rural environment in which machinery and large vehicles are often used for agricultural purposes. See response to Comment Q47.

Please refer to response to comment JJ8 for a discussion of potential alternative access roads. These roads are shown on Figure C&R 1 (see comment Q6).

MM5 In formulating the part 503 rules regarding beneficial use of biosolids, the US EPA conducted extensive risk analysis. Please refer to *A Plain English Guide to the EPA Part 503 Biosolids Rule*, page 3, published by the USEPA (EPA/832/R-93/003). For convenience, this referenced page is provided as Attachment D of this Response to Comments Addendum.

MM6 Comment noted. The commentor seems to distrust the County agencies responsible for regulating the facility, and urges that "...the most stringent protective measures must be adopted at the outset...."

NN

June 4, 199

As a farmer in this community, I support the approval of the E. I. R. on the Cold Creek Compost Facility. This business is a vital part of the farming community. By furnishing compost material to the local farmers, it saves on transportation costs which could be a large expense. It would be very beneficial for the farmers at this location. NN1

Bill Neese

Bill Neese
401 School Way
Redwood Valley, Ca 95470

Post-it® Fax Note 7671	Date 6/4/97	# of pages ▶
To Planning Comm.	From BILL NEESE	
Co./Dept.	Co.	
Phone #	Phone # 485 4488	
Fax # 707-463-5709	Fax # 485-5443	

NN. BILL NEESE

NN1 This is a letter of support for the EIR and the Cold Creek Facility project from a local farmer. It identifies the benefit to transportation and costs of having a local supplier of compost.

00

Mendocino County Board of Supervisors
Dept. of Environmental Health
Dept. of Planning & Building Services

June 5, 1997

RE. Draft Environmental Impact Report
Cold Creek Compost Facility Use Permit (U # 26-93)

To Whom it may concern,

My name is Vicki Oldham. I have lived in Potter Valley for 18 years. Since the spring of 1994 I have observed with dismayed interest the development of Cold Creek Compost Inc. (CCCI) To inform myself I have attended many various public meetings and hearings, read the Report of Composting Site Information (RCSI), studied a document called, Conditions for Approval for Use Permit # U 26-93, read pages of Air Quality Tests on Masonite emissions and test reports of Masonite ash, and I have also read Ukiah Landfill Logs re: tons per year (TPY) of Masonite ash received and CCCI incoming materials log. I visited the site Jan. 2, 1995 and just finished reading the Draft Environmental Impact Report (DEIR). I have seen mitigations mitigated, more feedstocks added, restrictions relaxed, terms changed, traffic increased, violations committed and lies told resulting only in slapped hands.

In my opinion there are several issues inadequately addressed in the Draft Environmental Impact Report.

Most important is the toxicity, use, storage and land spreading of boiler and scrubber ash from International Paper's, Masonite division. There have been many concerns from Potter Valley residents about importing IP/Masonite ash into the valley and storing it above the Russian River. First classified as a feedstock, the ash has been reclassified as an amendment or additive at the request of CCCI. The reason being, feedstock can't be stored on site and has to be processed into windrows within 72 hours as a mitigation for odors and vectors. Also, the facility is limited to 50,000 tons of incoming feedstock a year. CCCI is proposing to receive up to 10,000 cubic yards of amendments and additives annually, which can be stockpiled indefinitely. According to the Ukiah Landfill Logs I read, IP/Masonite generates about 6,000 tons of ash per year (TPY). Excess ash that can't be sold or mixed with compost can be applied directly to the soil on 400 acres of Guntley Ranch and 200 acres of M&M Ranch. Some land spreading of ash has already occurred on Guntley Ranch. The DEIR [Public Health and Safety Section, Impact 3.5.1 pg. 3-52] states, "Both fly ash and scrubber ash are derived from wood used to fire Masonite's generator." According to Citizens for a Healthy Ukiah, in addition to burning redwood bark and wood scrap, IP/Masonite is permitted to burn Fuel Oil #6, trim waste from finished products and quality control rejects. IP/Masonite has four boilers with Boiler #4 being the dirtiest, burning the most fuel oil and generating the most ash. According to the Air Toxic Emission report for Masonite, 1991, the last year of public record, Masonite burned 3,480,409 gallons of Fuel Oil #6 combined with recycled oil. Fuel Oil #6 is a waste product and among the dirtiest of fuels. According to the emissions study (Acurex Corp. 1991). Benzene, EDC, Toluene, and Xylenes are emitted from burning Fuel Oil #6. [Benzene and Toluene have been found in the Ukiah landfill.] The emissions report states that the greatest emissions come from Boiler #4. Along with thousands of pounds of formaldehyde, IP/Masonite emits into the air annually an assortment of heavy metals a well as dioxins, furans and PCB's. All the heavy metal emissions, e.g., "hexavalent chromium, arsenic, cadmium, lead, beryllium, manganese, mercury, nickel, selenium and zinc", came from the boilers, chiefly boiler #4. The primary sources of formaldehyde were the waste water ponds, where the scrubber ash settles. These same heavy metals, dioxins and furans have been found in the ash. It will be argued that

001

002

yes, the ash does contain these toxins, but in insignificant amounts. Dioxin and many heavy metals are bio-accumulated, which should be considered before using ash on food crops or land spreading in a watershed (Guntley Ranch).

According to the DEIR, [section 2.1.3 CHANGES TO PREVIOUS PROJECT, #11 pg. 2-9] "Auxiliary Storage Areas have been identified for the storage of amendments and additives. The applicant proposes to store these materials on the compost pad, or on flat areas near the three water storage tanks." On pg. 3-11 of the DEIR it states, "If stormwater were to contact lime or ash, or if stockpiled materials were otherwise saturated, they would have the potential to contaminate run off from the site. The run off would have a high pH, which would be hazardous to humans, wildlife, and aquatic organisms." How could anyone who cares about water contamination even suggest IP/Masonite ash be stored off pad and or land spread in a watershed. IP/Masonite ash should not be allowed as an amendment or imported into a watershed. The responsibility of fly ash disposal is that of the ash generator, IP/Masonite. They should be making glass bricks, to seal in fly ash toxins, rather than further spreading them into the environment. 003

McKee County Park wasn't even mentioned in the Siting studies, Negative Declaration or the Conditional Use Permit for CCCI. It was addressed in the DEIR as a traffic issue only. The nuisance factor of CCCI's traffic, noise and smell needs to be addressed.

McKee County Park was donated to the county Dec. 17, 1969 by McKee and sons. This beautiful riparian corridor is two miles in length. Unfortunately, the new and originally un-permitted road servicing Cold Creek Compost runs the length of this once peaceful parkway. County Parks established a nature-study and portaging trail along the river. This area of the Russian River has a beautiful stretch of rapids. It is a favorite spot for kayakers, tube riders, and just plain floaters who make day trips from McKee to Lake Mendocino. It is also a very popular trout fishing area regularly stocked by Fish & Game. Wild berries, oaks, poplars, alders and many wild flowers shade and cool many visitors seeking respite from the scorching summer heat. This area provides habitat for snowy egret, blue heron, and osprey. Bald Eagles have been sited eating fish on near-by power poles. Seasonal visitors include mallard, merganser and canvas back ducks as well as Canadian Geese. In the hills of Potter Valley live Mountain Lion, Bob Cat, Black Bear, wild turkey, wild pig, racoon, opossum, deer, Cooper's Hawk, Sharpshinned Hawk, Red Tail Hawk and Golden Eagle. Many if not all of these creatures drink, hunt and fish in this area. The students of Potter Valley Elementary School use McKee Park as a field study area in the Adopt A Watershed Program. At peak times (Summer) there will be up to 40 round trips (every 7 min.) of foul smelling, noisy trucks traveling along and above this once peaceful area. 004

CCCI would like the neighbors to trust that they are acting in good faith. The project started off operating without a permit and constructing the road and compost pad without a permit. In the beginning they denied that they were considering IP/Masonite ash or the importing of biosolids. They have had various violations during their operations: feedstock and amendments stored off the pad, cattle gaining access to the pad, and run off from pad reaching stockpiled finished product. CCCI has a reputation in our community of doing what they want, and considering violation fines, the price of doing business. CCCI cannot be trusted to handle biosolids. 005

According to the RCSI, "weight and volume records relating to incoming and out going material will be recorded in units of pounds or tons". I have seen copies of CCCI's incoming materials log from 10-30-95 to 1-30-96. Under the heading Quantity (in tons) the weight recorded for incoming materials was logged as "1 load" 54 different times. How much does "1 load" weigh? How can we trust that incoming materials won't exceed 400 TPD or 50,000 TPY? 006

Monitoring of CCCI needs to be frequent and unexpected. Violations should be very expensive. The entire Guntley ranch should be inspected for hidden stockpiles of feedstock and amendments. 007

In the DEIR [Air Quality, Sensitive Land Uses pg. 3-29] states, "...Potter Valley High School is approximately four miles of the project site." It neglects to mention that there is a pre school, elementary school, and junior high school at the same site. 008

Regarding the alternatives, I am not naive enough to believe that option B--the Off-Site Alternative, is a consideration, although it would be my choice. I have always believed that an industrial composting project has no place on a ridge top above a major water course. In my opinion Alternative A--the No-Project Alternative should be considered with the added mitigation of no IP/Masonite ash allowed. 009

Respectfully,

Vicki Oldham

Vicki Oldham
11755 Mid Mtn. Rd.
Potter Valley, CA 95469

OO. VICKI OLDHAM

OO1 Masonite is apparently permitted to use fuel oil #6 as a fuel in boiler number 4. According to Mr. Scaglione, when Masonite uses fuel oil #6, it is heated to 180-200 degrees Fahrenheit, then atomized (Scaglione, op.cit.). This process allows for relatively clean burning. Fuel oil #6 creates an ash residue of .08%[3]. Thus one ton of fuel oil #6 would produce an ash residue weighing 1.6 pounds.

However, according to Robert Scaglione, Environmental Engineer, Masonite Corp., Masonite has not burned fuel oil #6 in boiler number 4 for several years. Currently, the primary fuel for boiler number 4 is redwood and douglas fir bark and chips from lumber mills. The facility no longer accepts wood waste from the Sonoma Landfill, because of uncertainties regarding possible contamination of painted wood. A second fuel source for boiler number 4 is sander dust and saw dust from Masonite's manufacturing process. (Robert Scaglione, telephone communication, August 5, 1997). This material contains approximately 1% phenol formaldehyde resin as a bonding agent[4] According to Mr. Scaglione, the plant uses natural gas as a supplemental fuel during the winter.

Masonite recovers two types of ash from boiler number 4: bottom ash, which is mechanically cleaned out of the bottom of the boiler, and fly ash, which is heads up the smoke stack and recovered in a water type scrubber. The slurry from the scrubber, which contains the ash, is placed in a shallow cement-lined pond for settling. Hydrated lime is injected periodically from a mixing tank to help flocculate the ash to the bottom of the pond. The ash sludge, which contains some residue of lime, is periodically pumped out of the pond and placed into an evaporation pond. This pond is dredged about every five years (Chass, Op.cit, pp. 9-10).

Cold Creek Compost has to date received both bottom ash and the evaporated fly ash sludge.

In 1994, Masonite sought approval from the NCRWQCB to use their boiler ash as a soil amendment on a hay field on Masonite property adjacent to the plant. Masonite conducted extensive testing of the ash, including testing for metals content, polynucleated aromatic hydrocarbons, dioxins, and furans. Five samples were tested: two from the scrubber ash dewatering pond, one of dry fly ash, and two of stockpiled bottom ash. The NCRWQCB determined that the ash is not a hazardous material. Based on this determination and Masonite's agreement to use best management practices in applying the ash to their own land, the NCRWQCB waived the prescription of waste discharge requirements and allowed land application of the ash on the hay field. Based on the NCRWQCB's findings that the Masonite ash is not a hazardous substance, and the NCRWQCB's opinion that the material, if handled and stored properly would not cause water quality problems, the Mendocino County Department of Public Health, Division of Health Services, in January 1996 allowed use of the ash at Cold Creek Compost without additional testing. Masonite continues to test the ash annually for metals as well as

[3] Buonicore, Anthony J. and Wayne T. Davis, eds., *Air Pollution Engineering Manual.* New York: Van Nostrand Reinhold, 1992. Published for the Air and Waste Management Association. Page 247, Table 1.

[4] Chass, Mark, Inspection Report, Cold Creek Compost, September 9, 1996. California Certified Organic Farmers. pp. 10-11.

benzene, toluene, and xylene, and conducts a bioassay test of the material. The results of these tests are sent to the LEA.

In September, 1996, California Certified Organic Farmers (CCOF) conducted an inspection of the Cold Creek Compost Facility to determine whether compost from the facility can be used as an organic soil amendment by CCOF members (Chass, op.cit.). The inspection included a site visit to the Masonite plant, collection of ash samples from Masonite, and independent laboratory analysis of the samples. The analysis included testing for metals concentrations and aromatic hydrocarbons. Samples included compost containing no ash; compost containing 10% ash; and bottom ash (fly ash was not tested). Test results, and comparison with pollutant concentration limits for compost, as set in the State composting regulations, are summarized in the following table:

Analyte	Compost: No Ash	Compost: 10% Ash	Ash	Reporting Limit	State Pollutant Concentration Limit
Arsenic	1.1	1.8	ND	0.1	41
Cadmium	0.2	0.2	0.8	0.1	39
Chromium	16	28	69	0.1	1200
Copper	44	36	122	0.1	1500
Lead	49	10	6.6	0.1	300
Mercury	ND	ND	ND	0.1	17
Molybdenum	ND	ND	ND	1	
Nickel	13	21	29	0.1	420
Selenium	ND	ND	ND	0.1	
Zinc	310	200	390	10	2800
Benzene	ND	ND	ND	.05	
Toluene	ND	ND	ND	.05	
Ethylbenzene	ND	ND	ND	.05	
Xylene	ND	ND	ND	.05	

SOURCES: Chass, op.cit; CCR Title XIV, Section 17868.2, Table 2. Units are mg/KG unless otherwise noted.

As stated above, the State of California, Department of Health Services reviewed the results of the 1994 testing of Masonite ash and expressed the opinion that it is not a hazardous material. The DEIR discusses possible impacts from stockpiled wood ash at the composting facility. Potential for contamination of storm water runoff might occur if piles are exposed to rain, or if they are otherwise saturated. The principal concern is the high pH of the ash (DEIR, page 3-11, paragraph 2). Mitigation Measure 3.2.1 (a) (page 3-20 of the DEIR) addresses this concern, through compliance with the facility's SWPPP. The SWPPP requires placement of materials, including additives and amendments, under the roof or under tarps during wet weather. Impact 3.5.2 on page 3-54 of the DEIR (last paragraph) notes that dry materials are to be covered immediately after receiving to prevent blown dust. See also revisions to this paragraph in response to Comment O42 and J5.

The state composting regulations require testing of finished compost product every 5,000 cubic yards of production. Testing is for metals concentrations and presence of pathogens.

CCOF has determined that Cold Creek Compost "Agrow Blend Plus," which contains 5-20% Masonite ash, is a prohibited material, meaning that it cannot be used on land or on crops in CCOF's certification program. CCOF has, however, designated Cold Creek Compost "Agrow Blend," which does not contain Masonite Ash, an allowed material, meaning that it may be used on land and crops in the CCOF certification program.

To ensure that public health and water quality are protected, Mitigation Measure 3.5.2, on page 3-56 through 3-57 of the DEIR is hereby amended as follows:

n. Ash from Masonite Corporation boilers shall be tested annually for pollutant concentrations during each calendar year in which it is accepted as an additive or amendment. Ash will also be tested prior to acceptance if Masonite begins burning fuels other than clean wood, natural gas, and residue from their manufacturing process. Ash will also be tested when the scrubber ponds are emptied. Ash will be tested for levels of heavy metals, dioxins, furans, and aromatic hydrocarbons. Test results will be forwarded to the LEA and to the NCRWQCB, where they will be made available for public inspection.

OO2 See response to OO1.

OO3 Comment noted. The comment does not address the completeness or accuracy of the DEIR. The commentor is of the opinion that Masonite ash should not be stored at the site but that IP/Masonite should be making glass bricks with the ash, to seal in the fly ash toxins.

OO4 Environmental Science Associate's consulting biologist for this project states that use of the facility access road may lead to increased road kill of wildlife. However, this is not expected to cause a significant impact. McKee County Park and the East Fork Russian River probably constitute an important wildlife corridor, as there is a relatively intact riparian forest along the River. Noise can have an impact on wildlife. Nesting raptors, for example, may be disturbed by sudden loud noises, such as from blasting (which is not proposed as part of this project). Most wildlife, however, acclimates to noise, as long as the noise is regular. Because there is already a major truck route on the other side of the River, the ambient noise levels at the Park are already affected by traffic noise. For this reason, and based on the scientific literature documenting the wildlife impacts of noise and other disturbances (based, for example, on aircraft overflights), noise would not cause a significant environmental impact on wildlife.

Because of the existing roadway (Potter Valley Road) on the opposite side of the River, noise from this project is not expected to have a significant impact on human users of the McKee County Park or the River. The lower stretch of the access road is approximately 200 feet from the River before it begins to turn away from the river and climb the grade. See also Mitigation Measure 3.3.2 (d) (page 3-33 of the DEIR) regarding odor. In regards to dust generation, the first 600 feet of the road will be paved to minimize particulate generation and the road must be covered with an all-weather material to minimize dust (section 2.3.12, pages 2-18 through 2-19 of the DEIR)

Mitigation Measure 3.3.1 on page 3-31 is hereby amended as follows:

Proposed as Part of the Project

a. The first 600 feet of the facility access road, from the point of its intersection with Potter Valley Road, shall be paved to minimize dust generation and entrainment of dust and soil onto Potter Valley Road.

OO5 Comment noted. The comment does not address the completeness or accuracy of the DEIR, but concerns the trustworthiness of the applicant. The DEIR has considered the potential effects of both ash and biosolids.

OO6 The facility now has a truck scale. All incoming and outgoing loads are now weighed, and the weights recorded.

OO7 Comment noted. Please refer to responses to Comments B3 and HH7.

OO8 Page 3-29 of the DEIR (fourth paragraph, second sentence) is hereby amended as follows:

> The closest school, hospital, or convalescent home is in Potter Valley, where a high school, elementary school, junior high school, and pre-school are located ~~High School~~, approximately four miles north of the project site.

OO9 Comment regarding the Off-Site Alternative is noted (this the commentor's choice). The commentor states the No-Project Alternative should be considered with the added mitigation of no IP/Masonite ash allowed.

Since the County would not be writing conditions of approval for the No-Project Alternative, this avenue of controlling the range of materials accepted at the site would not be in effect. The facility would still be subject to inspection and regulation by both the LEA and the NCRWQCB, though the facility would not require a SWFP. Either the LEA or the NCRWQCB could condition or prohibit the use stockpiling or use of ash, if they determined that it posed a threat to water quality or had other environmental impacts.

PP

RECEIVED
JUN 04 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

Esther M. Smith
2300 Power House Rd.
Potter Valley, CA 95469

June 2, 1997

Mendocino Co. Dept of Planning & Bldg.
501 Low Gap Rd. Rm. 1440
Ukiah, Ca. 95482.

Re: Case # U-26-93 Mulick Regional Solid Waste

Dirs:

PP
1

I would like to go on record as being in favor of letting Martin Mulick Cold Creek Compost Inc. continue his Compost business without further delay. I cannot see where it is harmful in any way and what could be more beneficial to our environment than to be able to dispose of this waste? I am so exasperated with all of these protectors. Mendocino County needs more businesses

Esther M Smith

PP. ESTHER M. SMITH

PP1 This letter is in support of the project. The comment identifies the benefit of using wastes to produce compost.

QQ

June 5, 1997

TO: Mendocino County Department of Planning and Building
501 Low Gap Road, Room 1440
Ukiah, CA 95482

RE: Case No. U 26-93, Mileck Regional Solid Wast Facility, aka " Cold Creek Compost"

As a resident of Potter Valley I wish to express my view regarding the Martin Mileck, Cold Creek Compost Inc., project. I was present in the Board of Supervisors Chambers during today's morning session of your meeting and have purposely reserved my comments until the public oral commentary was closed. My comments are as follows:

Today we heard many people comment regarding the negative environmental impacts of the proposed project, from the aesthetics of the blue metal roof to the possibility of potent toxins leaching into the watershed. The argument was made by Mr. Eric Anderson that the commission should rely only upon the "scientific evidence" as presented in the DEIR and not upon the "anecdotal evidence" as provided by residents of the surrounding area. This still being a democracy, I find this to be a distressing request. Leaving aside the question as to whether the "scientific evidence" in the DEIR accurately and adequately addresses all of the pertinent issues, I believe that it is your duty to consider the will of the people in your decision. A significant number of Potter Valley community members have come forward to you to indicate our opposition to this project. We are the ones who will be living with it. Our voices must certainly influence your decision. QQ1

Mr. Anderson also argues that the will of the community is outweighed by the property rights of the landowner. I think we all realize that there are many circumstances in a democratic society under which a community will place some restriction on private land use when that use adversely affects the surrounding community. For example, would we allow Mr. Guntley to establish a nuclear waste site on his land? Of course not.

While the people of Potter Valley will be the direct recipient of the negative impacts of this industrial facility, our community does not have the legal jurisdiction to reject this proposal. Our only alternative is to voice our opposition to your commission and rely upon you to QQ2

reject this project on our behalf. This is what we are asking you to do.

In addition, Mr. Heckeroth raised some excellent points regarding the desirability of such a project *anywhere* in the broader context of waste management policy. Should we move waste around in such an energy intensive way? Should Potter Valley import waste from Ukiah? Should Mendocino county allow the importation of waste from surrounding counties? It is time that forward-looking commissioners direct public policy towards decentralized solutions to waste management. Individual communities will certainly work harder to not create waste, especially toxic waste, when they are required to dispose of it themselves instead of dumping it on someone else. QQ3

I hope that you will also consider that Mr. Mileck and Mr. Anderson are refugees of the Sonoma County solid waste wars, which were created by our southern neighbor's burgeoning population coupled with the requirements of AB939. We must be protective of our beautiful county and ask ourselves why they are now operating here. We must not allow entrepreneurs whose schemes were rejected elsewhere to set up shop here.

I understand that the DEIR under review does not include the NO PROJECT alternative to the proposed project. I request that the NO PROJECT option be included in the EIR and further that it be the alternative approved by your commission. QQ4

Please include this letter in its entirety as Comment on the Draft Environmental Impact Report and incorporate it into the final Environmental Impact Report.

Very truly yours,

Katherine Stornetta
14408 Eel River Road
Potter Valley

111-188

QQ. KATHERINE STORNETTA

QQ1 Comment Noted. The commentor is opposed to the project.

QQ2 Comment Noted. The commentor is opposed to the project and requests that the project be rejected on the behalf of the people of Potter Valley.

QQ3 Comment Noted. The commentor is opposed to the project and believes in public policy towards decentralized solutions to waste management. See also response to Comment EE2.

QQ4 The DEIR includes a No-Project Alternative (DEIR, pages 5-4 through 5-7).

RR

Bruce Strickler
13801 Power House Rd.
Potter Vly., CA 95469
707 743-1872 Evenings
707-453-7442 - Days.

6/4/97

County of Mendocino
Dept. of Planning and Building Services
501 Low Gap Rd., Rm 1440 Ukiah CA

RE CASE NO. U 26-93 "Cold Cr. Compost"

We need to support our industries; Composting is RECYCLING.

I will first state my position as being in FAVOR of the Use Permit for the projects (Case #U 26-93).

There is no reason to deny the use permit. For each respective potentially significant environmental impact a reasonable and logical mitigation measure can be developed and enforced by the respective agencies (Water Quality Control Board, CA Dept of Fish and Game, State Water Board, County Public Health, CAOSHA + OSHA, and County Planning and Building). RR1

Most of the so called issues are really non-issues.

Traffic - with the sawmill and logging being shut down in the National Forest out of Potter Valley, the trucks traffic will not exceed significantly, historical road use levels. RR2

Visual - The people complaining about visual impacts did not hesitate to build their houses, barns and outbuildings along with poorly maintained access roads in the mountains and fence off small parcels impacting wildlife movement. and capturing springs forcing wildlife onto public roads for water access RR3

Water Quality - This can be mitigated and monitored if necessary. The Water Quality Control Board is the respective agency for regulating these types of projects. RR4

111-190

Plants and Wildlife - Biological Resources need to be considered; if rare and endangered species or threatened and sensitive species are present or their habitats are present, appropriate mitigation measures have to be incorporated into the planning and execution of the project. CA Dept of Fish and Game is the regulator. RR5

Water - Surface water pumping - the appropriate permits + water rights issues need to be explored and obtained if required from the Water Board. RR6

OSHA + CAOSHA - Regulate worker safety. This always needs to be a consideration but the rules and regulation makes it a non-issue. RR7

Public Health - This is not the only Compost Operation in the State - Identify the public health issues and mitigate them accordingly. RR8

Erosion along the road does need to be addressed and mitigated. Downspouts and dissipators need to be installed on culverts. RR9

Bruce Steckler

Bruce Steckler

Peter Valley Resident 1952 - 1967 and 1980 to present

U.S. Citizen and Income, Sales and Prop. Tax Payer

111-191

Do not like the noise, dust, traffic, etc. but will this Project be part of NIMBYism.

RR. BRUCE STRECHLER

RR1 Comment noted. The commentor supports the project and believes that mitigations are available for all potentially significant impacts.

RR2 The commentor states that truck traffic levels will not exceed historic traffic levels. The DEIR did not consider historic traffic levels but compared the projected traffic levels with current levels (the existing setting).

RR3 This comment regarding land improvement activities of project neighbors does not address the DEIR or the project.

RR4 Comment noted. Please refer to response to Comment letters E, M, and N.

RR5 Please refer to Appendix C (Biological Technical Memorandum) of the Draft EIR. Appendix C anticipates no significant impacts on wildlife or vegetation as a result of the project.

RR6 Potential impacts and proposed mitigations for surface water pumping were analyzed in the DEIR on page 3-24. For an expanded discussion of water rights, see response to Comment Q30.

RR7 This is addressed in Impact 3.5.2, which begins on page 3-53 of the DEIR.

RR8 This is addressed in Impact 3.5.3, which begins on page 3-57 of the DEIR.

RR9 This is addressed in Mitigation 3.2.2 (e) on page 3-22 of the DEIR.

SS

To: Pamela Townsend, Planner
Department of Planning and Building
501 Low Gap, Rm. 1440
Ukiah, CA 95469-0363
Phone: 463-4287. Fax: 463-5709

From: Eric Sunswheat
CA Health Security Catalyst
Humus Third
Bx363,PotterVly,95469-0363
Voicemail Pager: 466-6548.

Reference: Case # U 26-93, DEIR Public Comment by 6/5/97
Mileck Regional Solid Waste Facility, aka "Cold Creek Compost."

1. INTRODUCTION AND SCOPING SUMMARY OF MY COMMENTS.

My opinion as of this moment to the April 7, 1997 issued "COLD CREEK COMPOST FACILITY USE PERMIT Draft Environmental Impact Report" is that a second draft project DEIR is necessary to cure concerns highlighted by the following inaccuracies and concerns constrained by improperly limited scoping within the Draft EIR, which I addressed by submission as supporting evidence on file with the County for the CEQA-EIR Cold Creek Compost court challenge and both Scoping Comment Periods for the preparation of the DEIR. Apparently my comments have been censored by the County and not referred to the EIR consultants to widen the scope of the DEIR. SS1

Along with the project DEIR, a first draft program DEIR is necessary, coordinated with the applicant Cold Creek Compost, Inc., on this hereby suggestive titled "Six County Bioregional Microbial Agriculture Citizen Waste Resources Utilization Monitoring with CAMP MENDO at Lake Mendocino for Selective Dynamic Sediment Escavations in cooperation with deliveries at COLD CREEK COMPOST FACILITY". SS2

The suggestive program scoping is preliminarily identified by the entirety of my comments in today's responsive letter as an initial inquiry to encourage the County to make a good faith effort to serve the commonwealth that may precipitate some sort of motivation for further response.

My timely submitted comments to Pamela Townsend, Planner for scoping, revised scoping, and reconsideration of the CEQA lawsuit evidence during the preliminary scoping for DEIR consideration, appear to have been ignored without apparent constructive response from the County. I am not interested in working for free in vain. SS3

2. ON TOUR AT CCCI MUZZLED BY THE PLANNING COMMISSION.

This morning, June 5, 1997 I attended the site visit of Cold Creek compost facility with the County Planning Commission. The Commission would not appoint a staff member to funnel questions, concerns, and suggestions from members of the public. Stagnant puddled pools of leachate exist under the roofed structure, some teeming with sluggish larvae. Slope pad needs to be increased or site paved with asphalt or ash/lime. A uniform grade pad is needed without side drainage into the windrows. This is important. Otherwise windrows need to be stacked to follow whatever grade is finalized. SS4

Windrows on the open pad had somewhat of a rank nitrogen smell, without the oversized windrow turner operating, unlike the pleasant smell of Don Cranford and T & A's operation in Spreckels, CA based upon the Controlled Microbial Composting biodynamic methodology of the Luebkes that I inspected with boardmembers of the CIWMB in Fall 1996, even with the windrow turner in use. Don Cranford spoke on "Connecting with the Agricultural Marketplace" SS5

1 of 3.

111-193

at the California Organic Recycling Conference, a Technical Council of the California Resource Recovery Association on June 3, 1997 in Monterey, CA.

The windrow pads outside COCI's roofed portion was uneven, and the windrows were placed partially across grade, allowing excess moisture to be absorbed from on the pad. Numerous puddles were noted, allowing anaerobic microbial conditions to proliferate. The incinerator and fly woodash was not covered at the base of the piles, as required. The County will not make available information as to where the load shipments are coming from, making independent verification of activities impossible.

The Planning Commission did not request operation of the windrow turner, so I could not verify inadequate operations, as I have learned with my study of compost technology. I believe that if this facility is to go forward, with or without 24 hours operation, the County should maintain a 24 hour presence with a Club Mendo medical mental rehabilitation workfare program to document and inspect all incoming loads for weights, contents and contaminants. Also responsibilities would be to double check monitoring of carbon dioxide, oxygen, and maintain internal compost windrow temperatures below 150°F at all times after construction of windrow.

A good source of clay soil is needed to create a more porous compost windrow airflow space. Club Mendo could be involved with escavation of dewatered erosion sediment on the BLM and Caltrans land under highway 20, at Lake Mendocino. This soil removal has been a traditional activity for many years in the past for different people. This is where Bob Whitcomb, Pottter Valley (deceased) loaded up his 10 wheeler dump truck with his backhoe, for his neighbors, as long as it was not for profit, with no cost levied for the removal. Sandy loam components could be good for potting mix.

Club Mendo could also harvest weeds from agricultural lands to reduce herbicide use and recover biodynamic compostables, pick highly perishable greens for fresh salads, and double dig certain portions of optimum production recoverable arable land that are not conducive to mechanized spading.

SS6

3. COLD CREEK COMPOST FACILITY USE PERMIT DEIR SPECIFICS.

Although I cannot now place it, as my DEIR copy is incomplete due to a copying error, it may be on page (2-3) that the DEIR refers to Public Resources Code Section 50,000 Resolutions. It is true that the cities of Willits, Ukiah, and Fort Bragg along with the Mendocino Solid Waste Management Authority and the County of Mendocino Board of Supervisors signed of on a PRC Section 50,000 proclamation declaring M&M Feed as a producer of "high quality compost."

SS7

However M&M Feed,Inc., is not Cold Creek Compost,Inc. A different sized windrow technology is employed than at M&M locations. No PRC 50,000 resolutions have been approved by regional governments in Mendocino County in support of COCI. Of course, this violates siting and permitting requirements for this proposed facility, and the approval and issuance of a $565,000 low interest loan from the CIWMB for operating equipment and onerous debt. Documents submitted to Pamela Townsend by me need to be reviewed. Also the Compost Quality Standards discussion on June 3, 1997 at CORC/CRRA in Monterey with EIR Composting Subconsultant Matt Cotton. All of Marc Buchanan's comments on panels that day need to be considered

SS8

including, "Reaching the Grower Market: Compost Character and Quality Issues."

On page (S-5) AREAS OF CONTROVERSY should reflect my DEIR CCCI comments to Pamela Townsend, Planner, that Mendocino County Ordinance No. 3414, adopted 1983 (M.C. 4-92) contains Sec. 10A.13.060 Precedence Clause. "It is the finding of the Board of Supervisors that this Ordinance is to take precedence over all ordinances or parts of ordinance or resolutions in conflict herewith and same are hereby repealed to the extent of such conflict and no further." (Ord. 4314, adopted 1983.)

Sec. 10A.13.020 Policy. "It is the declared policy of this County to conserve, protect and encourage intensive agricultural production... No existing or future agricultural operation... in a manner consistent with proper and accepted customs and standards shall become or be a nuisance... provided that the provisions of this subsection shall not apply whenever a nuisance results from the negligent or improper operation of any such agricultural operation or its appurtenances." (Ord. No. 3414, adopted 1983.) SS9

I have reviewed the Composting Operation and Facility Inspection Reports on CCCI prepared by LEA. The inspection comments and suggested actions by the County are inadequate in comparison to the constrained report by the EIR consultant in the DEIR. SS10

Page (S-1) states that the purpose of this project is to provide CCCI a new production facility... that replaces its former production sites in Covelo and Hopland. CCCI is a new corporation created for operations in the Cold Creek area of the Guntly Ranch, that was not involved in Hopland and probably not in Covelo either. SS11

Page (2-4) states, "The compost produced by this facility would also provide a necessary farm input to growers who are interested in what is commonly called sustainable agriculture, and who are trying to decrease their reliance on chemical fertilizers and pest and disease control methods." The compost processing best management practices do not reflect the production requirements of what is commonly called bio-dynamic or California sustainable agricultural practices, according to The Committee for Sustainable Agriculture, that focus on proliferation of high densities of beneficial aerobic microbes as generally specific pest and disease control methods, now defined in microbial population studies by Elaine Ingham, Soil Ecologist from Oregon. See my Humus Third newsletter to P. Townsend. SS12

I look forward to a new scoping and a new draft of the proposed project, as there are many more alternatives to landfilling than proposed by this shortsighted project that merely may meet state minimum standards for solid waste facilities.

-Sincerely,

Eric Sunswheat
(3 pages 6-5-97)

3 of 3.

111-195

SS. ERIC SUNSWEAT

SS1 Please refer to response to comment DD4.

SS2 Comment noted. The commentor believes a program EIR is necessary prior to preparation of the project EIR. The Lead Agency believes that a project-level EIR is the proper CEQA document for this project, as is being produced through this process.

SS3 Comment noted. The commentor feels there was insufficient opportunity for public input during the site visit on June 5, 1997. The Planning Commission stated that the site tour was not the proper place to receive and record comments, but that comments regarding the observations on the site tour should be given orally at the Planning Commission immediately after the site tour or be submitted in writing. The intent was that comments could be accurately recorded at the council chambers.

SS4 These issues and mitigations are discussed in Section 3.2, Hydrology and Water Quality. Please refer to Impact 3.2.1 and Mitigation Measure 3.2.1. in the DEIR (pages 3-19 through 3-21). See also the discussion of site conditions on pages 3-12 and 3-13 of the DEIR.

SS5 See response to previous comment.

SS6 Comment noted. The comment does not address the completeness nor the accuracy of the DEIR, and requires no response.

SS7 The correct reference is to page 2-9 of the DEIR. The comment is noted. This does not materially affect the analysis of the potential environmental impacts of the project, as presented in the DEIR.

SS8 The intent of this comment is unclear. There is no specific reference to inaccuracies or incompleteness of the DEIR.

SS9 The intent of this comment is unclear. There is no specific reference to inaccuracies or incompleteness of the DEIR.

SS10 Comment noted. The comment does not address inaccuracies or incompleteness of the DEIR.

SS11 This comment does not materially address the potential impacts of the project, as analyzed in the DEIR.

SS12 Comment noted. This comment does not materially address the potential impacts of the project, as analyzed in the DEIR

TT

June 3rd, 1997

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JUN 04 1997
BY
PLANNING & BUILDING SERVICES

(1)

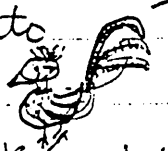
Dear Mendocino County Department of Planning & Building
Ukiah, CA 95482
RE: Case No. U 26-93, Mileck Regional Solid Waste Fac.

★ We live directly accross from this proposed project our address is 7030 Potter Valley Rd. As I am sure "Mileck" will make its case - I would like to show you a "Human" side, that is I have no monetary gains in making my case. TT1

I am no enviornmentalist, just a mom, concerned for the health and safety of my children. Its not just a matter of Smell or Scenery.

Living on top of a hillside - I know first hand how hard the wind blows. This concerns me about the horrible type of wastes now proposed to be dumped at the Mileck site. (I dumped 3 yards of Compost on my land for a garden site - I couldn't get to it for a week - and most of it blew away.) You should be aware that most of the land around here is Solid Rock and Clay - you can't mix wastes into it. We have found Pheasants on our property that originated from the McKee Park (Mileck) area - Wildlife from there travels over here - they are going to bring the → TT2

(Formerly planted in the McKee Park)



TT3

111-197

RECEIVED
JUN 04 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

(2)

e. coli bacteria from human waste, salmonella, and lots of other disease to our animals and then to our children. If you allow that waste to be dumped there.

(Health) Water runs off land like ours - and the toxic dump run off will contaminate Our water source. (We are on a Community well) (that like most are near the Creek) Our children swim in the creek, we fish there too! Please, don't let this happen! During the summer the cruk goes as low as 2 feet - how can you allow Milick to pump up to 21,000 gallons of watr per day? - We can't pump any watr out of the Cruk - how can they? TT4

Only one "big rig" truck is So Noisy - because it has to use "jig" Air Brakes" all the way down the Descending drive way slope. The proposed 80 truck trips per day - would be like living next to a perpetual highway accident. TT5

Not only that, but the trucks slam their bed trailers constantly, at the bottom of the drive - as to empty any extra waste so it dosn't fly out on the road. TT6

111-198

Speaking of Potter Valley Rd. - Our family has seen so many (and helped so many) victims of accidents - who because of the gravel brought up by the big rig trucks onto Potter Valley Rd. - didn't make the sharp corner and rolled off the side of the road and even the bridge! When the big rig trucks have to turn into the driveway for this site - they often cross over the line into on comming traffic - I have even had to veer off the road to the right to avoid hitting a truck head on. TT7

Surely there must be a more remote area to dump, raw animal waste, human sewage sludge and toxic Masonite substances. We moved here for peace and quiet - this was to be a healing place. I have a disease called Endometriosis and activated by ? that is directly related to "Dioxins" a product found in Masonite's products. I have had two major surgeries in the last year, and don't have any more disposable organs - so its imperative that I live healthy - my environment, water etc. Please, please, please don't let them → TT8

contaminate our home, and risk the health and safety of our children.

I will pray that you are given the courage to stand up for Human Rights and represent the local residents.

If you just can not get out of this bad situation, can you please make a clause that "Mileck" has to purchase our property so we can move somewhere else? TT9

Please make this a WIN/WIN proposition, if Mileck can profit from this let him use some of that money to release those of us who can not afford to pay for his project in a physical way — with our lives.

Sincerely

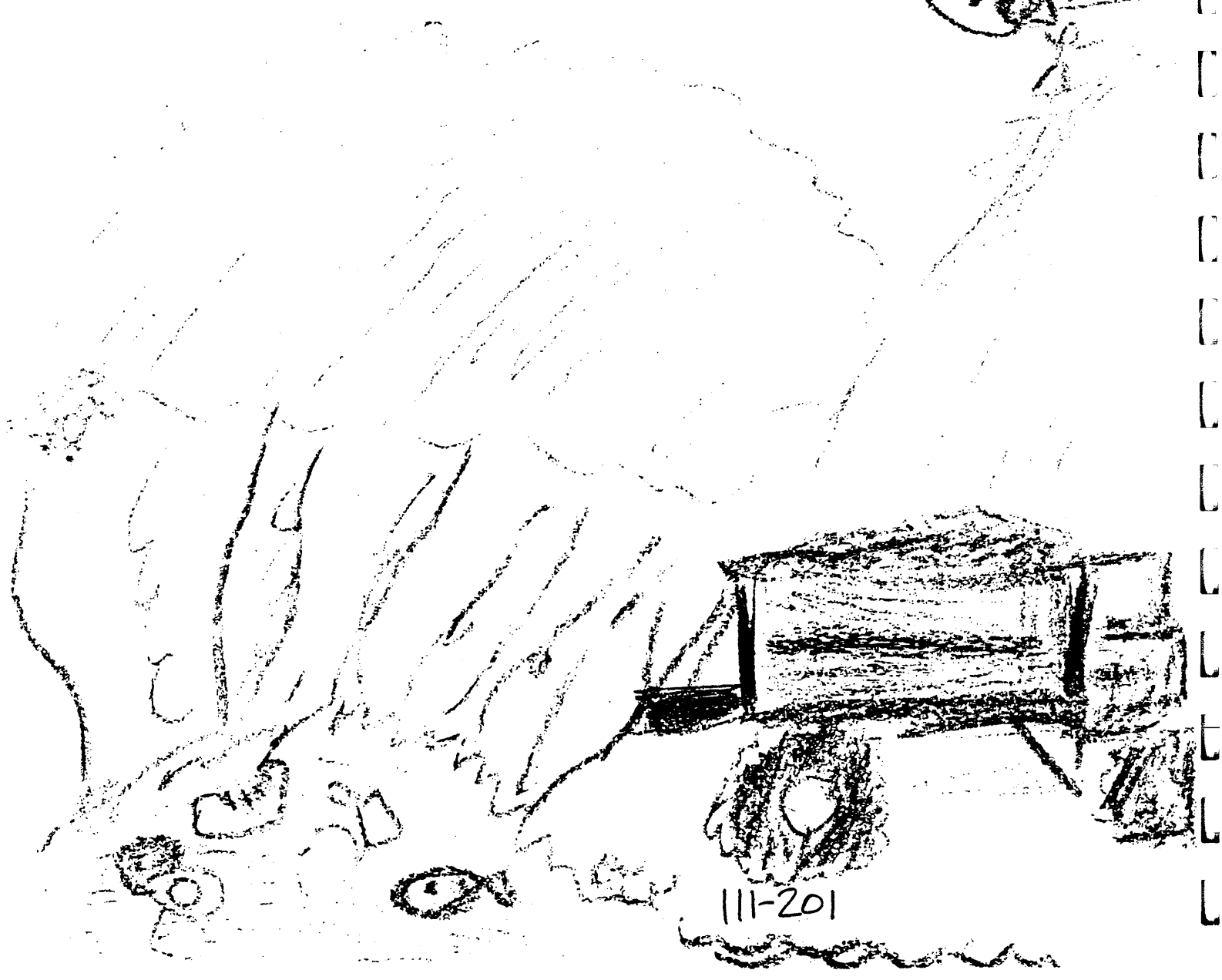
Janine Thill
7030 Potter Valley Rd.
Ukiah, Ca. 95482
(707) 743-1636

111-200

Grape Leaves are One thing, Toxic Sewage is Another! TT10

PLEASE

NO Dump



111-201

Drawing of

111-202

TT. JANINE THILL

TT1 The commentor lives directly across Potter Valley Road from this proposed project and is concerned about the health and safety of her children.

TT2 The facility is not a dump or a landfill, but a compost facility. The project includes receiving a variety of organic wastes, and processing them into a biologically stable soil amendment. Typically, properly produced and matured compost has a mild earthy smell that most people do not find offensive. Improperly produced or matured compost may have strong, offensive odors. See "Method of Composting" on page 2-14 of the DEIR. The project does not include Landspreading of raw organic wastes, of finished compost, or of other soil amendments. While sewage sludge biosolids can contain human pathogens, Mitigation Measure 3.2.1 (h) (DEIR page 3-21) would protect public health by requiring the facility to receive only sewage sludge biosolids that have undergone a process to reduce pathogens to a level below which they pose a threat to public health. Furthermore, this mitigation measure would require the facility operator to take extra precautions to guard against contamination of surface water, ground water, or spread through vectors.

TT3 Concern is expressed for movement of wildlife in the area that could spread human pathogens. Flies and rats are the principal vectors for transmission of diseases from waste products to humans. Vectors are discussed in Impact 3.5.3 (DEIR page 3-58, and Mitigation Measure 3.5.3 (g). Pheasants and other vertebrates are not generally attracted to compost facilities where good housekeeping is employed, since fresh materials are rapidly incorporated into piles where thermophilic bacteria quickly raise the temperature to 130-170 degrees Fahrenheit. Mitigation Measure 3.2.1 (h) on page 3-21 of the DEIR would require that, if sewage sludge biosolids are allowed at the site, the facility would be restricted to receiving only biosolids that have already gone through a process to reduce pathogens to a level below which, with proper handling, public health will not be threatened. This level is set by federal regulations, and biosolids must be tested to ensure that they meet this standard.

TT4 Impact 3.2.1 (page 3-19 through 3-20 of the DEIR) identifies contamination of storm water runoff as a potentially significant impact. Mitigation Measure 3.2.1 (pages 3-20 through 3-21) identifies a number of measures that are proposed as part of the project or that are identified in the DEIR that, if diligently employed, should mitigate this impact to a level less than significant. This means that there would be no detectable contamination of surface water. See also response to Comment E1.

Potential contamination of groundwater, and the potential public health impacts of such contamination, are discussed on pages 3-11 through 3-12. See also Comment E3 and response. Impact 3.2.3 (page 3-22 of the DEIR) identifies contamination of groundwater as a less-than-significant impact, because of the unlikely occurrence that leachate could penetrate the compost pad and travel the long distance to neighbors' water supply. Mitigation Measure 3.2.3 would further reduce the possibility of groundwater contamination.

The potential impact of the facility's water needs is identified in the DEIR as a significant impact (Impact 3.2.5, page 3-24). Mitigation Measure 3.2.5 of page 3-24 of the DEIR, and in the response to Comments N1, N3, and N4.

Water rights are discussed at length in the response to Comment Q30.

TT5 Noise impacts from trucks using the access road to the facility are discussed in Section 3.4 of the DEIR (Pages 3-37 through 3-46). Noise measurements indicate that the noise impact of trucks on the access road is less than significant (Impact 3.4.1, page 3-44 of the DEIR). See Mitigation Measure 3.4.1 in response to Comment Q47.

TT6 In response to this comment, Mitigation Measure 3.4.1 (see response to Comment Q47 in this FEIR) is hereby amended as follows:

c. Trucks leaving the facility will have their beds swept or washed out before leaving the site. The facility operator will instruct trucks leaving the site not to slam their trailers as they descend the hill.

TT7 The DEIR addresses accident records and has found that the project has no particular aspects that would make this area more dangerous (Impact 3.6.3, page 3-64 through 3-65). The new bridge is being designed to improve traffic safety. This project will include moving and redesigning the intersection of the access road and Potter Valley Road. See response to Comment 13-21.

TT8 Concern is expressed that a more remote location is needed for the project and that in the current location activities from the project could contaminate the commentor's property. The commentor has a medical condition that is directly related to dioxins. Toxicity of Masonite Ash is discussed in response to Comment OO1.

TT9 A request is made for the project to purchase their property as a mitigation.

TT10 The final comment probably indicates that greenwaste composting is more acceptable than the composting of sewage sludge biosolids. Regarding toxicity of sewage sludge biosolids, see responses to Comments Q38 and DD37.

UU

Received 6/5/97 PIT.

Where's the ash?
Where has it been land spread?
CCOF? compost being made?
How much ash has been used
as an amendment?

UU1

6,000 tons of amendment
can be brought on site annually
how much can be stored?

UU2

Masonite generates 6,000 TPY ash,
What % is used as an
amendment? Can or land spread?

UU 3

(Submitted by member of public at site view on 6/5/97)

UU. ANONYMOUS LETTER RECEIVED DURING SITE VISIT, JUNE 5, 1997

UU1 Ash was spread once on the Guntly property, but that practice has been discontinued and is not expected to occur again. That practice is also not part of the project. The project proposes to store ash on the compost pad or by the water supply tanks, if securely tarped to prevent contact with rainwater, stormwater runoff, and, to prevent blown dust. The facility produces a compost product called "Agrow Blend Plus," that contains 5-20% ash. This product is "prohibited" by California Certified Organic Farmers (CCOF), meaning that CCOF members cannot use this product on land or crops under certification.

UU2 There is no proposed limit on the amount of additives and amendments that will be stored on the site. The applicant proposes accepting up to 10,000 tons of additives and amendments per year. The DEIR did not specifically address the possibility of storing more than this amount on the site (should amendments received in one year not be used and still be on site the next year). The conditions of project approval could include a restriction that the CCCI facility not store more than 10,000 tons of additives and amendments on site at any time.

UU3 See response to Comment UU1.

VV

TO: Mendocino County Department of Planning and Building
501 Low Gap Road, Room 1440
Ukiah, CA 95482

...ning & Building Services
Ukiah, CA 95482

RE: Case No. U 26-93, Mileck Regional Solid Waste Facility, aka "Cold Creek Compost"

VV 0

We object to approval of the Draft Environmental Impact Report (DEIR) on the above-numbered project and we object to the project itself. The DEIR relies upon incomplete, erroneous, misleading, and deliberately deceptive information with regard to historic and present fact, CEQA, Court and other legal mandates. The DEIR fails to accurately list or describe project alternatives including NO PROJECT, misstates and underestimates significance of adverse impacts, and fails to analyze significant unmitigatable adverse impacts on the environment from this project, including but NOT LIMITED to:

VV 1

1. Toxicity and pathogenicity of materials transported, stored and handled in mass volume. Due to unique sensitivity of site and road to site above the Russian River, the water source for one half million people in three counties, materials should be analyzed alone, in combination with other materials, and in combination with water. Materials with potential for contamination of air and water include but are not limited to raw animal waste, street sweepings, winery waste, brewery "activated sludge waste," lime, gypsum, human sewage sludge, and the boiler and scrubber ash from the Masonite Corporation, and all other materials.

VV 2

2. Visual impacts of large turquoise reflective metallic structure placed in a formerly pristine, natural setting. Prior to project, this site was an oak-forested mountaintop. With described expansion this will be one of the largest industrial structure complexes in Mendocino County. Because of its position on a mountain top and because of its incompatibility with all surrounding land uses, this presents significant visual degradation affecting residents and visitors up to 15 miles away. During afternoon hours, the reflective metal structure produces a blinding glare visible to thousands of residents and visitors to greater Potter Valley.

VV 3

3. Visual, noise, water quality, and air quality impacts of illegally bladed road to project, including hillside slicing, debris dumped into Russian River, removal of natural vegetation on east bank of River, erosion, and cumulative visual degradation of a natural riparian and rural-forest setting.

VV 4

4. Geology, topography and seismology of site, including but not limited to ridgetop location, steepness of slope and approach, porosity of shale formation, stability, potential for earthquake (estimated at 100% in Conway Report), erosion, compaction, and soil productivity impacts from site and road excavation, and off-site development.

VV 5

5. Impacts on air, water, soil, wildlife, aquatic life, and humans from proposed land-spreading of industrial petroleum waste ash, greenwaste, brewery "waste-activated sludge," human sewage, and other substances disposed off by land-spreading off-site.

VV 6

6. Traffic impacts, including impacts of 80 big rig truck trips per day-- a 25% increase in cumulative truck traffic--on safety and serenity of residents, visitors and users of the McKee County Park.

VV 7

7. Site-specific and cumulative Impacts of site, road to site, and off-site operations on birds, fish and wildlife, including Endangered, Threatened, and Sensitive species, and other proposed-listed and unique species.

VV 8

8. Site-specific and cumulative impacts of removal of native vegetation, including old growth oak and other vegetation on site, on road to site and at off-site operations.

VV 9

9. Air quality impacts from transport, dumping, and turning of waste materials, including dust, stench, diesel fumes, spillage, and air and windborne particulates and pathogens on site, on road to site, and within a five-mile radius of site. Residences lie within one-quarter AIR mile of site, and only a few hundred feet from road to site. Ridgetop topography will cause winds to carry pathogens, odor and particulates far into the Potter Valley, affecting hundreds of residents to the north, west, east, and south of project.

VV 10

10. Noise, including truck, equipment, and grinder operation on site, on road to site, and at offsite operations to residences as close a one-quarter AIR mile and visitors to the McKee County Park.

VV 11

11. Public health impacts, including pathogenic contamination of air and water generated by transport and storage of huge volume of waste material, including but not limited to aflatoxin (aspergillus), salmonella, e. coli and other contaminants, on residents as close as one-quarter AIR mile and as far as five miles from site, and users of McKee County Park.

VV 12

12. Public health impacts from heavy metals, dioxins, furans, benzene and other carcinogenic and toxic substances found in Masonite boiler and scrubber ash. Masonite ash is not "wood ash," but is the end product of burning millions of gallons of petroleum waste products such as "Fuel Oil #6 and recycled motor oil, as well as remnants of Masonite's own toxic glueboard.

VV 13

13. Public health impacts from carcinogens and toxins contained in treated sewage sludge, including but not limited to pathogens including salmonella and e.coli, heavy metals, and radioactive hospital waste.

VV 14

14. Impacts of illegally pumping up to 21,000 gallons per day of water from the Russian River and/or Cold Creek. Neither project nor landowner has legal right to pump and/or transport water to a leased commercial enterprise more than two miles from source; nor does landowner possess rights to water from the Russian River.

VV 15

15. Fire hazard from lack of on-site water source.

VV 16

16. Air quality and public health impacts from inability to properly handle and moisten materials due to lack of on-site water source.

VV 17

17. Spread of contaminants by vectors to wildlife, domestic livestock, and human residents from one-quarter AIR mile to 15 miles distant.

VV 18

18. Impact of spread of contaminants, toxins and pathogens through marketing of toxic ingredients in "mulch" and "compost." Failure to label contaminants, heavy metals, and sewage sludge on materials sold as safe for food production.

VV 19

19. Impacts of non-permitted storage of waste materials far beyond perimeters of 10-acre compost pad, including storage of brewery "waste-activated sludge," yard waste, lime, gypsum, Masonite ash and other materials stored over 1800 feet from site.

W 20

20. Odor, public health, and other impacts of "static-pile" composting, i.e., failure to turn and moisten raw materials.

VV 21

21. Noise, traffic, public health, odor, and cumulative impacts from expanding hours of operation from 13 hours per day to 24 hours per day, including unannounced night operations at project's discretion.

VV 22

22. Incompatibility of project's industrial use with surrounding land uses including rural residential, recreational (McKee County Park and the Mendocino National Forest), and its own previous zoning as Agricultural Preserve.

VV 23

23. Archaeological, historical and cultural impacts.

VV 24

24. Responsibility for monitoring of water quality, air quality, odor, and public health, and the public's right to know under the Clean Water Act and Clean Air Act. Responsibility for clean-up of potentially toxic spillage and contamination on site, on road to site and at off-site operations.

VV 25

25. Impacts on recreational uses of the McKee County Park, including noise, dust, visual degradation, public health impacts of potential air and water contamination, reduced parking and access, and incursion of industrial operation and traffic into formerly serene riparian public Park.

VV 26

26. Cumulative impacts on water quality, including degradation of the source of water of one half million humans served by water from the Russian River adjacent to and below this project.

VV 27

27. Cumulative impacts on air quality from generation of particulates, dust, odor and diesel fumes.

VV 28

28. Cumulative impacts of project including but not limited to impacts of importation of waste into Mendocino County from six or more other counties, degradation of environment and quality of life to residents of Potter Valley, a community of 5,000 people from waste-truck traffic, odors, visual degradation, wildlife impacts, and other cumulative impacts.

VV 29

29. DEIR contemptuously proposes mitigations which are ineffectual and/or which exacerbate significant adverse impacts, e.g., eliminating parking along McKee Park, and posting a "windsock" at compost site as "mitigation" of air quality impacts.

VV 30

30. DEIR fails to accurately list or describe or offer alternatives to project including NO PROJECT. DEIR falsely describes NO PROJECT as existing project without permit, in contempt of CEQA. NO PROJECT means restoration of site, road to site and off-site operations to pre-project conditions of undisturbed natural oak forest, meadowland, and riparian landscape.

We request that this letter in its entirety be included as Comment on the Draft Environmental Impact Report and that all Comment be addressed and incorporated into the final Environmental Impact Report.

DATE: JUNE 3, 1997

FROM: DON & MARY MORRIS
P.O. BOX 151
WILLITS, CA. 95490

RECEIVED
JUN 05 1997
BY

DATE: June 3, 1997

FROM: Gene & Joni Turri
12180 Powerhouse Rd.
Potter Valley, CA. 95469

RECEIVED
JUN 05 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

DATE: June 3 1997

FROM: HERBERT W. GREEN
12201 POWERHOUSE RD
POTTER VALLEY, CA 95469

RECEIVED
JUN 05 1997

DATE: June 3, 97

FROM: Jan & Dave Shelton
11250 Mud Mountain Rd.
Potter Valley, CA 95469

RECEIVED
JUN 05 1997
BY

DATE: 6/3/97

FROM: Charles Keller
13117 Pine Ave.
Potter Valley, CA.

RECEIVED
JUN 05 1997
BY

05/28/1997 04:50 7077432037 KATHY FISETTE PAGE 01

DATE: June 5, 1997

FROM: Kathy + Dean Fisette
~~13015 Pine Ave~~
Potter Valley

111-209

TO Mendocino County Department of Planning and Building

DATE: 6-4-97

FROM: Millar
6281 Horseshoe Cir
Ukiah CA

DATE: 6-4-97

FROM: HAWTHORNE, John Adam
PO Box 671
Redwood Valley, Calif

DATE: 5/3/97

FROM: SCHAD & KAREN KELLY
6350 POTTER VALLEY Rd.
POTTER VALLEY, CA.

RECEIVED
JUN 05 1997

DATE: May 31-1997

FROM: Katherine Chopin
P.O. Box 413
Potter Valley, CA 95469

RECEIVED
JUN 05 1997
BY
PLANNING & BUILDING SERVICES

DATE: 6/4/97

FROM: Wendy + Linda Jackson
PO Box 402
Potter Valley CA 95469

RECEIVED
JUN 05 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

TO: Mendocino County Department of Planning and Building
501 Low Gap Road, Room 1440
Ukiah, CA 95482

RE: Case No. U 26-93, Mileck Regional Solid Waste Facility, aka "Cold Creek Compost"

111-210

We object to approval of the Draft Environmental Impact Report (DEIR) on the above-numbered project and we object to the project itself. The DEIR relies upon incomplete, erroneous, misleading, and deliberately deceptive information with regard to historic and present fact, CEQA, Court and other legal mandates. The DEIR fails to accurately list or describe project alternatives including NO PROJECT, misstates and underestimates significance of adverse impacts, and fails to

DATE: June 5, 1997

FROM: Clark + Julia Miller
6750 Potter Valley Rd.
Ukiah, Ca. 95482

RECEIVED
JUN 05 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

DATE: June 5 97

FROM: Robert + Danielle Asbury
PO Box 343
Potter Valley Ca 95469

RECEIVED
JUN 05 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

DATE: 6/4/97

FROM: CAT HOENIG
HORSESHOE CIRCLE
POTTER VALLEY 20AD

RECEIVED
JUN 05 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

TO: Mendocino County Department of Planning and Building
501 Low Gap Road, Room 1440
Ukiah, CA 95482

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1. Toxicity and pathogenicity of materials transported, stored and handled in mass volume. Due to unique sensitivity of site and road to site above the Russian River, the water source for one half million people in three counties, materials should be analyzed alone, in combination with other materials, and in combination with water. Materials with potential for contamination of air and water include but are not limited to raw animal waste, street sweepings, winery waste, brewery "activated sludge waste," lime, gypsum, human sewage sludge, and the boiler and scrubber ash from the Masonite Corporation, and all other materials. III-211

2. Visual impacts of large turquoise

land-spreading of industrial petroleum waste ash, greenwaste, brewery "waste-activated sludge," human sewage, and other substances disposed off by land-spreading off-site.

6. Traffic impacts, including impacts of 80 big rig truck trips per day-- a 25% increase in cumulative truck traffic--on safety and serenity of residents, visitors and users of the McKee County Park.

7. Site-specific and cumulative Impacts of site, road to site, and off-site operations on birds, fish and wildlife, including Endangered, Threatened, and Sensitive species, and other proposed-listed and unique species

DATE: June 4, 1997

FROM: Dawn Senften
153 Giorno Ave
Ukiah, CA 95482

RECEIVED
JUN 05 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

DATE: 6/4/97

FROM: Wendy MacKinnon
1370 Boonville Rd.
Ukiah CA 95482

RECEIVED
JUN 05 1997

DATE:

FROM: Theresa Day

RECEIVED
JUN 05 1997
BY
PLANNING & BUILDING SERVICES

DATE: June 4, 1997

FROM: Sharon Rush
660 Talbot Ct
Ukiah Ca 95482

RECEIVED
JUN 05 1997
BY

DATE: 3rd June 1997

FROM: Bruce Anderson
box 459
Boonville 95415

RECEIVED
JUN 05 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

TO: Mendocino County Department of Planning and Building
501 Low Gap Road, Room 1440
Ukiah, CA 95482

RE: Case No. U 26-93, Mileck Regional Solid Waste Facility, aka "Cold Creek Compost"

111-212

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DATE: JUNE 4, 1997

FROM: ROB ANDERSON
P.O. BOX 459
BOONVILLE, CA 95415

RECEIVED
JUN 05 1997
BY ANNING & BUILDING SERVICES
CA 95482

DATE: 6-3-97

FROM: Sara Jacobelli
PO BOX 301
navarro, CA 95463

RECEIVED
JUN 05 1997
BY ANNING & BUILDING SERVICES
CA 95482

DATE: 6-3-97

FROM: Mark Heimann
PO Box 301
Navarro CA 95463

RECEIVED
JUN 05 1997

DATE: 6-4-97

FROM: Donna Brackett
Concerned Citizen
Calpella, Ca.

DATE: 6-4-97

FROM: Charles Butler
Mailing Adress
General delivery Potter Valley

TO: Mendocino County Department of Planning and Building
501 Low Gap Road, Room 1440
Ukiah, CA 95482

RE: Case No. U 26-93, Mileck Regional Solid Waste Facility, aka "Cold Creek Compost"

111-213

We object to approval of the Draft Environmental Impact Report (DEIR) on the above-numbered project and we object to the project itself. The DEIR relies upon incomplete, erroneous, misleading, and deliberately deceptive information with regard to historic and present fact, CEQA, Court and other legal mandates. The DEIR fails to accurately list or

DATE: June 4 1997

FROM: Rhyllis Carpenter Reynolds
8101 Potter Valley Rd
Ukiah, Ca 95482

TO: [illegible]

DATE: 5-31-97

FROM: Shird Burris
11601 Burris lane
Potter Valley cal- 95469

RECEIVED
JUN 06 1997
BY
PLANNING & BUILDING SERVICES

DATE: June 4th 1997

FROM: Ellen Drell
6150 Hearst Rd.
Willits, Ca. 95490

RECEIVED
JUN 06 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

TO: Mendocino County Department of Planning and Building

DATE: 6-4-97

FROM: Michael & Susan Witt
12451 Powerhouse Rd.
Potter Valley, CA.

RECEIVED
JUN 06 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

TO: Mendocino County Department of Planning and Building
501 Low Gap Road, Room 1440
Ukiah, CA 95482

RE: Case No. U 26-93, Mileck Regional Solid Waste Facility, aka "Cold Creek Compost"

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111-214

1. Toxicity and pathogenicity of materials transported, stored and handled in mass volume. Due to unique sensitivity of site and road to site above the Russian River, the water source for one half million people in three counties, materials should be

land-spreading of industrial petroleum waste ash, greenwaste, brewery "waste-activated sludge," human sewage, and other substances disposed off by land-spreading off-site.

TO: Mendocino County Department of Planning and Building
501 Low Gap Road, Room 1440
Ukiah, CA 95482

Planning & Building Services
Ukiah, CA 95482

RE: Case No. U 26-93, Mileck Regional Solid Waste Facility, aka "Cold Creek Compost"

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2. Visual impacts of large turquoise reflective metallic structure placed in a formerly pristine, natural setting. Prior to project, this site was an oak-forested mountaintop. With described expansion this will be one of the largest industrial structure complexes in Mendocino County. Because of its position on a mountain top and because of its incompatibility with all surrounding land uses, this presents significant visual degradation affecting residents and visitors up to 15 miles away. During afternoon hours, the reflective metal structure produces a blinding glare visible to thousands of residents and visitors to greater Potter Valley.

3. Visual, noise, water quality, and air quality impacts of illegally bladed road to project, including hillside slicing, debris dumped into Russian River, removal of natural vegetation on east bank of River, erosion, and cumulative visual degradation of a natural riparian and rural-forest setting.

4. Geology, topography and seismology of site, including but not limited to ridgetop location, steepness of slope and approach, porosity of shale formation, stability, potential for earthquake (estimated at 100% in Conway Report), erosion, compaction, and soil productivity impacts from site and road excavation, and off-site development.

5. Impacts on air, water, soil, wildlife, aquatic life, and humans from proposed land-spreading of industrial petroleum waste ash, greenwaste, brewery "waste-activated sludge," human sewage, and other substances disposed off by land-spreading off-site.

6. Traffic impacts, including impacts of 80 big rig truck trips per day-- a 25% increase in cumulative truck traffic--on safety and serenity of residents, visitors and users of the McKee County Park.

7. Site-specific and cumulative Impacts of site, road to site, and off-site operations on birds, fish and wildlife, including Endangered, Threatened, and Sensitive species, and other proposed-listed and unique species.

8. Site-specific and cumulative impacts of removal of native vegetation, including old growth oak and other vegetation on site, on road to site and at off-site operations.

9. Air quality impacts from transport, dumping, and turning of waste materials, including dust, stench, diesel fumes, spillage, and air and windborne particulates and pathogens on site, on road to site, and within a five-mile radius of site. Residences lie within one-quarter AIR mile of site, and only a few hundred feet from road to site. Ridgetop topography will cause winds to carry pathogens, odor and particulates far into the Potter Valley, affecting hundreds of residents to the north, west, east, and south of project.

10. Noise, including truck, equipment, and grinder operation on site, on road to site, and at offsite operations to residences as close a one-quarter AIR mile and visitors to the McKee County Park.

11. Public health impacts, including pathogenic contamination of air and water generated by transport and storage of huge volume of waste material, including but not limited to aflatoxin (aspergillus), salmonella, e. coli and other contaminants, on residents as close as one-quarter AIR mile and as far as five miles from site, and users of McKee County Park.

12. Public health impacts from heavy metals, dioxins, furans, benzene and other carcinogenic and toxic substances found in Masonite boiler and scrubber ash. Masonite ash is not "wood ash," but is the end product of burning millions of gallons of petroleum waste products such as "Fuel Oil #6 and recycled motor oil, as well as remnants of Masonite's own toxic glueboard.

13. Public health impacts from carcinogens and toxins contained in treated sewage sludge, including but not limited to pathogens including salmonella and e.coli, heavy metals, and radioactive hospital waste.

14. Impacts of illegally pumping up to 21,000 gallons per day of water from the Russian River and/or Cold Creek. Neither project nor landowner has legal right to pump and/or transport water to a leased commercial enterprise more than two miles from source; nor does landowner possess rights to water from the Russian River.

15. Fire hazard from lack of on-site water source.

16. Air quality and public health impacts from inability to properly handle and moisten materials due to lack of on-site water source.

17. Spread of contaminants by vectors to wildlife, domestic livestock, and human residents from one-quarter AIR mile to 15 miles distant.

18. Impact of spread of contaminants, toxins and pathogens through marketing of toxic ingredients in "mulch" and "compost." Failure to label contaminants, heavy metals, and sewage sludge on materials sold as safe for food production.

19. Impacts of non-permitted storage of waste materials far beyond perimeters of 10-acre compost pad, including storage of brewery "waste-activated sludge," yard waste, lime, gypsum, Masonite ash and other materials stored over 1800 feet from site.

20. Odor, public health, and other impacts of "static-pile" composting, i.e., failure to turn and moisten raw materials.

21. Noise, traffic, public health, odor, and cumulative impacts from expanding hours of operation from 13 hours per day to 24 hours per day, including unannounced night operations at project's discretion.

22. Incompatibility of project's industrial use with surrounding land uses including rural residential, recreational (McKee County Park and the Mendocino National Forest), and its own previous zoning as Agricultural Preserve.

23. Archaeological, historical and cultural impacts.

24. Responsibility for monitoring of water quality, air quality, odor, and public health, and the public's right to know under the Clean Water Act and Clean Air Act. Responsibility for clean-up of potentially toxic spillage and contamination on site, on road to site and at off-site operations.

25. Impacts on recreational uses of the McKee County Park, including noise, dust, visual degradation, public health impacts of potential air and water contamination, reduced parking and access, and incursion of industrial operation and traffic into formerly serene riparian public Park.

26. Cumulative impacts on water quality, including degradation of the source of water of one half million humans served by water from the Russian River adjacent to and below this project.

27. Cumulative impacts on air quality from generation of particulates, dust, odor and diesel fumes.

28. Cumulative impacts of project including but not limited to impacts of importation of waste into Mendocino County from six or more other counties, degradation of environment and quality of life to residents of Potter Valley, a community of 5,000 people from waste-truck traffic, odors, visual degradation, wildlife impacts, and other cumulative impacts.

29. DEIR contemptuously proposes mitigations which are ineffectual and/or which exacerbate significant adverse impacts, e.g., eliminating parking along McKee Park, and posting a "windsock" at compost site as "mitigation" of air quality impacts.

30. DEIR fails to accurately list or describe or offer alternatives to project including NO PROJECT. DEIR falsely describes NO PROJECT as existing project without permit, in contempt of CEQA. NO PROJECT means restoration of site, road to site and off-site operations to pre-project conditions of undisturbed natural oak forest, meadowland, and riparian landscape.

We request that this letter in its entirety be included as Comment on the Draft Environmental Impact Report and that all Comment be addressed and incorporated into the final Environmental Impact Report.

DATE: June 3, 1997

FROM: Richard & Pattie Gardiner
PO Box 25 11777 East Road
Potter Valley CA 95469

RECEIVED
JUN 04 1997
BY

DATE: 6/2/97

FROM: Sandra Browne
P.O. Box 377
PVCA 95469

RECEIVED
JUN 02 1997
BY
PLANNING & BUILDING SERVICES

DATE: June 2

FROM: Mark Scaramella
PO Box 672
Boonville CA 95415

RECEIVED
JUN 02 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

DATE: June 2, 1997

FROM: Jeannie L Canevari
Box 71
Potter Valley Ca 95469

RECEIVED
JUN 04 1997
BY
PLANNING & BUILDING SERVICES

DATE: 6-3-97

FROM: Elizabeth Raybee & Robert Taylor
12773 Pine Ave
P.V. CA 95469

RECEIVED
JUN 04 1997
BY
PLANNING & BUILDING SERVICES

DATE: JUNE 4, 1997

FROM: TERRY & DELANEY RYAN
6451 N HORSESHOE CIRCLE
UKIAH, CA 95482

DATE: 6-4-97

FROM: Chrissy Dodds
208. S. State

DATE: 6-4-97

FROM: DAVID POMA
504 CAPPS LANE
UKIAH, CA, 95482

DATE: 6-4-97

FROM: BRUCE POMA
204 NO. BUSH ST.
UKIAH, CA, 95482

DATE: JUNE 3, 1997

FROM: ANNA CZUPRINSKI
P.O. Box 104
Redwood Valley, CA. 95482

DATE: 5/2/97

FROM: RICHARD A THILL
7030 POTTER VALLEY RD
UKIAH CA. 95482

111-218

DATE: 6/3/97

FROM: Vicki Larsen
1620 MADRONE
UKIAH, CA 95482

DATE: 6-3-97

FROM: Donald C. Allen
222 Myron Rd
Ukiah Ca. 95482

DATE: 6-4-97

FROM: Michael A. Spencer
1280 Yokayo Ct
Ukiah, Ca 95482

DATE: June 04, 1997

FROM: Gilbert & Jean Trujillo
6850 Potter Valley Rd
Potter Valley CAL 95469-0514

DATE: 6-4-97

FROM: [signature]
9420 W Rd
Potter Vly, CA 95469

DATE: 6.3.97

FROM: Lisa Beamer
11021 Borax Lane
Potter Valley, CA 95469

111-219

TO: Mendocino County Department of Planning and Building

DATE: June 4, 1997

FROM: Dawn Senften
153 Giorno Ave
Ukiah, CA 95482

DATE: 6-4-97

FROM: Curt Lyon
2100 Robinson Cr Rd
Ukiah

DATE: 6/3/97

FROM: Pierre Horn & Jill Forsitte
7400 Potter Valley Rd
Ukiah CA 95482

FROM: Lorraine Mathews

JUN-04-97 11:45 AM BEVERLY SANDERS REALTY 707 743+1104
UKIAH, CA 95482

VV. FORM LETTER

VV0 Comment noted. Specific comments contained in this general comment are responded to in the following responses.

VV1 Toxicity and pathogenicity of feedstocks are addressed in the DEIR in the Hydrology and Water Quality section (Section 3.2) and in the Public Health and Safety section (Section 3.5). See also responses to Comments Q5, Q38, DD22, DD37, and OO1.

VV2 Visual impacts of the facility are discussed in the DEIR, Section 3.1, Visual Impacts. See also response to Comments DD32 and DD36.

VV3 As the access road is already in place, construction of the access road is not a part of the project. Impacts of construction of the access road are therefore not analyzed in the DEIR.

VV4 Geology of the site is discussed in Section 3.2 of the DEIR, Hydrology and Water Quality, pages 3-93-11 through 3-12, 3-14, Impact 3.2.4 on page 3-23, and Mitigation Measure 3.2.4 on pages 3-23 through 3-24. See also responses to Comments I1 and M3. Erosion is discussed in Impact 3.2.2 and Mitigation Measure 3.2.2 on pages 3-21 through 3-22 of the DEIR.

VV5 No petroleum waste ash is proposed as a feedstock, additive, or amendment (see response to Comment OO1). No landspreading of any feedstock, additive, or amendment is proposed as a part of this project. See response to Comment VV19.

VV6 As discussed in response to Comment 13-5 and 13-41, 40 truck roundtrips would be a peak day. Traffic and traffic safety impacts are discussed in Section 3.6 of the DEIR, Traffic and Circulation. See also response to Comment OO4.

VV7 See Biology Technical Memorandum in Appendix C of the DEIR. See also response to Comment OO4.

VV8 No further significant grading or land disturbance is proposed as a part of the project, therefore, the effects of vegetation disturbance or removal are not evaluated in the DEIR. Earth movement associated with containment berms is minor and erosion control has been addressed.

VV9 Please refer to DEIR Section 3.3, Air Quality. See also responses to Comments H2 and H3 regarding modeling of aspergillus dispersion. Distance from the project site and access road are discussed in the response to Comment Q6. Distance from the compost pad to the nearest off-site receptors is closer to one mile than 1/4 mile. Odor impacts and mitigations are discussed further in responses to Comment J4, DD29, DD50 and 10-2.

VV10 Noise impacts are discussed in DEIR Section 3.4, noise. See also response to Comment Q47.

VV11 Public health impacts are discussed in DEIR Section 3.5, Public Health and Safety, in Section 3.2, Hydrology and Water Quality (see Impacts 3.2.1, 3.2.3, and 3.2.4, and

Mitigations 3.2.1, 3.2.3, and 3.2.4), and in Section 3.3, Air Quality (see Impact 3.3.3. and Mitigation 3.3.3). See also responses to Comments H2, H3 and DD38.

VV12 See response to Comment OO1.

VV13 See Impact 3.2.1 and Mitigation Measure 3.2.1 (particularly Mitigation Measure 3.2.1 (h) on pages 3-19 through 3-20 of the DEIR, Impact 3.5.2 and Mitigation Measure 3.5.2 on pages 3-53 through 3-56 of the DEIR and Impact 3.5.3 and Mitigation measure 3.5.3 of the DEIR. See also response to Comment Q38 and DD37.

VV14 See Impact 3.2.5 and Mitigation Measure 3.2.5 on page 3-24 of the DEIR. See also response to Comment Q30.

VV15 See Impact 3.5.3 and Mitigation Measure 3.5.3 (b, c, d, e, and h) on pages 3-57 through 3-59 of the DEIR. See also responses to Comments D1 and D2.

VV16 See discussion of Water Supply on page 3-15 through 3-18 of the DEIR. No water shortage is anticipated.

VV17 See Impact 3.5.3 (page 3-58, third paragraph) and Mitigation Measure 3.5.3 (g) and (i); see also response to Comments J4, Q51, DD57, and TT3.

VV18 State regulations limit the concentration of pollutants in compost products. These limits are based on U.S. EPA risk assessment studies. These studies were far more extensive than this EIR is capable of. Use of compost as a soil amendment on land used for food production is not, therefore, considered a potential environmental impact. On the contrary, many studies have shown the beneficial effects of compost application to cropland.

VV19 Storage of additives and amendments, either on the compost pad or in the area around the water storage tanks, is discussed as a potential water quality impact (Impact 3.2.1, page 3-19 through 3-20 of the DEIR) in Mitigation Measure 3.2.1 (a) (Page 3-20 of the DEIR) and potential public health and safety impacts (Impact 3.5.2, pages 3-53 through 3-54 of the DEIR), and mitigation Measure 3.5.2 (c) of the DEIR (page 3-56). See also Mitigation Measure 3.5.2 (n), added in the response to Comment OO1. The brewery does refer to its wastewater as a sludge, probably because it has undergone precipitation of solids. The brewery product contains less than 2% solids and is being used by CCCI for "watering" the windrows. See also response to Comment O27.

VV20 Please refer to response to Comment J4.

VV21 Please refer to response to Comment J1.

VV22 The proposed use can be considered under a use permit in the Rangeland zoning district. Compatibility of various aspects of the project (noise, odors, visual quality, traffic, etc.) and mitigations to ensure compatibility with adjoining land uses is discussed in the Chapter 3 of the Draft EIR. Compatibility with McKee County Park is addressed in the response to comment OO4. Potential impacts to visitors to the Mendocino National Forest are negligible due to the distance from the site. The agricultural preserve contract

for the project site was nonrenewed upon request of the County Assessor, so that a tax reduction will be phased out over ten years. The change in agricultural preserve status does not have material effect on the zoning, potential density, or land uses to which the property may be put.

VV23 No potential archeological, historical, or cultural impacts have been identified, in background documents for the project, in the Court's order to prepare the EIR, at the public Scoping session, or in written comment on either of the two Notices of Preparation, or in discussions between the EIR consultant and County Planning and Building Department staff.

VV24 Regarding water quality monitoring, see response to Comment E1. The Mendocino County Air Quality Management District is responsible for monitoring compliance with the facility's Permit to Operate. Regarding monitoring of odor, see Mitigation Measure 3.3.2. (and response to Comments J4, DD29, DD50, and 10-2). Monitoring of compliance with the facility's Solid Waste Facility Permit is the responsibility of the Mendocino County Department of Public Health, Division of Environmental Health, the State-approved Local Enforcement Agency.

VV25 See response to Comments JJ4 and OO4.

VV26 Mitigations have been identified that would reduce water quality impacts to less than significant for this project. As stated on page 4-2 (paragraph 5) of the DEIR, the other identified list of projects would not carry leachate or sediments to the East Fork Russian River and, therefore, implementation of the project would not result in any significant cumulative impacts to water quality or hydrology.

VV27 CEQA Negative Declarations determined that the other projects list in the area (page 4-2 of the DEIR) as mitigated, had less than significant air quality impacts. The limitation of truck trips on the CCCI project (which will not be open to the public -- thereby limiting future traffic to the project site) will cap future vehicle emission to the site. There are also not expected to be odors or *Aspergillus fumigatus* emissions from the other projects listed on page 4-2 of the DEIR. With dust mitigations implemented at the CCCI facility this project should not have a significant impact on cumulative air quality.

VV28 Impacts of importation of waste into Mendocino County are project impacts not cumulative impacts. They are identified and analyzed in the DEIR. The impacts of total traffic on Potter Valley Road are analyzed on pages 3-62 and 3-63. The conclusion (DEIR, page 3-63, paragraph 4) is that project trips would not significantly affect peak-hour traffic on area roadways. The residents of Potter Valley should only minimally be affected by waste-truck traffic and impacts because it is anticipated that the great majority of truck traffic would access the project vicinity from south of the project site on Potter Valley Road (from SR 20), with only a nominal amount of truck traffic originating or destined to areas north of the project site via Potter Valley Road (DEIR, page 3-63, paragraph 2).

VV29 Elimination of parking on the shoulder of Potter Valley Road, as discussed in Mitigation Measure 3.6.3 (page 3-65 of the DEIR) cannot be considered a significant adverse impact. Mitigation Measure 3.6.3 is not required (it is an optional mitigation) because

Impact 3.6.3 is considered Less than Significant before mitigation. The use of the windsock was a mitigation identified at the Organic Material Recycling Odor Control Workshop in Sunnyvale, California, on November 21, 1996. The windsock is an excellent visual tool to determine when wind are and are not blowing towards sensitive receptors. Particularly odorous operations could be avoided when the winds are blowing toward nearby sensitive receptors. Windsocks are very common at airports that rely on this reliable visual cue to make safety decisions.

VV30 See response to Comments Q53.

CHAPTER IV

STAFF-INITIATED TEXT CHANGES

During the course of reviewing the DEIR in preparation for publishing this Response to Comments Addendum, County staff noticed the need for some editorial changes and clarifications. These changes (errata) are described here. Text with a line through it (strikethrough) is hereby removed; underlined text is hereby added.

Changes to the Draft Environmental Impact Report

The following paragraph is added after the first paragraph on page 3-10 of the DEIR:

> In response to a recent decision by the State Attorney General pertaining generally to compost facilities in California, the NCRWQCB is required to establish findings and develop Waste Discharge Requirements (WDRs) for the facility. The WDRs will replace the SWPPP, but are expected to be similar to the provisions in the SWPPP. Generally, WDRs require groundwater monitoring, but this requirement can be waived if the NCRWQCB finds that groundwater is adequately protected from contamination. The NCRWQCB will determine whether groundwater testing is required (Dave Evans, NCRWQCB, telephone conversation, October 17, 1997).

Mitigation Measure 3.2.1 (b) is hereby amended as follows:

b. The project applicant shall maintain the specified grade to avoid ponding of stormwater. In addition, the auxiliary additives and amendments storage area, near the water storage tanks, will be graded to promote lateral runoff and rocked to prevent rutting. The perimeter of the auxiliary storage area will be planted with grass and the edge of the area will be bermed or straw-bale diked to trap sediment. Piles of additives and amendments will be tarped during wet weather to prevent contact with stormwater, and during dry weather, as necessary, to prevent blown dust. Dust suppression will be employed during loading and unloading of materials, if necessary, to prevent blown dust.

The text on page 3-59 of the DEIR, mitigation 3.5.3d, is hereby revised as follows:

> The existing roof structure ~~is~~and all expansions of the roof structure shall be equipped with a sprinkler system.

The text on page 3-36 of the DEIR and Mitigation Measure 3.3.3 are amended as follows:

> Generation and release of *Aspergillus* spores to the atmosphere may be minimized through best management practices. Several of these practices are described in the

California Integrated Waste Management Board's Technical Bulletin No. 1, and have been incorporated into the State's composting facility regulations, and into the design of this project. Best management practices for *Aspergillus* reduction include maintenance of a buffer strip between the facility and residences, schools, and hospitals; dust suppression; regular and uniform blending and mixing of feedstocks; moisture control, temperature control, and pH control of actively composting material; maintaining facility, vehicle, and equipment cleanliness; operator training; and, if necessary, engineering controls of facility emissions.

To further reduce the concentration of *Aspergillus* spores at nearby receptors, the following mitigation measure shall be implemented as part of the project:

Mitigation Measure 3.3.3:

Identified in this EIR

a. The project sponsor shall install a windsock or other wind direction monitoring device at the facility. To the extent possible, windrows will not be turned on days when the wind is blowing directly ~~to the west,~~ toward ~~the~~ nearby residences ~~along Potter Valley Road~~.

CHAPTER V
COMMENT INDEX

Access Road	FF5
Access Road Alternatives	**JJ8**
Additives and Amendments	**J3**, J5 O2, O5, O26, **O28**, O45 Q8, Q19, DD20, **DD22,** OO3, UU1, UU2, UU3, VV19, 13-39, 13-47, 13-70, 13-71, 13-83, 14-6
Agricultural Benefits	R1, U1, W1, X1, Y1, Z1, BB1, KK1, NN1, SS12
Agricultural preserve	**DD25**
Agricultural wastes	DD18, DD19
Air Quality Impacts	H1, Q13, **Q43**, VV9, VV16, **13-5**, **13-41**, 13-64, 14-20
Air Quality Monitoring	Q4, Q10, VV24
Alternative access routes to facility	**JJ8,** 13-4, 14-29
Animal Waste Processing	**13-71**, 14-10
Archeological, cultural, and historical impacts	VV23
Ash	Q5, **OO1**, OO2, OO3, OO9, **UU1**, UU2, UU3, VV5, VV12, 10-3, 12-1, 13-3, 13-6, 13-25, 13-68, 13-70, 14-13, 14-14, 14-16
Aspergillus Fumigatus	**H2**, **H3**, **Q45**, DD8, HH6, **DD51**, MM3, 6-2
Best Management Practices	E9, O8, **13-40**
Biological impacts	DD58, HH5, **OO4,** RR3, RR5, TT3, VV3, VV7, VV8, 9-2, 13-45, 14-4
Biosolids (sewage sludge)	E7, O49, **Q5**, **Q38**, **DD37**, DD55, DD60, MM5, TT8, TT10, VV5, VV12, 2-2, 13-58, 13-59, 13-65, 13-66, 13-74, 13-79, 13-85, 14-5, 14-8, 14-16, 14-30

Brewery Process Water	**O27**, DD40, **VV19**
Bridge replacement (Potter Valley Road)	L3, DD61, DD67, II4, TT7, 7-1, 7-2, 13-21, 13-76
Building Permits	DD9
Business	T1, AA1, BB1
California Certified Organic Farmers (CCOF)	**Q2**, DD20, **OO1, UU1, 13-35**, 14-13, 14-15
California Environmental Quality Act (CEQA) Requirements	**A1, B2**
California Integrated Waste Management Board	B2, B5
California Occupational Health and Safety Agency (Cal OSHA)	Q20
Clean Water Act	Q21, **DD30**, VV24
Closure Plan	**DD24, DD27,** DD43, 13-36, 14-32
Cold Creek	Q32, Q42, DD6, DD7
Cold Creek Compost, Inc.	1-2, OO5
Comments Generally Opposed to the Project	DD1, FF1, HH1, II1, II5, OO5, QQ1, QQ2, QQ3, VV0, 6-3, 8-1
Comments Generally In-Favor of the Project	G1, P1, P2, R1, S1, T1, U2, V1, V2, W1, X1, Y1, Z1, AA1, BB1, CC1, FF6, KK1, LL1, NN1, PP1, RR1, 10-4, 13-30
Comments Generally Critical of the DEIR	Q58, CC1, DD1, DD71, DD72, DD73, HH1, JJ10, VV0, VV29, 2-1
Comments Generally Supportive of the DEIR	M1, RR1, 10-1
Compost: potential contamination of	VV18
Compost benefits	P4, R1, U2, W1, X1, Y1, Z1, AA1, BB1, 13-80

Compost Pad	O24, O29, O31, O32, O36, **DD43**, DD44
Composting operations	J2, O6, O11, O12, O16, O18, O19, O25, O30, O34, O39, DD42, SS4, SS5, SS6, SS8
Compost sampling	14-16, 4-21
Concrete	**DD43**
Construction impacts	Q1
Court Order	**O1**, **DD4**, 1-5
Cumulative Impacts	**Q57**, **DD66**, DD67, VV26, VV27, VV28
Decentralized compost operations	**DD21**, **EE2**, QQ3, 13-26
Dioxins	OO1, TT8,, 13-25
Disposal (landfilling) of wastes	W1, X1, Z1
Distance to sensitive receptors	**Q6,** DD8**,** DD26, DD52, VV9, 9-2, 14-25
Dust	J5, O42, 5-1, **13-43**
Earthquakes	**I1,** I4, VV4, 13-52
East Fork Russian River	
Flow	**N1**, N2, **N3**, **Q30**, Q31, Q42
Water Quality	
Fishery	**N3**
Rights to	**DD6,** DD7
Eel River	N2
Employment	R1, T1, W1, A1, BB1
Energy	**DD-21**, 13-24, 13-26, 13-27, 13-28
Erosion	See also Sediment. E8, Q16, Q23, Q28, RR9, 13-61
Facility Boundaries	J3
Facility Capacity	O6, O7, OO6,
Feedstocks	**O9**, O40, DD16, 14-6, 14-7, 14-9, 14-10, 14-31

Fencing	**O44**, 9-2, 13-45, 14-1
Fire protection	C1, **D1, D2,** O43, DD56, DD58, VV15
Fish screens (on pumps)	**N3,** N4
"Fugitive" compost	E5, E9, Q36
Geology	Q24, TT2, VV4
Grading	DD2
Grape Pomace	**Q5**
Groundwater	**E3**, E4, Q22, Q23, **Q24,** Q29, DD43, DD44, TT4, 13-48
Groundwater contamination	Q17, Q22, **Q24** , Q39, 13-50, **14-23**
Growth Inducing Impacts	O48
Hazardous Materials	J5, DD23, 13-44, 13-67, 13-72
Horticulture Industry	Z1
Hours of Operation (see also nighttime operations)	**J1**, O20, DD28, **JJ6,** 5-1, **13-22**, 13-31, 13-41
Impacts (potential) analyzed and not analyzed	**DD4,** DD68
Importation of feedstocks from other counties:	Q56, II2, **13-5**, **13-24**, 14-2
Landfill Capacity Benefits	R1, W1, X1, Z1, 14-2
Landspreading	OO1, DD5, TT2, VV5, UU1, VV5
Landuse	SS9, VV22, 1-3, 13-81
Leachate	**E2**, E3, M4, O29, O31, O32, Q18, Q39, 13-9, 13-45, 13-49, 13-50, 13-55, 13-56, 13-57, 13-58, 13-59
Leachate Tank	**E6**, **M3**, **O37**, Q25, Q26, Q27, Q40, **13-51**, 13-52, 13-62
Life Span of facility	DD24, DD27

Litigation	Q3
M & M Feed and Supply, Inc.	1-2
Masonex	13-43
McKee County Park	**JJ4**, **OO4,** TT3, VV6, VV10, VV25, 13-18, 14-11
Manure	**Q5**
Mendocino County Board of Supervisors	**DD3**
Mendocino County Planning Commission	**DD3**, 13-8
Metals	GG1
Mileck, Martin	W1, BB1, JJ6, 1-2
Mitigation Monitoring	B3, HH7, OO7
Nightime operation	**J1**, JJ6, VV21, **13-11**, **13-22**, 13-29, 13-41, 14-26, 14-27, 14-28
No-Project Alternative	**Q53,** DD9, DD69, OO9, QQ4, VV30, 11-6, 13-22, 13-34, 13-83, 13-84, 14-3
Notice of Preparation	14-8
Noise	Q11, **Q47,** DD53, DD54, II3, **JJ3**, MM4, TT5, TT6, VV10, 3-3, 3-5, 6-1
Odors, Odor Control	**J4**, O23, P3, Q14, Q44, DD8, **DD29**, **DD50**, FF4, II3, JJ7, MM2, MM3, VV20, 3-2, 6-2, 9-3, 9-4, **10-2**, 11-1
Off-site alternative	**Q54,** DD70, DD74, EE2, JJ14, OO9, 3-6, 11-6, **13-82**
Permits	JJ9, OO5
Planning Commission Actions	**DD3, 13-8**
PM 10 Emissions	Q10, Q13, 5-1, 9-5
Project Description	B1

Property Value	JJ2, JJ12, 3-3
Public Health	RR8, TT1, TT2, VV11, VV12, VV13, VV16, VV20
Public input	B4, **JJ10**, QQ1, QQ2, QQ3, SS3, 3-1, 3-6, 11-2
Public Resources Code 50000	SS7
Public Right to Know	DD30, VV24
Radioactive Hospital Waste	DD37
Record keeping	DD30
Reduced Project Alternative	**Q55, Q56,** EE2, 11-6, **14-5**
Regulatory Compliance	AA1(add Q comments to this index item), DD20, HH7, MM6, OO7, 13-1, 13-37
Road impacts	O47, Q1, P3DD61, **JJ8**, JJ13, RR9, VV3, 13-78
Roof Structure	O15, O34, DD32, DD33, DD34, DD35, DD36, DD42, 13-9, 13-36, 13-60, 13-61, 14-12
Safety Equipment	O41, Q50
Scope of the DEIR	**DD4**, SS1, SS2, SS3, 11-5, 14-22
Sediment	E8, O35
Sensitive Land Uses	OO8
Shall vs. Should	**13-20**, 13-37, 13-57, 13-63
Solid Waste Facility Permit	O2, O3, O7, DD2
Static pile composting	J4, VV20
Stormwater Pollution Prevention Plan	E9, J2, O7, O13
Stormwater monitoring	See Water Quality Monitoring
Street Sweepings	DD5
Tax base	T1

Toxic substances	Q2, **Q5,** Q8 , Q19, **Q38**, Q49, DD20, **DD22, DD37,** II3, MM5, **OO1**, OO2 , VV1, VV18, **2-2, 2-3,** 11-4, 13-3
Traffic	L1, **L2, L3,** L4, L5, O4, O45, **O46,** DD21, **DD62,** DD63, JJ6, RR2, VV6, 4-1, 76-1, 7-2, **13-5, 13-15, 13-16**, 13-17, 13-19, **13-41**, 13-75. **13-76**, 13-77, 14-17, 14-18, 14-19
Traffic Safety	DD62, DD63, DD64, DD65, **JJ5,** TT7, VV29, 3-4, 7-1, 7-2, **13-21**
Trees	C1, **DD32**
Truck scale	O22, OO6
Truck Traffic: Noise	O38, Q11, **Q47**, JJ3, JJ4, TT5, TT6, 5-1
Truck Traffic: Nighttime	Q11, **Q48,** 5-1
Use Permit	**DD3, 14-24**
Unavoidable Significant Adverse Impacts	Q52
Vectors	O21, Q12, **Q51, DD57,** DD59, **TT3,** VV17, 13-42, 13-73, **14-1**, 14-3
Visual impacts	**DD32**, DD33, DD34, DD35, **DD36**, II3, MM1, RR3, VV2, VV3, 11-7, **13-11, 13-22**, 13-29, 13-46
Water, drinking	Q21, DD38, TT4, 13-10
Water Quality Benefits	R1
Water Quality Impacts	I2, **DD38,** TT4
Water Quality Monitoring	**E1**, E5, M5, O17, Q4, Q7, Q9, Q11, Q15, Q18, Q34, DD20, RR4, VV24, 13-2
Water rights	N2, **Q30**, Q57, **DD6**, DD7, RR6, TT4, VV14, 1-4, 11-3
Water runoff	I2, Q24, **DD38**
Water Storage Tanks	I3, D2, E6, **M3**, O37, **Q25**, Q40, 13-10

Water Supply	M2, N1, N2, Q29, **Q30,**. Q31, DD41, VV14, VV15, 1-4, **13-53**, 13-54
Wet weather operations	**J2,** O25, **O28**, O33, **13-7**, 13-13, 13-47, 13-55, 14-12
Winter (rainy season) operation	J2
Wood waste	**2-2, 2-3**
Worker Health and Safety	**O41**, Q20, Q49, Q50, RR7, 13-20, 13-67, 13-69, 13-72, 13-79
Yard Waste Composting	DD5
Zoning	**DD25**, DD26, 1-1, 13-33

ATTACHMENTS

A. Information provided with Comment Letter Q (Mendocino Environmental Center)

B. Information provided with Comment Letter DD (Mary Goodwin)

C. Information provided with Comment Letter JJ (Francine Long)

D. Page 3 of the Plain English Guide to Biosolids (In response to Comment MM5)

E. Engineering Progress Report for Construction of the Compost Pad (Comment DD43)

ATTACHMENT A

INFORMATION PROVIDED WITH COMMENT LETTER Q (MENDOCINO ENVIRONMENTAL CENTER)



Sewage Sludge Fact Pack

We have compiled this fact pack to start answering some of the many questions we receive about sewage sludge. We have attached articles that explain some of the problems with sewage sludge.

Compiled by Hannah Gillelan

September 1996

Price: $ 7.00

Environmental Research Foundation
P.O. Box 5036
Annapolis, MD 21403-7036

Telephone: (410) 263-1584
Fax: (410) 263-8944

E-mail: erf@igc.apc.org

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Contact ERF (P.O. Box 5036, Annapolis, MD 21403-7036; phone: 410-263-1584; fax: 410-263-8944; E-mail: erf@rachel.clark.net) to receive a free four-issue trial subscription to *Rachel's Environment & Health Weekly*.

TABLE OF CONTENTS

Attached information:

Sewage Sludge: An Introduction

"Sludge Fact Sheets: What is Sludge?" Dutchess County Environmental Management, 1993. 3

Stauber, John C. and Sheldon Rampton. Toxic Sludge is Good for You. Monroe, Maine: Common Courage Press, 1995, pgs 101-109. 5

"Comparison of Various Metals Standards for Sewage Sludge with teh Metals Content of Philadephia/Camden County Sludge & New Jersey Leaf Compost," from *Composting Frontiers* (Spring 1994), pg. 24 10

Current Disposal Options

"Sludge Fact Sheets: Melting Furnace Process." Dutchess County Environemntal Management Council, 1993. 13

"Sludge Fact Sheets: Chemical Stabilization." Dutchess County Environemntal Management Council, 1993. 15

"Sludge Fact Sheets: Landfilling and Incineration." Dutchess County Environemntal Management Council, 1993. 17

"Sludge Fact Sheets: Pelletization." Dutchess County Environemntal Management Council, 1993. 19

"Sludge Fact Sheets: Land Application and Composting." Dutchess County Environemntal Management Council, 1993. 21

Land Application? Food Grown in Sludge? Beneficial Use?

Kenard, Ray. "Land Application of Sludge and Sludge Derived Products: Scientific Materials," February 1995. 25

"Statement by the National Food Processors Association on the Use of Municipal Sewage Sludge in the Production of Foods for Human Consumption," May 1, 1992. 39

Campbell, Greg. "As the Topsoil Turns," from *Boulder Weekly* (May 2, 1996), pgs. 6-8. 41

Ortega, Marina. "Dumping in the Desert," from *Everyone's Backyard* (March/April

1994), pgs. 6-7, 18. 45

Tackett, Stanford L. "Sewage Sludge and Lead - Not Safe for Land Spreading," from *Everyone's Backyard* (March/April 1994), pg. 18. 47

Case Histories of Problems with Land Application of Sludge

Ed Haag. "Just Say No To sludge applied to your land. You'll avoid the unknown risks of loosely regulated application." *Dairy Today* (March 1992), pages 82-83. 51

Ed Haag. "Sludge under suspicion: If experts can't agree whether sludge is safe, should you?" *Farm Journal* (March 1992), pages 16-19. 53

Shirley Ferris. "Slugging it out over sludge." *American Agriculturist* (September 1992), pages 10-11, 18. 57

Hawes, Christine and Tom Spalding. "It's 'Great for the Grass,' But What about Humans?" 1995. 61

Other resource groups.

Suggested reading.

Note:

While a very real and present problem, very little has been written on sewage sludge in the past three years. A fair amount was written in 1988 and 1993, times when sewage sludge has forced its way to the front of the news due to noticable and drastic disposal problems. While some of the attached materials are several years old, neither the nature of sewage sludge nor the technologies for dealing with it have significantly changed. After all, sewage is sewage, and will be so until the sewer systems have been separated to deal with human and industrial wastes in different manners. Until then, sewage sludge will continue to be a threat to the health of the land and those who live off of it and companies will continue to ship our sewage from one corner of the country to another in search of another victim on whom they can pass it off as a "beneficial use" of a valuable resource.

Sewage Sludge: An Introduction

Cornell Cooperative Extension Dutchess County

Dutchess County Environmental Management Council

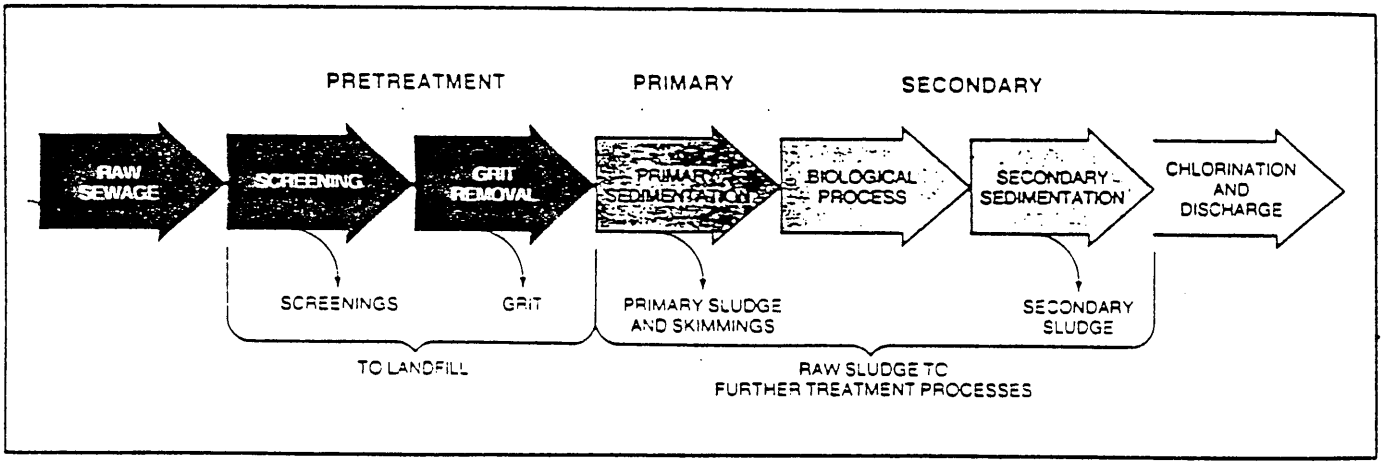
SLUDGE FACT SHEETS

WHAT IS SLUDGE?

WHERE DOES SLUDGE COME FROM?

Sludge is the accumulated solids concentrated during the treatment of a community's wastewater (fig.1). Sludge is also the solids left from septage, the liquid pumped from septic tanks. Wastewater treatment plants separate the incoming material into cleaner water and sludge. This occurs in at least two stages: primary treatment, where suspended solids are settled out, and secondary treatment, where dissolved solids are removed. Some wastewater treatment plants also have tertiary treatment which may remove certain contaminants from the sludge.

Figure 1. Typical wastewater treatment process.



Reference: Pennsylvania Agricultural Experiment Station, Criteria and Recommendations for Land Application of Sludges in the Northeast, Bulletin 851, March 1985.

WHAT'S IN IT?

The contents of the sludge are determined by the composition of the wastewater that comes into the treatment plant or septic tank, i.e. from households, businesses, industries, institutions, and sometimes storm sewers. Storm sewers carry water from streets and parking lots; depending on the municipality it may go to the treatment plant, or may go directly to a stream or river. Wastewater from all of these sources contains bacteria, pathogens, oil, and a variety of chemicals. In some cases, the industrial waste may have been pretreated.

There are some characteristics common to sludges from different sources. Sludge has a pH range of 5.0 - 8.0. Typically sludge directly from the wastewater treatment plant is only 5% solids and 95% water. After dewatering the sludge is 15%-20% solids. Sludge contains human waste and other organic matter from the wastewater source. The organic material contains bacteria and viruses, some of which are human pathogens. It may also contain organic chemicals from households and industries. Sludge usually

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contains minerals such as iron and aluminum. It contains compounds considered nutrients for plants and soil, such as nitrogen, phosphorus, potassium and calcium. Sludge also may contain metals especially toxic to humans and animals, such as cadmium, chromium, lead and mercury. Other metals toxic to plants, such as copper, zinc and nickel, could also be present.

HOW CAN SLUDGE BE USED?

"Sludge management" refers to various options for using and/or disposing of the sludge produced. Some sludges have the potential to be used as a low grade fertilizer. However, most sludges can only be used to supplement a commercial fertilizer for agricultural purposes. In addition, there is a growing industry based on creating beneficial reuses of stabilized sludges. The accompanying companion fact sheets discuss some of the current sludge management methods.

There are four main goals of sludge management:

1. to reduce the water content,
2. to eliminate pathogens,
3. to control odors,
4. and to manage toxics.

Depending on the method of treatment and the use of the sludge, one of these may be more of an operational concern. For example, if sludge is composted directly from the treatment plant, then controlling pathogens is crucial. However, if sludge goes through a thermal drying process, then pathogens automatically will be killed by the heat.

References:

Pennsylvania State University, Pennsylvania Agricultural Experiment Station, Criteria and Recommendations for Land Application of Sludges in the Northeast, Bulletin 851, March 1985.

Lewis M. Naylor and Raymond C. Loehr, What is Sludge?, Waste Management fact sheet from Cornell Cooperative Extension, Cornell University, 1980.

down to commercial calculations. We weren't planning to write about "toxic sludge" per se. We were trying to reach so-called "Generation X" readers with a "Generation X" title—a cynical, exaggerated parody of deceptive public relations.

Then Nancy Blatt called, and we discovered that our "parody" is no exaggeration.

Nancy Blatt is an aggressively perky woman who serves as Director of Public Information for the "Water Environment Federation" (WEF). She phoned to say that she had seen an advance notice mentioning our book, and she was concerned that the title might interfere with the Federation's plans to transform the image of sewage sludge. "It's not toxic," she said, "and we're launching a campaign to get people to stop calling it sludge. We call it 'biosolids.' It can be used beneficially to fertilize farm fields, and we see nothing wrong with that. We've got a lot of work ahead to educate the public on the value of biosolids." Blatt didn't think the title of our book would be helpful to her cause. "Why don't you change it to *Smoking Is Good For You?*" she suggested. "That's a great title. People will pick it up. I think it has more impact. You can focus in on all the Philip Morris money. I think it's a grabber."

We thanked her for the suggestion, but explained that we don't want our book to be confused with Christopher Buckley's hilarious satire of the PR industry, titled *Thank You For Smoking*.

Blatt took pains to insist that "I am not a flack for an interest that I don't believe in personally." She said she shared our dim view of PR representatives working to promote tobacco and other harmful products. She said the Water Environment Federation works to promote recycling by applying the nutrients in sewage waste as fertilizer to farm fields, a "natural process" that returns organic matter to the soil and keeps it from polluting water supplies.

"We were concerned that you might have heard some negative things about the campaign planned by our PR firm, Powell Tate," Blatt said.

That caught our attention. Powell Tate is a blue-chip Washington-based PR/lobby firm that specializes in public relations around controversial high-tech, safety and health issues, with clients from the tobacco, pharmaceutical, electronics and airlines industries. Jody Powell was President Jimmy Carter's press secretary and confidant. Sheila Tate similarly served Vice-President George Bush and First Lady Nancy Reagan. Tate is also the chairperson of the Corporation for Public Broadcasting.

Realizing we might be on to something, we asked Nancy Blatt to send more information about the Water Environment Federation. She dutifully mailed a glossy brochure and some other promotional materials, along with a letter reiterating her concern that our book might "do a disservice to the public and the environment."[1] Her cooperation quickly turned to stonewalling, however, when we requested strategy documents, memos, opinion surveys and other materials from Powell Tate. Legally we are entitled to these documents, since the Water Environment Federation is partially funded at taxpayer expense. WEF's refusal to voluntarily produce them forced us to file a Freedom of Information Act request with the federal government. As this book goes to press, the EPA is still stalling on our information request.

Our investigation into the PR campaign for "beneficial use" of sewage sludge revealed a murky tangle of corporate and government bureaucracies, conflicts of interest, and a coverup of massive hazards to the environment and human health. The trail began with the Water Environment Federation—formerly known as the "Federation of Sewage Works Associations"—and led finally to Hugh Kaufman, the legendary whistleblower at the hazardous site control division of the Environmental Protection Agency.

In the 1980s, Kaufman refused to remain silent about the collaboration between EPA officials and leaders of the industries they were supposed to regulate. His courageous testimony exposed the agency's failure to deal with mounting chemical wastes and brought down Anne Burford, President Reagan's EPA administrator. "His active protest resulted in a secret campaign to track his whereabouts and find evidence to fire him," report Myron Peretz Glazer and Penina Migdal Glazer in their 1989 book, *The Whistle Blowers*. "The EPA's inspector general became implicated in this scheme. Silencing Kaufman became official policy even if it meant invading his privacy in the futile hope of uncovering some personal indiscretion. . . . Kaufman gained national prominence and became a symbol of an employee who refused to be cowed by an oppressive bureaucracy."[2]

Today, Kaufman is attempting to raise a similar alarm about the so-called "beneficial use" of sewage sludge, a boondoggle he refers to as "sludge-gate . . . the mother lode of toxic waste."[3]

A Brief History of Slime

Prior to the twentieth century, indoor plumbing was an almost unheard-of luxury. Common people used outhouses, while the

wealthy used a primitive indoor system—bedpans, which were carried away by servants. In either case, the waste ultimately returned to the soil near its point of origin. In traditional, agricultural societies, human waste was prized as a prime ingredient in what the Chinese called "night soil"—artfully composted, high-grade fertilizer.

Things changed with the industrial revolution, which brought people together in congested cities, far away from farmlands, where composting and recycling were no longer practical. Open gutters were dug to carry sewage from city streets into nearby bodies of water. When populations were small and water supplies seemed unlimited, the wisdom of using fresh water as a vehicle and receptacle for human waste was not questioned. By the 1920s and 1930s, large cities were piping large quantities of untreated sewage into rivers and oceans, creating serious pollution problems. Septic systems in thousands of small and medium-sized communities were failing due to overloading. Thousands of industries were also producing chemical wastes and needed to dispose of them.

The environmentally sound approach would have been to develop separate treatment systems for human and industrial waste. Biological wastes should have been recycled through a system that returned their nutrients to the soil, and businesses should have been required to separately treat their chemical wastes on-site so that they could be contained and re-used within the industries from which they came. At the time, however, it seemed easier and cheaper to simply dump everything into a single common sewer system. For businesses, the system provided tax-based aid to help them dispose of their toxic byproducts. For people, indoor plumbing that magically "carried everything away" was a luxury that marked their escape from frontier hardship and their entrance into modernity. The system helped limit the spread of communicable diseases, and for many it symbolized the difference between primitive crudity and the civilized benefits of technological society.

The problem with this system, however, is that it collects, mixes, and concentrates a wide range of noxious and toxic materials which are then very difficult, if not impossible, to separate and detoxify. According to Abby Rockefeller, a philanthropist and advocate of waste treatment reform, "conventional wastewater treatment systems . . . are not designed to produce usable end-products. Because this is so, it must be said that failure to solve the overall problem of pollution caused by the waste materials received by these systems *is a function of their design.*"[4]

"Today," observe environmental writers Pat Costner and Joe Thornton, "waterless treatment systems—on-site composting and drying toilets that process human wastes directly into a safe, useful soil additive—are available. These dry systems are more economical than water-flushed toilets and their attendant collection and treatment systems. However, water-flushed toilets are so entrenched in the cultural infrastructure that the transition to alternative waste systems has been blocked. Instead, billions of dollars are spent on perfecting the mistake of waterborne waste systems: wastes are first diluted in water and then, at great expense, partially removed. The products of this treatment are sludge—which requires even further treatment before disposal—and treated effluent, which carries the remaining pollutants into receiving waters."[5]

To cope with the mounting problem of water pollution, the United States launched what has become the largest construction grants program in US history, linking millions of homes and tens of thousands of businesses into central treatment facilities. As the 1970s dawned, front-page headlines across America told stories of polluted drinking water and quarantined beachfronts. Pressure from environmentalists spurred Congress to pass the Clean Water Act of 1972, which according to US Senator Max Baucus, "put us on the course to fishable and swimmable rivers at a time when one river was known as a fire hazard and others hadn't seen fish in a generation."[6] The Clean Water Act required communities to make sure that by 1977 their sewage plants could remove at least 85 percent of the pollutants passing through them, and allocated funding to pay for the additional treatment and filtering technologies needed to achieve this goal. By 1976, the federal government was spending $50 billion per year to help cities achieve water purity goals.[7]

In the 1980s, however, politicians responded to pressure for reduced federal spending by cutting funds for water treatment, and by the 1990s the money had been virtually eliminated.[8] In the meantime, the push for clean water had created another problem—tons of pollution-laden sewage sludge generated as a byproduct of the treatment process.

According to Abby Rockefeller, the hundreds of billions of dollars spent purifying water through central sewage processing plants has largely been wasted. "Leaving aside the immense costs of this option, both in energy and in money, there is the critical though inadequately recognized problem of the sludge," Rockefeller states. "The more advanced the treatment of the sewage (the more successful the

separation), the more sludge will be produced, and the worse—the more unusable and dangerous—it will be. That is, the 'better' the treatment, the greater the range of incompatible materials that will have been concentrated in this highly entropic gray jelly."[9]

Secret Ingredients

The *HarperCollins Dictionary of Environmental Science* defines sludge as a "viscous, semisolid mixture of bacteria- and virus-laden organic matter, toxic metals, synthetic organic chemicals, and settled solids removed from domestic and industrial waste water at a sewage treatment plant."[10] Over 60,000 toxic substances and chemical compounds can be found in sewage sludge, and scientists are developing 700 to 1,000 new chemicals per year. Stephen Lester of the Citizens Clearinghouse for Hazardous Wastes has compiled information from researchers at Cornell University and the American Society of Civil Engineers showing that sludge typically contains the following toxins:

- *Polychlorinated Biphenyls (PCBs);*
- *Chlorinated pesticides*—DDT, dieldrin, aldrin, endrin, chlordane, heptachlor, lindane, mirex, kepone, 2,4,5-T, 2,4-D;
- *Chlorinated compounds* such as dioxins;
- *Polynuclear aromatic hydrocarbons;*
- *Heavy metals*—arsenic, cadmium, chromium, lead, mercury;
- *Bacteria, viruses, protozoa, parasitic worms, fungi;* and
- *Miscellaneous*—asbestos, petroleum products, industrial solvents.[11]

In addition, a 1994 investigation by the US General Accounting Office found that "the full extent of the radioactive contamination of sewage sludge, ash and related by-products nationwide is unknown." Most of the radioactive material is flushed down the drain by hospitals, businesses and decontamination laundries, a practice which has contaminated at least nine sewage plants in the past decade.[12]

In 1977, EPA Administrator Douglas Costle estimated that by 1990 treatment plants would be generating 10 million tons of sludge per year, a thought that "gives us all a massive environmental headache."[13] Today there are about 15,000 publicly-owned wastewater treatment works in the United States, discharging approximately 26 billion gallons per day of treated wastewater into lakes, streams and waterways. Before treatment, this wastewater contains over a million pounds of hazardous components. Sewage plants use heat, chemicals and bacterial treatments to detoxify 42 percent of these components

through biodegradation. Another 25 percent escapes into the atmosphere, and 19 percent is discharged into lakes and streams. The remaining 14 percent—approximately 28 million pounds per year—winds up in sewage sludge.[14]

Once created, this sludge must be disposed of in some fashion. The available methods include: incineration (which releases pollution into the air), dumping into landfills (which is expensive, and often lets contaminants leach into groundwater), and ocean dumping (where it has created vast underwater dead seas). A fourth approach—gasification, using sludge to generate methanol or energy—is favored by EPA's Hugh Kaufman as the "most environmentally sound approach, but also the most expensive."[15] A fifth approach—using sludge as plant fertilizer—was considered hazardous to health and the environment until the 1970s, but it has the advantage of being inexpensive. As budget concerns mounted in the late 1970s, the EPA began to pressure sewage plants to adopt the cheapest method available—spreading sludge on farm fields.[16]

A Rose By Any Other Name

To educate the public at large about the benefits of sludge, the EPA turned to Nancy Blatt's employer, known today as the "Water Environment Federation." Although its name evokes images of cascading mountain streams, the WEF is actually the sewage industry's main trade, lobby and public relations organization, with over 41,000 members and a multi-million-dollar budget that supports a 100-member staff. Founded in 1928 as the "Federation of Sewage Works Associations," the organization in 1950 recognized the growing significance of industrial waste in sludge by changing its name to the "Federation of Sewage and Industrial Wastes Associations." In 1960, it changed its name again to the cleaner-sounding "Water Pollution Control Federation."[17]

In 1977, Federation director Robert Canham criticized the EPA's enthusiasm for land application of sludge, which he feared could introduce viruses into the food chain. "The results can be disastrous," he warned.[18] By the 1990s, however, Federation members were running out of other places to put the stuff. The Federation became an eager supporter of land farming, and even organized a contest among its members to coin a nicer-sounding name for sludge.

The proposal to create a "Name Change Task Force" originated with Peter Machno, manager of Seattle's sludge program, after protesters mobilized against his plan to spread sludge on local tree farms.

"If I knocked on your door and said I've got this beneficial product called sludge, what are you going to say?" he asked. At Machno's suggestion, the Federation newsletter published a request for alternative names. Members sent in over 250 suggestions, including "all growth," "purenutri," "biolife," "bioslurp," "black gold," "geoslime," "sca-doo," "the end product," "humanure," "hu-doo," "organic residuals," "bioresidue," "urban biomass," "powergro," "organite," "recyclite," "nutri-cake" and "ROSE," short for "recycling of solids environmentally."[19] In June of 1991, the Name Change Task Force finally settled on "biosolids," which it defined as the "nutrient-rich, organic byproduct of the nation's wastewater treatment process."[20]

The new name attracted sarcastic comment from the *Doublespeak Quarterly Review*, edited by Rutgers University professor William Lutz. "Does it still stink?" Lutz asked. He predicted that the new name "probably won't move into general usage. It's obviously coming from an engineering mentality. It does have one great virtue, though. You think of 'biosolids' and your mind goes blank."[21]

According to Machno, the name change was not intended to "cover something up or hide something from the public. . . . We're trying to come up with a term . . . that can communicate to the public the value of this product that we spend an awful lot of money on turning into a product that we use in a beneficial way."[22]

James Bynum, director of an organization called "Help for Sewage Victims," saw a more sinister motive behind the name change. In 1992 the EPA modified its "Part 503" technical standards which regulate sludge application on farmlands. The new regulations used the term "biosolids" for the first time, and sludge which was previously designated as hazardous waste was reclassified as "Class A" fertilizer. "The beneficial sludge use policy simply changed the name from sludge to fertilizer, and the regulation changed the character of sludge from polluted to clean so it could be recycled with a minimum of public resistance," Bynum wrote. "Sludge that was too contaminated to be placed in a strictly controlled sanitary landfill was promoted as a safe fertilizer and dumped on farmland without anyone having any responsibility. . . . There is a real concern for everyone, when a bureaucrat can write a regulation which circumvents the liability provisions of the major Congressional mandated environmental laws, by simply changing the name of a regulated material."[23]

A few months after the debut of "biosolids," the Water Pollution Control Federation dropped the words "pollution control" from its own name and replaced them with "environment." At the group's

64th annual conference, WEF President Roger Dolan explained the reasoning behind the latest name change: "We don't control pollution anymore; we eliminate it. To the outside world, our people came to be seen as pollution people. In today's world, the word 'control' just isn't good enough." In fact, this claim was largely rhetorical. "Virtual elimination has not been achieved for one single persistent toxic," said E. Davie Fulton, a Canadian official involved in sagging efforts to clean up the Great Lakes.[24]

So You See, It *Is* Good For You

In 1992, the Water Environment Federation, describing itself as a "not-for-profit technical and educational organization" whose "mission is to preserve and enhance the global water environment,"[25] received a $300,000 grant from the EPA to "educate the public" about the "beneficial uses" of sludge. "The campaign will tie in with the Federation's ongoing efforts to promote use of the term 'biosolids,'" reported the Federation's December 1992 newsletter.

"Beneficial use" is the industry euphemism for the practice of spreading sludge on farm fields. Even before the current push, sludge has been applied to soil for decades. Milwaukee's sewage sludge has been dried and sold nationally for almost 70 years as "Milorganite," a lawn and garden fertilizer. In 1982, the state of Maryland banned Milorganite after it was found to contain high levels of cadmium, a heavy metal.[26] In recent years, other cities have followed Milwaukee's example, offering varieties such as "Nu-Earth" from Chicago, "Nitrohumus" from Los Angeles, and "Hou-actinite" from Houston.[27]

Milorganite and other commercially-marketed sludge products usually carry labels warning that they should not be applied on food-producing soil. But most consumers and journalists are unaware that tens of thousands of acres, from Midwest dairy land to Florida citrus groves and California fruit orchards, are already routinely "fertilized" with byproducts of industrial and human sewage. In theory, this approach harkens back to the time-honored natural system of composting. Of course, the organic farmers of previous centuries didn't have to worry that *their* "night soil" contained a synergistic soup of dioxins, asbestos, DDT and lead that could contaminate themselves, their groundwater, and their food.

"I am appalled at what I would term the 'total disregard for human health' and the fact that the Environmental Protection Agency is actively promoting and is, in fact, lulling communities throughout the United States into initiating programs for the composting of

sewage sludge," said Melvin Kramer, an infectious disease epidemiologist who has been researching the issue since the late 1970s. He says the EPA's plan for sludge disposal poses "a significant health hazard to the population in general, but especially to the elderly, children, and the infirm, both in terms of nuisances as exemplified by excessive putrid odors and minor allergic reactions . . . to life-threatening diseases."[28]

Some environmental activists with Greenpeace and the Citizens Clearinghouse on Hazardous Waste have warned about the dangers of sludge, but most groups have bought into the argument that sludge farming is the least offensive way to deal with the problem of waste disposal. Some groups even *support* sludge farming. During the 1970s, these environmentalists worked for passage of the Clean Water Act. Now they find themselves in the awkward position of defending its consequence—huge mountains of poisonous sludge that need to be put *somewhere*. Sarah Clark, formerly of the Environmental Defense Fund, claims that sludge farming "is the best means of returning to the soil nutrients and organic matter that were originally removed. It is recycling a resource just as recycling newspapers or bottles is. If the right safeguards are taken, it can be environmentally protective and even beneficial."[29]

Unfortunately, "the right safeguards" are *not* being taken. Joseph Zinobile, a risk management consultant with the Pennsylvania-based Waste Risk Education Fund agrees that "human waste residue *can be* applied to land in a safe manner." The problem, he says, is that "*it is often not done safely at this time.* The primary reason that it is not always done safely at this time is a nearly complete subjugation of safety concerns by the US EPA in favor of their concern over solving their 'disposal dilemma.' "[30]

Dr. Stanford Tackett, a chemist and expert on lead contamination, became alarmed about sludge on the basis of its lead content alone. "The use of sewage sludge as a fertilizer poses a more significant lead threat to the land than did the use of leaded gasoline," he says. "All sewage sludges contain elevated concentrations of lead due to the nature of the treatment process. . . . Lead is a highly toxic and cumulative poison. Lead poisoning can cause severe mental retardation or death. It is now known that lead interferes with the blood-forming process, vitamin D metabolism, kidney function, and the neurological process. From the standpoint of lead alone, sludge is 'safe' only if you are willing to accept a lowered IQ for the young children living in the sludge area. And what about the other toxins?"[31]

Tackett is appalled "that the government would take the citizens' money and use it in such an odious way. The land spreading program for sewage sludge is a scam of enormous proportions, driven mainly by money," he charges. "The high sounding justifications such as 'sludge is a beneficial resource' and 'sludge is just as safe as manure' are clever excuses designed to fool the public. . . . In truth, only one to three percent of the sludge is useful to plants. The other 97 to 99 percent is contaminated waste that should not be spread where people live. . . . Land spreading of sewage sludge is not a true 'disposal' method, but rather serves only to transfer the pollutants in the sludge from the treatment plant to the soil, air and ground water of the disposal site."[32]

One Hand Washes the Other

Tackett also condemns the "selective science" and "manipulation of research money" used to rationalize sludge farming. "Millions of dollars have been made available through EPA and other federal, state and local agencies, for 'beneficial use' research. Toxicologists, public health scientists and medical researchers have not had a similar money pot available to study the potential dangers and adverse health effects of sewage sludge. It is no wonder then that the scientists selected by the EPA to serve on sludge advisory committees are the 'beneficial use' researchers, and the only research reports they deem acceptable for the purpose of adopting new sludge spreading regulations are from the 'beneficial use' studies. . . . The claims now made for 'sludge safety' sound eerily like the earlier claims that 'DDT is perfectly safe' and 'asbestos is a miracle fiber that poses no danger at all."[33]

In fact, the researchers, advocates, regulators and practitioners of sludge farming are a closely interwoven group. Dr. Alan Rubin, for example, served as chief of the Environmental Protection Agency's sludge management branch where he oversaw the development of new regulations for land farming of sludge fertilizer. In 1994 the EPA loaned Rubin to the Water Environment Federation, while continuing to pay half of his salary. Now Rubin the regulator is a full time cheerleader for "biosolids." Together he and Nancy Blatt are a team, barnstorming the nation, meeting the press, schmoozing with politicians, and debating critics.[34]

Dr. Terry Logan, a professor of soil chemistry at Ohio State University, is another sludge advocate who has conflicting roles and interests. He co-chairs the US EPA Peer Review Committee, a group

Comparison of Various Metals Standards for Sewage Sludge with the Metals Content of Philadelphia / Camden County Sludge & New Jersey Leaf Compost

	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
USA CWA 503 Sludge Quality Standards								
High Quality Sludge	41	39	1200	1500	300	17	420	2800
Ceiling Concentrations for Non-Food-Chain Application	75	85	3000	4300	840	57	420	7500
New Jersey Sludge Criteria for Land Application								
Class A	10	20	1000	600	2400	10	625	1200
Class B	10	40	1000	1200	4800	10	1250	2400
Ontario Sludge Quality Standards								
	35	4	530	380	220	1.4	80	840
Dutch Sludge Quality Standards								
	15	1.25	350	75	100	0.75	30	300
Philadelphia / Camden County Sludge Compost - 16 Monthly Tests, January 1990 - April 1991								
Average	5.67	4.74	116.06	452.06	101.19	2.43	25.90	776.69
Range	1.73-17.11	2.70-8.9	72 - 200	247 - 1000	34 - 170	0.65-4.5	17 - 39	392 - 1700
Leaf Compost from Seven New Jersey Sites, 1990-1992*								
Average	-	2.73	52.76	18.12	10.25	-	32.53	120.37
Range	-	0.87-5.1	10.7-167.7	0.17-37.7	4.5-24.2	-	8.6-105.6	44.3-226.5

*Quantitative determination of heavy metal concentrations in leaf compost for establishing quality standards, Anthony N. Betances, May 26, 1993

Current Disposal Options

Cornell Cooperative Extension Dutchess County

Dutchess County Environmental Management Council

SLUDGE FACT SHEETS

MELTING FURNACE PROCESS

DESCRIPTION OF PROCESS

The melting furnace process was developed by the Kubota Corporation and has been in use for about 15 years in countries outside of the United States. The melting furnace heats sludge cake to 1300 to 1500 degrees Centigrade. At these temperatures the organic matter in the sludge is utilized as combustion heat and the inorganic matter is converted to slag, therefore auxiliary fuel is only required for "start-ups". Heat associated with the flue gas is recovered and used to heat the combustion air to produce steam. The steam can then be used for drying sludge prior to combustion.

Some benefits of this process include low noise level, destruction of odors, compact layout requiring a small land area, and weight and volume reduction of the sludge. The melting furnace method can also be used to stabilize sludges with high levels of heavy metals or toxic organic compounds, resulting in a slag that can be beneficially reused. These sludges would not be suitable for composting, pelletization or land application due to contamination.

END USE

The slag from the melting furnace can be produced in either a granulated or a densified form. The process completely pyrolyzes the sludge and transforms all organic and inorganic materials to inert components. This inert material can be used as an aggregate in road construction, sidewalks, pipe backfill, parking lots, bridges and tennis courts. The slag can also be used in the manufacture of concrete and decorative paving blocks.

ENVIRONMENTAL CONCERNS

The melting furnace process does require air pollution and dust control equipment. However, the process does not require disposal of an ash product since the slag produced is an inert material which may be beneficially reused.

EXISTING FACILITIES

There is a melting furnace facility in operation in Monticello, New York (Sullivan County).

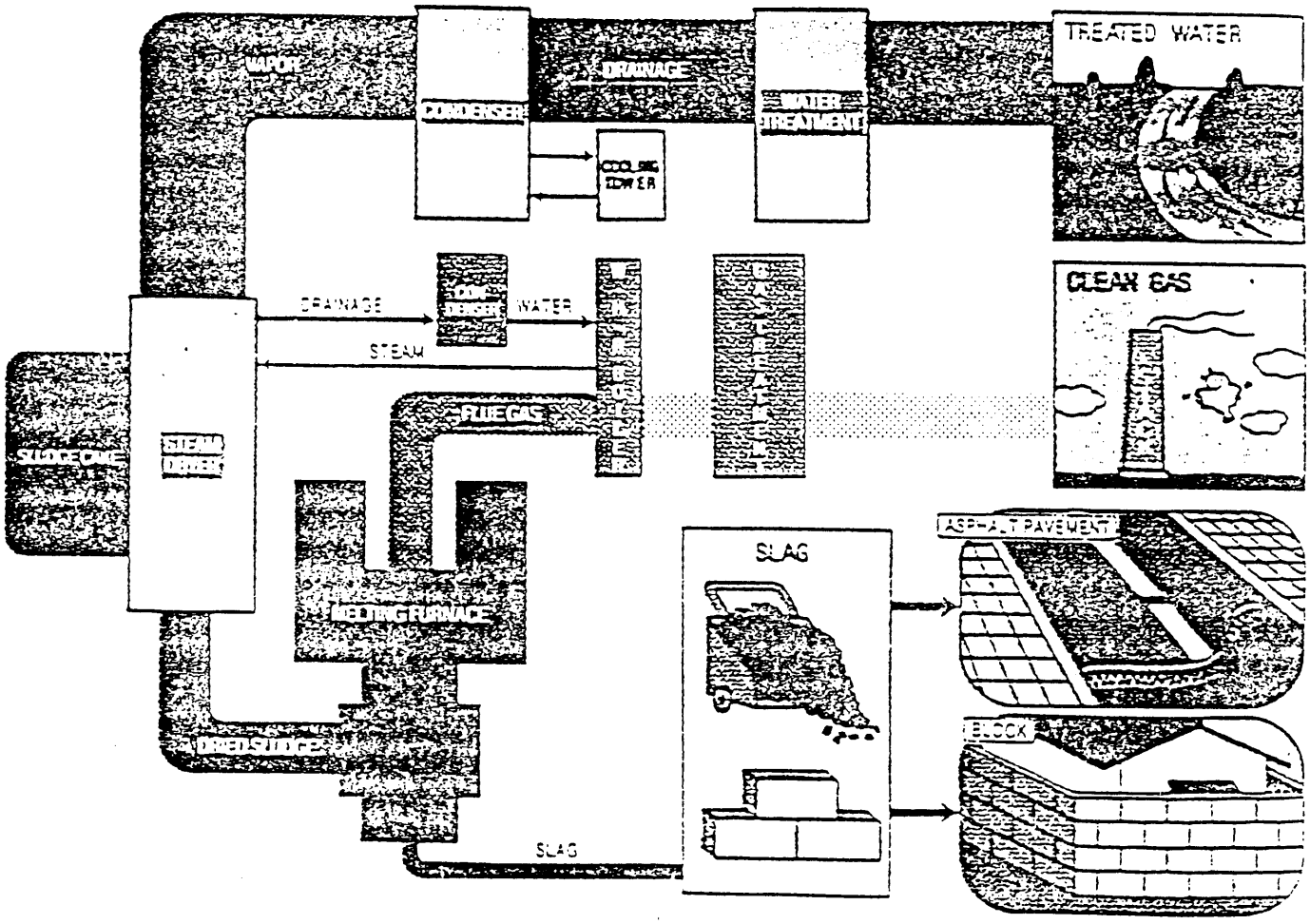
References: Kubota Melting Furnace for Sewage Sludge, Promotional brochure for World-Enviro-Tech, Inc.
Morris Associates and Camo Pollution Control, Dutchess County Septage/Sludge Review, October, 1992.

NOTE: See reverse for a graphic representation of the melting furnace process.

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Source: Kubota Melting Furnace for Sewage Sludge, Promotional brochure for World-Enviro-Tech, Inc.

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SLUDGE FACT SHEETS

CHEMICAL STABILIZATION

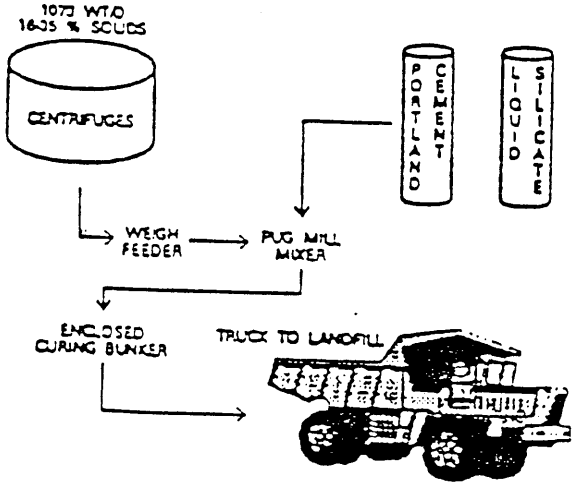
DESCRIPTION OF PROCESS

Chemical stabilization involves mixing a chemical agent with the sludge to produce a stabilized product, either temporarily or permanently. The goals of the treatment are to reduce pathogens, eliminate odors and bind the heavy metals within the sludge. There are three processes currently being used:

Kiln Dust Stabilization. This process involves mixing dewatered sludge with cement kiln dust. The pH (a measure of acidity versus alkalinity: pH 1-6 is considered acid, pH 7 is neutral, pH 8-14 is alkaline) is raised to a level of 12 or greater. This mixture is held at the high pH for a minimum of 72 hours and the temperature is held within a range of 52-62 degrees Celsius for at least 12 hours. Chemical reactions between the alkaline cement kiln dust and the sludge produce heat which raises the temperature of the mixture to 52 degrees or greater, killing such pathogens as *Salmonella*, *Poliovirus* and *Ascaris* (roundworm) ova. After at least 12 hours at this temperature, the mixture then is windrowed and air-dried under cover until a solids concentration of 50% is attained. The entire process takes approximately 7 days, and results in a soil-like product. This process is being marketed aggressively in the Northeast by such companies as N-VIRO.

Post-Lime Stabilization. In this process lime is added to sludge to raise the pH to a level that inhibits biological activity, and therefore eliminates odors. This system is designed to maintain a pH of 12 or greater for at least two hours, and of 11 or greater for several days. The sludge is stabilized only temporarily in this method. Decomposition–and hence odors–will resume when the pH drops below 11. The product from this process must be used more quickly than permanently stabilized ones.

Chemfix. In this process the dewatered sludge is transported to a pug mill where reagents are added. The sludge is combined with a dry reagent (Portland cement) and a liquid reagent (soluble silicate product) to fix, stabilize and solidify it. The reaction produces a silicate complex which renders the product physically and chemically stable. Most heavy metals and other compounds in raw or digested form become chemically fixed in the formation of silicates. The resulting mixture is moved by conveyors to a curing area.



Reference: New York City Sludge Management Citizens Advisory Committee, Alkaline Stabilization, 1991

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END USE

The product from kiln dust stabilization can be used for landfill cover, land reclamation, agricultural liming and soil conditioning, highway construction and landscaping material. Post-lime stabilized sludge can be used for agricultural purposes, and Chemfix can be used for landfill cover. All products are subject to NYS Department of Environmental Conservation regulations for processing and product uses.

ENVIRONMENTAL CONCERNS

Ammonia odors are to be expected as a result of the high pH levels created and maintained during stabilization. Control of such odors may be achieved by enclosing the mixing and processing units, and venting the air to an air pollution control system. Odors from the curing areas used for the kiln dust and Chemfix processes also could be controlled by enclosing these areas and utilizing air pollution control systems. Odors also have been reported at end-use sites. These could be minimized by complete indoor curing before use, and providing buffer zones around the curing areas.

Some concerns have been raised about possible changes in the pH of the products after land spreading, especially on acidic (low pH) soils. When the pH drops, enough heavy metals that are bound in the kiln dust product, for example, will be released, and potentially impact the soil and any crops grown on it. Due to wide variations in weather and soil conditions, the timing of such chemical changes, and the affect on the soil, are very difficult to predict.

EXISTING PROCESSING FACILITIES

The Village of Saugerties wastewater treatment plant in Ulster County, New York, is using the kiln dust stabilization process patented by N-VIRO. A contractor in Highland, New York is mixing the sludge product with horse manure and sand to make topsoil. Other product uses include landfill cover and greenhouse potting compost.

References: Morris Associates and Camo Pollution Control, Engineers Report on Dutchess County Septage/Sludge Review, Dutchess County, August 1992, Revised October, 1992.

Stone & Webster Engineering Corp. and Allee King Rosen & Fleming, Inc., New York City Department of Environmental Protection Final GEIS III on Sludge Management, May, 1992.

Jeffrey C. Burnham, PhD., Dept. of Microbiology, Medical College of Ohio, Toledo, Reduction of Odors in Cement Kiln Dust Stablilized/Pasteurized Municipal Wastewater Sludge Cake, December, 1990.

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Dutchess County Environmental Management Council

SLUDGE FACT SHEETS

LANDFILLING AND INCINERATION

Landfilling and Incineration are methods of sludge disposal which do not require further handling of the sludge and therefore do not result in a product which may be beneficially used. Composting and Pelletization, for example, do result in a product which may be beneficially reused.

DESCRIPTION OF PROCESS - LANDFILLING

Landfilling of sludge (fig. 1) along with solid waste such as trash and garbage, is commonly used. The sludge must be dewatered to a minimum 20% solids content before landfilling according to NYSDEC Solid Waste 360 Permit Regulations. Landfills are usually separated from residential areas to minimize complaints and generally provide year-round access.

Landfilling of sludge has the lowest order of preference in the New York State Solid Waste Management Plan, since this method does not result in a product which may be beneficially reused. However this may be the only solution for some communities if the sludge generated by that community contains levels of heavy metals and volatile organic chemicals toxic to wildlife, domestic animals and humans. In other cases, agricultural land for land application of sludge may not be available, or economic considerations may preclude other disposal options.

ENVIRONMENTAL HEALTH RISKS

Landfilling is subject to stringent New York State DEC solid waste Part 360 regulations. These regulations, with the goal of protecting the environment and especially groundwater, have caused many landfills to close and many more are expected to close in the near future. Proper landfill design, location and management can minimize the groundwater contamination concern, however due to the time frames expected to site, permit and open new land disposal sites this method may not be a dependable alternative. The costs involved in the siting process may be prohibitive, especially since a landfill has a limited life span. An additional drawback to landfilling is that essential plant nutrients in the sludge, if present in beneficial concentrations, are buried when sludge is disposed of in a landfill.

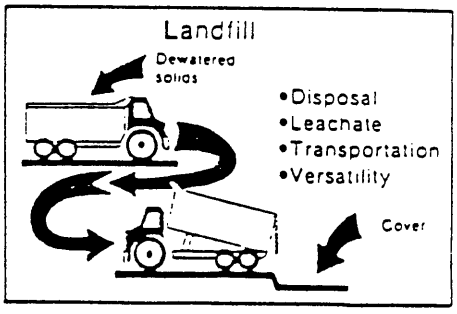


Figure 1. Landfilling of sludge. (Courtesy of Camp, Dresser & McKee, Boston and Cornell Waste Management Institute, Cornell University)

DESCRIPTION OF PROCESS - INCINERATION

Nationwide, nearly 2 million tons of sludge are incinerated each year. In New York State, about 5% of the wastewater-treatment plants incinerate perhaps 20% of the sludge generated within the state. Incineration

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(fig. 2), however, is not a complete disposal option, and ranks below composting and land application in the New York State Solid Waste Management Plan.

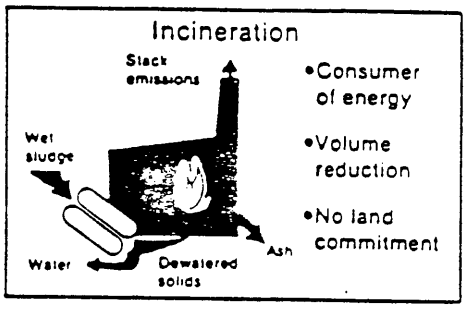


Figure 2. Incineration of dewatered sludge.
Source: Cornell Waste Management Institute fact sheet "Sludge Disposal"

Incineration reduces both the volume and weight of a sludge by perhaps 90% but produces an ash by-product. During incineration, temperatures of 1,350 degrees or more dry the sludge to the point at which organic matter can be burned. The key to energy-efficient incineration is to burn sludge that will generate as much energy during combustion as it consumes for the evaporation of water. Several different incinerator technologies are used, notably the multiple hearth, fluidized bed and Zimpro wet oxidation method.

Sludge must contain at least 25% to 30% solids for combustion to proceed without the addition of supplemental fuel. To increase the solids content of sludge from about 4% as it comes from the treatment plant to 30%, dewatering is required, a filter press often being used.

There are several reasons why a community may choose sludge incineration over other disposal technologies. Some sludges may contain high enough concentrations of undesirable contaminants to preclude their disposal on land. Land for disposal of sludge may be expensive or unavailable near some treatment plants, particularly those in metropolitan or suburban areas. If the sludge must be transported long distances for disposal, transportation costs for the ash by-product to a final disposal site (usually a landfill) will be much less than for the wet sludge. With a well-managed operation and regularly maintained equipment, sludge incineration can generate more energy than it consumes, and energy recovery is theoretically possible. However few successful heat-recovery systems are in operation.

ENVIRONMENTAL HEALTH RISKS

A potential problem of incineration is the tendency of some of the heavy metals such as lead, mercury and cadmium to be vaporized at incineration temperatures and released to the atmosphere. Air pollution controls such as wet scrubbers and baghouses are designed to minimize this release from incinerator stacks, and additional monitoring of the vapors is required to assure the effectiveness of the controls.

EXISTING FACILITIES

Some of the sludge and most of the ash from sludge incinerators in Dutchess County is presently disposed of at sanitary landfills outside Dutchess County, such as the Al Turi landfill in Goshen.

Examples of sludge incinerators include the City of Beacon (multiple hearth incinerator), the City of Poughkeepsie (Zimpro wet oxidation method) and the Arlington Sewer District (fluidized bed incinerator).

References: Morris Associates & Camo Pollution Control, Engineers Report on Dutchess County Septage/Sludge Review, Dutchess County, October 1992.

Lewis M. Naylor and Raymond C. Loehr, Sludge Disposal, Waste Management Fact Sheet from Cornell Cooperative Extension, Cornell University, 1980.

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SLUDGE FACT SHEETS

Dutchess County Environmental Management Council

PELLETIZATION

DESCRIPTION OF PROCESS

Pelletizing is a process whereby sewer sludge is dewatered, heated, and formed into pellets with fertilizer and/or fuel value.

Since sludge is 97% water, the first step in the pelletizing process is to remove as much water as possible. This is done using a variety of techniques which include centrifuges, drying beds and/or belt filter presses.

The most common dewatering technique is the belt filter press, but newer technologies include centrifuges and vacuum filters. Thickening agents are added, and the liquid sludge is pumped directly into the press. Wide fabric belts squeeze the biosolids and convert them into sheets called sludge cake. The sludge cake contains approximately 25% solids and 75% water.

After dewatering, the sludge may be treated with potassium permanganate to neutralize odors. The sludge then is transported by conveyor belt to the drying ovens. Operated at temperatures above 700 degrees Fahrenheit, the rotating ovens retain the sludge for about 30 minutes. This simultaneously dries the sludge and forms it into pellets about one-eighth inch in diameter. The high heat of the ovens kills bacteria and pathogens, making the sludge safe for re-use.

The capital costs of the pelletizing process are competitive, and in some cases lower than other disposal methods. Operation and maintenance costs are similarly competitive, and sometimes lower. The environmental considerations are less because the system is closed, and the operation occurs at lower temperatures. It tends to garner public acceptance because pelletization is a clean operation with beneficial re-use advantages.

USE OF END PRODUCT

The pelletization process results in small pellets commercially marketed as organic fertilizer. A content of 3%-5% nitrogen is common, depending on the source of the sludge processed. It can be used on lawns, golf courses or in agriculture. The pellets also can be used as fuel, and a net power increase is claimed by the manufacturers.

ENVIRONMENTAL HEALTH RISKS

One of the greatest concerns with using pellets as fertilizer is the buildup of trace metals, such as zinc, copper, mercury, lead and chromium in the end product. Another problem is the possible contamination of the sludge product with dioxins. These metals or contaminants may be corroded from pipes, building to unacceptable levels. Or they may be the result of accidental or illegal disposal. Another fertilizer concern is the buildup of nitrogen levels in areas where the sludge end product is spread. The nitrogen level in pellets is relatively low (3%-5%). With repeated spreading though, the nitrogen level in the soil can increase. The health risks mentioned here depend on the source of the sludge, and how the pellets are handled.

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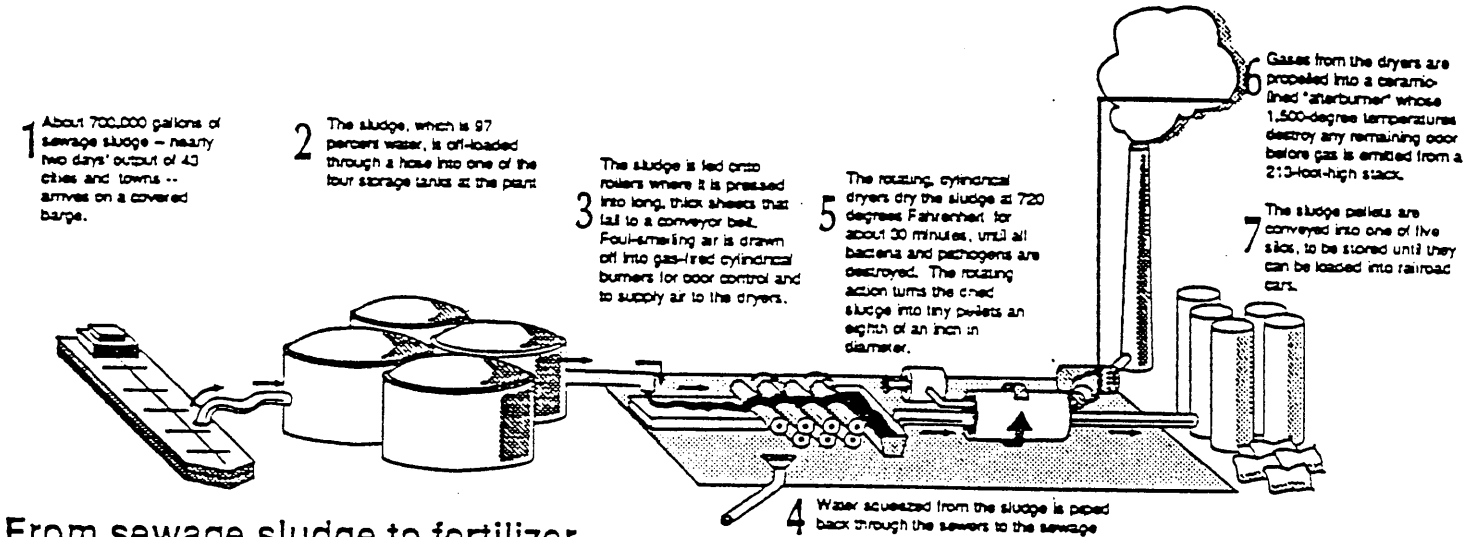
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EXISTING FACILITIES

One successful project is the Boston Harbor Project in Quincy, Massachusetts. The pelletizing plant is the first Boston Harbor Project facility to be completed. The Boston Harbor Project is a multi-billion dollar effort that includes primary and secondary sewage treatment plants on Deer Island.

In 1991, the Massachusetts Water Resources Authority ended decades of dumping sludge into Boston Harbor. The cessation of those discharges has lessened substantially the amount of sewage solids accumulating in the harbor. There was visible improvement in the quality of the water; within the harbor the smell improved the first year. Fecal coliform levels near the old sewage discharge sites sharply decreased as well.

Other important improvements in water quality will take years to be realized fully. As levels of organic material and toxic chemicals on the sea bottom decrease, more species at lower levels of the food chain, such as small worms, clams and snails, will begin to develop into communities typical of healthy soft-bottom marine environments.



From sewage sludge to fertilizer

Sources: N.E. Fertilizer Co., The Patriot Ledger, The Boston Globe.

References:

Morris Associates & Camo Pollution Control, Engineers Report on Dutchess County Septage/Sludge Review, Dutchess County, August 1992, Revised October 1992.

Massachusetts Water Resources Authority, Boston Harbor Project Sludge Processing, 1992.

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SLUDGE FACT SHEETS

LAND APPLICATION AND COMPOSTING

Land Application and Composting are both processes whereby stabilized sludge is applied to the land. In both cases strict state and federal guidelines must be followed so that application of sludge to the land will not pose a health risk.

LAND APPLICATION

Direct land application of sludge has been practiced for decades. Stabilized liquid sludge is applied to the soil surface or injected into the soil. Stabilization is the process whereby pathogens are reduced significantly by aerobic or anaerobic digestion, air drying or liming. Direct land application is regulated by the NYS Department of Environmental Conservation (NYSDEC) Part 360 Solid Waste Management regulations. It only is permitted where the application of sludge will benefit the soil or a crop. No food crops may be grown on sewage sludge or septage amended soil for at least 18 months after the last application.

Land application is done using a truck and spraying equipment (Fig. 1). Sunlight, soil micro-organisms and desiccation combine to destroy most pathogens and toxic organic substances. Direct land application is one of the least costly options for sludge disposal. This disposal method, however, is weather-dependent as sludge may not be applied during rain or on snow-covered, frozen or saturated ground.

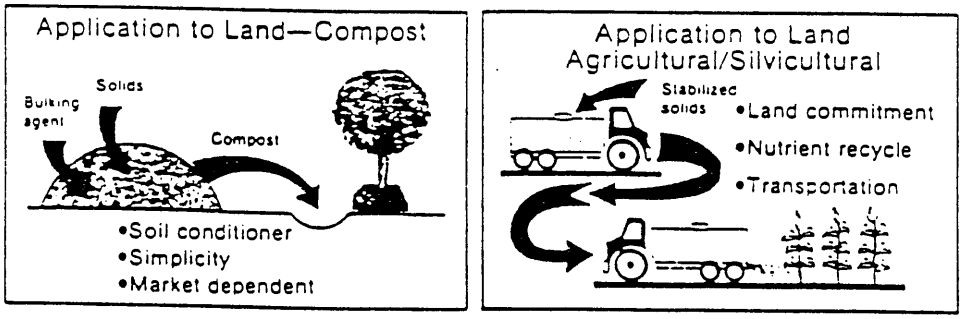


Figure 1. Application of sludge to land. (Courtesy of Camp Dresser & McKee, Boston)

Composting is the process in which organic material undergoes biological degradation to a stable end product (Fig. 1). Sludge that has been composted properly is an odorless, humus-like material. The process is considered complete when the product can be stored without odors, and when pathogens have been reduced to a level such that the material can be handled with minimal risk.

Composting also is regulated by NYSDEC Part 360 regulations. A temperature of 55 degrees Centigrade must be maintained throughout the compost mixture for three consecutive days, longer for windrows. These temperatures are sufficient to kill pathogens such as bacteria, viruses and parasites.

There are two sludge composting methods currently being used: **the windrow or aerated static pile unconfined process**, and the **in-vessel confined process**. Since there is a high water content in sewage sludge, a bulking agent, such as wood chips, sawdust, leaves, or recycled compost, is added to the sludge regardless of the composting method utilized. The materials are mixed either with a front-end loader or in a specialized "mobile mixer" truck.

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In the **unconfined process**, the sludge bulking agent mixture either is formed into windrows or into a pile. Leachate collection systems usually are required. They consist of piping within beds of wood chips or gravel underneath the windrow or pile. In the **static aerated pile**, the piping may contain a temperature control system which, if temperatures become too high to promote biological activity within the pile, will turn on and force air through the pile to cool it.

In the **in-vessel method** the sludge bulking agent mixture is placed into one end of a concrete bay approximately 200' long, with 6' or 8' sides. There may be from 2 to 30 bays in one facility. A mixer positioned on top of the bays travels 12' or so each day, agitating, shredding and mixing the compost. Temperature sensors may be built into the walls to trigger blowers for temperature control. Odor control systems, such as wet scrubbers and biofilters, usually are necessary for confined sludge composting processes. Capital costs for in-vessel systems are higher than for unconfined systems. The total process time for the in-vessel method is shorter--approximately 35 days, as opposed to 40-60 days for the unconfined process.

END USE

When finished, compost is rated Class I or Class II based on contaminant levels by NYSDEC regulations. Class I compost can be distributed for use by the public in bags or in bulk, used on feed crops, and for other agricultural and horticultural purposes. Class I compost from sewage sludge must not be used on food crops with the edible portion of the crop grown below the soil surface. The largest users of high-quality compost include landscapers, contractors, sod and turf farms, golf courses, nurseries, and greenhouses. Class II compost must be limited to bulk distribution and is restricted to use on nonfood chain crops in locations with limited public access. Class I or II compost may also be used for landfill cover and cap and for land reclamation projects such as sand and gravel mines and rock quarries. However, special siting concerns may preclude the use of sludge compost for land reclamation. Compost that does not meet Class I or Class II criteria must be disposed of in a manner approved of by the NYSDEC.

ENVIRONMENTAL CONCERNS

Sewage sludge contains the essential components of a fertilizer as well as a humus, properties which have been shown to improve crop yield. However, sludge may also contain pathogenic organisms, potentially toxic organics such as PCB's, and heavy metals such as cadmium and lead, which can be toxic to humans and animals, and copper, nickel and zinc which can be toxic to plants. These components may result in either short-term or long-term impacts on crops and soil. Many soil scientists in the northeastern U.S. advise that crops for direct human consumption not be grown on land that has received sludge at any time in the past, and sludge should not be applied to land which will be used for these crops in the foreseeable future.

An additional concern where composting is concerned is the pathogen *Aspergillus fumigatus* which grows in decomposing leaves and wood chips. This fungus has been detrimental to public health in several locations. Face masks for workers and ventilation systems with scrubbers should be used where this pathogen is present.

EXISTING FACILITIES

There is little or no direct land application of sludge being practiced at the present time in Dutchess County. Composting of sludge by the aerated static pile method is being done at the Tri-Municipal Sewage Treatment Plant in the Town of Poughkeepsie and at a private facility owned by Jeff Anagnos in Red Hook.

References: Lewis M. Naylor and Raymond C. Loehr, Sludge Disposal. Waste Management fact sheet from Cornell Cooperative Extension, Cornell University, 1980.

Land Application? Food Grown in Sludge? Beneficial Use?

LAND APPLICATION

OF SLUDGE AND

SLUDGE DERIVED PRODUCTS

SCIENTIFIC MATERIALS

FEBRUARY 1995

Overview

Land Application of Sludge and Sludge Derived Products

For decades many of the East Coast waste water treatment plants have dumped sludge generated at their facilities in the Atlantic Ocean. This sludge is the solid material in waste water produced from human excrement, industrial wastes and contaminants collected from city street runoff. It contains virus material from healthy and unhealthy humans, toxic metals and hazardous wastes.

In the 1980's the government determined that the cumulative effect of this material was having an adverse impact on the aquatic environment and passed a law in the late 1980's to prohibit ocean dumping. This law provided that a temporary solution for a limited number of years would be to land fill or land apply their sludge. During this time the sludge generators were obligated to define and implement a permanent long term solution for sludge disposal.

Since sludge has a limited fertilizer effect, it has become generally accepted that land application of sludge and sludge derived products represents beneficial use. The temporary solution is now being accepted in some cases as the permanent solution.

What is being lost sight of is that this material is the same material that was contaminating the ocean, and that the toxic effect of land application is a long term effect.

> Ontario, Canada and some countries in Europe who have had long term experience with land application of sludge have laws that prohibit putting sludge and sludge derivatives on the ground if the concentration of heavy metals is greater than the naturally occurring background concentration. This is known as the "no net effect" policy. (See Table of Contents, Reference No. 1.)
>
> In the Netherlands the goal is that in year 2000 the addition of heavy metals to the soil does not exceed the acceptable discharge limit thus preventing further accumulation in the soil. (13)
>
> The Senate of New York State passed a law in 1994 invoking the "no net effect" principle. The law has been held up in the State Assembly. (2)

The driving force behind the New York State law is the professors at the Cornell University College of Agriculture and Life Sciences. In 1993 18 members of the professorial staff signed a letter to the Administrative Law Judge for the New York State Department of Environmental Conservation outlining scientific facts and issues of concern. (3).

These issues and others have been recognized and discussed by any number of scientific sources as follows:

USEPA Regulation 503

makes no allowance for differences in soil and sludge chemistry (4)
assumes inorganic constituent of all sludge materials will permanently bind toxic materials in insoluble forms (4)
multiplies the naturally occurring burden of heavy metals in soil by a large factor (4)
there is no experience with loading soils simultaneously with a number of heavy metals (4)
prediction of no adverse effects on crops is an untested extrapolation (4)
acidic rainfall and naturally falling soil pH values are not taken into account (3)
potential toxicity of organic chemicals is not taken into account (3)
maximum concentrations for Zn, Cu, Cr, and Ni were set for 50% crop growth reduction in the early stages of growth--limits should be set for 10% reduction (3)
does not appear to sum multiple pathways or consider incremental risks (3)
time period is too short– in the Netherlands even with the strictest standards in the world ground water contamination is predicted in a few hundred years (3)
under USEPA regulations of 1979 much of New York City sludge was unacceptable for land application--under 503 NYC sludge has become acceptable for land application (9)
fails to recognize that contaminant levels deemed to be safe for humans may be toxic to the very organisms essential for the farmer to realize the beneficial aspects of sludge applications (9)
sludge producers, sludge brokers, state departments of environmental protection and others are strongly encouraging sludge application to land--few have the necessary background to assess the regulations, their scientific basis and the risk assessment methodology (4)
...but the regulations failed to take soil microorganisms into consideration because of a lack of information on the toxicity to soil biota (25)

The maximum cumulative loading limits in the United States are the highest ever proposed for land application of sewage sludge. The unconventional loading limits have created an uneasiness among the regulatory authorities worldwide. (25)

However, the limits are higher than those which result from an apparently similar pathway analysis performed in the Netherlands which aimed to identify soils which are potentially hazardous and may require expensive clean-up measures. (25)

Dr. Joseph Manness of Southwest Oklahoma State University ...cites 40 references to show that the regulations are not based on sound research, but rather on unverified assumptions (30)

Cadmium

cadmium accumulates in the liver and kidneys leading to dysfunction of these organs in humans and wildlife (3)

in the northeast background cadmium intake is near the maximum recommended level (5)

in the Netherlands increases in cadmium content of vegetables grown on soils with high cadmium content from atmospheric pollution and ground application of sludges impacted renal function (6)

kidney malfunctions may not become evident for 20 to 50 years (10)

cadmium concentration allowed by Reg. 503 is 39 ppm, in Ontario the limit is 1.6 ppm, in Germany 6 ppm, and in the Netherlands 10 ppm (4)

recently it has also been shown that earthworms concentrate extremely high levels of cadmium in sludge-treated soils which would be toxic to birds. This is precisely the problem that led to the banning of DDT (24)

cadmium in sludge grown plants concentrates in the kidney and liver of foraging ruminants. Animals grazing ...become badly contaminated since they rip out pasture plants by the roots and consume adhering soil and sludge particles (24)

The cadmium concentration in wheat samples...was found to have doubled between 1916 and 1972...in Sweden.....may also be attributed partly to uptake of cadmium from cadmium containing fertilizers. (33)

Mercury

20% of fish taken from 56 bodies of water in New Jersey have unsafe for human consumption accumulations of mercury (7)

mercury contamination comes from air pollution and land applied fertilizers (7)

mercury is highly mobile, accumulates in aquatic organisms and is highly toxic at extremely low levels (7)

Reg. 503 permits concentrations of mercury 8000% higher than naturally in the soil (7)

Reg. 503 assumes all the mercury in sludge is the inorganic form- the monomethyl form is significantly more toxic and is more bioavailable—data show environmentally significant amounts occur in raw sludge or are formed in sludge treatment (12)

under 503 Regs. substantially more mercury will be delivered to soils by land application of sludge than by air emissions (12)

mercury concentration allowed by Reg. 503 is 17 ppm, in Ontario the limit is 0.8 ppm, in Germany 4 ppm and in the Netherlands 4 ppm (4)

Arsenic

arsenic concentration allowed by Reg. 503 is 41 ppm, in Ontario the limit is 14 ppm, in Germany 0 ppm, and in the Netherlands 60 ppm (4)

Lead and Zinc

20% of our children suffer from excessive lead levels (5)

total lead and zinc concentration allowed by Reg. 503 is 3100 ppm, in Ontario the limit is 410 ppm, in Germany 800 ppm, and in the Netherlands 1300 ppm (4)

According to the Center for Disease Control, when a child absorbs lead to the extent that his blood contains only 10 micrograms of lead per deciliter of blood, that child will suffer permanent lowering of his IQ.....The sludge risk formula used by EPA's Sludge Risk Assessment assumes that a blood -lead-level of 10 micrograms is "safe" (30)

When food crops are grown with sewage sludge fertilizer, the crops on the average absorb about 10% more lead than crops grown in the same area without sludge....Leafy vegetables absorb more lead... (31)

It can be seen that eating food and drinking water from a sludge fertilized area can increase the bodies lead absorption by as much as 33% (31)

Infectious Diseases

infectious hepatitis outbreaks have occurred among workers spreading sludge (9)

in Europe outbreaks of salmonellosis and beef measles in animals are attributed to surface application of sewage sludge (8)

beef measles tapeworm eggs are very resistant (8)

pork measles tapeworm, bovine cysticercosis (human tapeworm) and beef measles are all causes of infectious diseases in animals and humans from sludge spread on the land (8)

bacteria are killed in 1 to 200 days, viruses persist longer, parasite eggs can persist several years (9)

numerous outbreaks of human tapeworm infecting beef cattle leading to the destruction of a significant number of cattle has occurred in Norway (9)

Reg. 503 pathogen standards do not address fecal streptococci one of the hardiest pathogens of great concern to some microbiologists (15)

sludge treatment processes cannot be relied on to produce pathogen free sludge-composting favors the growth of a fungus which can cause lung disease and allergic reactions (16)

bacteria such as the causative agents of anthrax, tetanus, and botulism have long survival times-up to twelve years for anthrax bacteria (16)

roundworm ova are prevalent in sludges and survive for extended periods (16)

contamination of surface water through run-off is a potential problem-ingestion by animals of crops contaminated with sludge should be prevented (16)

Mutagenic Activity

research has determined that sludge is mutagenic and produces changes in the gene composition of organisms that potentially result in cancer–the effect persist even after plants grown on sludge are consumed by humans (10)

tests show inert nonpolar compounds causing mutagenic response are present in most sludges-metals commonly found in sludge inhibit the microbial transformation of such material in the soil-the study demonstrates that the organic content of municipal sewer sludge can be extremely toxic (16)

the organic fraction of sludges is largely unstudied because the content is extremely variable and expensive to test for (16)

many sludges exhibit mutagenic activity, contain priority organic pollutants and toxic substances-while large increases in disease incidence from this source are unlikely, there exists a wide divergence of opinion on whether or not any increase will occur, or what the increase is likely to be (10)

mutagenic activity is independent of the percentage of industrialization (16)

sludge has been shown to produce mutations in plants grown on it (24)

Gene mutations and chromosome aberrations in human populations have also been linked to environmental factors....Exposure to elevated levels of trace metals in the environment clearly represents a genetic hazard to human beings but the magnitude of this problem remains to be determined. (27)

Nitrogen

nitrate contamination of ground water is a widespread problem-sources of nitrate include land-applied sewerage sludge (14)

excess levels of nitrate can cause methemoglobinemia or "blue baby" disease-human babies are particularly susceptible (14)

Risks Arising from Land Application

evaluation of risks is enormously complex-variables are many and unpredictable—heavy rains may cause flooding—industrial chemical spills may get into wastewater system (15)

how much confidence can be placed in government's ability to regulate and assure compliance (15)

higher insurance premiums —limitations on coverage—higher interest rates—litigation expenses—compliance costs (15)

downward adjustment of "safe" levels expected as more sophisticated risk assessments methodologies developed by USEPA (15)

toxicologists are expressing concern about effects on male reproductive systems and pregnant women relative to mercury, lead and cadmium exposure (15)

National Academy of Sciences reports lead to the expectation of a two to ten fold increase in exposure estimates resulting in the need to lower "safe" levels of heavy metals 15)

application of sludge in the Pineland Barrens was halted after a study showed that concentration of cadmium, chromium, lead and mercury in ground water would exceed potable water specifications by factors of about 10 times (19)

nuisance law-suits against the land-owners and sludge applicators can be expected (15)

Farm Credit System could discourage sludge applications that results in a build up greater than one half of the level proposed by EPA (15)

basic fairness requires that the generator of a risk remains responsible for the liability exposure (15)

in New Jersey sewage authorities are not liable for land application of sludge-responsibility is on the producer, the homeowner or the municipality (18)

new information could result in risks now perceived as acceptable becoming unacceptable (15)

Demographic evidence strongly suggests that reproductive impairments that result in the inability to conceive, spontaneous abortion, etc. are becoming more frequent and widespread....In some cases, the frequency of various kinds of reproductive impairment can be associated statistically with various environmental factors....Some trace metals are notorious foetotoxins and must be considered as one of the key environmental factors that affect different stages in male and female reproduction. (27)

The claims now made for "sludge safety" sound eerily like the earlier claims that "DDT is perfectly safe" and "asbestos is a miracle fiber that poses no danger at all".(28)

EPA originally allowed sludge with over 100 mg cadmium per kg soil to be given to farmers and gardeners. These sludges had high zinc to cadmium ratios causing high crop uptake of cadmium. EPA was unaware of this factor until it was too late. Now crops grown in these areas cannot be used and the soil needs to be cleaned up. (29)

Farm Community Concerns

USEPA Regs. do not limit the environmental liability of farmers and lenders-if application results in damage to crops, livestock, and the land a farmer may be exposed to serious financial loss (20)

New Jersey food processors will not process vegetable or animal products produced on land where sludge has been applied (21)

farmers should protect themselves by securing an indemnification agreement with the sludge generator underwritten by an insurer (20)

insurance companies don't take risks that laws and science might change leading to claims in the future (18)
concerned for the short term safety for people who work with sludge (21)
numerous financial lending institutions require affidavits from sellers assuring buyers that the land they purchase has never had waste products applied to it (21)
concerned that governmental agencies will follow NJDEP action where the agency obtained an injunction prohibiting a county from preventing a sludge application (21)
concern that governmental agencies will change the regulations making them more stringent and the land will not be suitable for farming or grazing (21)
farmers will be paid to apply sludge and will not follow minimum standards thereby contaminating the land forever (21)
heavy metals affect nitrogen-fixing microbes preventing nitrogen fixation (22)
if sludge is applied for its nitrogen content then there will be too much phosphorus for the crop to utilize (22)
canneries won't accept vegetables grown on sludge amended land (18)
...we can conclude that the eradication of Scherotheca (earthworms) resulted only from the high susceptibility of this genus for lead and copper (26)
...grazing cattle voluntarily ingest from 1% to nearly 18% of their dry matter intake as soil; sheep may ingest up to 30% (36)

TABLE OF CONTENTS

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Dr Henry Clark
7/13/93

NATIONAL FOOD PROCESSORS ASSOCIATION
6363 Clark Avenue
Dublin, CA 94568-3097
510/828 2070
FAX: 510/833-8795

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STATEMENT BY THE NATIONAL FOOD PROCESSORS ASSOCIATION ON THE USE OF MUNICIPAL SEWAGE SLUDGE IN THE PRODUCTION OF FOODS FOR HUMAN CONSUMPTION

Introduction

As municipalities continue to seek least cost alternatives to the disposal of municipal sewage sludge in landfills, farmers are and will continue to be recruited to use sewage sludge or products made from sewage sludge on their fields. The number of farmers accepting sewage sludge as fertilizer or soil conditioner can be expected to increase significantly, particularly as local, state and federal governments pursue sewage sludge beneficial use policies. As a result, the potential is increasing for food processors to purchase, knowingly or unknowingly, crops grown on fields treated with some form of municipal sewage sludge.

A number of NFPA's members have expressed concern about the possible introduction of contaminants to the food supply from the use of municipal sewage sludge on croplands. These contaminants could include human pathogens, heavy metals and organic chemicals. If a food product is found to contain contaminants considered unsafe by the U. S. Food and Drug Administration (FDA), the products are subject to appropriate enforcement action with the food processor held responsible. FDA has explicitly stated that no accommodation can be made for contamination resulting from the use of municipal sewage sludge on lands on which food crops are grown. Compounding food processor concerns is the current lack of uniform, scientifically based and nationally recognized requirements for the management and use of municipal sewage sludge or products made from municipal sewage sludge on agricultural lands. As a consequence of food safety and environmental concerns, a number of food processing companies inform their suppliers with appropriate contract clauses and other means, that crops grown on land which has been treated with sewage sludge will not be accepted.

NFPA'S POSITION

NFPA's position acknowledges existing Federal policy on the beneficial use of sewage sludge. The Federal Government advocates those municipal sludge management practices that provide for the beneficial use of sludges while maintaining environmental quality and protecting public health. In reaffirming this policy with respect to the beneficial use of municipal sewage sludge on Federal lands, it was recognized that each use of sewage sludge must be evaluated in terms of the

characteristics of the sludge in question and the characteristics of the land to which the sludge is applied. Also, in the original statement of this policy in the guidance document, Federal Policy and Guidance, Land Application of Municipal Sewage Sludge for the Production of Fruits and Vegetables, issued in January, 1981, the following disclaimer was made: "the Federal Government cannot offer any indemnity against product recalls, seizures, or other enforcement action". This disclaimer continues to be of particular concern to food processors in that no regulatory scheme implementing the guidance is in place. The report stated that if the procedures presented were followed, the resulting crops should be safe for human consumption.

The Federal policy will soon be supplemented with U.S. EPA regulations establishing requirements for the final use and disposal of sewage sludge. These regulations have been the subject of considerable scientific study and data collection by the Agency and will be extremely important in the evaluation of NFPA's current policy. Also, the National Academy of Science is now in the process of organizing a study to evaluate the scientific and public health issues surrounding the application of municipal sewage sludge on lands used for growing crops for human consumption.

Based on the concerns expressed above and the current absence of a scientifically sound Federal regulatory system, NFPA's policy is:

> "The National Food Processors Association (NFPA) recognizes that the application of sewage sludges generated by publicly owned treatment works (POTWs) to croplands can be a beneficial use when the proper conditions exist and the sludges have been determined to be safe for the use intended. The NFPA, however, has serious concern that sludges produced by POTWs may contain heavy metals, human pathogens and toxic compounds which could have potential health effects on the consumers of foods produced on lands to which sludges have been applied. This potential risk to public health has not been adequately evaluated. Therefore, NFPA cannot endorse the application of municipal sludge to land that may or will be used in the production of foods for human consumption until the questions regarding its safety for such use are resolved. Therefore, NFPA urges the EPA, USDA, and FDA to establish an inter-agency task force to develop definitive policies and regulations which identify the specific conditions under which municipal sludges can be safely applied to land on which foods for human consumption will be produced. Furthermore, NFPA recommends that the inter-agency task force seek the advice and counsel of NFPA and other groups representing agriculture, industrial and public interests in the development of appropriate policies and regulations."

BOULDER WEEKLY

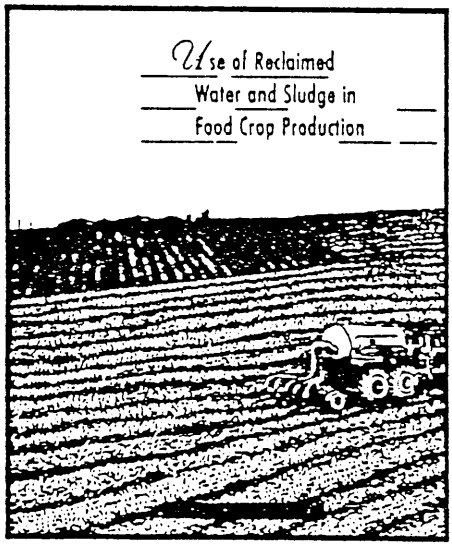
COLORADO

As the topsoil turns

By Greg Campbell

A government report favorable to the use of sludge as fertilizer on cropland has guaranteed that the national controversy surrounding the practice won't go away anytime soon. Funded almost exclusively by wastewater industrial giants with millions of dollars tied to the public acceptance of sludge, the report has critics — including one of its very own authors — fuming.

"The Use of Reclaimed Water and Sludge in Food Crop Production," issued in early March by the National Research Council, is clear in how it regards the use of sludge on cropland: "... (W)hen properly treated, municipal wastewater and sludge can be both safe and effective for irrigating and fertilizing food crops. ... Federal regulations for the agricultural use of sludge appear to provide an adequate margin of safety for consumers. ... (T)here have been no reported outbreaks of infectious disease associated with exposure to adequately treated and properly distributed reclaimed water or sludge applied to agricultural land."



The ink was hardly dry on the latest favorable report about sludge before it was mired in controversy. The study was funded mostly by the wastewater industry.

This is excellent news to many people, most of whom are involved in the wastewater business.

"Al Rubin certainly considers this to be the end-all, be-all (concerning the safety of sludge use)," says Dr. Alan Rubin of the U.S. Environmental Protection Agency. Rubin was chief of the EPA's sludge management branch in charge of producing the Sludge Use and Disposal Regulations, better known as Part 503 of the 1993 Clean Water Act. If ever anyone wished to put sludge in a positive light once and for all, it's him. Rubin and the EPA have come under nearly constant attacks by sludge opponents for the Part 503 regulations.

According to *Toxic Sludge Is Good For You! Lies, Damn Lies and the Public Relation Industry* by John Stauber and Sheldon Rampton, the stringent pollutant limits for sludge suggested by EPA were relaxed to allow increased amounts of certain metals after successful lobbying by N-Viro International Corporation, a sludge disposal firm. Critics have long held that the amount of pollutants allowed in sludge under Part 503 is a result of the EPA's coziness with wastewater industry giants rather than a desire to protect health and environment.

Boulder Weekly reported that the 503 regulations increased the allowable amounts of heavy metals in sludge to make its disposal easier ("Eat sludge and die: What they don't want you to know about biosolids," Jan. 25). Now, nearly 4 million metric tons of sludge are spread on farms around the country every year.

The new report that Rubin was hoping would vindicate him and the EPA has done nothing but flame the fires of contention, however. One glance inside the front cover of the report is enough to understand why critics would be suspicious of the report's generally favorable findings. In addition to grants from the EPA, the U.S. Department of

Agriculture and the U.S. Food and Drug Administration, the study was funded almost entirely by industries that have a big financial stake in how it turned out.

Sludge opponents are calling the report a "con game" by the PR firms of the wastewater industry, and they have found an ally in an unexpected place — one member of the committee who authored the report has become one of its most outspoken critics.

Raising suspicions

The companies that helped set the scope and provided the funding for the report were: N-Viro, a company that handles sludge disposal for sewer plants in the Northwest and in England; Bio-Gro Division of Wheelabrator Water Technologies, a private wastewater company that was wooing a $20 million contract with San Diego during the time the report was being prepared; the Association of Metropolitan Sewerage Agencies, which champions the "interests and priorities of publicly-owned treatment works"; and the Water Environment Research Foundation, a branch of the Water Environment Federation, the main lobbying firm for the wastewater industry. Water Environment Research Foundation claims to represent "more than 55 percent of the U.S. sewered population and corporations sharing concerns for water quality issues."

"It's a huge mix of people with a vested interest," says attorney Michael Baram, a professor of health law at the University of Boston School of Public Health and one of 14 authors of the report. "You can just look to see who's paying for all this, and you can get a pretty good idea of the vested interest involved."

The Water Environment Federation is a good example of the type of intertwined interests that characterize both the study and the EPA's attitude toward sludge regulation in general. Though it's the main lobby organization for wastewater groups who want the public to favorably view sludge, WEF also received EPA money and personnel, including the man who helped produce Part 503, to help them achieve their goals.

In 1992, WEF, which describes itself as a "not-for-profit technical and educational organization" whose "mission is to preserve and enhance the global water environment," received a $300,000 grant from the EPA to "educate the public" about the beneficial use of sewage sludge, according to Stauber and Rampton. In 1994, WEF also received the use of Rubin himself who joined the lobby firm as its senior scientist for the project, even though EPA was still paying half his salary at the same time.

WEF gave a $100,000 chunk of its EPA grant to its offshoot organization, the Water Environment Research Foundation, for use on this report, according to Natalie Quets, the foundation's manager of subscriber development.

That money, however, only makes up a small portion of the foundation's $22 million annual budget. The rest comes mostly from the fees of what the organization refers to as "subscribers" — municipal wastewater facilities and other corporations such as Shell Oil, CH2M Hill, Chevron, Bio-Gro and N-Viro, just to name a few — that pay for and direct the organization's research. Through an annual "Subscriber Survey," the corporations tell the foundation which topics they would like to see studied, and their fees go to implement those studies. Many of the foundation's subscribers could potentially lose millions of dollars trying to comply with alternate methods of disposal should sludge prove dangerous to the environment or humans when spread on farmland.

The idea that favorable research could be bought is naturally appalling to many, especially other authors of the report.

"I can't be bought, man," says co-author Dr. Robert Cooper of Bio-Vir Laboratories in Benicia, Calif. "I'm not for sale. My expertise might be, but I'm not."

True as that may be, co-author Baram still claims that the people with the money set the rules for the study, and those rules didn't involve initiating any new epidemiological research. The scope of the report was to only review existing sludge studies and research, not to investigate complaints of infection from sludge application.

"It's a main weakness of the report that it did not probe sufficiently into the infectious disease aspects," he says, noting that sludge is made partly from human waste which contains thousands of disease-causing pathogens. "We spent most

of our time just determining if the EPA used risk-analysis that met professional standards.

"But the trouble is that there were many (different topics of concern) they didn't include in that risk-analysis. They only picked a subset of things to study and they didn't do risk-analysis of infectious disease organisms," he says. Indeed, the report states that EPA assumptions regarding pathogenic organisms have not been based "on any formal risk assessment but rather on experience and the knowledge that accepted treatment process can effectively reduce pathogen numbers." Previous ways of evaluating risk regarding pathogens, the report continues, "provide little or no information on the uncertainty or variability" inherent in them and that it would be "premature to give too much weight" to their results.

Baram says EPA pathogen research relied too heavily on assumption and he feels more research needs to be done to be able to truly evaluate its risks.

In fact, he is so much in disagreement with his committee's overall findings that he issued a statement which reads, "Having served on the NAS (National Academy of Sciences, which in turn operates the National Research Council) which authored the report, I would not want EPA-approved sludge applied to land in my community nor to land within the watershed of my water supply system. Nor would I want to purchase or consume sludge-grown foods or foods containing sludge-grown ingredients. ... It poses risks to the health of persons who would be exposed to it. ... The EPA regulation which permits farmland application of treated sludge (Part 503) does not prevent these risks."

The rest of the story

When Linda and Raymond Zander noticed that the majority of their normally healthy cows were becoming rapidly arthritic and were producing less milk, they suspected it had something to do with the sludge applied to a 70-acre farm adjacent to their property in Lynden, Wash. According to an article in the March 1992 issue of *Farm Journal*, an independent water-quality specialist who analyzed their well water thought so too. The Zanders' water had a much higher level of nickel and tin than did other wells far removed from the sludge site. Nickel and tin are metals found in sludge that increase the risk of nasal and lung cancer. Unfortunately, the findings will never be "official" in the minds of the EPA because no solid epidemiological research has been done regarding their claims. Therefore it didn't really exist to the research committee which compiled the controversial report.

"We didn't look at that one because it wasn't *there*," says report co-author Thomas Long of the Washington State Department of Health. It's unclear what more it would take for the EPA to consider the Zanders a valid case for further study or examination. The Zanders have rounded up 18 medical experts (including toxicologists), nine veterinarians, two property/devaluation experts, three soil experts and a testing lab that would testify on behalf of the lawsuit they've filed

against the sludge producers and those who issued the dumping permits. Long declined to elaborate, saying that he didn't want to comment on a court case.

Unfortunately, there seems to be a good amount of other cases that "aren't there." The Zanders' organization, Help for Sewage Victims, has compiled an extensive, if unscientific, list of areas throughout the United States where people suspect their illnesses and their crop and animal losses are sludge related. And it seems those cases are doomed to stay unscientific, at least as far the EPA is concerned.

"Biosolids is the most researched material EPA has ever regulated. More money has been spent researching the human health and ecological impacts of biosolids than anything else the EPA has ever considered," snapped Rubin when asked why the EPA didn't initiate studies into situations like the Zanders. "Are you in favor of wasting public funds for additional research, sir?"

Apparently, though, the EPA has no qualms at all about spending money on PR campaigns to promote sludge. In fact, EPA money will indeed be spent on the Zanders but it will be used to, in Rubin's own words, "debunk" their "hysteria, innuendoes and lies" that they were harmed by sludge. As far back as 1994, the Zanders' case has been on an WEF list of "sludge horror stories" scheduled for a debunking campaign called "The Rest of the Story."

"Most of the information that comes out that is negative is based on incorrect information, misconceptions, unsupported allegations, innuendoes. Basically, none of it can be supported when people look into it," Rubin says.

The first of the refutation documents has been released by WEF in the form of a fact sheet. It concerns Sierra Blanca, Texas, a Mexican border town of 500 which has been receiving New York City sludge since 1994. As the subject of a television investigation by *TV Nation*, hosted by Michael Moore, it was one of the few times the sludge war has reached audiences of network TV proportions, and those tuning in heard residents of the tiny town complaining of strange allergies and sicknesses. *TV Nation* was sued for libel by the Merco corporation which was contracted by New York City to dispose of the sludge, and the Sierra Blanca case was placed at the top of the list of candidates for "The Rest of the Story."

But again, Rubin's claims of having "refuted" the "hysteria" and "lies" of sludge opponents in that area ring hollow. The fact-sheet states clearly that no additional epidemiological studies of the allegations were performed, that it is simply an "attempt to summarize the relevant, documented information" about the case, not to initiate any new fact-finding studies.

The report

Easily lost in the din is the actual report itself, which is so recent that wastewater officials in Boulder have not yet had an opportunity to study it in depth. Beneath the shouting, accusing and grandstanding present on both sides of the debate lies a document that would probably serve them both equally well. While the overall conclusion is that the present regulations and use of sludge are safe to human health and the environment, sludge opponents (especially in Boulder and Gunbarrel) will also find some ammunition of their own. For instance, the report recommends that the EPA re-evaluate the adequacy of its wait-period safety-standard for Class B sludge, something members of Gunbarrel's Neighbors Opposed to Biosolids and the Boulder County Commissioners have been lobbying for. It also recommends that EPA find better ways to monitor specific pathogens in sludge.

But it is far from being the "end-all, be-all" argument for either side, as much as Rubin would like it to be.

Not until the Zanders' farm and others like it are evaluated by independent scientists and their work is reviewed and included with the existing body of literature will a more true picture of the dangers of sludge use on farmland be drawn.

"We just want someone to be accountable," says Linda Zander. "We just want someone to be responsible."



Native Americans Fight Back

Dumping in the Desert

By Marina Ortega, CCHW Local Leadership Apprentice, and John Gayusky, CCHW Research/Organizing Associate

Toxic racism is alive and well in the California desert. Long considered a wasteland of scrub brush, sand dunes, and a sparse population, the southern desert region has been the target for numerous garbage dump schemes, a nuclear waste dump, and other waste disposal plans in recent years. It should come as no surprise that Native American communities in the desert have been the focal point of efforts by unscrupulous dumpers looking for poison-for-profit opportunities.

CCHW has learned of the plans to dump on southern California Indians through the work of Marina Ortega, our Local Leadership Apprentice on the Santa Ysabel Reservation. As a CCHW Apprentice, and through her own organization, the California Indians for Cultural and Environmental Protection (CICEP), Marina has worked closely with tribal members on at least three reservations, helping them with their efforts to ward off toxins being disposed of on their land.

The latest assault on Native Americans centers around sludge from the City of San Diego. The city has contracted with dumpers whose final destination for the sludge has been the reservation of the Torres-Martinez band of Cahuilla Indians. And new proposals are afloat to bring more San Diego sludge to the Cahuilla reservation.

Cahuilla Reservation

The Cahuilla Reservation is located on 18,000 acres in Riverside County, near the small desert community of Anza. The reservation has about 127 adult members who are governed by the custom and tradition of the Cahuilla elders.

It's become apparent that Indian land has been singled out for disposal of San Diego City sewage sludge. With dumping halted on the Torres-Martinez reservation after creating a 500,000 ton sludge mountain, Cahuilla was next in line.

Tribal members first contacted Marina Ortega and CICEP about the San Diego sewage sludge dump proposal. They wanted information on sludge, NEPA (the National Environmental Policy Act, which is Federal environmental law) and to plan for an upcoming "scoping" public meeting.

Cahuilla members voiced their concerns about the proposed sludge dump, and told of an existing facility on the reservation, a "hydrocarbon contaminated soil remediation project," and other types of unknown dumping going on late at night and during regular business hours. These projects are the property of two companies headed by tribal members: the Candelaria Environmental Co. contaminated soil facility, and the Shrecka Co. sludge proposal. These tribal members are acting in conjunction with non-Indian business partners, Chuck and Jerry Perrault.

"From 100 to 200 trucks are coming in per day, dumping contaminated soil, and we don't know where it is coming from," said tribal Chairwoman Rose Ann Hamilton. She added that some truck drivers have told tribal members that some of the waste came from San Diego.

A pattern of exploitation soon became obvious. Sensing an easy way to make big bucks, non-Indian dumpers were zeroing in on these southern California tribes hoping to exploit tribal customs and sovereignty to dump at will. Cahuilla tribal custom and traditions allow inherited lands, held in trust for the tribe, to be developed by individuals, provided the development is not a detriment to other land owners or other tribes. Yet even though the contaminated soil facility was rejected three times, twice in court and once by tribal vote, the directives were ignored and the facility continues to operate. Now, according to tribal Chairperson Rose Ann Hamilton, dumpers and the City of San Diego exploited these customs by going behind the tribe's back and meeting with the Bureau of Indian Affairs (BIA) and members of the band to try and strike a deal allowing the sludge to be dumped.

NEPA requires a scoping, or public involvement, process for any environmental project that involves the federal government. Sludge proponents at Cahuilla tried to evade this process in order to quickly win approval before tribal members could learn the details of the project. This time tribal members uncovered the dumper's deception. They revealed the dumpers plan to use the "scoping" meeting as a source of documentation in the final Environmental Assessment for the sludge project, as a way to meet the requirements for public participation, or scoping, without the public being aware that this was the purpose of the meetings. The project had been in the review process for two years and, with technical review from the BIA, had reached the final review stage. The rest of the process would likely be granted a waiver under tribal sovereignty, and the project given a green light.

It' s become apparent that Indian land has been singled out for disposal of San Diego City sewage sludge. With dumping halted on the Torres-Martinez reservation after creating a 500,000 ton sludge mountain, Cahuilla was next in line.

Tribal members acted quickly to expose this scam public meeting, writing to the BIA

Con't on the next page

with their concerns and dis-inviting the agency. Tribal members controlled the meeting, asked San Diego sludge reps to leave, and forced cancellation of the other "scoping" meeting.

A new twist in the sludge proposal revealed an old face associated with toxic dumping and scandal. At an informational community meeting on Feb 18, Candelaria Environmental Co. showed up in force with security workers, in an attempt to intimidate anti-dump residents. They also brought along a rep from the "third party independent testing" consultant, Petro Purge, whose president happens to be Rita Lavelle. While head of the Superfund program in the Reagan EPA, Lavelle was convicted of perjury and obstructing a congressional investigation and spent time in federal prison in the early 1980's.

> *"If I was a hazardous waste facility operator I would go to the Indians and say, 'Here's a million bucks, let me operate a facility' "*
>
> –David Takashima, chief of staff for Assembleyman Steve Peace D-Chula Vista

Undeterred by the dumpers attempt at intimidation, tribal members have directed the Chairperson to take whatever action necessary to stop the dumping, close the dump and look for cleanup methods. They reaffirmed a 1991 resolution prohibiting the Candelaria contaminated soil facility from operating, and sent notice to BIA offices in Riverside, Sacramento, and Washington, DC.

Tribal members from the two San Diego sludge targeted reservations, Cahuilla and Torres-Martinez, exposed the "dirty deal" between Shrecka and the City of San Diego in front of city hall with a protest and press conference. Chairpersons from both tribes were among the speakers demanding that San Diego end their toxic, racist pursuits to dump on Indian lands. City officials claim San Diego has since backed off pursuing a sludge dump on Cahuilla land. "We don't want to be dumped on anywhere," Chairperson Hamilton said. "We want the city to stop the dirty deals behind our backs."

Torres-Martinez Reservation

Members of the reservation of the Torres-Martinez band of Cahuilla Indians are living with the toxic legacy of a project similar to the proposal tribal members on the Cahuilla reservation are working to stop. Located east of Palm Springs, the 28,000 acre reservation served for three years as a dumping ground for San Diego city sewage sludge. The dump serves as a textbook example of environmental racism—not only is the dump on Native American land, it is adjacent to a predominantly Latino community. The result—a 5-story tall mountain containing about 500,000 tons of toxic sludge.

The sludge mountain grew out of a contract between San Diego and Chino Corona Farms, and called for sludge to be composted on a designated part of the Torres-Martinez reservation. The contract required Chino Corona to post a $2 million bond, and placed all liability on the company. But the sludge never reached its intended destination; instead it was stockpiled into the current toxic mountain.

San Diego eventually canceled its contract upon learning, after nearly 3 years, that the sludge was not being composted. And they washed their hands of any responsibility for cleanup, claiming Chino Corona was "fully liable."

Yet what remains for nearby residents is a mountain of toxic sludge carrying a possible $14 million cleanup bill, dust and odor problems, and heavy metal and nitrate ground water contamination. Adding insult to injury already heaped upon tribal members is the fact that, according to Chairwoman Mary Belardo, Chino Corona continues to dump sludge from other areas at the site, despite the fact the company has filed for bankruptcy.

Speaking with other Cahuilla band members at the San Diego City Hall press conference, Belardo declared that "we have a major problem with the city of San Diego. They've left us with a pile five stories high. All the tribe wants is for the mountain to be gone."

While toxic sludge and other wastes continue to be dumped on Indian lands in the California desert, agencies who are considered responsible for regulating these activities have passed the buck on these projects. As they have increased the pressure on agencies to halt the dumping, Native American activists have been shown a game of Catch-22 regulatory shuffle from the BIA, to the EPA, to the state of California. At Torres-Martinez, BIA claims it is powerless to enforce federal environmental regulations because an approved lease between the dumper and the land owner doesn't exist. In other words, since the company may be operating illegally, the government can't

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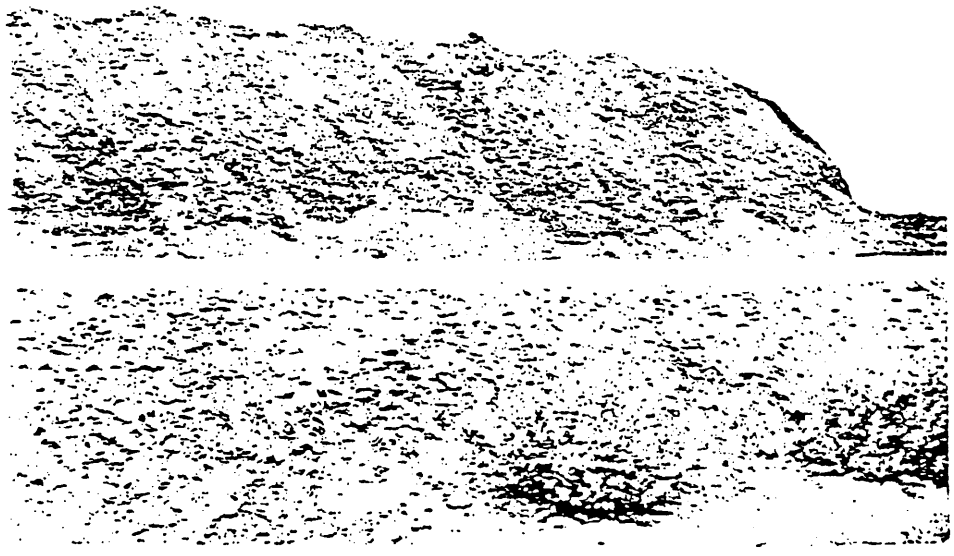


Photo Courtesy of The Desert Sun

A 500,000 ton, five-story tall sludge mountain, compliments of San Diego City.

Sewage Sludge and Lead—Not Safe For Land Spreading

By Stanford L. Tackett, Ph.D.

Medical research over recent years has shown that exposure of young children to even tiny traces of lead stunts their growth, lowers their IQ, and permanently damages their nervous system. This recent medical research was not considered by EPA's Sludge Risk Assessment Branch in their deliberations for the new 503 land-spreading regulations. For safety considerations, EPA relied on research conducted twenty or more years ago when medical and scientific researchers believed (incorrectly) that children could absorb small amounts of lead without adverse effects. Most research studies of that day actually included such a statement in their final reports.

All sewage sludge contains elevated concentrations of lead. The sewage treatment process naturally concentrates the small amounts of lead that are present in all wastes. Local sludges usually contain 100 to 500 ppm lead. Even the "clean" sludges contain 60 to 100 ppm of lead. The natural level of lead in unpolluted soil is about 10 ppm.

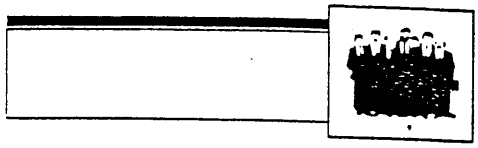
When the lead concentration increases in the environment due to sludge spreading, or by any other means, people living in the vicinity will absorb some of the lead. The usual methods of absorption are from food and water contamination, and from breathing dust which always contains some of the lead. Young children are especially at risk of ingesting lead from the soil while playing on the ground since dirty fingers and toys always go in the mouth.

EPA readily admits that young children living in the vicinity where sludge is applied **will absorb some lead** from the field. So, in order to be able to declare that sludge is "safe" to spread on the land, the EPA Sludge Risk Assessment Branch has stated that children can absorb up to 10 micrograms of lead per deciliter of blood as an "acceptable risk." The 503 regulations are based on this EPA assumption of "safety." However, this EPA assumption directly contradicts the recent medical research which shows explicitly that young children are affected adversely by even the tiniest trace of lead. **There is NO tolerance level of lead for young children.**

The EPA Drinking Water Division has recognized these newly discovered dangers of lead to young children, and has officially lowered the lead allowed in drinking water to a goal of zero. The Centers for Disease Control has also reviewed the recent medical research on lead and reported that blood-lead levels of 10 micrograms per deciliter lowers a child's IQ by several points. Ironically, it is this same level of 10 micrograms of lead per deciliter that EPA's sludge managers cite as an "acceptable risk" for young children (in the ATSDR article on page 15, residential yards in Kellogg had lead levels greater than 1,000 ppm). The obvious conclusion from EPA's declared "acceptable risk" is that parents of young children in sludged areas can expect a permanent lowering of their children's IQs.

For further information on sludge please see *Land Farming Sludge* #8tt.

Stanford L. Tackett, Professor Emeritus of Chemistry at Indiana University of Pennsylvania, has been studying the EPA's handling of lead in the environment for many years. Currently, Dr. Tackett is providing his expertise to activists who are fighting proposed sludge and low-level radioactive waste dumps near Sierra Blanca, Texas.



Con't from page17

Tonawanda, New York. The costs which may exceed $20 million will require Oxy to remove chemicals that have migrated from the plant into sediment of Pettit Cove and the Little Niagara River. ❖❖ In a McSlapp of international proportions, **McDonalds** continues its efforts to suppress free speech by suing two Greenpeace activists in London who were passing out anti-McDonalds leaflets. Known as the McLibel case, defendants Helen Steel and Dave Morris are preparing to defend themselves against this multinational thug. McDonalds has spared no costs in McPublic relations in the hopes of mending the McDamage done by the recent lawsuit. ❖❖ The owner of **Craven Laboratories** and fourteen Craven employess have been sentenced for falsification of pesticide residue tests that are required to register pesticides for use on crops. The defendants, who pleaded guilty late last year for violations of the *Federal Insecticide, Fungicide, and Rodenticide Act* (FIFRA), falsified laboratory notebook entries and manually manipulated scientific equipment to produce false reports. The Craven Lab owner will face five years in prison and a fine of $50,000.

Sludge con't from page 7

enforce its laws against it.

Indian activists have video tapes from a public meeting that provides hard evidence of the governmental coddling given to the dumping industry—the tapes show BIA officials denying any authority or obligation to stop the dumping, but generously offering assistance for the tribes if they would develop regulations and allow sludge dumping on their land.

What is all too clear is that when the government or corporations want to make money off indigenous lands and people, they have no qualms about intervening in tribal politics and lands. Yet when it comes to responsibility for cleanup, or regulation, or halting toxic dumping on native lands, these same agencies quickly retreat and cower behind a mock respect for tribal sovereignty, washing their hands of any obligation to prevent further poisoning of Native Americans and their lands.

Postscript

As this issue was being prepared for press, new events at Cahuilla and Torres-Martinez took place with unexpected speed, illustrating the volatility of tribal politics and the unscrupulous nature of profit-at-all-cost dumpers. On the last weekend in March, poison-for-profit backers at both reservations packed tribal council meetings with their supporters, took over the meetings and forced votes on the sludge issues. At Cahuilla, a new tribal chair was installed, and at Torres-Martinez, anti-dumping and anti-pollution resolutions were overturned. In place, the dumpers passed resolutions opening up the reservation to unlimited amounts of sludge. These votes were forced upon the meetings, ignoring established tribal procedures.

Activists are undeterred and will now refocus their efforts against these recently passed resolutions, the newly established tribal chair and the BIA.

Case Histories of Problems with Land Application of Sludge

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PHOTO BY THE AUTHOR

"THE ONLY REALLY SAFE WAY to prevent [overloading] is to independently test every load [of sludge] that hits your property," says Darrell O. Turner.

JUST SAY NO

To sludge applied to your land. You'll avoid the unknown risks of loosely regulated application

By ED HAAG

Thinking of cashing in on the money you can save by spreading municipal sewage sludge on your land? Washington State Farm Bureau President Darrell O. Turner has one word of advice: "Don't!"

"If I had a dairy, I wouldn't put on sludge," he says. "I don't think the risk is worth it." Turner and his sons operate a family ranch in Darrington, Wash., which supplies forage products to a large dairy.

Turner's advice should not be taken lightly. He is an authority on applying municipal waste on agricultural land. As a university researcher, he conducted some of the first studies on sludge use. In 1982, when Washington State's Department of Ecology needed sludge experts, Turner was among those selected to write its sludge-application guidelines. Based on his experience, Turner feels there are several reasons why producers should avoid applying sludge on their land.

The most obvious is the issue of compliance with federal and state guidelines and regulations. As Turner points out, many states have regulations on the books that do in fact protect the farmer and consumer. Frequently, the risk does not lie in whether or not those guidelines exist as much as whether they are effectively enforced.

He views the current system of implementing regulations as fragmented and capricious. With a half-dozen local, state and federal agencies mandated to issue permits, and no single agency that is ultimately accountable, the risks are obvious. "You don't have a clear line of authority all the way down through," says Turner. "I don't think we've got a workable system."

For Turner, accountability is complicated by the process of choosing a suitable site. Soil types, typography, drainage, crops, and sludge content and soil interaction all enter into the equation. The loading capacity—how much sludge can be applied—also must be monitored each year the site is used.

A team of highly skilled waste-management specialists must properly evaluate a potential site. In reality, however, the decision to issue a permit is often made by a municipal official with little or no training in the field.

The effects of such a decision were evident in Whatcom County, Wash., in 1988 when a 70-acre site leased by Western Services Waste Management of Lynden, Wash., was given a permit for sludge application. Within a year, Linda and Raymond Zander, whose 154-cow dairy bordered the site, began to notice a change in their herd.

"Our herd average dropped from almost 20,000 lb. in 1988 to a little more than 16,000 lb. in 1990," recalls Linda. "The cows were not breeding back as quickly, and some had developed severe arthritis in the hind legs."

In 1990 the Zanders appeared before Whatcom County Hearing Examiner Edward Good to contest the repermitting of the site. Good sided with the Zanders. In one of 70 of his findings of fact, Good wrote: "Bone development problems and increased calf mortality experienced by appellate's lifestock is consistent with exposure to detected levels of copper and zinc in the appellate's well."

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51

When Darrell Turner was called as an expert witness, he was shocked to learn that the permit had been granted on a converted wetland that was clearly deemed unacceptable for sludge application by state and federal regulations and guidelines.

Hearing Examiner Good concurred with Turner's assessment and revoked Western Services' permit. Good concluded that the issuer of the permit—Bert Brainard of the Whatcom County Health Department—had no specialized training in sewage-sludge use, that he failed to inform the Washington Department of Ecology of the 1990 renewal permit and that Whatcom County had not submitted a detailed sewage-sludge plan to the state.

Good also found that the soil characteristics, drainage systems and content of the sludge had enabled heavy metals to enter groundwater and move from the site.

But heavy metals aren't the only threat to a producer's water supply. Lon Whitlow is a North Carolina State University dairy nutritionist who specializes in water-quality hazards. He sees dairy cows as particularly vulnerable to a wide spectrum of waterborne substances found in sludge, ranging from iron to nitrates.

"Dissolved in water, [a mineral] is already in a soluble form and is probably more available to the animal than if it were in the feed," he says. And since a lactating cow consumes 25 gal. of water daily, it doesn't take a high mineral concentration to get a toxic reaction.

Another problem arises when trying to identify what substance or combination of substances is affecting the cows. More than 60,000 chemicals are currently used in U.S. industry, many of which end up in municipal sewers. Thus, trying to isolate a particular agent is like trying to find the proverbial needle in the haystack.

But even when evidence of sludge effects surfaces early in the permitting process, there are no guarantees that officials will heed the warning.

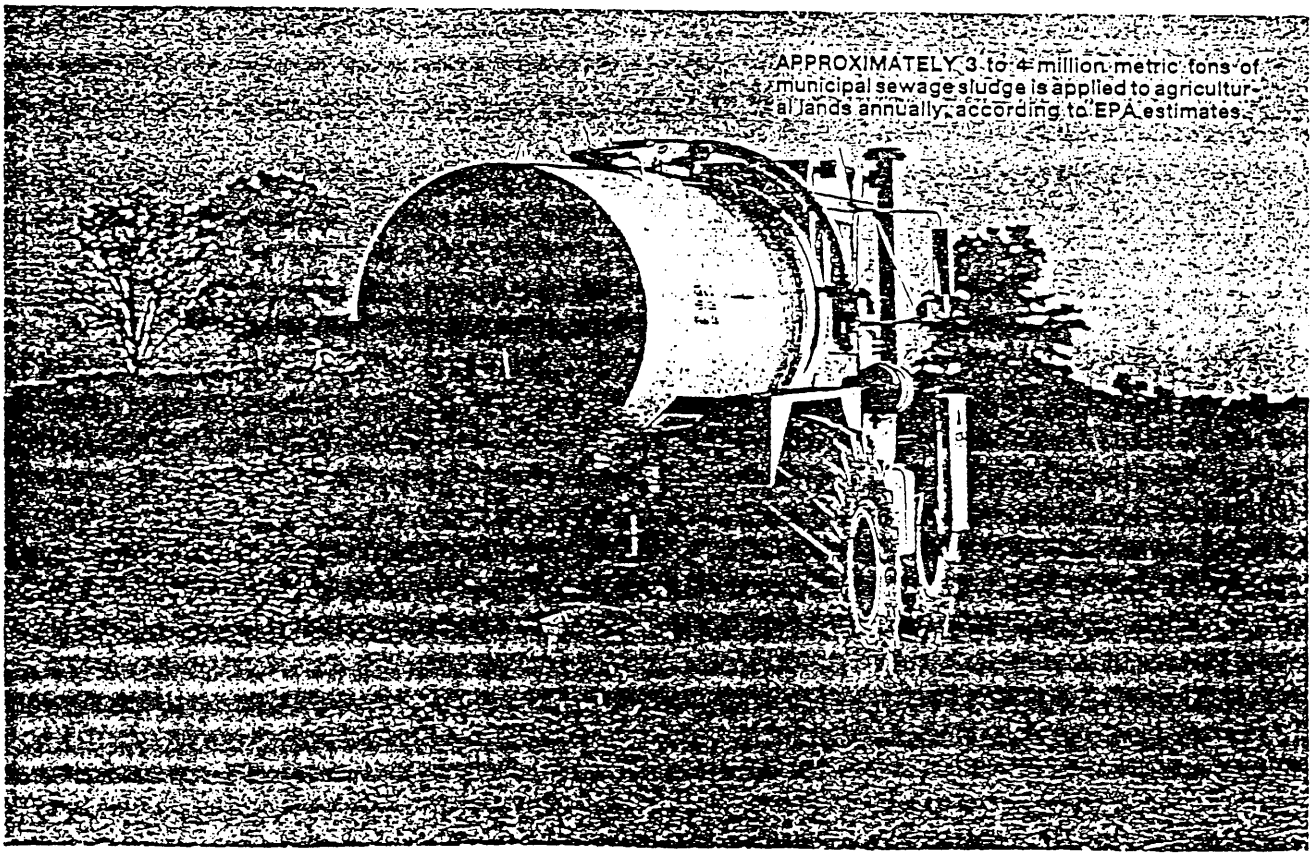
In Whitingham, Vt., for example, a municipal study specified that sludge could not be applied because its copper content exceeded EPA guidelines by threefold. Nevertheless, the munipality issued the permit. When this was contested by a local landowner, the superior court judge ruled against the municipality in 1990, citing its disregard of its own engineering study.

The fact that the sludge in question was not in compliance with federal guidelines is not surprising. Of 30 municipal sludges analyzed in a 1983 nationwide survey, "only seven would be considered suitable for land application owing to their elevated content of one or more heavy metals," reports the "Archives of Environmental Contamination and Toxicology," which highlights national research in the field.

For Darrell Turner, such information is disturbing because it calls into question the reliability of the loading limits calculated during the siting process. How can waste-management specialists accurately determine how much sludge can be safely applied when two thirds of the municipalities do not comply with minimum EPA sludge-application standards?

"The only really safe way to prevent [overloading] is to independently test every load that hits your property," says Turner. But few landowners would be able to afford independent testing. For example, a test for 10 heavy metals and PCBs costs $250 per sample. Dioxin tests are $2,000 per sample. Consequently, producers must rely on municipality test results.

Turner is skeptical: "Can you trust the analysis that you get when they are desperate to get rid of the stuff at the least possible cost?" The stakes for the landowner can be extremely high, he adds. "You are confronted with a finite limit of how much you can put on the land. Any more can cause irreversible damage to the soil and groundwater."◀



APPROXIMATELY 3 to 4 million metric tons of municipal sewage sludge is applied to agricultural lands annually, according to EPA estimates.

DAVID FENNIS JAMES

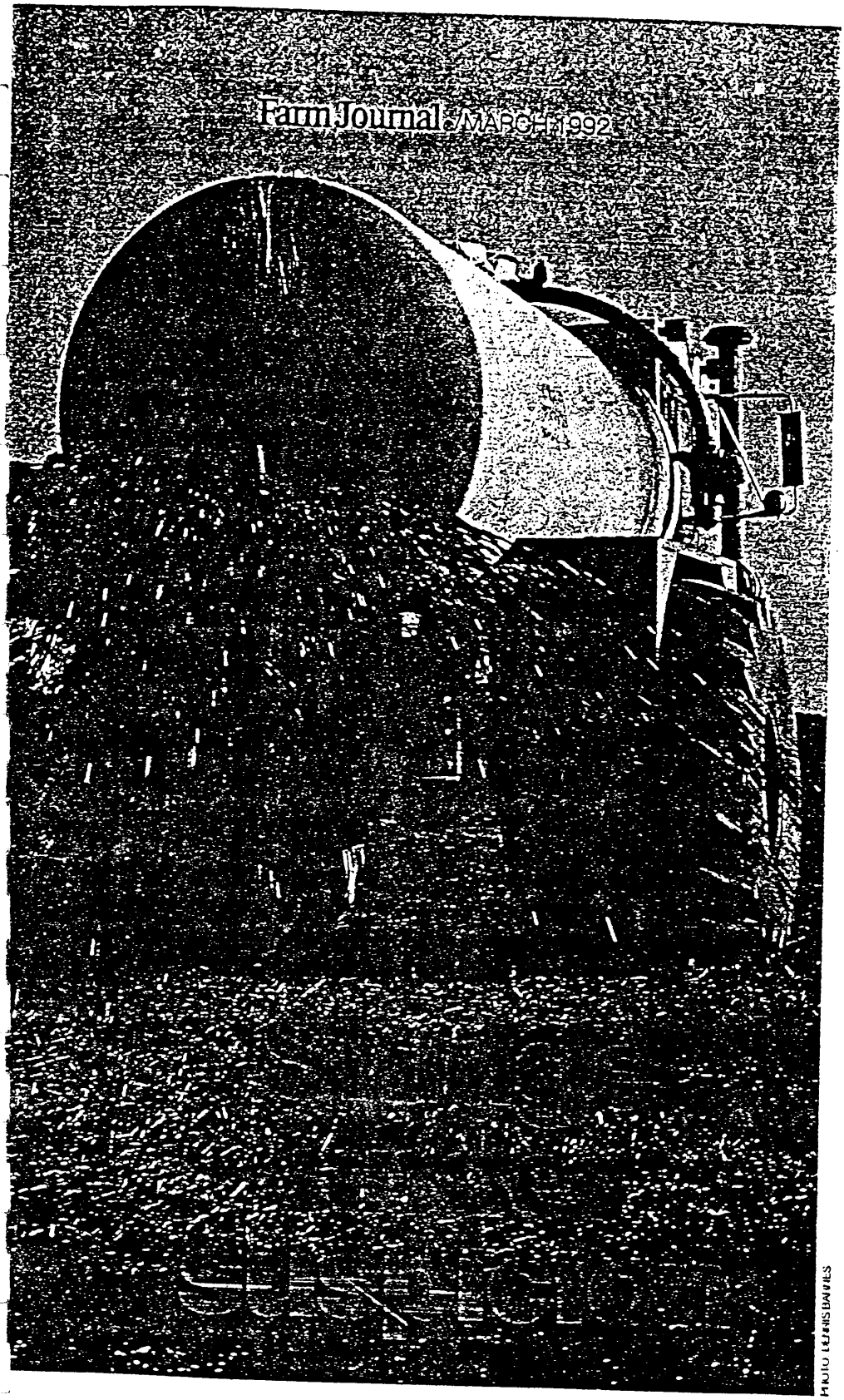


PHOTO LENNIS DAVIES

By ED HAAG

If experts can't agree whether sludge is safe, should you?

Nearly half of all the municipal sludge produced in this country each year—up to four million metric tons—is spread on farmland. Once considered a safe, cheap form of fertilizer, this by-product of sewage treatment plants may instead turn out to be a land bomb.

"It's not that the material [sludge] itself is bad if it's properly handled," says Darrell Turner, Washington State Farm Bureau president and an authority on sludge application to farmland. "But I have no confidence in the current system of policing the stuff."

Turner isn't the only one who thinks this. Several farm and food organizations, including the American Frozen Food Institute (AFFI), are calling for a halt to the practice of applying sludge to farmland. "We're advising our membership to make very sure that the people who are trying to get rid of this stuff are within compliance of Environmental Protection Agency regulations," says AFFI's Howard Weatherspoon, assistant vice president of research and technical services.

That isn't so easy. While the Environmental Protection Agency (EPA) does provide recommendations on acceptable levels of certain contaminants in sludge that is applied to farmland, it normally defers enforcement to local or state agencies. The danger to farmers lies in how poorly application guidelines are interpreted and enforced.

Current enforcement regulations allow permits for sludge application on agricultural land to be issued by any one of a half-dozen federal, state or municipal agencies. In many cases, no single agency holds individual accountability or even knows what the others are doing.

"There are too many opportunities for things to fall through the cracks because you don't have a clear line of authority all the way through," charges Turner. "I don't think we've got a workable system."

Linda and Raymond Zander believe they became victims of just such an ineffective enforcement system when a permit was granted three years ago to Western Services Waste Management. Contracted by 12 local municipalities, the company began spreading sludge on a 70-acre site adjacent to the Zander farm near Lynden, Wash.

Within a year, changes occurred to their normally healthy dairy cows. Whatcom Community College Farm Management records show the Zanders' milk average dropped from 19,892 lb. in 1988 to 16,575 lb. in 1990.

Floyd Sandell, the Zanders' consulting herd manager for 15 years, was perplexed by the sudden downturn in

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production. "In 1988 things were going along very nicely and then all of a sudden it started going the other way," he says. By the end of the next year the situation had worsened dramatically. "We noticed herd health was down considerably, and the turnover percentages were higher due to sickness, lameness and other malfunctions."

Sandell could not identify any change in the Zanders' operation that would have precipitated such a slide. "The Zanders have always been very conscious of staying with the recommendations of nutritionists and other experts," he says. "They were constantly checking and analyzing feeds."

By 1989 several of their prime producers developed severe arthritis in their hind quarters. The animals also failed to breed back as quickly.

The Zanders' veterinarian, Greg Iverson, tells of problems with calves born with "strange tendon abnormalities. It happened in a big group so it made us wonder," he says.

Alarmed by the worsening condition of their herd, the Zanders asked Susan Cook, an independent water-quality specialist, to analyze their well water.

She also analyzed control samples from other wells in the area that shared a similar soil profile. The results showed that the Zanders' water contained metals such as nickel and tin that normally are not found in rural wells.

"We found the other wells had much lower levels of metals," says Cook. "And they didn't have the nickel and tin found in the Zanders' wells."

Sludge analysis reports obtained by the Zanders on five of the 12 municipalities involved in the spreading indicated that metals found in the well were present in the sludge.

Encouraged by their discovery, the Zanders next looked into the procedure for granting sludge-application permits. Clearly outlined in both state and federal regulations is the requirement that deposit sites for sludge containing heavy metals have a pH of 6.5 or higher. Soil samples taken from the site adjacent to the Zanders' property showed a pH between 4.8 to 5.5.

"No way should that sludge have been put on that acidic soil," says Turner, who, as a soil scientist at Washington State University prior to returning to full-time farming, co-authored a Washington Department of Ecology (DOE) publication in which guidelines for sludge application are outlined. "The original permit should not have been granted."

A half-dozen agencies can okay sludge application to farmland. Often, no single agency holds accountability or even knows what the others are doing

Soil with a low pH allows heavy metals to mobilize and move into plant tissue and groundwater, states the DOE document, "Best Management Practices for Use of Municipal Sewage Sludge."

Armed with the results of their investigations, the Zanders went before Whatcom County Hearing Examiner Edward Good demanding that the permit be revoked. Their request was granted.

Good says the site's soil characteristics, drainage systems and characteristics of sludge applied to the site enabled heavy metals to enter groundwater and move from the site.

For the Zanders it was a bitter victory. Although the spreading of sludge stopped, Linda Zander believes the damage has already been done.

Blood and tissue samples taken from sick animals and analyzed at a local hospital showed extensive liver damage. To Cook, such results were consistent with her prognosis. Because the liver's main function is to filter toxins, any metals picked up in the water would eventually be deposited in that organ. Test samples taken by Cook in July and August 1990 showed levels of lead, copper and zinc far exceeded the maximum contamination level set by the Federal Safe Drinking Water Act. Lead surpassed the federal guidelines of 25 parts per billion (ppb) by 40-fold.

Not everyone concurs with Cook's tests. Water samples drawn in June 1990 by both the DOE and County Health Department showed no abnormally high levels of zinc, copper and lead. "We found no contamination in the well," says DOE's water quality hydrologist, Dave Garland. "I have insisted that the flow direction is wrong for the Zanders to be affected at all by the sludge."

To anyone concerned with the safety of applying sludge, this disparity in expert opinion is, at the very least, unsettling. When experts cannot agree on the composition of water taken from the same well, how can the well owner know for certain that the tests that are supposed to help monitor water quality are accurate?

Likewise, when experts disagree on the impact a specific sludge application has on water quality, how can a farmer with little or no training in waste ➤

The tangled web of enforcement

■ The Environmental Protection Agency (EPA) is writing a new set of technical standards for sludge application on farmland. Referred to as "503" regulations, they are due out in July.

Mark Charles, EPA's section chief for pretreatment enforcement, believes that the new 503 regulations are far more specific and comprehensive than the ones they will replace. Currently, outside of some basic siting requirements, the EPA regulates only pathogens (disease-producing organisms) and maximum contamination levels for two toxic substances: cadmium and PCBs. The new regulations for applying sludge on farmland will increase the number of regulated substances.

EPA efforts have focused on writing guidelines and not on introducing new enforcement strategies, says Charles. "At this point, the agency is more concerned with putting the rules into place than it is with what it might do in 1994," when EPA will start enforcing the new regulations, he says.

EPA has authority to regulate sewage treatment plants and the sludge they generate. Many states also have programs governing what can and cannot be in sludge that is applied to farmland. All states are required to follow EPA's guidelines as a minimum, but states may write more stringent ones.

For Darrell Turner, Washington State Farm Bureau president and co-author of a widely used manual on sludge application to farmland, adding new regulations on the federal level will not address the issue of what local agency can issue sludge application permits. Nor do they shift existing liability from the farmer who spreads the sludge to the municipality that supplies it. "Writing new regulations isn't going to make any difference," says Turner. "What we need is accountability from our [local] agencies."



management and few resources at his disposal expect to make a rational decision on whether or not to have sludge applied on his land?

A court will make the final decision on what impact the sludge spreading had on the Zanders' operation. Last September, they filed suit for unspecified damages against Western Services Waste Management, Whatcom County, the municipalities involved in the sludge application and the owners of the sludge site.

The Zanders helped establish a nationwide support network for rural residents affected by sludge contamination. "It's happening all over the country," she says.

In Vermont, dairyman Robert Ruane believes his cows are the victims of the City of Rutland's sludge—although he has no proof. When representatives of the municipality approached Ruane in 1986 with the idea of applying sludge on his 99-acre farm, he was impressed by their thoroughness and the generosity of their [illegible]

"The [illegible] was going to save me on fertilizer and that it had been approved by the State of Vermont as far as permits to spread it on farmland," recalls Ruane. "They furnished me with two tractors, a manure spreader and a set of transport harrows to cover it over."

After 24 months of spreading sludge—5.5 tons per acre per year—Ruane began noticing a deterioration in his 180-cow herd. "The vet said my cows were getting arthritis," he says. By the end of the next year there was a marked increase in his cow mortality rate. The number of animals that died or were condemned at the packer had jumped from two in 1987 to 34 in 1988.

Ruane's problems weren't confined to a mysterious outbreak of arthritis and an epidemic of unexplained deaths. His animals weren't breeding back as quickly, and when they did his troubles compounded. "A lot of cows aborted, and we've had calves that couldn't straighten their legs and [illegible]

"WE WANT TO SERVE AS A WARNING to other farmers not to allow this stuff [sludge] on their land," say Lynden, Wash., dairy farmers Linda and Raymond Zander. "You don't get something for nothing. There is a cost, and the cost could be your farm."

dropped from 18,000 lb. to 14,000 lb. "I had no idea anything like this would happen," he says. "Knowing that the State of Vermont approved it, I thought it was all right."

In December 1990, Vermont refused to renew Rutland's sludge application permit stating that the nitrate levels in two test wells were excessively high. Between January 1989 and December 1991 an additional 66 cows died.

Like the Zanders' animals, preliminary tissue and blood samples taken from sick and dead cows point to severe liver damage. And yet, to date, evidence linking the sludge applications with the death of Ruane's cows is circumstantial. Some experts see the absence of proof of the source [illegible] as predictable and [illegible] as [illegible] reason why farm owners

should approach the sludge issue with extreme caution.

Ultimately, the buck stops at the farmer's door. In any dispute between landowner and municipality, the burden of proof falls clearly on the landowner. Ironically, while government officials and politicians close their offices and go home at 4:30 p.m., it is the farmer who must live with the consequences 24 hours a day.

When long-term, accumulative effects are considered, livestock are particularly vulnerable to what seems like a subtle degradation of food and water. Studies indicate that the vehicles through which toxins are transmitted from sludge to domestic animals are numerous and often quite insidious.

Lon Whitlow, a North Carolina State University dairy-cattle nutritionist who specializes in water-quality hazards, feels that drinking water offers one of the most direct mediums for introducing external toxins into domestic animals. This is particularly true with lactating cows. "Producing cows are going to consume 25 gal. of water a day," he says, adding that even small concentrations of toxins can build up dramatically in the liver of an animal that drinks that much water.

Ruminants grazing on sludge-treated land are at particular risk. "A more serious route of exposure by animals to toxic organics is the soil itself," warns one EPA bulletin published in 1985. "Most grazing animals ingest a certain amount of soil together with their food plants . . . . Dairy cows may consume soil up to 14% of dry-matter intake when available forage is low and no supplemental feed is available."

Researchers have known for decades that sludge containing high concentrations of heavy metals such as lead and cadmium put both livestock and crops at risk when applied to farmland. For this reason, federal guidelines establish maximum allowable levels in sludge. Unfortunately, compliance is often overlooked.

Of 30 municipal sludges analyzed in a 1983 nationwide survey, "only seven would be considered suitable for land application owing to their elevated content of one or more heavy metals," reports the *Archives of Environmental Contamination and Toxicology*, a national publication that highlights some of the premier research in the field.

Don Lisk at Cornell University's Toxic Chemical Laboratory, who co-authored the survey, says the size of such a nationwide survey and budgetary constraints have prevented more recent studies. Still, he believes even the most stringent existing guidelines do not go far enough to protect farmers. "We've only scratched the surface as far as analyzing sludge," says Lisk.

He warns that many of the most dangerous elements in sludge are not even on any government agency's agenda. There are no federal guidelines for the testing of dioxin, asbestos and a myriad of other highly toxic industrial by-products currently found in most municipal sludge, for instance.

Lisk believes that because sludge is often applied dry the risk of tractor operators being exposed to wind-born asbestos fibers is very real. "Two thirds of 50 different sludges we analyzed recently [a nationwide sampling] contained asbestos."

The National Toxicology Program, a government-supported entity whose purpose is to track toxins, estimates 700 to 1,000 new chemicals are added annually to the 60,000 chemicals currently used in U.S. industry. Most of these eventually find their way into the sewer system, says Lisk.

If that isn't enough to create concern, Lisk reminds us that there are even darker forces at work. In a well-known phenomenon scientists have dubbed "synergism," more than a few of these 60,000-plus chemicals will eventually team up in municipal sewers to become even more toxic.

Such a realization was enough for Cliff Holms of Canby, Ore., to end a seven-year involvement with sludge. Between 1969 and 1976 he spread one load per acre per year on his pasture. "I felt I was fairly safe because sewage plants were just for household communities with no industry," he says.

In order to protect himself he demanded regular testing of the sludge. "They couldn't even deliver it on the property without a certified test," he recalls. "If there were any heavy metals in there I wouldn't receive it."

Holms is convinced that in today's waste management environment few farmers, including himself, have the knowledge to properly protect themselves. "You would have to hire a consultant that knew exactly what was going into the [sewage treatment] plants," says Holms. "When you start monkeying around today with polymers and various chemicals you really could get into trouble. In a lot of cases we don't even have any methods of testing for them."

Washington's Darrell Turner is quick to point out that the process for determining whether or not an agricultural site should have sludge applied can tax the competency of even the most seasoned waste management expert. It is complex, time consuming and expensive. Once the decision has been made, the complexity does not disappear. Regular testing and monitoring of both the sludge and the soil on the site are necessary to protect the land and groundwater from contamination. ◀

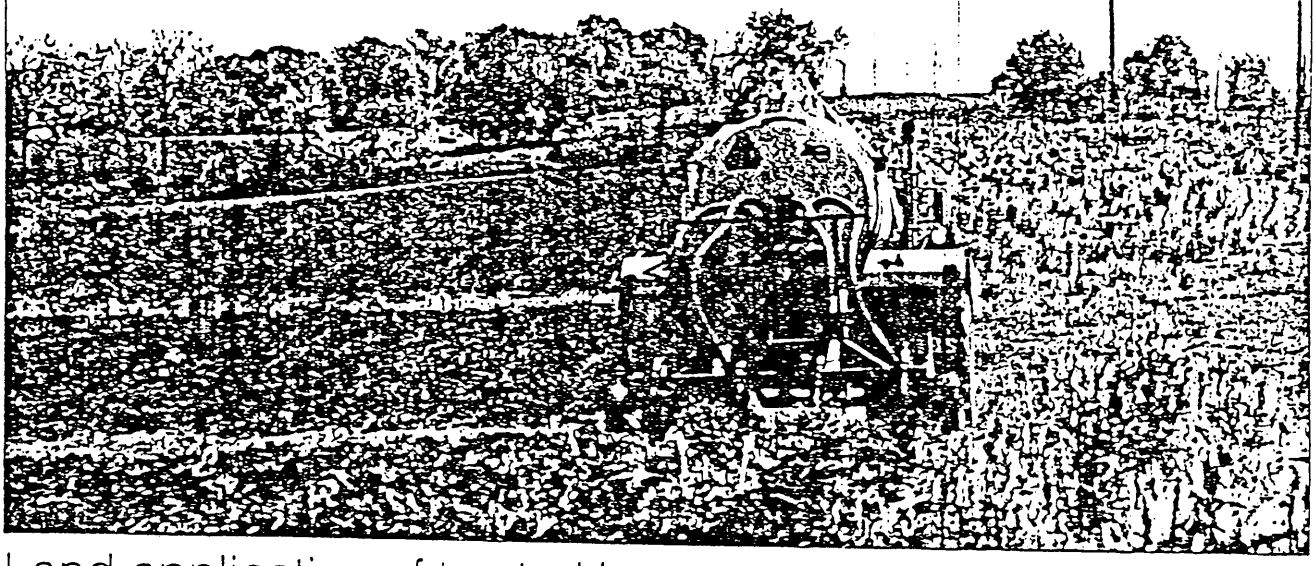


PHOTOS BY THE AUTHOR

"I HAVE NO CONFIDENCE in the current system of policing the stuff," says Darrell Turner, who co-authored a 100-page manual on sludge application to farmland for Washington State's Department of Ecology.

Help for Sewage Victims, a nonprofit group, offers support to rural residents concerned about sludge application on farmland. Contact: Linda Zander, 2003 Panghorn Road, Lynden, Wash. 98264.

Slugging it out over sludge



Land application of treated human waste has become one of agriculture's hottest topics

BY SHIRLEY FERRIS

Our ancestors called it "night soil." Today human waste is treated and given a new name — biosolids or sludge — but its old use is being revisited.

Land application is one method of human waste disposal being considered in more communities as concern for public water supplies increases and landfills reach capacity. The practice is cheered by some and soundly criticized by others.

Environmental officials say municipal sludge has been used in the United States for about 40 years with little or no problems, though its use is relatively new in the Northeast. But recent claims of cattle loss and illness in humans and an increased awareness of the possibility of hazardous materials finding their way into the nation's cropland has raised a warning flag in the minds of some researchers and farmers.

Buyer beware. Application of sludge on land puts unnecessary limits on land use, says Don Lisk, Cornell University toxicologist. Most state regulations prohibit the use of sludge on pastures. That is particularly inhibiting in the Northeast, Lisk notes, since rotating crop and pasture ground is an approved practice.

Many samples of sludge, even in small communities, may contain mercury from dental or industrial use, or silver from amateur or professional photographers. Zinc, copper, lead and cadmium may be added when water, especially if it's acidic, passes through metal pipes, according to a paper Lisk and others authored.

Lisk points to accumulations of lead in former orchards. For many years, lead arsenate was applied as an insecticide. Where it was, those lands are now "useless except for growing trees," he says.

Most sludge is applied in liquid or semi-liquid form. Some conservationists, such as Jeanne Usher, a member of a regional composting facility study group in Windham, Vt., feel that part of the answer to the public waste management dilemma is composting or pelletizing sludge before application.

Lisk disagrees. No amount of composting or pelletizing will remove the risk of incorporating metals or asbestos into soil, he says. "Composting and pelletizing simply concentrate the metals and toxic materials in the sludge."

The only real answer is to keep metals out of the sludge in the first place, Lisk says. His concern is that there isn't enough personnel to monitor and enforce regulations regarding the disposal of these materials.

Darrell Turner, a soil scientist and Washington state Farm Bureau president, would agree. "It's not a technical problem; it's a people problem," Turner says. "I'm not opposed to sludge application on farmland, but I have no confidence in the government. It depends entirely on the quality of the local agencies and whether they do what they're paid for or whether they let things slide."

Christopher Kay, environmental engineer with Vermont's Agency of Natural Resources solid waste management division, is one of those

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personnel charged with certifying and monitoring land application of sludge.

A breakdown in communications between farmers and municipal waste management officials can sometimes lead to publicized sludge management situations, he says.

But Kay is adamant that Vermont's stringent permit criteria should allay farmers' fears about the dangers of sludge application to farmland — if management at all levels from the waste treatment site to the farm are adequate.

In Vermont, permits are issued only after a management plan has been reviewed, Kay explains. Public comment on the proposed management plan must be taken.

Sludge can't be applied to pasture ground or where crops are grown that people eventually eat. Information is gathered and analyzed on nutrients present in the soil prior to application and on nutrients required by the particular crop to be grown. Metals in the soil and in the sludge are limited to cumulative amounts. Application ends when 10 percent of USDA recommended allowances have been reached, Kay adds.

Some successes. John Lemnah farms 586 acres and milks 120 cows in St. Albans. The city has been spreading sludge on Lemnah's farm for eight years.

"There's a lot more to it than just dumping the sludge in the field," he says.

Test wells are in every field where sludge is applied at Lemnah's farm. The soil and tissues from plants are tested. If the nitrate level is too high or begins to climb in a particular field, an adjustment is made in application, Lemnah explains. If there is evidence of metals in the soil or metals in a particular load that would overload the soil, sludge can't be applied. Testing is done at the waste management plant by the city or an independent lab.

"I feel I have one of the cleanest farms in the state of Vermont because my fields are tested and my neighbors' aren't," Lemnah says. Sludge and manure from his animals are the only fertilizer he uses.

George Redick milks 88 goats and raises grain in Windsor. He spreads a cake-like sludge, about 22 percent solid, on his land with an ordinary manure spreader. This is the third year Redick has been accepting sludge. He also reports careful monitoring by the state.

Farmers having problems with

continued on page 18

Think before you act

Before you apply sludge to your fields, consider these guidelines:

- Know who you're dealing with. The safety of the program depends on the waste management facility you deal with.
- Know where the sludge originates. Cornell University researcher Don Lisk says that while household sludge is 99.9 percent safe, "there's always a chance that someone has a basement darkroom and is dumping stuff into the sewer."

Even in rural areas, cottage industries may produce hazardous waste. And these materials may be in sludge. Be sure those are the materials being tested for. The most stringent test for lead won't do you any good if there is tin or asbestos in the sludge.

- Investigate private testing. The only way to be 100 percent sure of what is in each load of sludge is to test each individually, researchers agree.
- Consider charging municipalities to dump sludge. When towns first planned waste management facilities they thought farmers would pay for the end product, says Betty Wheeler, town manager for Middlebury, Vt. Today, they're happy if anyone will take it.
- Check with your banker. Some lending agencies, reportedly, have been reluctant to loan money against lands where sludge has been applied. Before you jeopardize your equity, talk to your creditor.
- Check with your commodity buyer. Public perception could be of concern to your buyer.
- Talk to farmers who have used sludge. They're probably your best source of information.

A tale of two farmers

Whether or not to land apply sludge becomes more confusing as farmers take opposing positions. For some, sludge has been a nightmare; for others, an ideal nutrient product.

What seemed like a dream situation — free fertilizer and lime and equipment with which to spread it — has become Robert Ruane's worst nightmare.

When the city of Rutland chose his Clarendon, Vt., farm from several considered in the area for the deposit of the city's composted municipal sludge, Ruane was delighted. When the city built a cement bunker to store the sludge on his property and delivered $112,000 worth of new equipment for Ruane to use, he was sure he had made a good deal.

"They showed me how much money I'd save on fertilizer and the state of Vermont was behind it 100 percent," Ruane recalls.

That was in 1985. Two years later, Ruane noticed an increased abortion and death rate in his cows. Several deformed calves were born, and Ruane had difficulty getting his cows bred back. In 1988, he sold 36 animals who seemed to be suffering from arthritis-like symptoms and 34 animals died. Eventually he reportedly lost 100 head.

"It never even entered our minds there was a chance it was the sludge," Ruane says.



What started out as a good deal for Robert Ruane of Clarendon, Vt., has turned into a sludge nightmare.

He experienced crop failure in one field in 1989, but the following year, after continued application of sludge, he had no difficulties with crops in any fields.

But his relationship with city and state officials began to

continued on page 18

Slugging It Out

continued from page 11

sludge application must not be using it properly, Redick says. For example, he never exceeds 10 percent of his land's capacity for metal recommendations.

Negatives remain. Some farmers may have had positive experiences with sludge, but public perception of its application has affected the food industry. The American Frozen Food Institute has advised its members not to accept crops grown on sludge-amended soils because of questions about management and monitoring.

But Al Rubin, with the Environmental Protection Agency (EPA) in Washington, D.C., says public concern over sludge application is unwarranted. Rubin heads the EPA division writing the 503 Rule. These regulations will set federal minimum standards for sludge application. The new regulations will be based on three years of public comment and test results. The 503 Rule was scheduled to be completed on July 31, but an extension until November has been requested by EPA.

"I have yet to have anybody report any trouble to me — when it is handled and managed properly — in terms of public health or environmental damage," Rubin says.

Rubin did say that other sludge, such as industrial ones, could be hazardous, even when regulated by federal law. It depends on how they're produced and the industry from which they originate.

"The way sewage sludge is regulated varies a great deal from state to state," he adds. "Each state has made its own rules in the absence of federal regulation. Each state will have to decide whether to modify what they are doing when the federal rule is published." ❑

Tale of Two Farmers

continued from page 11

deteriorate in 1990.

No sludge was stockpiled that summer. It was used instead as cover for a landfill, according to Lou Hotaling, chief operator of Rutland City Waste Water Treatment plant. Prior to Christmas, city workers started an intensive program to spread sludge remaining in the bunker. Ruane was told the city wouldn't be permitted to spread sludge on the Ruane property after Dec. 31. According to Hotaling, the tests for nitrates were above state permit levels.

"Then in mid-January 1991, they came again and wanted to put sludge in the bunker," Ruane says. He asked about the permit and was told the city had a letter permitting it to store sludge on Ruane's farm but not apply it. Ruane was told the city should have the permit by the time he was ready to spread, he recalls.

But a new permit wasn't issued, and Ruane entered into a battle with officials to remove the sludge from his property.

Hotaling claims Ruane stopped workers from removing the sludge, citing damage to a farm roadway.

Now Ruane has joined the cadre of farmers who are trying to convince their peers not to use sludge on farmland. "I felt it was my responsibility not to let them spread sludge on the land," he says.

No problem here. A few miles from Ruane's farm, Llewella Day has a different mission. She's trying to convince farmers that properly managed sludge application is not only good for the farmer but also for the land and the community.

Day raises beef cattle, sheep and ponies on her Ira farm. Sludge has been applied to her land for nearly a decade. The town tests and spreads the mostly liquid material.

"I've had no problems," she says. "It's an excellent program. It's an old, sound agri-ecological concept."

Day's brother, Ardan Day, a faculty member at the University of Arizona, has had 30-years' experience with land application of sludge, she says. "In all those years he has never seen any problem or detriment to the crops, land or animals fed the crops — with proper agricultural land application.

Day, unlike Ruane, has never received any equipment or use of equipment, cash or tax breaks for participating in the program. She agreed to be in the program after the town manager approached her.

"Does anyone really think that after killing myself for 60 years trying to keep the farm going that I would ever put something on the land that would hurt it?" she wonders.

—BY SHIRLEY FERRIS

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Horse breeder David Spicer suspects sludge caused infections in his horses.

STAFF PHOTO/PRESTON MACK

APR 1 0 1995

It's 'great for the grass,' but what about humans?

The concluding part in an examination of the sludge industry.

By Christine Hawes and Tom Spalding
STAFF WRITERS

When nine of his mares developed infections last year and couldn't get pregnant, David Spicer didn't know what was to blame.

Sludge never crossed his mind.

But after ruling out impotent stallions, poor feed and bad luck, the Manatee County horse breeder's suspicions turned to his horses' watering pond, a few hundred yards from where sludge had been applied.

"They dumped over there constantly," Spicer said, referring to the land next to his own.

"This is all supposed to be a safe product that they are putting out there. You figure if the county allowed them to do it, the state allowed them to do it and the health department allowed them to do it, you figure it's all right."

There's no proof that sludge — what's left after raw sewage is processed at a sewage treatment plant — caused Spicer's mares to become infected. The landowner denies Spicer's claims.

There is no indisputable evidence that sludge has damaged anyone's health, animals or plants.

Spicer and other landowners across the country, however, are coping with unexplainable health problems and contaminated soil or water that didn't appear until after sludge was spread on their land or neighboring land.

Sludge, also known as biosolids or residuals, can

PLEASE SEE SLUDGE ON 8A

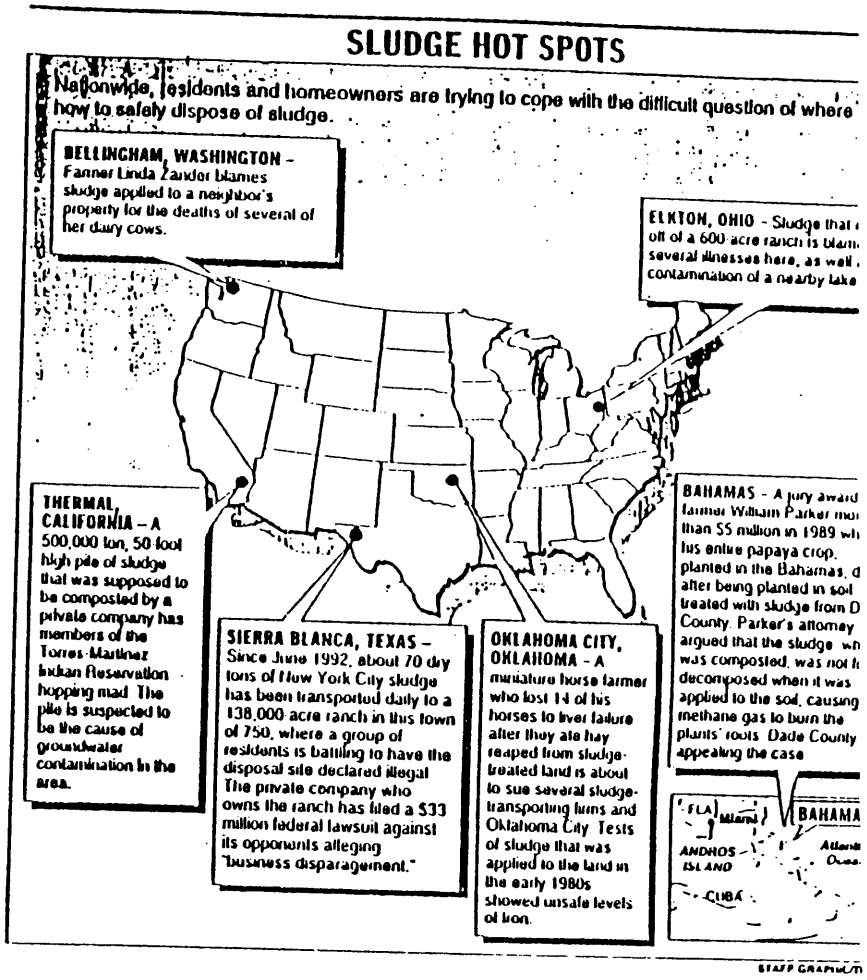
Sludge 'hot spots' around the U.S. 8A

It's 'great for the grass,' but what about humans



STAFF PHOTO/PRESTON MACK

Larry Hudson, whose 6,000-acre farm is Charlotte County's only approved sludge-spreading site: "I require that they put it out here properly because this is my investment. I can't afford for it to be damaged or polluted."



STAFF GRAPHICS

SLUDGE FROM 1A

contain whatever enters a sewage system. That could mean pesticides, toxic chemicals and heavy metals. Sludge can also transport disease-causing pathogens, viruses and bacteria.

Polk County resident Maria Sizemore blames sludge for nosebleeds, tumor growths, rashes and other health problems she's suffered since moving onto her ranchette in March 1991.

Sizemore discovered that sludge had been applied to her land for years, including three months before she purchased it. In addition to her own health problems, several of her animals have grown tumors since she moved onto the property. One horse lost 400 pounds.

A test of Sizemore's private water well showed elevated levels of iron, and a soil test showed fecal coliform counts too high to read.

Doctors and veterinarians refuse to link the problems to sludge. Sizemore says there's no other explanation. She has spent more than two years and $50,000 haggling county officials for better regulation of sludge-spreading and has hired attorneys to handle her case.

"Nobody would take the time or spend the money to do what I've done," she says. "But I can't give up. I just don't think this is right, and I want to know what's going on."

There are at least a dozen other stories.

■ William Parker, a former Dade County farmer who claimed that bad sludge destroyed his Bahamas papaya crop, won a multi-million dollar lawsuit in 1989. Parker, whose case is on appeal, claimed that decomposing sludge burned the crops' roots.

■ Washington State farmer Linda Zander has been involved in a five-year court battle with companies and cities responsible for sludge applied to a neighboring property. Zander blames the sludge for soil and water contamination and the death of several of her dairy cows.

■ In Elkton, Ohio, two lawsuits have been filed against companies that spread sludge on mined lands. Residents in Elkton say they've had to tolerate a "strong urine" odor for years, and contend the sludge ran off of the property and contaminated nearby water bodies. They also blame sludge for widespread sickness in the area.

■ An Oklahoma miniature horse-breeder blames hay reaped from a field spread with sludge for liver failure in nine of his horses.

Spicer blames run-off sludge for his mares' vaginal infections. His Bradenton veterinarian, Dr. David Holifield, and tests point to fecal bacteria in the pond. The landowner, Jack Carroll of Punta Gorda, said sludge couldn't have drained off his property.

Spicer complained to the county and state, but didn't pursue his complaints once the sludge-spreading stopped.

Many counties are moving to pass their own rules, unhappy with state and federal regulations that rely on voluntary compliance with rules dictating the content and disposal of sludge.

Manatee County, where the lack of local controls has led to an explosion in the sludge industry over the past two years, is among them. Commissioners who rejected county regulations last year will take up a second sludge ordinance on Tuesday.

'This material is very benign'

State and federal officials scoff at claims that sludge causes health problems. Bob Bastian, an environmental scientist with the Environmental Protection Agency, says many of the agency's rules are in place for no reason other than to reassure the public.

"This material is very benign," Bastian says. "If somebody is operating with poor practices, they'll be creating nasty conditions and becoming a nuisance long before there's a public health threat."

Bastian said that decades of research have not uncovered a single case of animals or humans suffering from

to stop his farming operation just because som
moved in next door?"

Some sewage treatment plant operators resen
sations that sludge is not safe.

"We produce a good quality domestic sludge,
Pat Wilson, superintendent of pollution control f
city of Venice. "... We're all just residential an
mercial based. We don't have any industrial users
sewer system."

She said that during the winter months, the city
up to 30,000 gallons of sludge a day to the Valton
between North Port and State Road 72.

Any excess is taken to a back-up site at Schr
Manatee Ranch, where seven utilities shipped slu
of November 1994.

The Turner Ranch in northern Manatee Coun
cepted sludge from 10 plants as of November.

"There's just no question

sludge.

The EPA also cites success stories, such as mined land in Pennsylvania that was replenished with sludge and Seattle forests rejuvenated by sludge application.

Dr. Robert Brinkmann, a soil expert at the University of South Florida, says sludge, which can be applied in cake or liquid form, saves ranchers money by pumping nitrogen, phosphorous and potassium into poor-quality soils.

"It's a good thing," Brinkmann said. "The addition of sludge greatly enhances the soil."

Though residents may have to tolerate more truck traffic or a slight odor, Brinkmann said when applied correctly — on land that meets the criteria, and in a manner that controls run-off and loading of nutrients and heavy metals — sludge "is not a bad thing. The pluses, in my opinion, outweigh the negatives."

Florida ranchers who use sludge as a replacement for commercial fertilizer agree.

Laurel cattle farmer Estil Balsinger couldn't be happier about sludge. "Makes the grass grow," he says.

Healthier grass, in turn, makes for healthier cows, says Sarasota rancher James Murphy.

"It lets you double up your cow count," Murphy says. "The cattle are fatter, prettier . . . To me, it's the only way to go, until there's a better deal."

The sludge that is poured on the nearly 24 approved sites in Manatee, Sarasota and Charlotte counties comes from sewage treatment plants from as far away as Naples, Key West and MacDill Air Force Base.

That means a profitable business for the hauling firms that transport it. The sewage plants pay the firms between $90 and $120 a truckload.

"The opposition all has to do with urban areas encroaching on agriculture," says Harris Bowers, general manager for J & J Baker Enterprises, Inc., one of Florida's largest transporters of sludge. "People have their dream little house, with 10 acres and a little garage. Then, one day they wake up and there's a tractor on the other side of the fence. Or a sludge truck.

"And they get all upset. But is the rancher expected to guarantee"

Not all ranchers are comfortable with sludge.

Tommy Taylor, who helps run the 13,000-acre Taylor Ranch south of Venice, says the ranch stopped accepting sludge in March 1994 because of uncertainty about heavy metal accumulation.

"Until we wait a few years and do some testing to make sure we're not creating a problem for the land, we're going to abstain from it," Taylor said.

"They don't anticipate we will have any problem (from sludge applied to 2,200 acres in the past) but there's just no guarantee."

Even ranchers who accept sludge warn that it's important to watch over haulers to make sure they're applying sludge properly.

"There are farmers out there who probably need to make their haulers more accountable," says Charlotte rancher Larry Hudson, whose 6,000-acre farm is Charlotte's only approved sludge-spreading site.

"I require that they put it out here properly because this is my investment. I can't afford for it to be damaged or polluted."

Hudson, who receives sludge from Charlotte County, Marco Island and Key West, once asked Charlotte County for protection against liability from the sludge. He also thinks that ranchers who are willing to accept sludge should be paid for it.

"My attitude is, I'm performing a public service by allowing utility companies to use my farm as a waste disposal site," he says. "I've told some of the ranchers in this area that if we close all of our gates and demand payment, we can bring all of the big utilities to their knees. We should be paid to accept this stuff. We've got to look for alternative sources of revenue, and one is using our land as a waste disposal site for sludge."

Words like that scare Zander, who says Florida's high water tables, sandy soil and plentiful wetlands spell disaster.

"Unless you stop the practice completely, you're going to end up with contaminated groundwater," Zander says, "and you'll never be able to clean it up."



MICHAEL WILSON/THE LEDGER, LAKELAND

Maria Sizemore, a Polk County resident who blames sludge for the health problems she's suffered since moving onto her ranchette in March 1991.

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(703) 237-CCHW
Publishes bimonthly: *Everyone's Backyard*

Help for Sewage Victims
2003 Panghorn Road
Lynden, WA 98264
(206) 354-3628

SUGGESTED READING

Angel, Bradley, Ann Leonard, Pat Costner, Jim Vallette and Joe Thornton. *Down the Drain, Down the River: Toxic Waste in the St. Louis and Sauget Sewer Systems*. Washington, D.C.: Greenpeace, September 19, 1988.

Thornton, Joe. *Down the Drain: Toxic Waste in Chicago's Sewer System*. Washington, D.C.: Greenpeace, August 8, 1988.

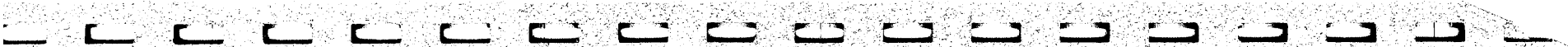
Thornton, Joe. *Down the Drain: Toxic Waste in the Twin Cities Sewer System*. Washington, D.C.: Greenpeace, August 28, 1988.

[All Greenpeace reports can be purchased from: Information Services, Greenpeace, U.S.A., 1436 U Street, N.W., Washington, DC 20009; phone: (202) 462-1177.]

Stauber, John C and Sheldon Rampton. Toxic Sludge is Good For You: Lies, Damn Lies and the Public Relations Industry. Monroe, Maine: Common Courage Press, 1995.

ATTACHMENT B

INFORMATION PROVIDED WITH COMMENT LETTER DD (MARY GOODWIN)



ODOR COMPLAINTS

(NOT INCLUSIVE)

COMPLAINT No. 97-033

MENDOCINO COUNTY
AIR QUALITY MANAGEMENT DISTRICT

COMPLAINT FORM

ALLEGED SOURCE:

Name Cold Creek Compost Phone 489-4826 Fac. ID _____

Location/Address Potter Valley Rd City P.V. Zip _____

Country Ranch

TYPE OF COMPLAINT: Smoke ___ Open Fire ___ Dust ___ Odors X Other _____

DESCRIPTION (when, where, what, who):

Date 3/18/97 Time 6:30PM Day of the Week Wednesday

Sickening sweet smell at complainant residence. Smelled Odor was difficult to describe but smelled like rotten organic matter - was extremely intense and extremely foul. Did not indicate that odor was present this morning before going to work

Complainant notified about findings: Yes X No ___ Date 3-19-97 phone

COMPLAINT RECEIVED:

DATE 3/19/97 TIME 8:20 (a.m.) (p.m.) RECEIVED BY R Steele

RECORDED MESSAGE	PERSONAL CALL X	REPORTED TO ARB ___	DATE ARB NOTIFIED AOMD	ARB REP

COMPLAINT No._____

MENDOCINO COUNTY
AIR QUALITY MANAGEMENT DISTRICT

COMPLAINT INVESTIGATION REPORT

FINDINGS:

Wind Direction: N___ S___ E___ W___ NE___ SE X NW___ SW___ 5-6 mph

Complaint forwarded to Environmental Health at 0845. Winds are again blowing from direction of Cold Creek Compost.

INVESTIGATION:

Investigated By_____ Date_____ Time_____(a.m., p.m.)

CONTACT:

Name_____ Phone_____

Address_____ City_____ Zip_____

SOURCE DISPOSITION: (circle one)

1 - Operating, No Violation
2 - Source Unknown
3 - Violation Issued: DATE ISSUED_____ NOV#_____
4 - Not Operating
5 - Incomplete

COMPLAINT No. 97-014

MENDOCINO COUNTY
AIR QUALITY MANAGEMENT DISTRICT

COMPLAINT FORM

ALLEGED SOURCE:

Name Cold Creek Compost Phone _____ Fac. ID _____

Location/Address _____ City _____ Zip _____

7300 Road F AKA Black Bart Trail, Redwood Valley

TYPE OF COMPLAINT: Smoke ___ Open Fire ___ Dust ___ Odors X Other _____

DESCRIPTION (when, where, what, who):

Date 1-28-97 Time 7 AM Day of the Week Tuesday

When I came out the house at 7am Tues ~~the~~ it smelt like a sewer line was busted somewhere (I don't have sewer line) I assumed it was C.C.C. I live approx 3/8 or ½ mile from there I see it from my bedroom window. I drove down the road it got worse, when I dropped elevation it was not as bad. And when I returned from taking kids to sch. It was really bad. It happen about 2 weeks ago

Complainant notified about findings: Yes ___ No X Date _____

COMPLAINT RECEIVED:

DATE 1-31-97 TIME 10:05 (a.m.) (p.m.) RECEIVED BY Diana

RECORDED MESSAGE ___ PERSONAL CALL ___ REPORTED TO ARB ___ DATE ARB NOTIFIED AQMD ___ ARB REP. ___

COMPLAINT NO._____

MENDOCINO COUNTY
AIR QUALITY MANAGEMENT DISTRICT

COMPLAINT INVESTIGATION REPORT

FINDINGS: 4-5 mph at Ukiah Station

Wind Direction: N___ S ✓ E___ W___ NE___ SE___ NW___ SW___

Complaint 2 days old - not investigated

AB-59 - forwarded to LEA

INVESTIGATION:

Investigated By_____ Date_____ Time_____(a.m., p.m.)

CONTACT:

Name_____ Phone_____

Address_____ City_____ Zip_____

SOURCE DISPOSITION: (circle one)

1 - Operating, No Violation
2 - Source Unknown
3 - Violation Issued: DATE ISSUED _____ NOV#_____
4 - Not Operating
5 - Incomplete

MENDOCINO COUNTY
AIR QUALITY MANAGEMENT DISTRICT

COMPLAINT FORM

ALLEGED SOURCE:

Name Cold Creek Compost Phone 983-6273 Fac. ID _____

Location/Address Guntly Ranch City P.V. Zip _____

TYPE OF COMPLAINT: Smoke___ Open Fire___ Dust___ Odors X Other_____

DESCRIPTION (when, where, what, who):

Date 1/29/97 Time 0830 Day of the Week Wed.

Smelled like a cesspool at complainants residence. Same odor at neighbor's ( ) residence. Odor was strong and still affecting the area when complainant left for work at 0915.

Stratus cloud layer approx. 2,000 ft. MSL. Good possibility of emissions to atmosphere below spreading out horizontally under

Complainant notified about findings: Yes ___ No X Date _____

COMPLAINT RECEIVED:

DATE 1/30/97 TIME 2:15 (a.m.) (p.m.) RECEIVED BY P. Fowle

RECORDED MESSAGE ___ PERSONAL CALL X REPORTED TO ARB ___ DATE ARB NOTIFIED AQMD ____ ARB REP. ___

COMPLAINANT:

COMPLAINT No._____

MENDOCINO COUNTY
AIR QUALITY MANAGEMENT DISTRICT

COMPLAINT INVESTIGATION REPORT

FINDINGS:

Wind Direction: N___ S___ E___ W___ NE✓ SE___ NW___ SW___

Wind 030° at ~ 2 mph at Ukiah Sta

Not investigated - 1½ days old
Due to provisions of AB59 giving authority
to LEA & precluding District from enforcing
Public nuisance laws if related to
composting facility - forwarded to LEA

INVESTIGATION:

Investigated By_____ Date_____ Time_____(a.m., p.m.)

CONTACT:

Name_____ Phone_____

Address_____ City_____ Zip_____

SOURCE DISPOSITION: (circle one)

1 - Operating, No Violation
2 - Source Unknown
3 - Violation Issued: DATE ISSUED _____ NOV#_____
4 - Not Operating
5 - Incomplete

COMPLAINT No. 97-004

MENDOCINO COUNTY
AIR QUALITY MANAGEMENT DISTRICT

COMPLAINT FORM

ALLEGED SOURCE:

Name Cold Creek Compost Phone _____ Fac. ID _____

Location/Address _____ City _____ Zip _____

TYPE OF COMPLAINT: Smoke ___ Open Fire ___ Dust ___ Odors X Other _____

DESCRIPTION (when, where, what, who):

Date 1-16-97 Time 4:00 Day of the Week Thursday

About 4ish my mother began to smell in the house that smelt poop and began to relize that it was coming from out side she went outside and it smelt stronger I got home at 5:30 ish and I could still smell it and at 6:30 it was very faint. A week ago ~~the~~ we the same thing happen

Complainant notified about findings: Yes ___ No X Date _____

COMPLAINT RECEIVED:

DATE 1-17-97 TIME 11:— (a.m.) (p.m.) RECEIVED BY Diane

RECORDED MESSAGE ___ PERSONAL CALL ___ REPORTED TO ARB ___ DATE ARB NOTIFIED AQMD ___ ARB REP. ___

COMPLAINANT:

MENDOCINO COUNTY
AIR QUALITY MANAGEMENT DISTRICT

COMPLAINT INVESTIGATION REPORT

FINDINGS: 4-5 mph at Ukiah Stat

Wind Direction: N___ S ✓ E___ W___ NE___ SE ✓ NW___ SW___

Unable to investigate condition.
~~after~~ after it had already dissipated
(Complaint called in 26 hours after
alleged occurance)

INVESTIGATION:

Investigated By_____ Date_____ Time_____(a.m., p.m.)

CONTACT:

Name_____ Phone_____

Address_____ City_____ Zip_____

SOURCE DISPOSITION: (circle one)

1 - Operating, No Violation
2 - Source Unknown
3 - Violation Issued: DATE ISSUED_____ NOV#_____
4 - Not Operating
5 - Incomplete

COMPLAINT INVESTIGATION REPORT

FINDINGS: Calm ... with down slope wind likely in evening

Wind Direction: N____ S____ E____ W____ NE____ SE____ NW____ SW____

Responded 4:30 PM Nov. 12, 1996 Was not able to smell any odor at Medders's residence at that time. Ms Medders seemed rational and believable, however Gave her my direct phone # and requested she call next time she smelled the odor.

INVESTIGATION:

Investigated By Ralph L. Lorle Date Nov. 12, 1996 Time 4:30 (a.m. p.m.)

CONTACT:

Name Ms Janet Medders Phone 743-1471

Address 7240 Potter Valley Rd City P.V. Zip____

SOURCE DISPOSITION: (circle one)

1 - Operating, No Violation
4 - Not Operating
2 - Source Unknown
5 - Incomplete
3 - Violation Issued: Date Issued____ Nov#____

MENDOCINO COUNTY
AIR QUALITY MANAGEMENT DISTRICT

COMPLAINT FORM

ALLEGED SOURCE:

Name Cold Creek Compost Phone 489-4976 Fac. ID _____

Location/Address Guntley Ranch City _____ Zip _____

Potter Valley

TYPE OF COMPLAINT: Smoke___ Open Fire___ Dust___ Odors X Other_____

DESCRIPTION (when, where, what, who):

Date 1/14/97 Time 4:40 PM Day of the Week Tuesday

reported extremely strong and obnoxious "human like smell" different and stronger than she had smelled before

Complainant notified about findings: Yes ___ No X Date _____

COMPLAINT RECEIVED:

DATE 1/14/97 TIME 4:40 (a.m.) (p.m.) RECEIVED BY Phil Towle

RECORDED MESSAGE ___ PERSONAL CALL ___ REPORTED TO ARB ___ DATE ARB NOTIFIED AQMD ___ ARB REP. ___

COMPLAINT No._____

MENDOCINO COUNTY
AIR QUALITY MANAGEMENT DISTRICT

COMPLAINT INVESTIGATION REPORT

FINDINGS: estimate 8-10 mph at site

Wind Direction: N___ S___ E___ W___ NE___ SE X NW___ SW___

I was not able to investigate this complaint on site. I did check winds at Ukiah Station - Winds were from SE at approx 7-8 mph. This is consistant with ~~previous~~ conditions during previous verified complaints. Based on previous interviews with ~~[redacted]~~ my indication is not to ~~[redacted]~~ contest the accuracy or veracity of complainants description

INVESTIGATION:

Investigated By R Bowle Date — Time — (a.m., p.m.)

CONTACT:

Name — _____ _____ Phone_____

Address_____ City_____ Zip_____

SOURCE DISPOSITION: (circle one)

1 - Operating, No Violation
2 - Source Unknown
3 - Violation Issued: DATE ISSUED _____ NOV#_____
4 - Not Operating
5 - Incomplete

MENDOCINO COUNTY
AIR QUALITY MANAGEMENT DISTRICT

COMPLAINT FORM

ALLEGED SOURCE:

Name Cold Creek Compost Phone _____ Fac. ID _____

Location/Address Huntley Ranch City _____ Zip _____

Eastside Potter Valley Rd

TYPE OF COMPLAINT: Smoke ___ Open Fire ___ Dust ___ Odors X Other _____

DESCRIPTION (when, where, what, who):

Date 1/13/97 Time 4:30PM Day of the Week Monday

reported sickening sweet odor at her residence. Odor was like the odor she had reported on 11/12/96 but not as strong as before

Complainant notified about findings: Yes ___ No X Date _____

COMPLAINT RECEIVED:

DATE 1/13/97 TIME 4:30 (a.m.) (p.m.) RECEIVED BY Phil Lowe

RECORDED MESSAGE ___ PERSONAL CALL X REPORTED TO ARB ___ DATE ARB NOTIFIED AQMD ___ ARB REP. ___

COMPLAINT NO._____

MENDOCINO COUNTY
AIR QUALITY MANAGEMENT DISTRICT

COMPLAINT INVESTIGATION REPORT

FINDINGS: 5-10 mph estimated

Wind Direction: N___ S___ E___ W___ NE___ SE ✓ NW___ SW___

Arrived residence at approximately 4:50 PM. I was able to smell what I would also describe as a sweet, ~~sickening~~ distinctly unpleasant odor. The odor was not strong or overpowering and after approx. 5 min exposure it was difficult to smell. I do not know whether this was because the odor was no longer present or because I had become desensitized to it. I agreed that the odor was not strong at the time I was there & not nearly as strong as it had been on previous occasions. Cold Creek Compost gate was closed & locked.

INVESTIGATION:

Investigated By Phil Towle Date 11/13/96 Time 4:50 (a.m., ~~p.m.~~)

CONTACT:

Name__ _____ Phone_____

Address_____ City_____ Zip_____

SOURCE DISPOSITION: (circle one)

1 - Operating, No Violation
2 - Source Unknown
3 - Violation Issued: DATE ISSUED _____ NOV#_____
4 - Not Operating
5 - Incomplete

COMPLAINT No. 10 15

MENDOCINO COUNTY
AIR QUALITY MANAGEMENT DISTRICT

COMPLAINT FORM

ALLEGED SOURCE:

Name Cold Creek Compost Inc. Phone _____ Fac. ID# _____

Address _____ City _____ Zip _____

Location 7240 Potter Valley Rd across the street

TYPE OF COMPLAINT: Smoke ___ Open Fire ___ Dust ___ Odors X Other _____

DESCRIPTION (when, where, what, who):

Date ~~Nov~~ 9,10,11 Time 4:30 to 8 ~~a.m.~~ p.m. Day of the Week Sat Sun Mon

For the past 3 nights Sat Sun Mon 9,10,11th There has been an extreemly Fowl smell from the compost facility to where you can't even go outside. My son and his friend smelt it and the neighbors smelt it too. This is not the first time it has happen. Just first time I called. I was really bad this time

Complainant notified about findings: Yes ____ No ____ Date _____ Method _____

COMPLAINT RECEIVED:

DATE 11-12-96 TIME 9:40 (a.m.) (p.m.) RECEIVED BY Diana Barker

RECORDED MESSAGE ____ PERSONAL CALL ____ REPORTED TO ARB ____ DATE ARB NOTIFIED AQMD _____ ARB REP. _____

COMPLAINT INVESTIGATION REPORT

FINDINGS: Calm with down slope winds likely in evening.

Wind Direction: N____ S____ E____ W____ NE____ SE____ NW____ SW____

Responded 4:30 PM Nov. 12, 1996 Was not able to smell any odor at residence at that time. Seemed rational and believable however. Gave her my direct phone # and requested she call next time she smelled the odor.

INVESTIGATION:

Investigated By Ralph A. Lorle Date Nov. 12, 1996 Time 4:30 (a.m. ~~p.m~~

CONTACT:

Name___ Phone ____

Address___ City___ Zip____

SOURCE DISPOSITION: (circle one)

1 - Operating, No Violation 4 - Not Operating

2 - Source Unknown 5 - Incomplete

3 - Violation Issued: Date Issued_____ Nov#_____

DUST AND NOISE COMPLAINTS

(NOT INCLUSIVE)

RAYMOND HALL
DIRECTOR

TELEPHONE
707-463-4281

FAX #
707-463-5709

COUNTY OF MENDOCINO
DEPARTMENT OF PLANNING AND BUILDING SERVICES
MAILING ADDRESS: COURTHOUSE
UKIAH, CALIFORNIA 95482

June 7, 1996

M&M Feed- Martin Mileck
74540 Hill Road
Covelo, Ca. 95428

Subject: Use Permit #U-26-93 Conditional Compliance

Dear Mr. Mileck,

This department has received a complaint alleging that the trucks used in your composting operation have been accessing the facility at all hours of the night in violation of condition B-17C which limits the hours of operation to Monday through Saturday, 7:00 a.m. to 6:00 p.m. The complainant further stated that trucks were observed drawing water from the river during the aforementioned unpermitted times.

This complaint was reviewed with Frank Zotter , Deputy County Counsel, who has advised that with the courts recent reversal in the pending civil case , the referenced Use Permit is considered in effect with all conditions thereof applicable.

This correspondence is not a notice of violation but is provided for your information relative to the status of the Use Permit and the necessity for compliance with the conditions

Please feel free to contact either Pam Townsend, Planner or me if you have any questions or comments.

Sincerely,

Dale Hawley
Code Enforcement Officer

cc: Frank Zotter, Dpty Co Co
Pam Townsend, Planner II

COMPLAINT No. 96-01

MENDOCINO COUNTY
AIR QUALITY MANAGEMENT DISTRICT

COMPLAINT FORM

ALLEGED SOURCE:

Name M&M Feed Phone 983-6273 Fac. ID#

Address 6000 Potter Valley Rd City Ukiah Zip 9548[illegible]

Location

TYPE OF COMPLAINT: Smoke ✓ Open Fire ___ Dust ___ Odors ✓ Other

DESCRIPTION (when, where, what, who):

Date 2/15/96 Time 10:35 (a.m.) p.m. Day of the Week Thurs.

Blue smoke & haze accompanied by ~~with~~ odor of burning garbage coming from "Quarry Mountain" (same mountain atop which M&M feed is located).

Complainant notified about findings: Yes ✓ No ___ Date 3-1-96 Method mail

COMPLAINT RECEIVED:

DATE 2-15-96 TIME _____ (a.m.) (p.m.) RECEIVED BY

RECORDED MESSAGE ✓ PERSONAL CALL ✓ REPORTED TO ARB DATE ARB NOTIFIED AOMD 2/15/96 ARB REP. PD

COMPLAINT No._____

COMPLAINT INVESTIGATION REPORT

FINDINGS:

Wind Direction: N____ S____ E____ W____ NE____ SE____ NW____ SW____ calm mostly occ slight breeze from

Arrived Potter Valley 11:00AM
Drove up Rd approx
3/10 mi. Had good view of
Quarry & mountain on opposite
side of ravine. Observed no blue
smoke or any other kind. No
odor whatsoever. Attempted to
to go up to Millicks Compost site.
gate was locked so it could not
proceed. Contacted Martin Mullick in
Covelo. He stated that two people were
at site but should not be doing anything
produce smoke. He would check and get back with
He also gave me combination to gate lock and said the
District was welcome to inspect site at anytime whether
employees were present or not.

INVESTIGATION:

Investigated By P. Steele Date_____ Time_____ (a.m., p.m.)

CONTACT: 2:30 PM. M. Millick returned call. Stated no burning or other activity at site. Mr. Guntley had told him there had been burning in P.V. proper earlier in the morning.

Name M. Millick Phone 983-6273

Address Owner City Covelo Zip ____

SOURCE DISPOSITION: (circle one)

1 - Operating, No Violation
4 - Not Operating
2 - Source Unknown
5 - Incomplete
3 - Violation Issued: Date Issued_____ Nov#_____

DUST AND NOISE COMPLAINTS

(NOT INCLUSIVE)

RAYMOND HALL
DIRECTOR

TELEPHONE
707-463-4281

FAX #
707-463-5709

COUNTY OF MENDOCINO
DEPARTMENT OF PLANNING AND BUILDING SERVICES
MAILING ADDRESS: COURTHOUSE
UKIAH, CALIFORNIA 95482

June 7, 1996

M&M Feed- Martin Mileck
74540 Hill Road
Covelo, Ca. 95428

Subject: Use Permit #U-26-93 Conditional Compliance

Dear Mr. Mileck,

This department has received a complaint alleging that the trucks used in your composting operation have been accessing the facility at all hours of the night in violation of condition B-17C which limits the hours of operation to Monday through Saturday, 7:00 a.m. to 6:00 p.m. The complainant further stated that trucks were observed drawing water from the river during the aforementioned unpermitted times.

This complaint was reviewed with Frank Zotter , Deputy County Counsel, who has advised that with the courts recent reversal in the pending civil case , the referenced Use Permit is considered in effect with all conditions thereof applicable.

This correspondence is not a notice of violation but is provided for your information relative to the status of the Use Permit and the necessity for compliance with the conditions

Please feel free to contact either Pam Townsend, Planner or me if you have any questions or comments.

Sincerely,

Dale Hawley
Code Enforcement Officer

cc: Frank Zotter, Dpty Co Co
Pam Townsend, Planner II

Cold Creek Compost, Inc.

M & M Feed and Supply, Inc.

JUN 1996

June 11, 1996

Dale Hawley
Code Enforcement Officer
Department of Planning and Building Services
Courthouse
Ukiah, CA 95482

Re: Your letter of June 7, 1996 regarding compliance with conditions of Use Permit #26-93.

Dear Mr. Hawley:

We have complied with condition B-17C which limits our hours of operation to specified times. In regards to the allegation concerning trucks drawing water from the river, we have not had a water truck on site for some time.

The Guntly property is a working ranch and the road by which we access our site is used for a variety of purposes unrelated to our operations. (Our facility is two miles from the entrance to the ranch property.) Of course, absent any specificity regarding the allegations it is impossible for us to respond in any greater detail.

Please find enclosed a copy of the form we make available to anyone who wishes to register a complaint about our operations. We have also explained to project opponents on a number of occasions the process for filing a complaint with responsible public agencies. In addition we have encouraged anyone who has a concern to contact our facility manager or any other member of the Cold Creek staff so that we may address any problem that might occur.

Some project opponents have repeatedly raised unsubstantiated allegations regarding our operations, as well as misrepresenting our operations in public forums and to local enforcement agencies. In the future it would be helpful if complainants provided some specificity if noncompliance with any of our permit conditions is alleged. In this instance, dates, times and identification of the vehicles involved would be helpful in determining the substance of the allegation.

Our first operational rule is to continue the Guntly's decades-long tradition of being good neighbors. Please don't hesitate to call should you have any questions or concerns and feel free to refer any complainant to our offices so we may deal directly with any potential problems.

Yours truly,

Martin Mileck

Martin Mileck

cc: Frank Zotter, Deputy County Counsel
Pam Townsend, Planner II

Cold Creek Compost

Public Complaint Form

Date _____

Taken by _____

Complainant (if available):

Name _____

Address _____

Phone _____

Nature of complaint (describe in detail):

Action(s) taken in response:

Cold Creek Compost, Inc.

M & M Feed and Supply, Inc.

RECEIVED
JUL 1 [illegible] 1996
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

July 9, 1996

Pamela Townsend
Department of Planning and Building Services
Courthouse
Ukiah, CA 95482

Re: Your memorandum of 7/2/96 regarding dust and noise complaints.

Dear Ms. Townsend:

Our contractor completed application of a dust palliative on the facility access road on Monday, July 8.

Regarding the use of jake brakes, it has been, and continues to be, our policy to minimize the use of jake brakes on the access road. However, the safe operation of our trucks sometimes requires their use. We are in compliance with the noise limitations as conditioned in our use permit.

We understand those who move into agricultural areas are sometimes surprised that agricultural operations often require the use of equipment and materials that would not be consistent with allowed uses in a residential neighborhood. We are ever mindful of our neighbors and do our best to operate as quietly and unobtrusively as possible. It is always helpful if complainants give specific information regarding what they consider to be bothersome incidents so we can investigate and, if possible, prevent future occurrences.

Yours truly,

Eric Anderson
General Manager

cc: Martin Mileck

Phil Towle, AQMD

12:15
6-28-96
JC

Pam

TELEPHONE
707-463-4281
FAX #
707-463-5709

G SERVICES

Janet Meaders
743-1471

Re: Dust & Jake Brakes at compost site - red Calrova road trailer 45'; blue Calrova pulls double trailer.

Called 7/1/96 left message

A lot of traffic in day without watering road.

both dust -
blue - jake brake -

DATE: July 2, 1996

g & Building Services

or Cold Creek Compost

ates that the dust on
I understand you
k. If not, the road

f jake brakes,
, is bothersome.

RAYMOND HALL
DIRECTOR

TELEPHON
707-463-428

FAX #
707-463-570

COUNTY OF MENDOCINO
DEPARTMENT OF PLANNING AND BUILDING SERVICES
MAILING ADDRESS: COURTHOUSE
UKIAH, CALIFORNIA 95482

MEMORANDUM

DATE: July 2, 1996

TO: Martin Mileck

FROM: Pamela Townsend, Planner II, Planning & Building Services

SUBJ: #U 26-93- Mileck/Guntly Use Permit for Cold Creek Compost

I received a call from a neighbor who indicates that the dust on the access road to this facility is severe. I understand you intend to apply a dust suppressant this week. If not, the road must be adequately watered to control dust.

The neighbor also complained that the use of jake brakes, particularly by the blue cab/double trailer, is bothersome.

Thank you for attending to these matters.

cc: Phil Towle, AQMD

DOCUMENTS SHOWING

MATERIALS BURNED BY MASONITE

HISTORICAL EMISSIONS EVALUATION FOR MASONITE CORPORATION'S UKIAH MILL

NOV 3 1993 from
Redacted - EPA

February 3, 1992

OCT 7 - 1993

Acurex Project 9565

Prepared For

Masonite Corporation
300 Ford Road
Ukiah, California 95482

By

Acurex Corporation
Environmental Systems Division
555 Clyde Avenue
P.O. Box 7044
Mountain View, California 94039

THIRD RESPONSE TO THE DECEMBER 17, 1991 LETTER FROM THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY TO MASONITE CORPORATION

Acurex Environmental Corporation (Acurex) was retained to assemble, review, and develop emissions data as requested by the U.S. Environmental Protection Agency ("EPA") in its December 17, 1991 letter to Masonite Corporation, ("Masonite"). The request for information pertains to Masonite's hardboard facility in Ukiah, California (the "Facility"). The information in this document is presented in response to Request Nos. 4, 5, 6, 7, 8, 26, 27, and 29 as set forth in EPA's December 17, 1991 letter. In addition, partial responses to Request Nos. 11, 12, and 13 are provided herein to the extent such responses support each of the EPA's substantive requests for information that are addressed in this report.

In preparing this report, Acurex has reviewed files of the Facility and files of the Mendocino County Air Pollution Control District ("MCAPCD"). Acurex also has interviewed certain current Masonite employees at the Facility, including Mr. Lauren Beuving, Engineering Manager; Mr. Jim Pollitz, Controller; Mr. Robert Scaglione, Environmental Engineer; and Mr. David Tucker, Environmental Engineer to obtain information with which to prepare this report. Acurex has received direction from the law firm of McCutchen, Doyle, Brown & Enersen regarding the appropriate presentation of the responses.

The Facility consists of various point sources that are grouped for emission evaluation purposes into the following categories:

- BOILERS—Operation of three boilers and associated fuel storage and transfer equipment
- FIBER PREP—Wood processing, digestion and resin addition
- PRESDWOOD—Siding and roofing products line, including forming and presses

- Door products line, including forming, drying, treating, and tempering:
  - DUOLUX—In operation prior to November 1990
  - Molded Products Line (MPL)—Initial shakedown commencing November 1989; initial operation commencing in February 1990
- COATING—Coating, buffing, and painting operations
- CUTTING—Sawing equipment and dust collection systems

The air contaminants of interest are those identified in MCAPCD Rule 130 that are present in emissions from the Facility. These contaminants are carbon monoxide (CO), oxides of nitrogen (NO_x), sulfur dioxide (SO_2), particulate matter (PM), particulate matter less than 10 micrometers aerodynamic diameter (PM10), and volatile organic compounds (VOCs).

Data or emission factors were generally unavailable for the evaluation of PM10 emissions. Engineering judgment suggests that the PM emissions from the Facility will include PM10 emissions.

The responses to Request Nos. 4 through 8 generally are organized as follows:

1. MCAPCD Calculations
2. Acurex Evaluations
3. Comparison between MCAPCD and Acurex results

CONFIDENTIAL
ATTORNEY-CLIENT PRIVILEGED

MCAPCD Boiler Emission Calculations, Masonite Corp, 1988

Source	Process (Units)	Year Total Quantity	VOCs		PM		NO_x		SO_x		CO	
			Factor lbs/unit	Tons Emitted	Factor lbs/unit	Tons Emitted	Factor lbs/unit	Tons Emitted	Factor lbs/unit	Tons Emitted	Factor lbs/unit	Tons Emitted
Boiler #1	Gas (10[6] CF)	2.4	5.8[a]	0.01	3.0[a]	0.00	140[a]	0.2	0.6[a]	0.0	35[a]	0.0[m]
	Oil (1.1 S) (10[3] Gal.)	1,029.4	1.3[b]	0.67[m]	14[b]	7.21	55[b]	28.3	174.9[b]	90.0	5[b]	2.6
		TOTALS		0.68[m]		7.21		28.5		90.0		2.6
Boiler #2	Gas (10[6] CF)	8.6	5.8[a]	0.02	3.0[a]	0.01	140[a]	0.6	0.6[a]	0.0	35[a]	0.2[m]
	Oil (1.1 S) (10[3] Gal.)	1,610.1	1.3[b]	1.05[m]	14[b]	11.27	55[b]	44.3	174.9[b]	140.8	5[b]	4.0
		TOTALS		1.07[m]		11.28[m]		44.9		140.8		4.2[m]
Boiler #4	Gas (10[6] CF)	30.8	5.8[a]	0.09[m]	Source Test	65.23	140[a]	2.2[l]	0.6[a]	0.0	35[a]	0.5[m]
	Oil (1.1 S) (10[3] Gal.)	1,517.3	1.3[b]	0.99	18.0[d]		55[b]	41.7	174.9[b]	132.7	5[b]	3.8
	Wood (Tons)	77,595	1.7[a]	65.98	lb/hr		2[c]	77.6	0.15[a]	5.8	10[a]	388.0
(302 days)	7,248 hrs	TOTALS		67.04[m]		65.23		121.5[m]		138.6		392.3[m]
BOILERS TOTAL				68.79[m]		83.72		194.9[m]		369.3		399.1[m]

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MCAPCD Boiler Emission Calculations, Masonite Corp, 1989

Source	Process (Units)	Year Total Quantity	VOCs		PM		NO_x		SO_x		CO	
			Factor lbs/unit	Tons Emitted	Factor lbs/unit	Tons Emitted	Factor lbs/unit	Tons Emitted	Factor lbs/unit	Tons Emitted	Factor lbs/unit	Tons Emitted
Boiler #1	Gas (10^6 CF)	0.0	2.8[l]	0.0	3.0[l]	0.0	140[l]	0.0	0.6[l]	0.0	35[l]	0.0
	Oil (0.83 S) (10^3 Gal.)	754.2	1.3[h]	0.5	11.3[h]	4.3	55[h]	20.7	131.97[h]	49.8	5[h]	1.9[m]
		TOTALS		0.5		4.3		20.7		49.8		1.9[m]
Boiler #2	Gas (10^6 CF)	0.0	2.8[l]	0.0	3.0[l]	0.0	140[l]	0.0	0.6[l]	0.0	35[l]	0.0
	Oil (0.83 S) (10^3 Gal.)	1,812.8	1.3[h]	1.2	11.3[h]	10.2	55[h]	49.9	131.97[h]	119.6	5[h]	4.5
		TOTALS		1.2		10.2		49.9		119.6		4.5
Boiler #4	Gas (10^6 CF)	48.0	1.4[k]	0.0	Source Test	75.6	140[k]	3.4[m]	0.6[k]	0.0	35[k]	0.8
	Oil (0.83 S) (10^3 Gal.)	1,232.6	1.3[h]	0.8	18.0[d]		55[h]	33.9	131.97[h]	81.3	5[h]	3.1
	Wood (Tons)	78,608	1.7[e]	66.8	lb/hr		2[e]	78.6	0.15[e]	5.9[m]	10[e]	393.0
(350 days)	8,400 hrs	TOTALS		67.6		75.6		115.9[m]		87.2[m]		398.9
BOILERS TOTAL				69.3		90.1[m]		186.5[m]		256.6[m]		403.3

By L. J. Laubenheimer, ACUREX

BOILER CALCULATIONS.

Heating values: (based on equivalent heat, U.S. Forest Service table)

1 x 10E6 CuFt natural gas = 1.05E+09 Btu => 1050 MMBtu/10E6 CuFt Natural gas

= 6.29 x 10 E3 gal. #6 fuel oil = 1.05E+09 Btu => 166.93163 MMBtu/10 E3 Gal #6 fuel oil

= 92 tons wood chips, dust & bark = 1.05E+09 Btu => 11.413043 MMBtu/ton wood (50% moisture)

Maximum days per year of operation is 359: 365 days per year minus 3 days Christmas shutdown (contractual requirement) and 3 days (inspection shutdown)

Natural Gas factors: Table 1.4-1, AP-42. Oil factors: Table 1.3-1, AP-42. Wood factors: Table 1.6-1, AP-42 or 1980 source test data

Sulfur content of fuel oil restricted to a maximum of 1.4%, based on boiler #1 & #2 permits.

PM factor for wood based on bark, multiclone with flyash reinject, at 50% moisture = 14 lb/ton

SO2 factor for wood is the midrange of table & assumes a heating value of approximately 9000 Btu/lb (bone dry).

NOx & CO factors for wood are based on 1980 source test data

Boiler #4 scrubber PM removal: 94%; Emission factor = 0.06
from "Electric Utility Steam Generating Units: Background Information for Proposed SO2 Emission Standards", EPA-450/2-78-007a, 1978

Boiler #4 scrubber SO2 removal: 50%; Emission factor = 0.5
from "CRC Handbook of Environmental Control, Vol I: Air Pollution", Bond & Straub, p417

Actual boiler fuel usage and operating days data is from reports to MCAPCD. The wood numbers differ from the Masonite "Selected Historical Data", 1/11/92. The 1988 and 1990 wood usage numbers match exactly, the 1983 and 1984 numbers are less than reported and the 1985, 1986, 1987, and 1991 numbers are greater.

Current maximum heat from wood in Boiler #4 is 150,000 lb steam/hr x 1,103 Btu/lb steam = 165.45 MMBtu/hr

Potential wood usage in bone dry tons (BDT) = (MMBtu/hour x hrs/year)/(MMBtu/wet ton x wet tons/BDT). Wet ton/BDT = 1.5 at 50% moisture.

Potential natural gas and oil usage = (MMBtu/hour x hrs/year)/(MMBtu/unit).

1201-2

Boiler actual emission calculations

By L. J. Laubenheimer, ACUREX

Boiler	Fuel	Units	Year Qty	VOC lbs/unit	Tons VOC	PM lbs/unit	Tons PM	NOx lbs/unit	Tons NOx	SO2 lbs/unit	Tons SO2	CO lbs/unit	Tons CO	Days/yr	Hrs/yr	MMBtu/hr
#1	Natural Gas	10 E6 CuFt	24	2.8	0.03	3	0.04	140	1.71	0.6	0.01	35	0.43	40	960	26.8
	Oil %S = 1.1	10 E3 Gal.	564	0.28	0.08	14	3.95	55	15.51	172.7	48.70	5	1.41	40	960	98.1
					0.11		3.98		17.22		48.71		1.84			124.8
#2	Natural Gas	10 E6 CuFt	79	2.8	0.11	3	0.12	140	5.50	0.6	0.02	35	1.37	120	2,880	28.6
	Oil %S = 1.1	10 E3 Gal.	1,695	0.28	0.24	14	11.86	55	46.61	172.7	146.35	5	4.24	120	2,880	98.2
					0.35		11.98		52.11		146.38		5.61			126.9
#4	Natural Gas	10 E6 CuFt	113	2.8	0.16	3	0.17	140	7.92	0.6	0.03	35	1.98	345	8,280	14.3
	Oil %S = 1.1	10 E3 Gal.	1,190	0.28	0.17	14	8.33	55	32.72	172.7	102.75	5	2.97	345	8,280	24.0
	Wood (Dry)	Tons (BDT)	71,000	1.4	49.70	14	497.00	3.8	134.90	0.21	7.46	6.1	216.55	345	8,280	146.8
					50.02		505.50		175.54		110.24		221.50		Total:	185.1
					scrubber:	0.06	30.33			0.5	55.12				Wood rate	8.57 tons/hr

Page ___ of ___

Boiler actual emission calculations

1987

By L. J. Lauhenheimer, ACUREX

Boiler	Fuel	Units	Year Qty	VOC lbs/unit	VOC Tons VOC	PM lbs/unit	PM Tons PM	NOx lbs/unit	NOx Tons NOx	SO2 lbs/unit	SO2 Tons SO2	CO lbs/unit	CO Tons CO	Days/yr	Hrs/yr	MMBtu/hr
#1	Natural Gas	10 E6 CuFt	63	2.8	0.09	3	0.09	140	4.40	0.6	0.02	35	1.10	95	2,280	28.9
	Oil %S = 1	10 E3 Gal.	39	0.28	0.01	13	0.25	55	1.07	157	3.04	5	0.10	95	2,280	2.8
					0.09		0.35		5.46		3.06		1.20			31.8
#2	Natural Gas	10 E6 CuFt	203	2.8	0.28	3	0.30	140	14.19	0.6	0.06	35	3.55	120	2,880	73.9
	Oil %S = 1	10 E3 Gal.	168	0.28	0.02	13	1.09	55	4.61	157	13.16	5	0.42	120	2,880	9.7
					0.31		1.39		18.80		13.22		3.97			83.6
#4	Natural Gas	10 E6 CuFt	224	2.8	0.31	3	0.34	140	15.66	0.6	0.07	35	3.92	330	7,920	29.7
	Oil %S = 1	10 E3 Gal.	148	0.28	0.02	13	0.96	55	4.08	157	11.65	5	0.37	330	7,920	3.1
	Wood (Dry)	Tons (BDT)	61,433	1.4	43.00	14	430.03	3.8	116.72	0.21	6.45	6.1	187.37	330	7,920	132.8
					43.34		431.33		136.47		18.17		191.66		Total:	165.6
					scrubber:	0.06	25.88			0.5	9.08				Wood rate	7.76 tons/hr

120

1990

By L. J. Laubenheimer, ACUREX

1990 boiler actual emission calculations

Boiler	Fuel	Units	Year Qty	VOC lbs/unit	Tons VOC	PM lbs/unit	Tons PM	NOx lbs/unit	Tons NOx	SO2 lbs/unit	Tons SO2	CO lbs/unit	Tons CO	Days/yr	Hrs/yr	MMBtu/hr
#1	Natural Gas	10 E6 CuFt	68	2.8	0.10	3	0.10	140	4.76	0.6	0.02	35	1.19	58	1,392	51.3
	Oil XS =	1 10 E3 Gal.	454	0.28	0.06	13	2.95	55	12.48	157	35.63	5	1.13	58	1,392	54.4
					0.16		3.05		17.24		35.65		2.32			105.7
#2	Natural Gas	10 E6 CuFt	53	2.8	0.07	3	0.08	140	3.73	0.6	0.02	35	0.93	123	2,952	19.0
	Oil XS =	1 10 E3 Gal.	967	0.28	0.14	13	6.29	55	26.60	157	75.94	5	2.42	123	2,952	54.7
					0.21		6.37		30.33		75.95		3.35			73.7
#4	Natural Gas	10 E6 CuFt	94	2.8	0.13	3	0.14	140	6.59	0.6	0.03	35	1.65	345	8,280	11.9
	Oil XS =	1 10 E3 Gal.	521	0.28	0.07	13	3.38	55	14.31	157	40.86	5	1.30	345	8,280	10.5
	Wood (Dry)	Tons (BDT)	76,351	1.4	53.45	14	534.46	3.8	145.07	0.21	8.02	6.1	232.87	345	8,280	157.9
					53.65		537.98		165.97		48.91		235.82		Total:	180.3
					scrubber:	0.06	32.28			0.5	24.45				Wood rate	9.22 tons/hr

Boiler actual emission calculations

1991

By L. J. Laubenheimer, ACUREX

Boiler	Fuel	Units	Year Qty	VOC lbs/unit	VOC Tons VOC	PM lbs/unit	PM Tons PM	NOx lbs/unit	NOx Tons NOx	SO2 lbs/unit	SO2 Tons SO2	CO lbs/unit	CO Tons CO	Days/yr	Hrs/yr	MMBtu/hr
#1	Natural Gas	10 E6 CuFt	131	2.8	0.18	3	0.20	140	9.14	0.6	0.04	35	2.29	187	4,488	30.6
	Oil %S =	1 10 E3 Gal.	61	0.28	0.01	13	0.40	55	1.68	157	4.79	5	0.15	187	4,488	2.3
					0.19		0.59		10.82		4.83		2.44			32.8
#2	Natural Gas	10 E6 CuFt	25	2.8	0.03	3	0.04	140	1.74	0.6	0.01	35	0.44	31	744	35.1
	Oil %S =	1 10 E3 Gal.	41	0.28	0.01	13	0.26	55	1.12	157	3.19	5	0.10	31	744	9.1
					0.04		0.30		2.86		3.20		0.54			44.2
#4	Natural Gas	10 E6 CuFt	97	2.8	0.14	3	0.14	140	6.76	0.6	0.03	35	1.69	370	8,880	11.4
	Oil %S =	1 10 E3 Gal.	3,480	0.28	0.49	13	22.62	55	95.71	157	273.21	5	8.70	370	8,880	65.4
	Wood (Dry)	Tons (BDT)	47,954	1.4	33.57	14	335.68	3.8	91.11	0.21	5.04	6.1	146.26	370	8,880	92.4
					34.19		358.45		193.58		278.28		156.65		Total:	169.3
					scrubber:	0.06	21.51			0.5	139.14				Wood rate	5.40 tons/hr

9-1021

By L. J. Laubenheimer, ACUREX

BOILER #1: POTENTIAL EMISSION CALCULATIONS

Boiler	Fuel	Units	Year Qty	VOC lbs/unit	VOC Tons VOC	PM lbs/unit	PM Tons PM	NOx lbs/unit	NOx Tons NOx	SO2 lbs/unit	SO2 Tons SO2	CO lbs/unit	CO Tons CO	Days/yr	Hrs/yr	MMBtu/hr
#1	Natural Gas	10 E6 CuFt	122	2.8	0.17	3	0.18	140	8.52	0.6	0.04	35	2.13	359	8.616	14.8
	Oil XS = 1.4 10 E3 Gal.		5.170	0.28	0.72	17	43.94	55	142.16	219.8	568.14	5	12.92	359	8.616	100.2
	600 gallons/hr permit max				0.89		44.12		150.69		568.18		15.06	359	8.616	115.0
* Fuel oil at permit maximum value, balance gas																

BOILER #2: POTENTIAL EMISSION CALCULATIONS

Boiler	Fuel	Units	Year Qty	VOC lbs/unit	VOC Tons VOC	PM lbs/unit	PM Tons PM	NOx lbs/unit	NOx Tons NOx	SO2 lbs/unit	SO2 Tons SO2	CO lbs/unit	CO Tons CO	Days/yr	Hrs/yr	MMBtu/hr
#2	Natural Gas	10 E6 CuFt	122	2.8	0.17	3	0.18	140	8.52	0.6	0.04	35	2.13	359	8.616	14.8
	Oil XS = 1.4 10 E3 Gal.		5.170	0.28	0.72	17	43.94	55	142.16	219.8	568.14	5	12.92	359	8.616	100.2
	Permit max: 600 gallons/hr				0.89		44.12		150.69		568.18		15.06	359	8.616	115.0
Fuel oil at permit maximum value, balance gas																

LER #4: POTENTIAL EMISSION CALCULATIONS

ler	Fuel	Units	Year Qty	VOC lbs/unit	VOC Tons VOC	PM lbs/unit	PM Tons PM	NOx lbs/unit	NOx Tons NOx	SO2 lbs/unit	SO2 Tons SO2	CO lbs/unit	CO Tons CO	Days/yr	Hrs/yr	MMBtu/hr
t	Oil XS = 1.4 10 E3 Gal.		3,590	0.28	0.50	17	30.51	55	98.72	219.8	394.51	5	8.97	359	8.616	69.55
	Wood (Dry)	Tons (BDT)	83,268	1.4	58.29	14	582.88	3.8	158.21	0.21	8.74	6.1	253.97	359	8.616	165.45
ximum wood, remainder oil, no natural gas					58.79		613.39		256.93		403.26		262.94		Total:	235.0
CTED CASE for 1986 through 11/91 **					scrubber:	0.06	36.80			0.5	201.63				Wood rate	9.66 tons/hr
	Natural Gas	10 E6 CuFt	0	2.8	0.00	3	0.00	140	0.00	0.6	0.00	35	0.00	359	8.616	0
	Oil XS = 1.4 10 E3 Gal.		6,671	0.28	0.93	17	56.70	55	183.46	219.8	733.15	5	16.68	359	8.616	129.25
	Wood (Dry)	Tons (BDT)	53,222	1.4	37.26	14	372.56	3.8	101.12	0.21	5.59	6.1	162.33	359	8.616	105.75
Btus from fuel oil, 25% bark, 20% wood waste					38.19		429.26		284.58		738.74		179.01		Total:	235.0
ED CASE for 11/91-8/92 (Abatement Order)					scrubber:	0.06	25.76			0.5	369.37				Wood rate	6.18 tons/hr

1021

EMISSION CALCULATIONS
SUMMARY - 1980

Tons per year

SOURCE	PROCESS	HC		PM		NO_x		SO_x		CO	
		FACTOR	EM	FACTOR	EM	FACTOR	EM	FACTOR	EM	FACTOR	EM
Boiler 1. (280 days) 77,100 lb/hr ave.	$4,126 \times 10^3$ gals oil #6	1 lb/10^3 gals	2	10(S)+3 = 23 lb/10^3 gal	47	60 lb/10^3 gal	124	S=2.0 310 lb/10^3 gal	656	5 lb/10^3 gals	10
Boiler 2 (180 days) 75,900 lb/hr ave	$2,653 \times 10^3$ gals oil #6	"	1	"	31	"	80	"	422	"	7
Boiler 3 (25 days) 27,000 lb/hr ave.	330×10^3 gals oil #6	"	0	"	4	"	10	"	53	"	1
Boiler 4b 340 days 31,000 lb/hr ave	903×10^3 gals oil #6	"	1	max. all. 27.5 lb/hr	112	"	27	"	144	"	2
	81,530 tons wood	4 lb/ton	163			2 lb/ton	81	.02 lb/ 10^6 BTU	15	10 lb/ton	407
TOTAL PLANT			164		112		108		159		409
			167		194		322		1290		427

MASONITE CORP.
EMISSION CALCULATIONS - 1987

TONS PER YEAR

SOURCE	PROCESS	HC		PM		NO_x		SO_x		CO	
		FACTOR	EM	FACTOR	EM	FACTOR	EM	FACTOR	EM	FACTOR	EM
Boiler 1	62.8 x 10^6 CF Gas	5.8 lb/10^6	0.2	2 lb/10^6	0.1	140 lb/10^6	4.4	0.6 lb/10^6	—	35 lb/10^6	1.1
	38.4 x 10^3 gals. oil @ 0.82 % S	1.3 lb/10^3	—	10 lb/10^3	0.2	55 lb/10^3	1.1	157 S lb/10^3	2.5	5 lb/10^3	0.1
95 days	TOTALS		0.2		0.3		5.5		2.5		1.2
Boiler 2	203.2 x 10^6 CF Gas	5.8 lb/10^6	0.6	2 lb/10^6	0.2	140 lb/10^6	14.2	0.6 lb/mcf	0.1	35 lb/10^6	3.6
	167.7 x 10^3 gals. oil @ 0.82 % S	1.3 lb/10^3	0.1	10 lb/10^3	0.8	55 lb/10^3	4.6	157 S lb/10^3	10.9	5 lb/10^3	0.4
120 days	TOTALS		0.7		1.0		18.8		11.0		3.9
Boiler 4	223.7 x 10^6 CF Gas	5.8 lb/10^6	0.6	18 lb/hr Test data		140 lb/10^6	15.7	0.6 lb/10^6	0.1	35 lb/10^6	3.9
	148.4 x 10^3 gals. oil @ 0.82 % S	1.3 lb/10^3	0.1			55 lb/10^3	4.1	157 S lb/10^3	9.7	5 lb/10^3	0.4
	61,433 Tons dry wood	2 lb/T	61.4			2 lb/T	61.4	—	—	10 lb/T	307
330 days	TOTALS		62.1		71.3		81.2		9.8		311
BOILERS	TOTALS		63.0		72.6		105.5		23.3		316.
YARD PROCESS			0.4		110.1		6.5		—		1.
PLANT TOTAL			63.4		182.7		111.0		23.3		317

Magnesite 1988 Major Emission Assessment

EMISSION CALCULATIONS

Distinct calculated fuel use

TONS PER YEAR

SOURCE	PROCESS	HC		PM		NO_x		SO_x : 1.1%		CO	
		FACTOR	EM/t	FACTOR	EM	FACTOR	EM	FACTOR	EM	FACTOR	EI
ler #1	2.4×10^6 CF Gas	5.8 lb/10^6	—	31 lb/10^6	—	140 lb/10^6	0.2t	0.6 lb/10^6	—	35 lb/10^6	0.1
	1029.4×10^3 gal Oil @ 1.15	1.3 lb/10^3 g		14 lb/10^3 g	7.2t	55 lb/10^3 g	28.3t	1595 = 174.9 lb/10^3 g	90.0	5 lb/10^3 g	2.6
	Total		0.6t		7.2t		28.5t		90.0		2.6
#2 ler	8.6×10^6 CF gas	5.8 lb/10^6	.02	31 lb/10^6	0.01	140 lb/10^6	0.6	0.6 lb/10^6	—	35 lb/10^6	0.1
	1610.1×10^3 gal Oil @ 1.15	1.3 lb/10^3 g	1.04	14 lb/10^3 g	11.3	55 lb/10^3 g	44.2	1595 = 174.9 lb/10^3 g	140.8	5 lb/10^3 g	4.0
	Total		1.06		11.31		44.8		140.8		4.17
ler # 4	30.8×10^6 CF gas	5.8 lb/	—			140		0.6	—	35	0.1
	1517.3×10^3 gal Oil @ 1.15	1.3	0.99			55	41.7	1595 = 174.9	132.7	5	3.8
	77,595 t dry wood	1.7 lb/t	65.9			2 lb/t	77.6	0.15 lb/ton	5.8	10 lb/t	358.6
lers	Totals		66.89		65.2		119.7		138.5		391.9
Process			68.6		83.71		193.0		369.3		398.1
Total			0.4		110.0 (113.9 mm/100)		0.6				0.1
			69.0		193.7		193.6		369.3		

Natural Gas usage - Total plant 55185 MCF

Boilers 41821 MCF

TSP (lb/10^6CF) = ...

NO_x (100 lb/10^6CF) = ...

1989

EMISSION CALCULATIONS — Assessment

District calculated fuel use

TONS PER YEAR

SOURCE	PROCESS	HC FACTOR	HC EM	PM FACTOR	PM EM	NO_x FACTOR	NO_x EM	SO_x FACTOR	SO_x EM	CO FACTOR	CO EM
Boiler #1	Gas 0.0	① 2.8 lb/10^6 ft³	—	3 lb/10^6 ft³	—	140 lb/10^6 ft³	—	0.6 lb/10^6 ft³	—	35 lb/10^6 ft³	—
	Oil @ 0.835 754.2 × 10^3	1.3 lb/10^3 gal	0.5t	11.3 lb/10^3 gal *	4.3t	55 lb/10^3 gal	20.7t	159 (S) = 131.97	49.8t	5 lb/10^3 gal	1.
	Total		0.5t		4.3t		20.7t		49.8t		1.
Boiler #2	Gas 0.0	—									
	Oil @ 0.835 1,812.8 × 10^3	1.3/10^3 gal	1.2t	11.3	10.2t	55	49.9t	131.97	119.6t	5	4.
	Total		1.2t		10.2t		49.9t		119.6		4.
Boiler #4	Gas 48.0 × 10^6 ft³	① (1.4) lb/10^6 ft³	0.0	[redacted]		140 lb/10^6 ft³	3.3t	0.6 lb/10^6 ft³	—	35 lb/10^6 ft³	.8
	Oil @ 0.835 1232.6 × 10^3 (80)	1.3	0.8t	[redacted]		55	33.9t	131.97	81.3t	5	3.1
	78,608 tons	1.7 lb/t	66.8t	50 lb/hr		21 lb/t	78.6	0.15 lb/ton	5.8	101 lb/t	39
	Total [redacted]	HC	67.6t	PM	75.6	NO_x	115.8	SO_x	87.1	CO	37.
Boilers Total			69.3t		90.2t		186.4t		256.5t		10
f Process & Nat. Gas Overall	Gas 27.5 × 10^6 ft³	2.8 lb/10^6 ft³	—	1.5 ± .48 lb/hr from TAPS	133.8	140 lb/10^6	1.9	0.6 lb/10^6	0	35 lb/10^6	0
Tal. Plant			69.3		224.0		188.3		256.5		10
ecting Facility			91.2	Boiler Production —			19,259 tons DLK	E.F. Process (TAD)			
gas total 75520			160.5				115,575 tons RWD	× 134,834 = 20%			
-48012							134,834 tons	= 32.7 tons			
27,508								Process, TAD · 1.5 =			
								101.1 + 32.7			

* PM for Residual oil from AP-42 1.3-2 note 'g' [10(S) + 3 lb/10^3 gal] = 11.3 0.835 ①

① AP-42 1.4-1 & SCC 1-02-004-01

EMISSION CALCULATIONS 1990

Distinct calculated fuel use

TONS PER YEAR

SOURCE	PROCESS	HC		PM		NO_x		SO_x		CO	
		FACTOR	EM	FACTOR	EM	FACTOR	EM	FACTOR	EM	FACTOR	EM
ler #1	67.0 x 10^6 Gas used	2.8 lb/10^6	<.1	3 lb/10^6	<.1	140 lb/10^6	4.7	0.6/10^6	<.1	35 lb/10^6	<.1
	Oil @ .5% S 453.9 x 10^3	1.3 lb/10^3	0.3	8.7 lb/10^3 gal	2.0	55 lb/10^3	12.5	154(S) = 99.9	22.6	5 lb/10^3	1.1
	Total		0.3		2.0		17.2		22.6		1.1
ler #2	Gas 53.27 x 10^6		<.1		<.1		3.7		<.1		<.1
	967.3 x 10^3	1.3	0.6	8.7	4.2	55	26.6	99.9	4.8	5	2.4
	Total		0.6		4.2		29.3		4.9		2.4
ler #4	Gas 91.2 x 106	2.8	-	Source Test 24.9 lb/hr		140	6.5	0.6/10^6	-	35 lb/10^6	-
	Bit 520.5 x 10^3	1.3 lb/10^3	0.3			55	14.3	99.6	25.4	5	1.3
y# = 8280	Wood 76,350	1.7 lb/t	64.9		103.1	2.1 lb/t	76.3	0.15 lb/t	5.7	101 lb/t	381.8
			65.2		103.1		96.1		30.1	81.3	382.1
Total			66.1	lbs / Tons	109.3		142.6		101.8 93.1		385.6
ocess & Nat. Gas Dryer	Gas 165.2 x 10^6 ft^3	2.8 lb/10^6	0	1.5 per Prod (TAP) .486 lb/ton plant	115.1	140	11.5	0.6	0	35	2.8
Plant			66.1		212.4		154.1		401.8		388.4
ng Facility			91.2								
			157.3								

Sulfur content ≈ 0.6 %

Turnaround document from APCD Data Clerk

Board Production = 115,855 tons

Press = $\frac{\times .486}{2000}$ = 28.2 tons

Press = $\frac{\times 1.5}{2000}$ = 86.9 "

ASSEMBLY BILL 2588
AIR TOXIC EMISSION INVENTORY REPORT FOR 1989, 1991, AND 1992 FOR MASONITE CORPORATION, UKIAH, CALIFORNIA, MILL

Volume I

REDACTED

SEP 27 1994

September 22, 1992

Acurex Environmental Project 6655

Prepared For

Masonite Corporation
300 Ford Road
Ukiah, California 95482

By

Acurex Environmental Corporation
555 Clyde Avenue
P.O. Box 7044
Mountain View, California 94039

1266-11

DESCHUTES COUNTY
AIR POLLUTION CONTROL DISTRICT

STEAM PRODUCTION AND/OR FUEL USEAGE

For 1989 Calendar Year

Company Name Masonite Corporation

BOILER	No. 1	No. 2	No. 3	No. 4
Steam Production (pounds)	95,917,000	230,552,000	---	1,370,265,000
No. Days Operated	72	148		350
Fuels Used				
Natural Gas (MCF)				48,012
Oil (Gallons) type # 16 % Sulphur <1%	754,175	1,812,791		1,232,607
Wood (Bone-dry Tons)	0	0		26,923 Dust 51,685 Bark

PRODUCTION: Species Doors 45,000,000 MBF 142 Operating Days

Siding 354,000,000 MBF 343 Operating Days

LEGACY KILN ~~MBF~~ 104 Operating Days

_____ MBF _____ Operating Days

APCD 207.7.02

126-1

MENDOCINO COUNTY
AIR POLLUTION CONTROL DISTRICT

STEAM PRODUCTION AND/OR FUEL USEAGE

For 1991 Calendar Year

1st Quarter Quarters
April — Entire Year (1, 2, 3, 4)

Company Name MASONITE CORPORATION

BOILER	No. 1	No. 2	No. 3	No. 4
Steam Production				
(pounds)	16,238,056 (161,252,464)	9,663,072 (21,254,480)	----------	347,577,600 (1,297,089,300)
No. Days Operated	28 (187)	16 (31)		89 (370)

Fuels Used				
Natural Gas (MCF)	7,419 (130,634)	10,690 (24,776)	----------	28,722 (375,115)
Oil (Gallons) type # 6 % Sulphur 1%	60,976 (60,976)	40,651 (40,651)	----------	577,434 (3,480,389)
Wood (Bone-dry Tons)	---------	----------	------- Bark	26,725 ~~11,406~~
			Dust	4,850 (21,279)

PRODUCTION: Species PWD 24,737,000 ft^2 ~~MBF~~ 81 Operating Days

Doors 6,643,000 ft^2 ~~MBF~~ 29 Operating Days

_____ MBF _____ Operating Days

_____ MBF _____ Operating Days

MCAPCD 207.7.02

126-(

MENDOCINO COUNTY
AIR POLLUTION CONTROL DISTRICT

STEAM PRODUCTION AND/OR FUEL USEAGE

For 1991 Calendar Year

Second Quarter

Company Name MASONITE CORPORATION

BOILER	No. 1	No. 2	No. 3	No. 4
Steam Production (pounds)	24,730,680	2,628,160	----------	325,928,400
No. Days Operated	48	6		119

Fuels Used				
Natural Gas (MCF)	38,888	3,600	----------	9,340
Oil (Gallons) type # 6 & Recycled % Sulphur 0.4%	0	0	----------	1,167,514
Wood (Bone-dry Tons)	0	0	Bark Dust	6,812 4,550

PRODUCTION: Species PWD 20,306,000 ft^2 ~~MBF~~ 63 Operating Days

Molded Press/ Tempering 16,615,000 ft^2 ~~MBF~~ 65 Operating Days

Coe Dryer 16,724,800 ft^2 ~~MBF~~ 43 Operating Days

_____ MBF _____ Operating Days

MCAPCD 207.7.02

MENDOCINO COUNTY
AIR POLLUTION CONTROL DISTRICT

STEAM PRODUCTION AND/OR FUEL USEAGE

For 1991 Calendar Year
Third Quarter

Company Name Masonite Corporation

BOILER	No. 1	No. 2	No. 3	No. 4
Steam Production (pounds)	18,074,256	4,334,936	----------	309,207,500
No. Days Operated	52	5		86

Fuels Used				
Natural Gas (MCF)	49,125	6,477	----------	309,584
Oil (Gallons) type # 6 & Recycled % Sulphur <1%	0	0	----------	441,682
Wood (Bone-dry Tons)	0	0	BARK ---------- DUST	2,707 5,400

PRODUCTION: Species PWD 22,049,000 ft² MAX 64 Operating Day
MOLDED
PRESS/KILN 20,753,000 MAX 80 Operating Day
COE DRYER 21,392,000 MAX 53 Operating Day
_____ MBF _____ Operating Day

MCAPCD 207.7.02

126-1

MENDOCINO COUNTY
AIR POLLUTION CONTROL DISTRICT

STEAM PRODUCTION AND/OR FUEL USEAGE

For 1991 Calendar Year

4th Quarter

Company Name Masonite Corporation

BOILER	No. 1	No. 2	No. 3	No. 4
Steam Production (pounds)	42,209,472	4,628,312		314,375,800
No. Days Operated	59	4		76
				4,136,523 lb
				472,355 lb
Fuels Used				
Natural Gas (MCF)	35,202	4,009		27,469
Oil (Gallons) type # ____ % Sulphur ____	#	#		1,293,769
Wood (Bone-dry Tons)	#	#		5,800 es Dus 6,429

PRODUCTION: Prod. Line

		SF		Operating Da
PWD	8,491,000	MBF	25.5	Operating Da
Molded	6,261,000	MBF	16.4	Operating Da
		MBF		Operating Da

NOTE: #4 Natural Gas in 3rd Quarter = 30,958

MCAPCD 207.7.02

MENDOCINO COUNTY
AIR POLLUTION CONTROL DISTRICT

STEAM PRODUCTION AND/OR FUEL USAGE

For 1991 Calendar Year

4th Quarter

Company Name Masonite Corporation

BOILER	No. 1	No. 2	No. 3	No. 4
Steam Production (pounds)	42,209,472	4,628,312		314,375,8[illegible]
No. Days Operated	59	4		76
				4,136,52
				122,35[illegible]
Fuels Used				
Natural Gas (MCF)	35,202	4,009		27,469
Oil (Gallons) type # ____ % Sulphur ____	#	#		1,293,769
Wood (Bone-dry Tons)	#	#		5,800
				6,429

PRODUCTION: Prod. Line

		SF		
PWD	8,491,000			Operating
Molded	6,261,000	MBF	25.5	Operating
		MBF	16.4	Operating
		MBF		Operating

NOTE: #4 Natural Gas in 3rd Quarter = 30,958

MCAPCD 207.7.02

- 1992 Steam production

Boiler 1	17,286,510	lbs
2	92,194,660	
4	1,331,060,480	

- Fuel oil & NG in 92

	0.1 (gal)	Avg (mcf)
1	11672	21193
2	60195	21069
4	800,000	663561

- Wood fuel #4

Bark	28000	BDT
Dust	25000	BDT

- TCA

1989	[redacted]	gal
91		gal
92		gal

PWD Products

	hrs	MSF	MCF
Lap	[redacted]	[redacted]	[redacted]
Panel			

Gasoline

89	12802 gal
91	16243 gal
92	13628 gal

WATER RIGHTS OF
GUNTLY RANCH

STATE OF CALIFORNIA
THE RESOURCES AGENCY
STATE WATER RIGHTS BOARD

License for Diversion and Use of Water

APPLICATION 17271 PERMIT 13237 LICENSE 7921

THIS IS TO CERTIFY, *That* CHARLES GUNTLY
STAR ROUTE, BOX 742, UKIAH, CALIFORNIA 95482

HAS *made proof as of* JULY 25, 1966, *(the date of inspection) to the satisfaction of the State Water Rights Board of a right to the use of the water of* COLD CREEK IN MENDOCINO COUNTY

tributary to EAST FORK RUSSIAN RIVER THENCE RUSSIAN RIVER

for the purpose of IRRIGATION AND STOCKWATERING USES *under Permit* 13237 *of the Board and that the right to the use of this water has been perfected in accordance with the laws of California, the Regulations of the Board and the permit terms; that the priority of this right dates from* SEPTEMBER 7, 1956, *and that the amount of water to which this right is entitled and hereby confirmed is limited to the amount actually beneficially used for the stated purposes and shall not exceed* THREE-TENTHS (0.3) CUBIC FOOT PER SECOND TO BE DIVERTED FROM ABOUT MAY 1 TO ABOUT SEPTEMBER 30 OF EACH YEAR.

THE EQUIVALENT OF SUCH CONTINUOUS FLOW ALLOWANCE FOR ANY THIRTY-DAY PERIOD MAY BE DIVERTED IN A SHORTER TIME IF THERE BE NO INTERFERENCE WITH OTHER VESTED RIGHTS.

THE POINT OF DIVERSION OF SUCH WATER IS LOCATED:

NORTH 2378 FEET AND WEST 450 FEET FROM SE CORNER OF SECTION 18, T16N, R11W, MDB&M, BEING WITHIN NE1/4 OF SE1/4 OF SAID SECTION 18.

THIS IS THE ONLY EXISTING PERMIT FOR THE GUNTLY PROPERTY

A DESCRIPTION OF LANDS OR THE PLACE WHERE SUCH WATER IS PUT TO BENEFICIAL USE IS AS FOLLOWS:

9 ACRES WITHIN SE1/4 OF NE1/4 OF SECTION 18, T16N, R11W, MDB&M
9 ACRES WITHIN NE1/4 OF SE1/4 OF SECTION 18, T16N, R11W, MDB&M
8 ACRES WITHIN NW1/4 OF SW1/4 OF SECTION 17, T16N, R11W, MDB&M

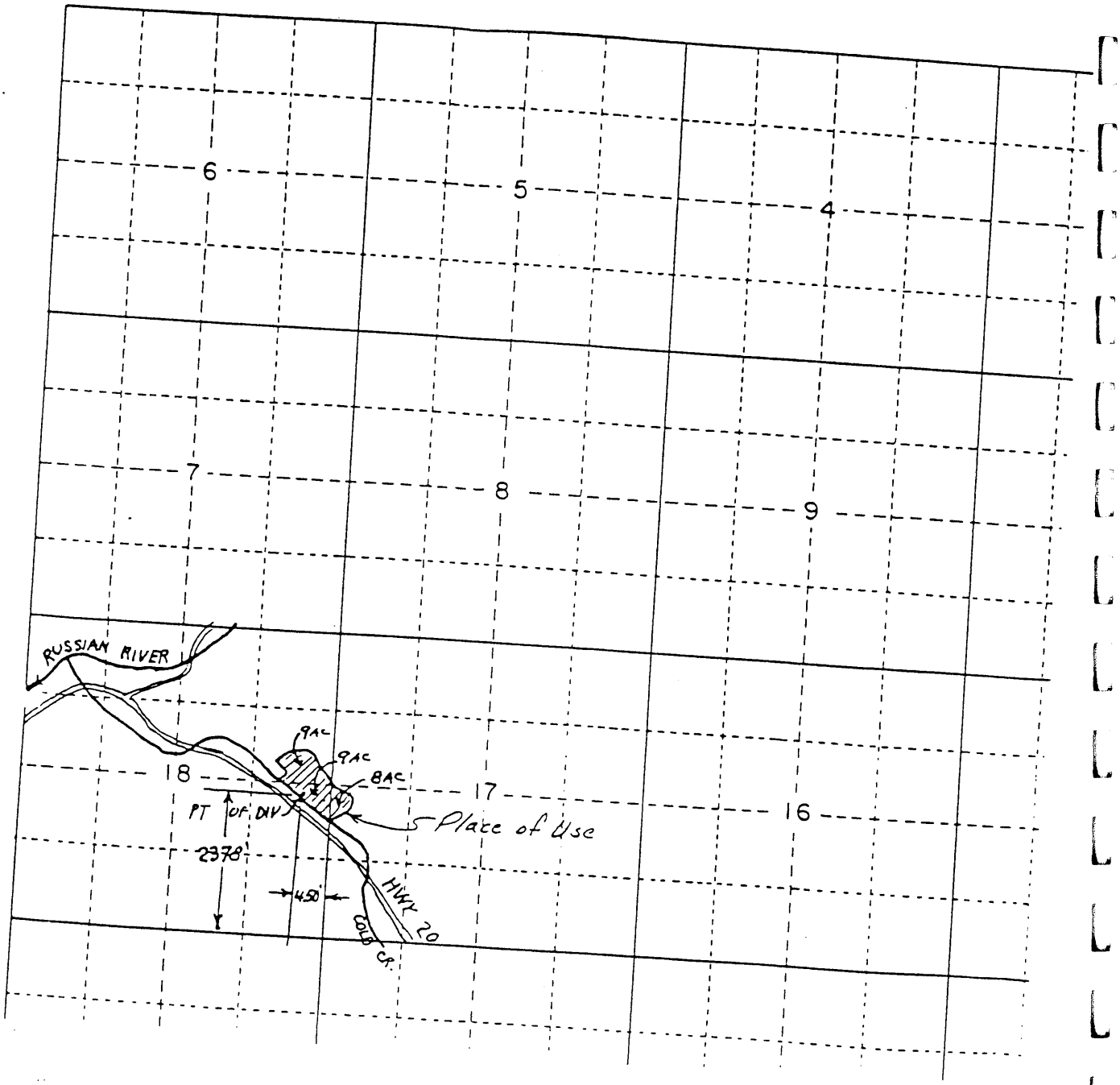
26 ACRES TOTAL

A RELEASE OF 2 CUBIC FEET PER SECOND OR THE NATURAL FLOW, WHICHEVER IS LESS, BETWEEN DECEMBER 1 AND JUNE 1 AND 0.5 CUBIC FOOT PER SECOND OR THE NATURAL FLOW, WHICHEVER IS LESS, DURING THE REMAINDER OF THE YEAR SHALL BE MADE PAST THE POINT OF DIVERSION FOR MAINTENANCE OF FISH LIFE.

Mapped by HANSEN

NOTE.—Maps are to be drawn on this plat only when total amount of water to be diversion or does not involve storage in a reservoir having a capacity in than those above stated the average applicant can prepare a very satisfacto on the reverse side of this plat.

FORM 17-A



ZONING PRIOR TO PROJECT

COUNTY OF MENDOCINO

Charles Cliburn, Assessor
Courthouse, Room 102
Ukiah, CA 95482

OFFICE OF ASSESSOR

General, Administration (707) 463-4311
Personal Property (707) 463-4307
Real Property (707) 463-4313

May 10, 1995

Dept. of Land Conservation
801 K Street MS 13-71
Sacramento, CA 95814-3514

Gentlemen:

Pursuant to Section 22.08.110(E), Mendocino County Code, you are hereby notified of Notice of Non-Renewal being filed by:

Charles C. Guntly

for a portion of Agricultural Preserve #91

(portion of A.P.N. 177-050-01 which is now 177-150-03)

on April 20, 1995

Sincerely,

Charles Cliburn, Assessor

CC/rw
Encl.

cc: Planning Director
Agricultural Commissioner
~~Encumbrance Holder~~

RECEIVED
APR 25 1995
MENDOCINO COUNTY
ASSESSOR'S OFFICE

RETURN TO:
BOARD OF SUPERVISORS
Courthouse
Ukiah, CA 95482

COPY TO:
Charles Guntly
5010 Hwy 20
Ukiah, CA 95482

00005551
Recorded at the request of
GOLD CREEK RANCH
Book 2247 Page 237
04/20/1995 11:15A
Fee: $16.00 No of Pages:2

OFFICIAL RECORDS
MENDOCINO COUNTY CALIF
MARSHA A. YOUNG, RECORDER

NOTICE OF NONRENEWAL
AGRICULTURAL PRESERVE CONTRACT
COUNTY OF MENDOCINO
(Sec. 51245, Gov. Code)
(Sec. 22.08.110, County Code)

Agricultural Preserve # 91 Plan File # 1 page 37

Date of this Notice 3/13/95 Date Contract Recorded 2/3/71

The undersigned, pursuant to Section 51245, Government Code, hereby gives Notice of Nonrenewal of portion (all/portion) of the above stated Agricultural Preserve Contract recorded in Book 837, Page 176, Official Records, County of Mendocino, more particularly described as follows:

the SW¼ of the SE¼ of section 5 T 16N, R 11W

Now 177-150-03

The Assessor's parcel number(s) of the above legal description is/are:

a portion of 177-050-01

Name and address of each owner giving notice:

Name	Address	City, State, Zip
Charles Guntly	5010 Hwy 20	Ukiah, Ca 95482

Name of party requesting nonrenewal: Charles Guntly

VIOLATIONS OF SWPPP

(NOT INCLUSIVE)

UKIAH OFFICE
501 Low Gap Road, Room 1326
UKIAH, CA 95482
(707)463-4466
FAX (707)463-4038

FORT BRAGG OFFICE
120 WEST FIR STREET
FORT BRAGG, CA 95437
(707) 964-4713

COUNTY OF MENDOCINO
DEPARTMENT OF PUBLIC HEALTH
DIVISION OF ENVIRONMENTAL HEALTH

April 3, 1997

Mendocino County Board Of Supervisors
501 Low Gap Road, Room 1090
Ukiah, CA 95482

Dear Board Members:

Subject: Environmental Health Memo On Cold Creek Compost, Inc.

The Mendocino County Division of Environmental Health issued a solid waste facility permit (SWF permit) for Cold Creek Compost, Inc. in July, 1995. The facility is currently operating in violation of a SWF permit condition.

In light of the controversy that surrounds the project and the subsequent media attention, the Division of Environmental Health felt compelled to prepare a memo to provide information on the matter of the violation to Board Members.

At the time the attached memo was prepared the violation pertained strictly to the storage of additives and amendments outside of the roof structure between October 1 and May 15. During an inspection of the facility on March 31, by a staff member of the Division of Environmental Health it was noted that operations outside of the roof structure were expanded to include material turning, wood grinding, and screening of compost. As a result of this most recent activity the Division of Environmental Health is considering enforcement action to be taken against Cold Creek Compost, Inc.

If you have any questions please contact me at 463-4141.

Sincerely,

John D. Rogers

John D. Rogers, Director; DEH

ENVIRONMENTAL HEALTH MEMO

To: **Charles Peterson, John Pinches, Patti Campbell, Michael Delbar, Richard Shoemaker**

From: John D. Rogers, Director; DEH JDR

Subject: **Cold Creek Compost, Inc.**

Date: March 27, 1997

Cold Creek Compost, Inc. is located on the Guntley Ranch, approximately 1 1/4 miles NE of the intersection of East Side Potter Valley Road and State Highway 20, Potter Valley. The facility is permitted to accept manures, agricultural waste, green waste, wood waste, fishery waste, restaurant/grocery food waste, and ash for use as an amendment.

On February 13, 1995, The Mendocino County Board of Supervisors voted to adopt a **Negative Declaration** and approve conditional use permit #26-93 for the Cold Creek Compost Project (Project). On July 17, 1995, the Mendocino County Division of Environmental Health, acting as the Local Enforcement Agency (LEA) for the California Integrated Waste Management Board (CIWMB), issued a solid waste facility permit (SWF permit) for the Project.

In December, 1995, Superior Court Judge Frank S. Peterson, ruled that an **Environmental Impact Report** (EIR) is required for the Project. Upon appeal, the ruling was upheld with the modification allowing for the continuance of the facility's conditional use permit until the EIR is certified. Staff at the CIWMB interpreted the ruling to mean that the Project did not have adequate CEQA compliance. In September, 1996, staff at the CIWMB directed the LEA to rescind Cold Creek Compost's SWF permit. The LEA did not agree with the position of the CIWMB and obtained an opinion from County Counsel supporting the continuance of the SWF permit. The LEA did not rescind the SWF permit.

Cold Creek Compost, Inc. is currently storing additives and amendments outside of the roof structure in violation of condition #6 of its SWF permit. Condition #6 states between October 1 and May 15 operations will be confined to under the roof structure and only finished compost may be stored outside of the roof. In a letter to the LEA dated January 30, 1997, the operator requested that the solid waste

facility permit be **modified** by the LEA to allow for the storage of additives and amendments outside of the roof structure between October 1 and May 15. Then in a letter to the LEA dated February 5, 1997, the operator requested that a **correction** be made to the solid waste facility permit to allow for the storage of additives and amendments outside of the roof structure between October 1 and May 15. In a meeting with the LEA and CIWMB on March 13, 1997, the operator then challenged the interpretation of permit condition #6.

The LEA's position is that SWF permit condition #6 allows only for the storage of finished product outside of the roof structure between October 1 through May 15. Modifying this condition to allow for the storage of additives and amendments outside of the roof structure would be a **significant change** in the project and would necessitate a **permit revision**. Permit revisions must be submitted to the CIWMB for concurrence. The LEA offers the following information in support of its position:

1. An addendum to Negative Declaration to incorporate the roof structure into the project was conditioned on a letter of conceptual agreement from the North Coast RWQCB dated April 11, 1995. The letter states , "During the rainy season all operations, including loading and unloading of trucks, material windrowing, windrow turning, screening and blending of finished product will be performed under the roofed area."

2. Pursuant to 14 CCR Section 18211, application for permit revision, paragraph (c), "A change shall be deemed significant for purpose of this section if and only if it does not conform to terms and conditions of the permit."

3. Permit condition #6 reads, "All winter operations, October 1 through May 15, shall be conducted under shelter of a roof. Operations include material stockpiling, processing, composting. "

At this time the LEA cannot process a revised SWF permit. In a letter from CIWMB Counsel to the LEA dated March 4, 1997, CIWMB Counsel states, "Since the permit is void, CIWMB cannot revise the permit." A revised SWF permit is not possible until such time as the EIR is certified. The EIR is scheduled to be certified in or around July, 1997.

Currently the LEA is continuing to note a violation of terms and conditions of the SWF permit during monthly inspections of the facility. The site will remain in violation until May 15, at which time SWF permit condition number #6 for winter

operations expires. The LEA will not pursue further enforcement action at this time. The LEA offers the following information in support of its position:

1. The Regional Water Quality Control Board in February, 1997, approved an amended Storm Water Pollution Prevention Plan that allows for the storage of feedstocks and additives and amendments outside of the roof structure during wet weather provided the material is securely tarped.

2. The EIR that is currently being prepared addresses the storage of additives and amendments outside of the roof structure during wet weather. Projected certification of the EIR is anticipated in July, 1997.

3. The LEA is agreeable to revising the SWF permit to change permit condition #6 to allow for the storage of additives and amendments outside of the roof structure; however, a permit revision can not be processed until the EIR is certified.

4. The material that is presently stored outside of the roof structure is securely tarped and presents minimal potential impact to the environment; however, the potential long term effects of the proposed change in SWF permit condition #6 need to be evaluated in the EIR.

5. In a meeting on March 13, 1997, Counsel for the CIWMB stated that because an EIR is being prepared for the project and the permit condition expires on May 15, further enforcement action may not be prudent for **this season**.

UKIAH OFFICE
880 NORTH BUSH STREET
UKIAH, CA 95482
(707)463-4466

FORT BRAGG OFFICE
120 WEST FIR STREET
FORT BRAGG, CA 95437
(707) 964-4713

COUNTY OF MENDOCINO
DEPARTMENT OF PUBLIC HEALTH
DIVISION OF ENVIRONMENTAL HEALTH

February 20, 1997

STIPULATED ORDER OF COMPLIANCE AND AGREEMENT
#97-02
ENVIRONMENTAL HEALTH DIVISION
LOCAL ENFORCEMENT AGENCY

In the Matter of:

Cold Creek Compost, Inc.
Guntley Ranch
Potter Valley, California 95469

(Notice and Order)
(14 CCR Section 18304)

To: Mr. Martin Mileck
Cold Creek Compost, Inc.
74540 Hill Road
Covelo, California 95428

PLEASE TAKE NOTICE that the Mendocino County Health Department, Division of Environmental Health, as the certified Local Enforcement Agency, has determined that the storage of additives and amendments on the uncovered portion of the compost pad between October 1, and May 15, is a violation of Public Resources Code, Section 44014(b).

THEREFORE, PURSUANT TO PUBLIC RESOURCES CODE SECTION 45000, YOU ARE ORDERED TO:

Discontinue unloading additives and amendments for storage on the uncovered portion of the compost pad:

1) Existing piles of additives and amendments may remain on the uncovered portion of the compost pad provided they are securely tarped.

TERMS AND CONDITIONS:

1. Cold Creek Compost, Inc. is to actively pursue completion of the Environmental Impact Report and provide proof of a certified Environmental Impact Report by June 1, 1997.

2. Submit a complete application package for either a revised or full solid waste facility permit by July 1, 1997.

PLEASE TAKE FURTHER NOTICE that the Mendocino County Public Health Department Division of Environmental Health, on or after June 1, 1997:

1) May petition the Superior Court for an injunction to enjoin said violations. Should such an injunction be granted, continued violation may be punishable as contempt of court.

2) May bring an action in the Superior Court to impose upon you civil penalties in an amoun not to exceed S10,000 per day for each day of violation occurring after October 1, 1994.

Dated _____

By _____

John D. Rodgers, Director
Mendocino County Public Health Department
Division of Environmental Health

Dated _____

By _____

Martin Mileck
Cold Creek Compost, Inc.

DECLARATION

The allegations contained in this document are based on research of existing documents, inspections, or personal knowledge of John P. Morley, REHS:

I am duly employed as an Environmental Health Solid Waste Specialist with Mendocino County Public Health Department.

_____, John P. Morley, REHS.

VIOLATIONS OF

USE PERMIT (NOT INCLUSIVE)

RAYMOND HALL
DIRECTOR

TELEPHONE
707-463-4281

FAX #
707-463-5709

COUNTY OF MENDOCINO
DEPARTMENT OF PLANNING AND BUILDING SERVICES
MAILING ADDRESS: COURTHOUSE
UKIAH, CALIFORNIA 95482

February 22, 1995

MARTIN MILECK
74540 HILL ROAD
COVELO CA 95428

Subject: Grading Violation - Guntly Ranch

Dear Mr. Mileck:

Our records indicate that the grading permit application (#94-693) has not been completed since our plancheck letter to you of August 10, 1994.

Because this application is to clear an existing violation, your prompt attention towards insuring that the information requested is received by March 10, 1995 is necessary in order to avoid further code enforcement action in this matter.

Your engineer, Mr. David Flum, has advised that it is your intent to separate the grading permit application to differentiate between the road and the site grading. Please provide a written response advising an anticipated schedule for submission of the site grading permit.

If you have any questions, please contact me at the telephone number listed above, Monday through Friday from 8:30 to 9:30 a.m.

Sincerely,

Dale Hawley
Code Enforcement Officer

DH/sg

cc: Charles Guntly
Eric Anderson
Dave Flum
County Counsel
Ray Hall, Director
Pam Townsend, Planner II
Dave Koppel, Environmental Health
John Anastasio, Plans Examiner

Cal/EPA

California
Environmental
Protection
Agency

Integrated
Waste
Management
Board

8800 Cal Center Dr.
Sacramento CA 95826
(916) 255-2200

Corr

RECEIVED
OCT 31 1996
MEND. CO. HEALTH DEPT.

Pete Wilson
Governor

James M. Strock
Secretary for
Environmental
Protection

OCT 29 1996

Mr. John Rogers, Director
Mendocino County Public Health Department
Division of Environmental Health
880 North Bush Street, Courthouse
Ukiah, California 95482

RE: Receipt of Permit Document

Dear Mr. Rogers :

This letter is to notify you that we are in receipt of a document regarding the Cold Creek Compost, Inc., Facility No. **23-AA-0029.** The following material was receiv at our office on October 17, 1996:

- Amendment to Report of Composting Site Information, dated September 27, 1996.

Any design or operational changes associated with this document are not sanctioned until incorporated into a Solid Waste Facilities Permit which has been concurred in by the Board and issued by the LEA.

Any additional material relating to this facility should be submitted to me at the above address. If you have any questions, please contact me at (916) 255-4162.

Sincerely,

Russ J. Kanz
Permits Branch
Permitting and Enforcement Division

:23AA0029.Doc
:Andersen

Recycled Paper

UKIAH OFFICE
880 NORTH BUSH STREET
UKIAH, CA 95482
(707)463-4466

FORT BRAGG OFFICE
120 WEST FIR STREET
FORT BRAGG, CA 95437
(707) 964-4713

COUNTY OF MENDOCINO
DEPARTMENT OF PUBLIC HEALTH
DIVISION OF ENVIRONMENTAL HEALTH

MEMORANDUM

DATE: 9-12-96

TO: Frank Zotter, Chief Deputy County Counsel

FROM: John P. Morley

SUBJECT: Cold Creek Compost, Inc.

Enclosed please find correspondence regarding compliance with CEQA for the Cold Creek Compost Facility. Staff at the California Integrated Waste Management Board (CIWMB) has determined that the Solid Waste Facility Permit for Cold Creek is void.

Their determination is based on compliance with CEQA. They believe the Solid Waste Facility Permit was issued in part because the project complied with CEQA. With the Judge's ruling that an EIR is required for the project staff at the CIWMB feel that CEQA has not been complied with and the permit is void.

The CIWMB has directed the LEA to notify the operator that the Solid Waste Facility Permit is void.

The LEA requests an opinion from County Counsel as to the status of the Solid Waste Facility Permit for Cold Creek Compost, Inc.

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COUNTY OF MENDOCINO
DEPARTMENT OF PUBLIC HEALTH
DIVISION OF ENVIRONMENTAL HEALTH

September 16, 1996

Mr. Russ Kanz
California Integrated Waste
Management Board
8800 Cal Center Drive
Sacramento, CA 95826

Subject: Cold Creek Compost, Inc., Facility Number 223-AA-0029

Dear Mr. Kanz:

The Local Enforcement Agency (LEA) for Mendocino County received your letter of September 9, 1996 and referred it to County Counsel for an opinion. County Counsel has submitted an opinion in a memorandum dated September 12, 1996. I have enclosed a copy for your review.

In summary County Counsel respectfully disagrees with the California Integrated Waste Management Board's (CIWMB) conclusion that the California Environmental Quality Act (CEQA) was not complied with for Cold Creek Compost, Inc.

Until directed otherwise by our legal counsel the LEA will continue oversight of Cold Creek Compost, Inc. under its existing full solid waste facility permit #23-AA-0029.

If you have any questions please contact me at 707-463-4466.

Sincerely,

John P. Morley
Environmental Health Specialist III

cc: Frank Zotter, County Counsel
Martin Mileck, Cold Creek Compost

DIRECTOR

707-463-4281

FAX #
707-463-5709

COUNTY OF MENDOCINO
DEPARTMENT OF PLANNING AND BUILDING SERVICES
501 LOW GAP ROAD, ROOM 1440
UKIAH, CALIFORNIA 95482

March 19, 1997

Martin Mileck
74540 Hill Road
Covelo, CA 95428

Subject: Plan Check #97000213 & 214
Job: To legalize water tanks installed without permits, 6000 e/s Potter Valley Road

Dear Mr. Mileck:

Thank you for your recent permit applications. I have reviewed your project and my comments are contained below. Please respond to the numbered items by marking where the correction can be found in the margin and returning the list or a copy of it with your resubmittal.

Both your use permit and the Business and Professions Code require all aspects of this project to be designed by an architect or engineer. All future correspondence will be sent to the design professional in responsible charge of this project, which I assume to be Mr. David Flum.

TANKS:

1. Provide a complete plumbing plan showing piping size, type, burial depth; and all backflow, check, and gate valves; drainage lines and vents; inlet and outflow pipes; and septic tanks/fields and pump stations.

2. Provide a site electrical plan showing the size in amps and the location of the electrical service entrance panel and all sub panels and gutters with NEMA rating; transformers, motors, motor control centers, circuit breakers with ratings, and wire and conduit type and size.

3. Provide a site plan showing contours at the tank sites. UBC Sec. 106.3.2.

4. The allowable soil bearing pressure without a soils report is 1000 psf. Classify the soil at the tank sites. I assume the tanks

are far enough down the hill to be outside the scope of the roof soil report.

5. ICBO report No. 4627 for KWIK Bolt II by Hilti asks for combined tension and shear on the anchor bolts and stipulates that allowable loads cannot be increased by 33 1/3% for wind or seismic loads.

6. Special inspection of structural welding is required. The architect or engineer of record shall complete the enclosed special inspection testing agreement, have it signed by the owner, contractor and special inspector and submit it for approval along with the qualifications of the special inspector. UBC Sec. 106.3.5. The special inspector should be an independent third party who is not involved in the design or construction of the project.

7. Mr. Flum's proposal for checking reinforcement is acceptable.

OTHER VIOLATIONS:

1. A review of the site plan you supplied for the tanks shows the following addition structures or features have been installed without building department permits:
   a) An office trailer.
   b) A storage building.
   c) A rest room.
   d) A fuel tank.
   e) Amendments and additives to the extent that they are hazardous as defined by the UBC and UFC.

Red tags are enclosed.

2. I cannot approve any further permits on this site until the pad grading (BP95000354) and road grading (BP94000693) permits are reinstated and finaled. The reinstatement fee is $60 for each permit.

OTHER ISSUES:

1. A first-time review of the 1994 Use Permit shows that workers will be present on site. Handicapped accessible sanitary facilities are therefore required:
   a) When there are less than five employees, separate toilet rooms for each sex are not required, provided toilet rooms can be locked from the inside. Where practicable, toilet facilities should be within 200 feet of locations at which workers are regularly employed. UPC Sec. 411.1.
   b) Provide a lavatory on site with running water and suitable cleansing agents. UPC Sec. 411.1.2.4.
   c) Provide individual hand towels, or sections thereof, or cloth or paper or warm-air blowers convenient to the lavatory. UPC Sec. 411.1.2.5.

d) Each water closet shall occupy a separate compartment which shall be equipped with a door, door latch and clothes hook. UPC Sec. 414.1.

e) One shower shall to be provided for each 15 persons exposed to skin contamination with irritating material (lime). UPC Appendix Chapter C.

2. Please have a company representative fill out and return the enclosed hazardous Materials & Emissions Commercial Compliance Statement.

3. Indicate the location and quantity of the lime and show how it is stored. If on a slab or bermed area, show construction details.

4. Provide approval for these projects from the Potter Valley Fire District either with stamped plans or in the form of a letter from the district stating that the proposed construction is in compliance with the 1994 California Fire Code and that the District has no objection to the issuance of the building permit.

The chief should be made aware that the lime (calcium carbonate) stored in any quantity in an outdoor area (Table 8001.13-D) is a hazardous material and therefore needs a permit per UFC Sec. 8001.3.1. This quantity increases to 5000 pounds for the Fire Code inside a building or under a canopy, but 1000 pounds is the exempt amount if stored open inside a building or under a canopy for the Building Code (Table 3-E).

5. Provide a site plan of the entire parcel showing all property lines, buildings, structures, manufactured homes, septic tanks and leach fields, wells, streams, lakes, drainage ditches and swales, roads, streets, alleys, retaining walls, fences, easements, electrical power poles and all other improvements drawn to scale or fully dimensioned. Specify whether buildings are existing or proposed. Indicate orientation with a north arrow.

6. Provide a handicapped accessible parking space and path of travel into the office.

7. New development projects for which an application for a building permit is submitted shall include adequate, accessible and convenient areas for collecting and loading recyclable materials. MCC Sec. 18.25.030. A copy of the ordinance is enclosed.

8. Because of the incomplete nature of this submittal, this is an incomplete plan check. Future submittals may generate additional plan check correction items. If the third submittal does not result in a permit being issued, additional plan check fees of $30 an hour will be charged.

I am available to answer questions between the hours of 1 and 4 PM. You have 180 days from the date of application to get a

permit. If you think you will exceed that time limit you may request one 180-day extension by doing so in writing to the Building Official. Unapproved plans left with the building department in excess of 360 days are not retained and the applicant will be responsible for the remainder of the plan check fees.

Cordially,

John Anastasio
Plans Examiner

cc: Dale Hawley
Scott Ward
Pam Townsend

ASMOND HALL
DIRECTOR

TELEPHONE
707-463-4281

FAX #
707-463-5709

COUNTY OF MENDOCINO
DEPARTMENT OF PLANNING AND BUILDING SERVICES
501 LOW GAP ROAD, ROOM 1440
UKIAH, CALIFORNIA 95482

MEMORANDUM

DATE: April 4, 1997

TO: Phil Towle, Mendocino County AQMD

FROM: Pamela Townsend, Planner II

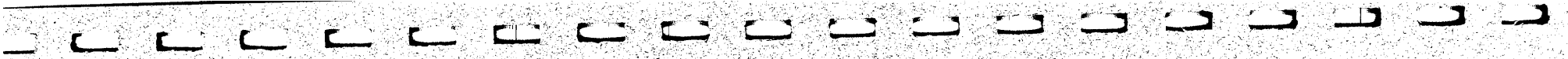
SUBJ: Potential Violation of Use Permit for Cold Creek Compost facility #U 26-93

John Morley, Division of Environmental Health, called today to alert me to a potential violation of #U 26-93 condition C-2 which requires a dust suppressant to control dust as required by your agency. During a check of compliance with other conditions, they observed that an excessive amount of dust appears to be generated by traffic on the access road, as reported by a member of the public.

I am referring this matter to your office for a determination and action. Please let me know what action is being taken, the time frame for compliance and outcome.

ATTACHMENT C

INFORMATION PROVIDED WITH COMMENT LETTER JJ (FRANCINE LONG)



RAYMOND HALL
DIRECTOR

TELEPHONE
707-463-4281

FAX #
707-463-5709

COUNTY OF MENDOCINO
DEPARTMENT OF PLANNING AND BUILDING SERVICES
MAILING ADDRESS: COURTHOUSE
UKIAH, CALIFORNIA 95482

February 22, 1995

MARTIN MILECK
74540 HILL ROAD
COVELO CA 95428

Subject: Grading Violation - Guntly Ranch

Dear Mr. Mileck:

Our records indicate that the grading permit application (#94-693) has not been completed since our plancheck letter to you of August 10, 1994.

Because this application is to clear an existing violation, your prompt attention towards insuring that the information requested is received by March 10, 1995 is necessary in order to avoid further code enforcement action in this matter.

Your engineer, Mr. David Flum, has advised that it is your intent to separate the grading permit application to differentiate between the road and the site grading. Please provide a written response advising an anticipated schedule for submission of the site grading permit.

If you have any questions, please contact me at the telephone number listed above, Monday through Friday from 8:30 to 9:30 a.m.

Sincerely,

Dale Hawley
Code Enforcement Officer

DH/sg

cc: Charles Guntly
Eric Anderson
Dave Flum
County Counsel
Ray Hall, Director
Pam Townsend, Planner II
Dave Koppel, Environmental Health
John Anastasio, Plans Examiner

Cal/EPA

California
Environmental
Protection
Agency

Integrated
Waste
Management
Board

8800 Cal Center Dr.
Sacramento CA 95826
(916) 255-2200

RECEIVED
OCT 31 1996
MEND. CO. HEALTH DEPT.

Pete Wilson
Governor

James M. Strock
Secretary for
Environmental
Protection

OCT 29 1996

Mr. John Rogers, Director
Mendocino County Public Health Department
Division of Environmental Health
880 North Bush Street, Courthouse
Ukiah, California 95482

RE: Receipt of Permit Document

Dear Mr. Rogers :

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COUNTY OF MENDOCINO
DEPARTMENT OF PUBLIC HEALTH
DIVISION OF ENVIRONMENTAL HEALTH

MEMORANDUM

DATE: 9-12-96

TO: Frank Zotter, Chief Deputy County Counsel

FROM: John P. Morley

SUBJECT: Cold Creek Compost, Inc.

Enclosed please find correspondence regarding compliance with CEQA for the Cold Creek Compost Facility. Staff at the California Integrated Waste Management Board (CIWMB) has determined that the Solid Waste Facility Permit for Cold Creek is void.

Their determination is based on compliance with CEQA. They believe the Solid Waste Facility Permit was issued in part because the project complied with CEQA. With the Judge's ruling that an EIR is required for the project staff at the CIWMB feel that CEQA has not been complied with and the permit is void.

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The LEA requests an opinion from County Counsel as to the status of the Solid Waste Facility Permit for Cold Creek Compost, Inc.

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COUNTY OF MENDOCINO
DEPARTMENT OF PUBLIC HEALTH
DIVISION OF ENVIRONMENTAL HEALTH

September 16, 1996

Mr. Russ Kanz
California Integrated Waste
Management Board
8800 Cal Center Drive
Sacramento, CA 95826

Subject: Cold Creek Compost, Inc., Facility Number 223-AA-0029

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John P. Morley
Environmental Health Specialist III

cc: Frank Zotter, County Counsel
Martin Mileck, Cold Creek Compost

DIRECTOR

707-463-4281

FAX #
707-463-5709

COUNTY OF MENDOCINO
DEPARTMENT OF PLANNING AND BUILDING SERVICES
501 LOW GAP ROAD, ROOM 1440
UKIAH, CALIFORNIA 95482

March 19, 1997

Martin Mileck
74540 Hill Road
Covelo, CA 95428

Subject: Plan Check #97000213 & 214
Job: To legalize water tanks installed without permits, 6000 e/s Potter Valley Road

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1. Provide a complete plumbing plan showing piping size, type, burial depth; and all backflow, check, and gate valves; drainage lines and vents; inlet and outflow pipes; and septic tanks/fields and pump stations.

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Cordially,

John Anastasio
Plans Examiner

cc: Dale Hawley
Scott Ward
Pam Townsend

...OND HALL
...IRECTOR

TELEPHONE
707-463-4281

FAX #
707-463-5709

COUNTY OF MENDOCINO
DEPARTMENT OF PLANNING AND BUILDING SERVICES
501 LOW GAP ROAD, ROOM 1440
UKIAH, CALIFORNIA 95482

MEMORANDUM

DATE: April 4, 1997

TO: Phil Towle, Mendocino County AQMD

FROM: Pamela Townsend, Planner II

SUBJ: Potential Violation of Use Permit for Cold Creek Compost facility #U 26-93

John Morley, Division of Environmental Health, called today to alert me to a potential violation of #U 26-93 condition C-2 which requires a dust suppressant to control dust as required by your agency. During a check of compliance with other conditions, they observed that an excessive amount of dust appears to be generated by traffic on the access road, as reported by a member of the public.

I am referring this matter to your office for a determination and action. Please let me know what action is being taken, the time frame for compliance and outcome.

ATTACHMENT C

INFORMATION PROVIDED WITH COMMENT LETTER JJ (FRANCINE LONG)





PHOTO BY THE AUTHOR

"SOMETIME DOWN THE LINE, they'll probably find something toxic dumped here," says Missouri farmer Glen Gettemeyer of this field, where the City of St. Peters, Mo., applies sludge from the treatment plant in the background.

What's in that sludge?

BY KAREN FREIBERG

Farmers who put sludge on their fields plan for a financial payoff, but risk soil contamination

For a short time six years ago, Glen Gettemeyer's field was jeopardized when a contractor misapplied sludge containing high levels of cadmium from a nearby sewage treatment plant. Yet Gettemeyer, like thousands of farmers nationwide, continues to land-apply sludge to the same field every year.

He warns that using sludge can be full of risk—risk that your field will become permanently contaminated with toxic materials, risk that you could be implicated in lawsuits, even risk of crop damage.

But just as important as the risks, he believes, are the benefits from free fertilizer and the good feeling he has about recycling something that would otherwise be incinerated or dumped into landfills.

Farmers who allow sludge on their fields depend on someone else's management every time the sludge pump kicks in. In addition to human waste, sludge often contains heavy metals and chemical compounds from various sources, including industrial manufacturers. It's these things that worry regulators most—and should concern farmers who put sludge on their land.

In 1986, Gettemeyer allowed a contractor for the City of St. Peters, Mo., to spread sewage sludge on a field across the road from the treatment plant. On four of the 33 acres the contractor dumped more than 100 dry tons per acre. "That didn't look right to me," Gettemeyer says.

Indeed, an average land application—given Gettemeyer's circumstances—should have been four to five dry tons per acre. "A definitive overapplication," is how James Karll, lead utility operator at the City of St. Peters, describes it. "The city screwed up," says Gettemeyer.

Worse yet, the city didn't have a permit to spread the sludge—something Gettemeyer was unaware of at the time—even though the sludge contained high levels of cadmium.

When the Missouri Department of Natural Resources (MDNR) got wind of what St. Peters did, it sent citations to everyone involved—including Gettemeyer—to clean up the mess.

Gettemeyer's experience is one example of how easily sludge procedures established to safeguard farmers and the environment, can go awry. In this case, Gettemeyer was lucky. St.

RECEIVED
JUN 05 1997
BY
PLANNING & BUILDING SERVICES
Ukiah, CA 95482

Submitted by Francine Long

Peters removed the excess sludge in time for him to plant a crop. "Sometimes these things can drag on for years," says Ken Arnold, MDNR's head of sludge management for the water pollution control program.

Gettemeyer was also fortunate the city assumed costs of the cleanup. Since there was no permit required, he could have been equally responsible.

Even so, Gettemeyer allows the city to apply sludge to his land. He's convinced the city has cleaned up its act. It bought the needed equipment to apply the sludge itself—bypassing potential contractor error—and now has a permit from the MDNR.

The city also began a pretreatment program to reduce the cadmium level in the sludge. "We isolated which industry was responsible and convinced them to build a system that filters out that element before it gets into the city's system," Karll explains.

More important to Gettemeyer, though, was the city's hiring of an agronomic consultant who specializes in sludge land application programs. His job was to reenlist the by-then retreating farmers by emphasizing the nutrient value of sludge to their crops—which is considerable.

"I'm using sludge to improve my land," says Gettemeyer. "It had been in sod for years and I was beating my head trying to fertilize it." Sludge offers him free phosphorus, organic matter, micronutrients and 85 lb. to 160 lb. per acre of nitrogen.

Ironically, such good intentions could backfire. The history of environmentalism demonstrates society's tendency to increase vigilance and add compounds to the danger list. "Sometime down the line, they'll probably find something toxic in here. Twenty years ago, dioxin wasn't considered dangerous. Now it is," Gettemeyer says.

Dioxin is the common name for a class of chemicals which are by-products of combustion and paper production. Research shows some amount appears in all sludge from the breakdown of paper products, says Arnold, but it is not among the pollutants that St. Peters tests for. Neither the MDNR nor the Environmental Protection Agency (EPA) requires it.

Missouri does place limits on dioxin in sludge, but testing isn't mandated because no industry in the state produces dioxin, says Arnold. "There are differences of opinions as to what an appropriate level is, but the latest research indicates dioxin is not as toxic as once thought, and limits are expected to be relaxed."

The problem is not the sludge itself, insists Tony Boone, an agronomic con- ▶

Does your sludge stack up?

■ When you request an analysis of the sludge that a municipality proposes to put on your land, be prepared. You'd need to be a sludge scientist to fully understand what it all means.

Two things should concern you most about the testing—which toxic compounds are tested for and how much of each is present. The Environmental Protection Agency (EPA)—the federal regulator of sludge destined for land application—requires municipalities to control pathogens and test for only two substances: cadmium and PCBs. It provides "guidance materials" on another five heavy metals, but enforcement varies by state.

In other words, if your state relies on the EPA to protect your land from harmful substances in sludge, your protection is bare bones at best. EPA is preparing new national standards, due out later this year, that may increase the number of substances on the list.

This table shows maximum concentrations for various toxic substances in sludge allowed by the EPA and Missouri DNR. Your state may have different maximums and include different substances. If they are too out of line with these, ask why.



PHOTO: TONY BOONE

FARMERS WHO ALLOW sludge on fields rely on someone else's management every time the pump kicks in.

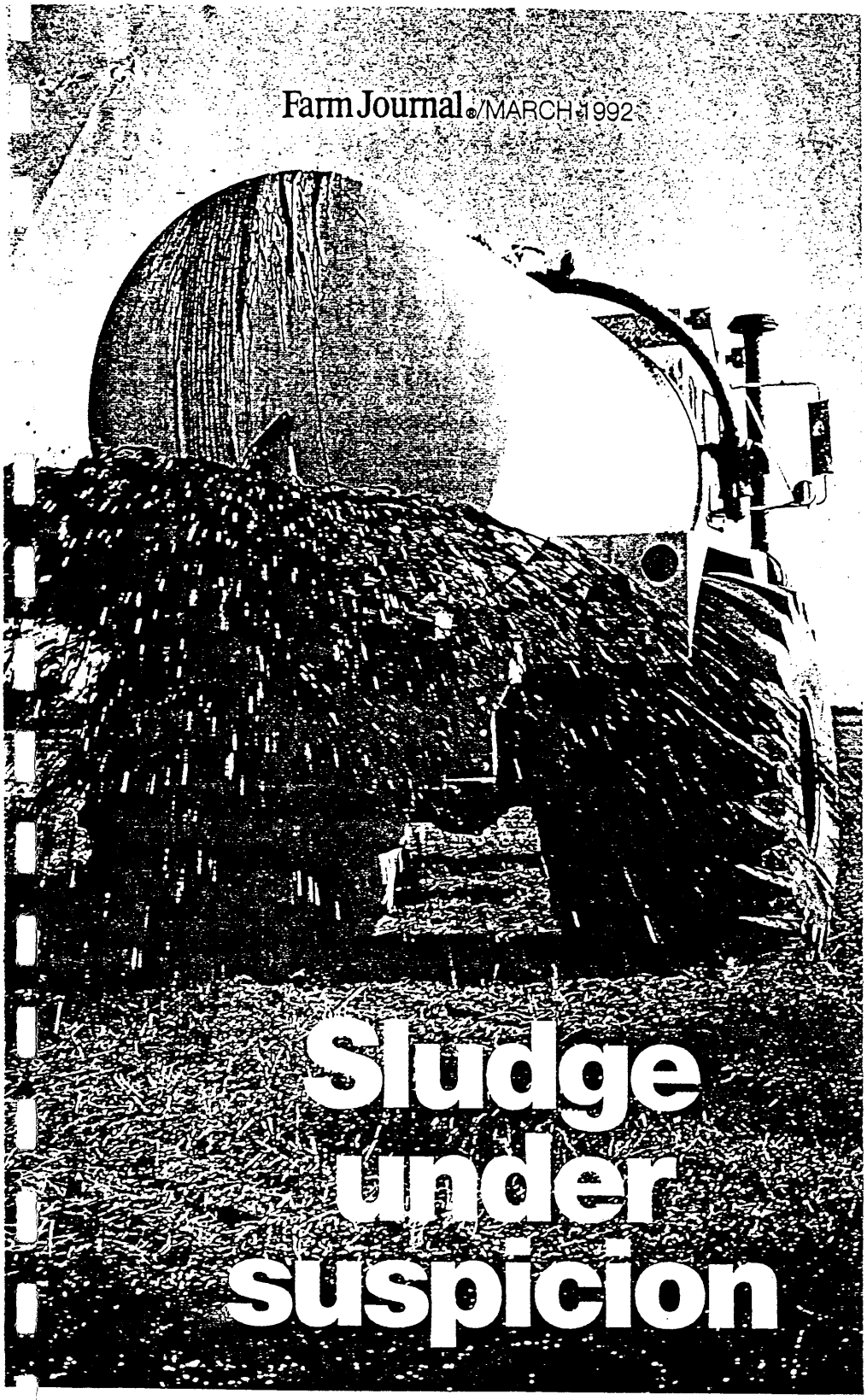
SUBSTANCE	MAX. CONCENTRATION (parts/million dry weight) MISSOURI*	EPA
		N/A
		N/A
		N/A
		N/A
		N/A
		N/A
		N/A
		N/A
		N/A
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		N/A
		N/A

* Based on maximum application limit of 5 dry tons/acre/year for 20 years, which would provide 150 to 200 lb. of available nitrogen annually.

** Application should not exceed 10 lb./acre/year to avoid plant toxicity.

*** No restrictions on 2 ppm or less. For amounts exceeding 2 ppm, soil pH of 6.5 is required at application. Annual limit is .45 lb./acre

N/A Not applicable



Sludge under suspicion

PHOTO: DENNIS BARNES

By ED HAAG

If experts can't agree whether sludge is safe, should you?

Nearly half of all the municipal sludge produced in this country each year—up to four million metric tons—is spread on farmland. Once considered a safe, cheap form of fertilizer, this by-product of sewage treatment plants may instead turn out to be a land bomb.

"It's not that the material [sludge] itself is bad if it's properly handled," says Darrell Turner, Washington State Farm Bureau president and an authority on sludge application to farmland. "But I have no confidence in the current system of policing the stuff."

Turner isn't the only one who thinks this. Several farm and food organizations, including the American Frozen Food Institute (AFFI), are calling for a halt to the practice of applying sludge to farmland. "We're advising our membership to make very sure that the people who are trying to get rid of this stuff are within compliance of Environmental Protection Agency regulations," says AFFI's Howard Weatherspoon, assistant vice president of research and technical services.

That isn't so easy. While the Environmental Protection Agency (EPA) does provide recommendations on acceptable levels of certain contaminants in sludge that is applied to farmland, it normally defers enforcement to local or state agencies. The danger to farmers lies in how poorly application guidelines are interpreted and enforced.

Current enforcement regulations allow permits for sludge application on agricultural land to be issued by any one of a half-dozen federal, state or municipal agencies. In many cases, no single agency holds individual accountability or even knows what the others are doing.

"There are too many opportunities for things to fall through the cracks because you don't have a clear line of authority all the way through," charges Turner. "I don't think we've got a workable system."

Linda and Raymond Zander believe they became victims of just such an ineffective enforcement system when a permit was granted three years ago to Western Services Waste Management. Contracted by 12 local municipalities, the company began spreading sludge on a 70-acre site adjacent to the Zander farm near Lynden, Wash.

Within a year, changes occurred to their normally healthy dairy cows. Whatcom Community College Farm Management records show the Zanders' milk average dropped from 19,892 lb. in 1988 to 16,575 lb. in 1990.

Floyd Sandell, the Zanders' consulting herd manager for 15 years, was perplexed by the sudden downturn in

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Submitted by Francine Long

production. "In 1988 things were going along very nicely and then all of a sudden it started going the other way," he says. By the end of the next year the situation had worsened dramatically. "We noticed herd health was down considerably, and the turnover percentages were higher due to sickness, lameness and other malfunctions."

Sandell could not identify any change in the Zanders' operation that would have precipitated such a slide. "The Zanders have always been very conscious of staying with the recommendations of nutritionists and other experts," he says. "They were constantly checking and analyzing feeds."

By 1989 several of their prime producers developed severe arthritis in their hind quarters. The animals also failed to breed back as quickly.

The Zanders' veterinarian, Greg Iverson, tells of problems with calves born with "strange tendon abnormalities. It happened in a big group so it made us wonder," he says.

Alarmed by the worsening condition of their herd, the Zanders asked Susan Cook, an independent water-quality specialist, to analyze their well water.

She also analyzed control samples from other wells in the area that shared a similar soil profile. The results showed that the Zanders' water contained metals such as nickel and tin that normally are not found in rural wells.

"We found the other wells had much lower levels of metals," says Cook. "And they didn't have the nickel and tin found in the Zanders' wells."

Sludge analysis reports obtained by the Zanders on five of the 12 municipalities involved in the spreading indicated that metals found in the well were present in the sludge.

Encouraged by their discovery, the Zanders next looked into the procedure for granting sludge-application permits. Clearly outlined in both state and federal regulations is the requirement that deposit sites for sludge containing heavy metals have a pH of 6.5 or higher. Soil samples taken from the site adjacent to the Zanders' property showed a pH between 4.8 to 5.5.

"No way should that sludge have been put on that acidic soil," says Turner, who, as a soil scientist at Washington State University prior to returning to full-time farming, co-authored a Washington Department of Ecology (DOE) publication in which guidelines for sludge application are outlined. "The original permit should not have been granted."

A half-dozen agencies can okay sludge application to farmland. Often, no single agency holds accountability or even knows what the others are doing

Soil with a low pH allows heavy metals to mobilize and move into plant tissue and groundwater, states the DOE document, "Best Management Practices for Use of Municipal Sewage Sludge."

Armed with the results of their investigations, the Zanders went before Whatcom County Hearing Examiner Edward Good demanding that the permit be revoked. Their request was granted.

Good says the site's soil characteristics, drainage systems and characteristics of sludge applied to the site enabled heavy metals to enter groundwater and move from the site.

For the Zanders it was a bitter victory. Although the spreading of sludge stopped, Linda Zander believes the damage has already been done.

Blood and tissue samples taken from sick animals and analyzed at a local hospital showed extensive liver damage. To Cook, such results were consistent with her prognosis. Because the liver's main function is to filter toxins, any metals picked up in the water would eventually be deposited in that organ. Test samples taken by Cook in July and August 1990 showed levels of lead, copper and zinc far exceeded the maximum contamination level set by the Federal Safe Drinking Water Act. Lead surpassed the federal guidelines of 25 parts per billion (ppb) by 40-fold.

Not everyone concurs with Cook's tests. Water samples drawn in June 1990 by both the DOE and County Health Department showed no abnormally high levels of zinc, copper and lead. "We found no contamination in the well," says DOE's water quality hydrologist, Dave Garland. "I have insisted that the flow direction is wrong for the Zanders to be affected at all by the sludge."

To anyone concerned with the safety of applying sludge, this disparity in expert opinion is, at the very least, unsettling. When experts cannot agree on the composition of water taken from the same well, how can the well owner know for certain that the tests that are supposed to help monitor water quality are accurate?

Likewise, when experts disagree on the impact a specific sludge application has on water quality, how can a farmer with little or no training in waste ▶

The tangled web of enforcement

■ The Environmental Protection Agency (EPA) is writing a new set of technical standards for sludge application on farmland. Referred to as "503" regulations, they are due out in July.

Mark Charles, EPA's section chief for pretreatment enforcement, believes that the new 503 regulations are far more specific and comprehensive than the ones they will replace. Currently, outside of some basic siting requirements, the EPA regulates only pathogens (disease-producing organisms) and maximum contamination levels for two toxic substances: cadmium and PCBs. The new regulations for applying sludge on farmland will increase the number of regulated substances.

EPA efforts have focused on writing guidelines and not on introducing new enforcement strategies, says Charles. "At this point, the agency is more concerned with putting the rules into place than it is with what it might do in 1994," when EPA will start enforcing the new regulations, he says.

EPA has authority to regulate sewage treatment plants and the sludge they generate. Many states also have programs governing what can and cannot be in sludge that is applied to farmland. All states are required to follow EPA's guidelines as a minimum, but states may write more stringent ones.

For Darrell Turner, Washington State Farm Bureau president and co-author of a widely used manual on sludge application to farmland, adding new regulations on the federal level will not address the issue of what local agency can issue sludge application permits. Nor do they shift existing liability from the farmer who spreads the sludge to the municipality that supplies it. "Writing new regulations isn't going to make any difference," says Turner. "What we need is accountability from our [local] agencies."



management and few resources at his disposal expect to make a rational decision on whether or not to have sludge applied on his land?

A court will make the final decision on what impact the sludge spreading had on the Zanders' operation. Last September, they filed suit for unspecified damages against Western Services Waste Management, Whatcom County, the municipalities involved in the sludge application and the owners of the sludge site.

The Zanders helped establish a nationwide support network for rural residents affected by sludge contamination. "It's happening all over the country," she says.

In Vermont, dairyman Robert Ruane believes his cows are the victims of the City of Rutland's sludge—although he has no proof. When representatives of the municipality approached Ruane in 1986 with the idea of applying sludge on his 99-acre farm, he was impressed by their thoroughness and the generosity of their offer.

"They told me how much money it was going to save me on fertilizer and that it had been approved by the State of Vermont as far as permits to spread it on farmland," recalls Ruane. "They furnished me with two tractors, a manure spreader and a set of transport harrows to cover it over."

After 24 months of spreading sludge—5.5 tons per acre per year—Ruane began noticing a deterioration in his 180-cow herd. "The vet said my cows were getting arthritis," he says. By the end of the next year there was a marked increase in his cow mortality rate. The number of animals that died or were condemned at the packer had jumped from two in 1987 to 34 in 1988.

Ruane's problems weren't confined to a mysterious outbreak of arthritis and an epidemic of unexplained deaths. His animals weren't breeding back as quickly, and when they did his troubles compounded. "A lot of cows aborted, and we've had calves that couldn't straighten their legs and put their feet down flat," he says.

Since 1987 Ruane's milk average has dropped from 18,000 lb. to 14,000 lb. "I had no idea anything like this would happen," he says. "Knowing that the State of Vermont approved it, I thought it was all right."

"WE WANT TO SERVE AS A WARNING to other farmers not to allow this stuff [sludge] on their land," say Lynden, Wash., dairy farmers Linda and Raymond Zander. "You don't get something for nothing. There is a cost, and the cost could be your farm."

In December 1990, Vermont refused to renew Rutland's sludge application permit stating that the nitrate levels in two test wells were excessively high. Between January 1989 and December 1991 an additional 66 cows died.

Like the Zanders' animals, preliminary tissue and blood samples taken from sick and dead cows point to severe liver damage. And yet, to date, evidence linking the sludge applications with the death of Ruane's cows is circumstantial. Some experts see the absence of proof of the source of contamination as predictable and just one more reason why farm owners

should approach the sludge issue with extreme caution.

Ultimately, the buck stops at the farmer's door. In any dispute between landowner and municipality, the burden of proof falls clearly on the landowner. Ironically, while government officials and politicians close their offices and go home at 4:30 p.m., it is the farmer who must live with the consequences 24 hours a day.

When long-term, accumulative effects are considered, livestock are particularly vulnerable to what seems like a subtle degradation of food and water. Studies indicate that the vehicles through which toxins are transmitted from sludge to domestic animals are numerous and often quite insidious.

Lon Whitlow, a North Carolina State University dairy-cattle nutritionist who specializes in water-quality hazards, feels that drinking water offers one of the most direct mediums for introducing external toxins into domestic animals. This is particularly true with lactating cows. "Producing cows are going to consume 25 gal. of water a day," he says, adding that even small concentrations of toxins can build up dramatically in the liver of an animal that drinks that much water.

Ruminants grazing on sludge-treated land are at particular risk. "A more serious route of exposure by animals to toxic organics is the soil itself," warns one EPA bulletin published in 1985. "Most grazing animals ingest a certain amount of soil together with their food plants . . . . Dairy cows may consume soil up to 14% of dry-matter intake when available forage is low and no supplemental feed is available."

Researchers have known for decades that sludge containing high concentrations of heavy metals such as lead and cadmium put both livestock and crops at risk when applied to farmland. For this reason, federal guidelines establish maximum allowable levels in sludge. Unfortunately, compliance is often overlooked.

Of 30 municipal sludges analyzed in a 1983 nationwide survey, "only seven would be considered suitable for land application owing to their elevated content of one or more heavy metals," reports the *Archives of Environmental Contamination and Toxicology*, a national publication that highlights some of the premier research in the field.

Don Lisk at Cornell University's Toxic Chemical Laboratory, who co-authored the survey, says the size of such a nationwide survey and budgetary constraints have prevented more recent studies. Still, he believes even the most stringent existing guidelines do not go far enough to protect farmers. "We've only scratched the surface as far as analyzing sludge," says Lisk.

He warns that many of the most dangerous elements in sludge are not even on any government agency's agenda. There are no federal guidelines for the testing of dioxin, asbestos and a myriad of other highly toxic industrial by-products currently found in most municipal sludge, for instance.



PHOTOS BY THE AUTHOR

"I HAVE NO CONFIDENCE in the current system of policing the stuff," says Darrell Turner, who co-authored a 100-page manual on sludge application to farmland for Washington State's Department of Ecology.

Lisk believes that because sludge is often applied dry the risk of tractor operators being exposed to wind-born asbestos fibers is very real. "Two thirds of 50 different sludges we analyzed recently [a nationwide sampling] contained asbestos."

The National Toxicology Program, a government-supported entity whose purpose is to track toxins, estimates 700 to 1,000 new chemicals are added annually to the 60,000 chemicals currently used in U.S. industry. Most of these eventually find their way into the sewer system, says Lisk.

If that isn't enough to create concern, Lisk reminds us that there are even darker forces at work. In a well-known phenomenon scientists have dubbed "synergism," more than a few of these 60,000-plus chemicals will eventually team up in municipal sewers to become even more toxic.

Such a realization was enough for Cliff Holms of Canby, Ore., to end a seven-year involvement with sludge. Between 1969 and 1976 he spread one load per acre per year on his pasture. "I felt I was fairly safe because sewage plants were just for household communities with no industry," he says.

In order to protect himself he demanded regular testing of the sludge. "They couldn't even deliver it on the property without a certified test," he recalls. "If there were any heavy metals in there I wouldn't receive it."

Holms is convinced that in today's waste management environment few farmers, including himself, have the knowledge to properly protect themselves. "You would have to hire a consultant that knew exactly what was going into the [sewage treatment] plants," says Holms. "When you start monkeying around today with polymers and various chemicals you really could get into trouble. In a lot of cases we don't even have any methods of testing for them."

Washington's Darrell Turner is quick to point out that the process for determining whether or not an agricultural site should have sludge applied can tax the competency of even the most seasoned waste management expert. It is complex, time consuming and expensive. Once the decision has been made, the complexity does not disappear. Regular testing and monitoring of both the sludge and the soil on the site are necessary to protect the land and groundwater from contamination. ◀

Help for Sewage Victims, a nonprofit group, offers support to rural residents concerned about sludge application on farmland. Contact: Linda Zander, 2003 Panghorn Road, Lynden, Wash. 98264.

14 ways to judge a sludge program

■ "Quite frankly, a lot of farmers just aren't informed when it comes to the sludge that's put on their land," says Tony Boone, agronomic consultant for municipal sludge application programs.

There are reasons for this, he adds. Some farmers assume state and federal regulations thoroughly protect them, or don't know what questions to ask to know whether sludge is safe or not.

"Too many people go at it blind," agrees Missouri farmer Glen Gettemeyer. He suggests farmers ask the municipality or contractor who applies the sludge to sign a waiver stating they are fully responsible for any misapplication or other problems that could result.

You should also take steps to determine whether your municipality meets minimum standards by arming yourself with basic knowledge of its sludge application program. Here's a checklist to get you started:

☐ Find out which agency in your state issues permits and enforces regulations on the land application of sludge. Ask whether your municipality has a permit to land-apply sludge; then ask whether it has violated regulations within the last five years—and why.

• • • •

☐ Protect yourself from liability. Normally, the permit holder is held liable if problems crop up. The permit holder could be the municipality or a contractor. Landowners may be named in suits if sludge is applied without a permit. Unless you're willing to shoulder the burden of liability, don't let anyone talk you into applying for the permit yourself.

Sludge from out of state should be a red flag, warns Ken Arnold, Missouri Department of Natural Resources. Even though the generator may have a permit in its own state, the sludge may not meet your state's regulations.

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☐ Ask the municipality to explain how state regulations apply to your operation. This would include rate of application for the intended crop, limits on crops you can grow, grazing restrictions and guidelines for land slope and distances from wells or streams.

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☐ Ask if the municipality "pretreats." The EPA requires all towns with industries that produce toxic materials to pretreat—by convincing these industries to build their own treatment plants or the municipality building a separate treatment plant just for industrial waste. The municipalities also must run "priority pollutant" tests for 128 hazardous substances to ensure that the pretreatment plants are working.

Sewage sludge comes from municipal treatment plants; industrial sludge comes from the pretreatment plants. Warning: "There is no control at the federal level on land application [of industrial sludge]," says Arnold. Missouri polices industrial sludge; other states may not.

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☐ How often is the sludge tested and what is it tested for? Municipalities may test only periodically—once a month or once a year, perhaps—and assume content doesn't change much from day to day. Ask if the analysis of the sludge going on your land is based on actual tests of that sludge or on earlier tests.

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☐ Ask to see a complete analysis of the sludge applied to your land and results of the "priority pollutant" test if your municipality is required to pretreat. Ask that the amounts present be interpreted for you. You may have to trust the explanation is accurate, since few people have the knowledge to know how much of a toxic substance is too much.

☐ Ask which toxic substances may be present that the municipality does not test for. This is as important as knowing what is tested for. The state may have good reason not to require municipalities to test for certain toxic compounds—such as dioxin or asbestos. If so, you'd like to know those reasons. New contaminants can become concerns; you should be aware they may not be regulated.

• • • •

☐ Which basis is used to determine the rate of application for your land: 1) the nitrogen needs of the proposed crop; 2) the phosphorus needs of the soil; 3) the most restrictive metal.

Application rates based on N are preferable, says Arnold, because a field would likely reach its N limit before reaching the limit for a heavy metal.

• • • •

☐ What is the most restrictive metal and its site life? All soils have a limit for which they can be "loaded" with heavy metals. When more than that is put on, the excess could leach or be more readily absorbed by plants.

At the proposed application rate discussed above, the municipality should be able to tell you how many years it will take to reach each metal's maximum limit—known as the "site life" of the metal. The most restrictive metal is the one that reaches this limit first, and therefore restricts how many years sludge can be applied to a particular field.

• • • •

☐ How does the municipality calibrate the application equipment? Make them write it out. It should have formulas that explain how percent of solids affects speed of application, and how it translates liquid sludge into a dry-ton rate. If the municipality doesn't know, walk away—it may mean it's not being calibrated at all.

• • • •

☐ Be sure to get a complete soil analysis prior to sludge application and make sure pH levels meet regulated limits: 6.5 for water-based tests or 6.0 for salt-based tests. To prevent leaching, pH should be maintained at accepted recommendations for optimum crop production.

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☐ Daily records should be kept for each land application and should include: number of loads, field location, percent of solids, number of wet and dry tons applied and application rate on a per-acre basis. Ask to see copies of these.

• • • •

☐ Who monitors the soil? Soil should be tested regularly to determine nutrient need to prevent overapplication of nitrogen and phosphorus.

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☐ Keep control over where and when sludge is applied. Get it in writing. You don't want the municipality applying sludge when the field is wet or when the crop cannot use the nutrients.

sultant for municipal treatment plants in Missouri, Illinois and Indiana. When properly monitored, it can be a bonanza. The rub is in the enforcement of regulations meant to make sludge a safe product for agricultural use.

"I'll be the first to admit there are problems with the enforcement of sludge regulations," says Boone, who numbers St. Peters among his clients. "When municipalities are tight on money, they may build a treatment plant and then want to forget about it. But there are a lot of good sludge application programs, too."

Adds Gettemeyer: "You have to keep a close eye on what the city is doing. If St. Peters started taking shortcuts—if it went back to the sloppy way it did things before, I'd bail out real quick. That's why it's important to have a good agronomist that you trust overseeing the operation."

Boone suggests farmers protect themselves. "Make a checklist of things you want to know about the program. Make sure the people you'll be working with are open, honest and willing to provide the information you request. If not, stay away." ◀

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THE ARRIVAL OF SEWAGE SLUDGE FROM NEW YORK CITY HAS

There are two general stores in the sun-scorched town of Sierra Blanca, Texas, and not much else. A motel, a restaurant, a fading museum memorializing this desert outpost's one lasting claim: It was here in 1881 that the Southern Pacific and Texas Pacific railroads met. Back then, folks thought this was promising cattle country. The tortilla-flat rangeland, scruffy with mesquite and greasewood, stretches for miles to the base of Sierra Blanca Mountain. Cargo trains passed through town on their way to bigger places like El Paso, 90 miles to the west.

But a century later some of the ranchers have given up trying to coax a living out of this reluctant land—too hot, too dry, too hard on the animals. Just a handful of cattle hands remain; the local economy has collapsed. Storefront after storefront along Sierra Blanca's short shopping drag—the auto-body–repair shop, the hair salon, the movie theater—stands empty and crumbling. Work is so scarce nearly 40 percent of the 700 or so people are living below the poverty line. Aside from the occasional wayward traveler in search of a fill-up, the trains are about the only thing that still bother to stop, as they rumble in from faraway cities. These days the cars aren't filled with grain and cloth and fuel but with cargo of a different sort: sludge.

It's been coming here since 1992—about 200 tons of processed toilet and sewer waste a day—the property of New York City and a biosolids company called Merco. Four years ago Merco won an estimated $168 million contract to dispose of about a quarter of the sludge turned out by New York City's sewage-treatment plants, sludge that was once tossed into the Atlantic before Congress banned ocean dumping in 1988. Following rules put forth by the Environmental Protection Agency (EPA) and state environmental agencies in New York and Texas, the company hauls the sludge across the country by rail to its new home, a 128,000-acre expanse of land it purchased on the outskirts of Sierra Blanca, where it is spread on the parched soil as fertilizer.

PHOTOGRAPHY BY BARBARA LAING



Sludge, ready to be spread as fertilizer, is dumped in Sierra Blanca.

Submitted by Francine Long



SLUDGE ON THE RANGE

TORN APART A WEST TEXAS TOWN. BY WESTON KOSOVA

In waste-disposal–industry parlance, the project is known as a beneficial-land application. Merco's presence in town has definitely been beneficial for the local economy. More than 30 Sierra Blancans work on the Merco Ranch, as the company likes to call it, making Merco one of the town's largest employers. The company has also made a practice of buying supplies and equipment from West Texas businesses. "We try to be a good neighbor," says Tom Gillane, the project's operations manager.

Some of Gillane's neighbors couldn't be happier to see him. "I love Merco," says Barbara Fulton, whose husband works at the site. "They've made jobs for this town. My husband can now work at home. He doesn't have to make a 120-mile round-trip anymore."

All the same, some of Sierra Blanca's residents would just as soon see the company pack up and leave. They're unmoved by Merco's talk about helping shore up the economy and the company's claims that the sludge will transform patchy brushland into verdant grazing pastures. Sludge, they insist, is poison, saturated with heavy metals, petroleum, and pathogens. "New York is trying to push their toxins on us," says Bill Addington, chairman of Save Sierra Blanca and Merco's self-appointed enemy number one. "They thought we wouldn't know better."

Merco's presence, along with a proposed low-level nuclear-waste site, has thrown the entire town into turmoil. As with so many other environmental feuds, measuring the long-term benefits and risks of spreading sludge is problematic, and the EPA's conclusion that sludge is safe has been disputed. Detractors accuse Merco of environmental racism for targeting a place whose people are poor and mostly Hispanic—and charge that the company lured Texas scientists and influenced officials to win quick approval for the project. Merco retorts that Sierra Blancans are the bigoted ones, leery of anyone and anything that comes from out of state. "I'd be willing to guarantee if this material came from

"WE USED TO LOOK FORWARD TO THE SMELL OF MESQUITE AFTER A RAIN,"

Houston there wouldn't be half this response," says a company spokesperson. "But you say 'New York City' in the South and people say 'Ugh.'"

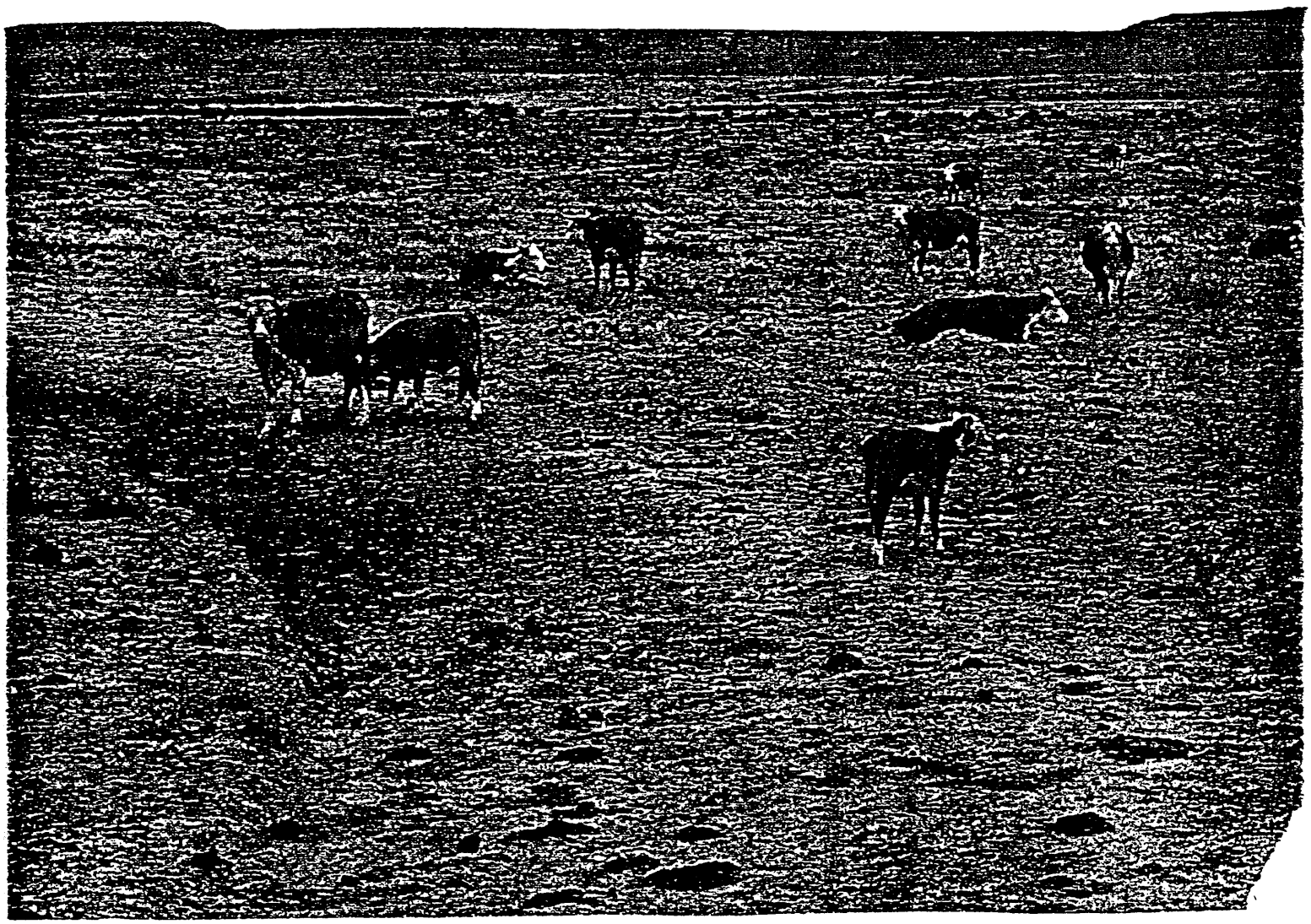
In town, a simple act such as buying groceries is often an indication of which side of the sludge issue you come down on. Merco opponents tend to head for Guerra & Company, Addington's store. Likewise, supporters are more likely to head for R & G Grocery, just up the street.

There are even disagreements about how bad the wind coming off the Merco site smells. Merco defenders insist they don't notice a thing. "I've never smelled anything that made me say, 'That's Merco,'" says Virgil Best, who manages the El Camino Motel. But protesters like Addington describe the aroma in precise detail. "We used to look forward to the smell of mesquite after a rain," he says. "Now there's just this overwhelming stench. Like death, with chemicals added."

Merco is quick to point out that it is not merely dumping sludge onto the land but faithfully adhering to the stacks of EPA rules and regulations it is required by law to follow. And on paper those rules seem impressive and thorough. But there is disagreement among soil scientists and toxicologists about whether the restrictions on sludge spreading go far enough—or merely provide the appearance of safety while allowing other, unseen hazards not covered under the EPA's regulations to seep into the soil. "It's very hard for someone outside the discipline to understand the ins and outs," says John Peverly, a Cornell University soil scientist. "Some people are much more accepting of risk levels than other people are. The risk level is never zero; so the question becomes, What risk level is psychologically acceptable? It's a subjective thing."

Merco's six-year contract is up for renewal in 1998, and the opposition is doing what it can to get the project killed. It's a long shot at best. Many in Sierra Blanca may oppose the Merco Ranch, but federal and state environmental agencies and three state universities are lined up squarely on the side of Merco.

Let me ask you something," says Tom Gillane, the stern, burly Texan in charge of the Merco project. "Does it reek? Do you see a green cloud?" It's a typical June morning for Sierra Blanca—11 o'clock, 100 degrees—and we're standing somewhere in the middle of Merco's vast property, which stretches as far as I can see in every direction; 128,000 acres is a lot of land, nearly 200 square miles. And frankly, yes, the odor is pretty foul, something like that first deep breath inside the monkey house. Then again, the



SAYS BILL ADDINGTON. "NOW THERE'S THIS OVERWHELMING STENCH."

smell may have something to do with the gigantic dump truck that has just disgorged 18 wet tons of steamy sludge at my feet. A tractor scoops it up and deposits it into a waiting manure spreader, a large open-bed truck that flings chunks of the jet-black cake like a snowblower. In the field three other spreaders are already at work, giving Upper West Texas a little taste of the Upper West Side.

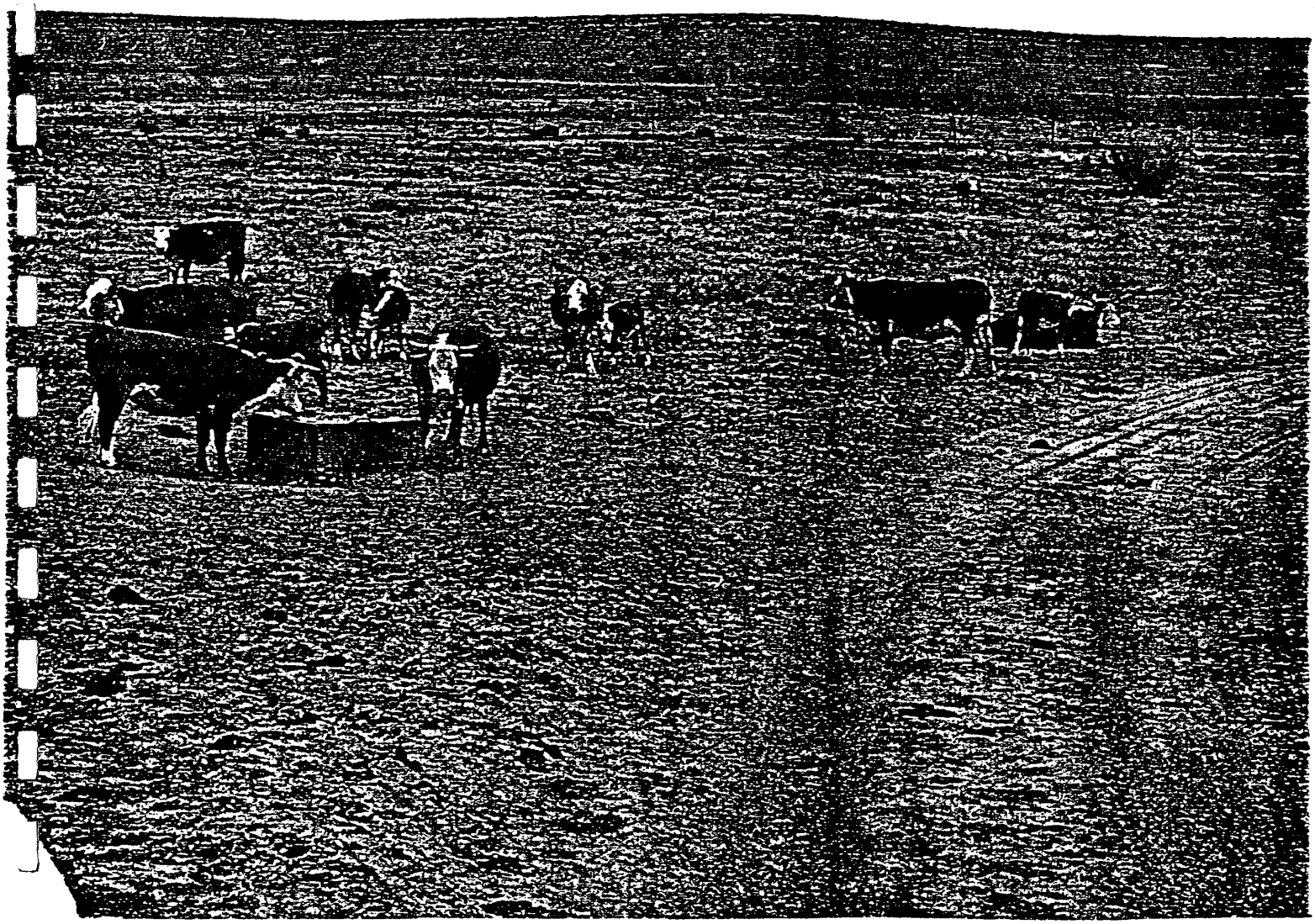
The workers, nearly all of them Hispanic, wear long pants and gloves, but Gillane has no compunction about grabbing up a handful of the stuff in his bare hands and giving it a squeeze. "It's completely, totally safe," he says. After all, this isn't raw sewage. It's treated, processed, "clean."

Or, at least cleaner than it started out. Everything that goes down a toilet, a drain, or a sewer in New York City eventually winds up in one of its 14 sewage-treatment plants. The big debris—sticks, gum wrappers, hypodermic needles—are strained out, leaving a nasty fecal soup supercharged with metals like copper and lead from aging city pipes, and mercury and cadmium, plus poisons such as arsenic, from any one of a thousand different sources. Mixed in are any number of pathogens—viruses, molds, bacteria. Sludge is what's left over after the plant attempts to remove as many of these hazards as possible.

But the treatment can't remove them all. which is why sludge is separated into different classes. The sludge that comes out of processing still too rich in metals and pathogens by EPA standards is banished to landfills. "Cleaner," class-A sludge, which is heat-treated to kill pathogens and contains what the EPA defines as negligible levels of potential toxins, can be pelletized and sold over the counter as fertilizer.

In between these two grades is the kind of sludge being spread in Sierra Blanca. Class-B sludge contains higher amounts of pathogens than the class-A does—though in still low-enough quantities that the EPA considers it relatively harmless when handled properly. In order to use it as fertilizer, Merco has to follow strict state and federal rules. Once a month, the sludge must be tested to make sure the contaminants don't exceed EPA limits (Merco tests four times monthly). Any batches that do are landfilled. Only a limited amount of sludge—9 wet tons per acre per year—can be spread on the soil. There are also varying restrictions on what plants the sludge can fertilize. Even the 1,700 cattle on the Merco property have to be kept off sludge-fed pastures for 30 days after spreading; time enough, the EPA says, for the sun to kill off most of the remaining pathogens.

Back at Merco's Sierra Blanca headquarters, Gillane hauls out a foot-thick binder



Hereford cattle graze on sludge-treated land at the Merco Ranch.

"WE HAVE TO LOOK AT IT SCIENTIFICALLY," SAYS MERCO'S MANAGER. "IF

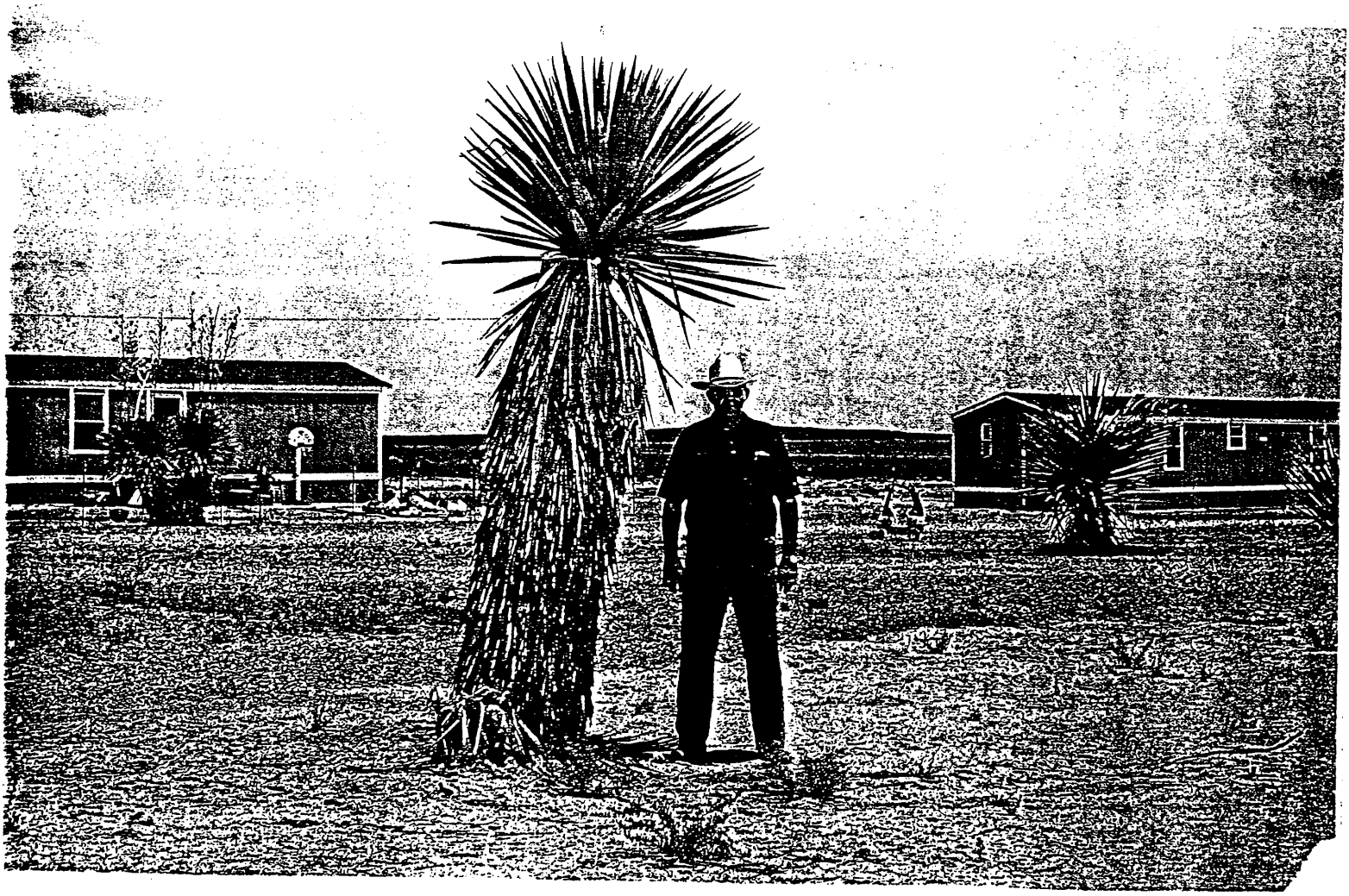
and smacks it on the conference table. "As you can see, that's the manifest," he says, opening one of the volumes to a page crowded with numbers, dates, times. "Once the container is loaded with sludge, it's sampled for testing. Then it's closed, locked, and there are security seals that are put in place." When the sludge arrives in Sierra Blanca about two weeks later, everything is checked out by an independent company to make sure the containers haven't been tampered with along the way. "If they don't approve it, we don't apply it," Gillane instructs. "Period, end of story."

Unfortunately, it's not that simple. Gillane takes obvious pride in the precision and thoroughness of his operation, and Merco follows all the EPA, state, and federal laws. Even so, that doesn't necessarily mean the sludge is safe. The EPA only requires sludge to be tested for the presence of a very limited number of harmful ingredients. Sludge must be tested for only nine metals, four pathogen groups, and nitrogen; the EPA says that dangerously high levels of other toxins are not routinely found in sludge. The blunt reality is there are dozens of potential toxins in sludge that can pass through the EPA's seemingly rigorous testing process undetected.

There are also serious questions about the dangers from those toxins that are regulated. Take lead, a heavy metal so harmful it has been banned from gasoline and paint and most water pipes. Even small amounts of lead—10 micrograms per deciliter of blood, the government says—can irreparably reduce intelligence in children. And yet the EPA seems to have little concern about lead in sludge. According to agency regulations, 267 pounds of lead can be spread on each acre.

The Merco project isn't the only place sludge is being spread on the land, but it is one of the largest. In Texas alone there are more than 200 other sites, and Florida, Illinois, Arizona, California, and Colorado also allow class-B sludge to be recycled as fertilizer. In an effort to make their product more appealing, the industry recently adopted a sleeker, more appealing idiom for sludge: *biosolids.*

So far, according to the EPA and Merco, there have been no documented cases of illness directly attributed to sludge fertilizer. This is news to citizens' groups around the country who claim the use of sludge fertilizer near their homes is making people and animals sick. The long-term effects of sludge spreading are anyone's guess. The National Academy of Sciences recently concluded that "as more croplands are treated with municipal sludges and reach their regulatory limits for chemical pollutants from sludge applications, additional information will



Tom Gillane, Merco Ranch operations manager, in Merco Village.

THIS WERE NOT SAFE, WOULD WE PUT OUR HOMES IN THE MIDDLE OF IT?"

be needed to assess potential long-term impacts of sludge on groundwater quality and on the sustainability of soils for crop production."

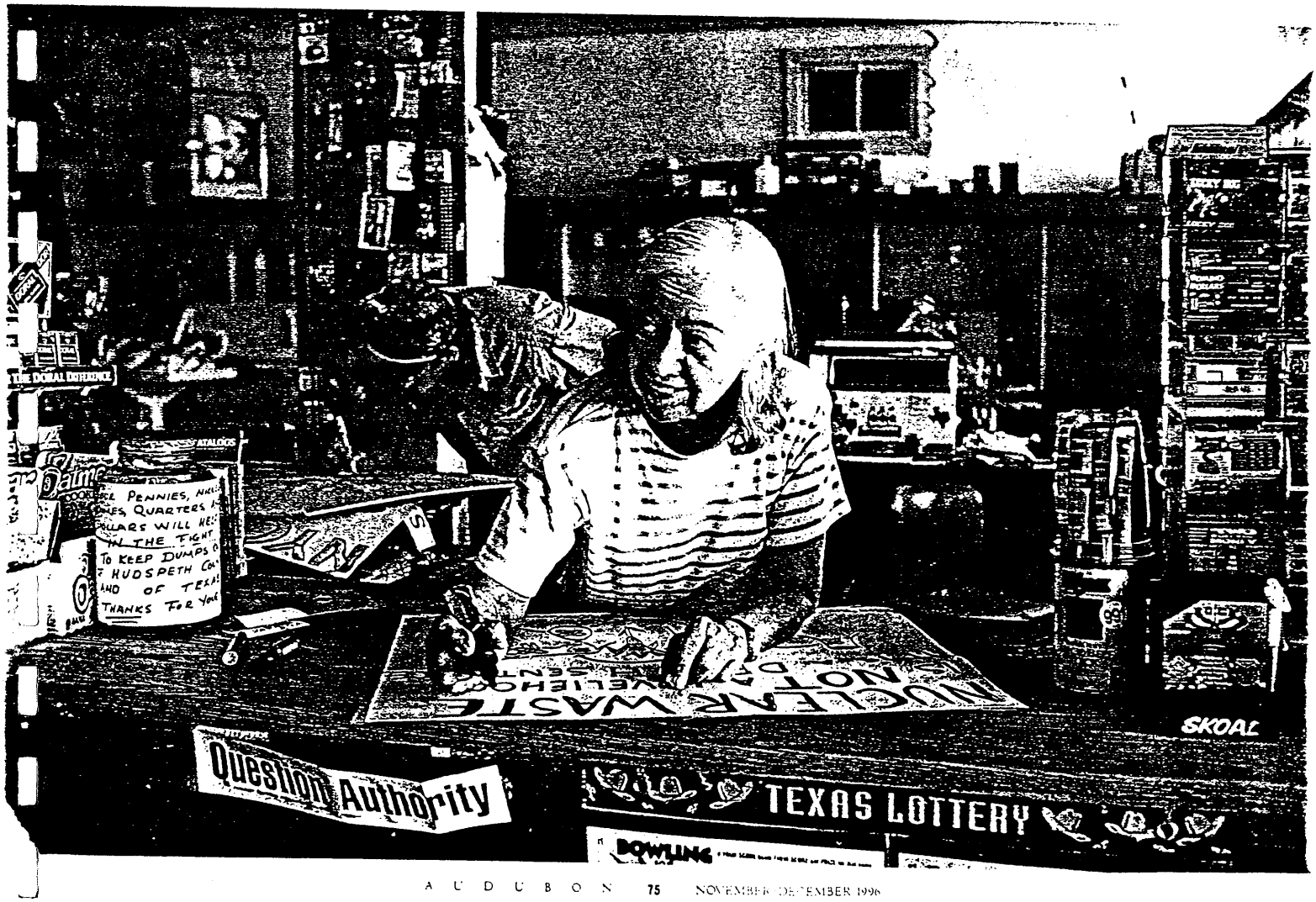
Gillane is not swayed by health concerns like these. "Look," he says. "There are two ways of looking at this thing—emotionally and scientifically. The opposition looks at this emotionally. We have to look at it scientifically." To drive the point home, he taps on the large map of the ranch behind him. "See here, this is where I live." It's a collection of trailer homes in the heart of the property. He affectionately refers to it as Merco Village. Gillane's wife lives in Houston, but he stays on the ranch all but two weekends a month along with two Texas Tech University scientists and their families. (Merco gave Texas Tech $1.6 million to study the project. The researchers endorsed it before their study began.) "If this were not safe, would we put our homes right in the middle of it?" Gillane asks. He pauses for effect, fishing in his breast pocket for a cigarette.

Bill Addington has zero patience for Merco's and the EPA's talk about "acceptable levels." "It's a lie," he says. "This sludge is deadly. It's toxic." The front windows of Guerra & Company, the general store he owns with his mother, Gloria Addington, is a shrine of protest against the Merco project. Homemade placards cover nearly every inch of dusty glass—NYC SLUDGE IS A STINKING KILLER! and SAVE SIERRA BLANCA—blocking light filtering through to the cavernous space inside.

The store itself is a haphazard collection of necessities. Hammers mingle with bags of sugar; needles and thread share shelf space with the breakfast cereal. But the shelves along the far wall have been cleared of merchandise to make room for Addington's ever-expanding sludge-combat library—piles and piles of newspaper clippings, magazine articles, and EPA reports. By now he's steeped in the literature. Terms like *the outgassing of bio-aerosols* and *volatile organic gases* lace his speech.

Tall and lanky, Addington looks younger than his 40 years, but his face is weary. For the past four years, attempting to rid Sierra Blanca of Merco has been his obsession. He holds weekly meetings, hosts reporters at every opportunity, is forever writing letters to state and federal offices demanding they do something, anything.

Addington's pleas attracted the attention of at least one sympathetic government official: Hugh Kaufman of the EPA. Kaufman is practically a legend among environmentalists as the whistle-



Gloria and Bill Addington, leaders of the sludge protest, in their store.

"THIS IS AS MUCH A MORALITY PLAY AS AN ENVIRONMENTAL ISSUE."

blower who exposed his own agency's failures at Love Canal, leading to the creation of Superfund. Ever since, he's used his federally protected whistleblower status—and his lofty title as assistant to the assistant administrator for the Office of Solid Waste and Emergency Response—to point out what he sees as the agency's many shortcomings. And the way it regulates sludge, Kaufman says, is one of its biggest. "It's déjà vu. I've been through this already, twenty years ago. The EPA looks at sludge today the way it looked at hazardous waste back then: Don't worry, it's safe, we tested it."

Kaufman made quick friends of the Addingtons and other sludge opponents in town, who greet him like a hero. Gloria Addington dotes on him, pushing food into his hands she wouldn't think of letting him pay for. "Sierra Blanca is as much a morality play as an environmental issue," Kaufman says. "Impoverished people being victimized by rich, New York businessmen. They're trying to turn Sierra Blanca into the pay toilet for New York City."

Kaufman's zealousness in attacking Merco may have gotten the better of him earlier this year. In August 1994 he appeared in a television documentary about the Merco project that strongly suggested the company took shortcuts to get the Sierra Blanca project approved. On the show, Kaufman called it "an illegal haul-and-dump operation." Merco sued for libel and won. Kaufman's case wasn't helped by the fact that the judge, Lucius Bunton III, was the same man who presided over the trial that knocked down an earlier attempt by a Texas State attorney general to shut down the Merco Ranch on the grounds that it was a health hazard. Bunton agreed with the EPA that Merco posed "no health risk" to Sierra Blanca. Kaufman was ordered to pay one dollar in actual damages to Merco—but the jury hit him with $500,000 in punitive damages. TriStar Television, the producer of the show and a subsidiary of Sony, was ordered to pay $4.5 million.

Since the lawsuit, sludge protesters in town have begun to choose their insults against Merco a little more carefully. But they're still convinced they can whip up enough ill will toward the company to force it out of Sierra Blanca. "In the end we'll have them out of here," Gloria Addington says sternly. "I think they'll see they're not welcome." Maybe they will, but for the time being Tom Gillane has no plans to hitch up Merco Village to the back of his pickup and retreat down I-10. According to his estimates, the soil on the Merco Ranch won't reach the EPA's toxin limits for another 270 years. And then what? "I don't know," Gillane says, "I'll be dead by then, and I'm really not going to care."



EPA whistleblower Hugh Kaufman, with a sludge train passing behind.

The Nature and Properties of Soils

ELEVENTH EDITION

NYLE C. BRADY
EMERITUS PROFESSOR OF SOIL SCIENCE
CORNELL UNIVERSITY

RAY R. WEIL
PROFESSOR OF SOIL SCIENCE
UNIVERSITY OF MARYLAND AT COLLEGE PARK



PRENTICE HALL
UPPER SADDLE RIVER, NEW JERSEY 07458

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For centuries the use of farm manure has been synonymous with a successful and stable agriculture. Not only does manure supply organic matter and plant nutrients to the soil, but it is associated with animal agriculture and with forage crops, both of which are soil protecting and conserving. A high proportion of the solar energy captured by growing plants ultimately is embodied in farm manure (see Figure 16.12). Crop and animal production and soil conservation are enhanced by its use.

Huge quantities of farm manure are available each year for possible return to the land. For each kilogram liveweight of farm animals about 4 kg dry weight of manure is produced in a year. In the United States the farm animal population voids about 10 times as much manure solids as does the human population.

More than 1 billion Mg (fresh weight) of this manure is produced in feedlots or large poultry or swine complexes where manure *disposal* as a problem tends to overshadow manure *utilization* as an opportunity (Figure 16.13). A 50,000-head beef feedlot operation, for example, produces about 90,000 Mg of manure solids annually, after some decomposition. A conventional application rate of 15 Mg per hectare (7 tons per acre) would supply approximately 150 kg N per hectare. Approximately 6000 hectares (1500 acres) of land would be required to properly utilize this manure. To find this much cropland, the manure would likely have to be hauled 6 to 10 km (3.7 to 6 miles) from the feedlot. Until it can be spread, the manure is usually kept in huge piles. Groundwater under such feedlots is often polluted with nitrate and unfit to drink (see Section 13.8). Application of the manure to nearby cropland at higher-than-needed rates would save

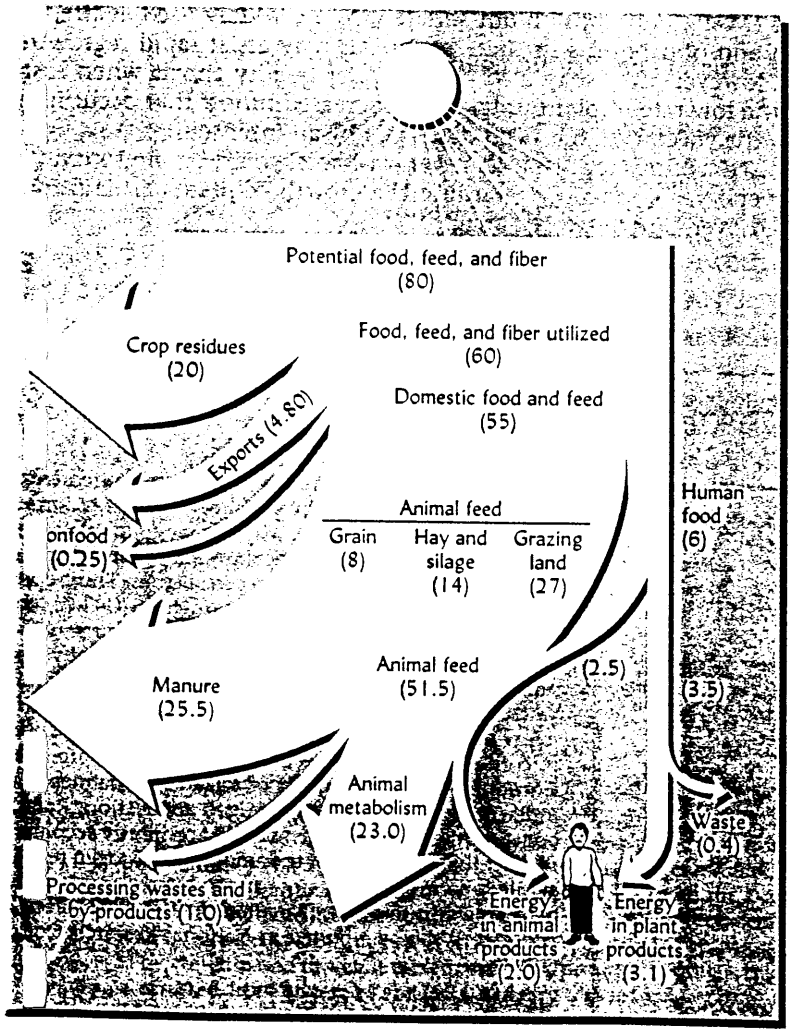


FIGURE 16.12 Estimated energy flow for the human food chain in the United States (data in billions of joules per year) showing the high proportion of the energy ultimately found in animal manures. An even larger proportion of the mineral nutrients (not shown) in the food chain end up in animal manure. [From Stickler et al. (1975); courtesy Deere & Company, Moline, Ill.]

on costs of transporting the manure to more distant fields, but can result in salinity damage to crops and soils and excess nitrogen and phosphorus loss to surface and groundwater.

Nutrient Composition of Animal Manures

Since manure as it is applied in the field is a combination of feces and urine, along with bedding (litter) and spilled feed, its composition is quite variable (Table 16.6). For a particular type of animal, the actual water and nutrient content of a load of manure will depend on the nutritional quality of the animals' feed, how the manure was handled,

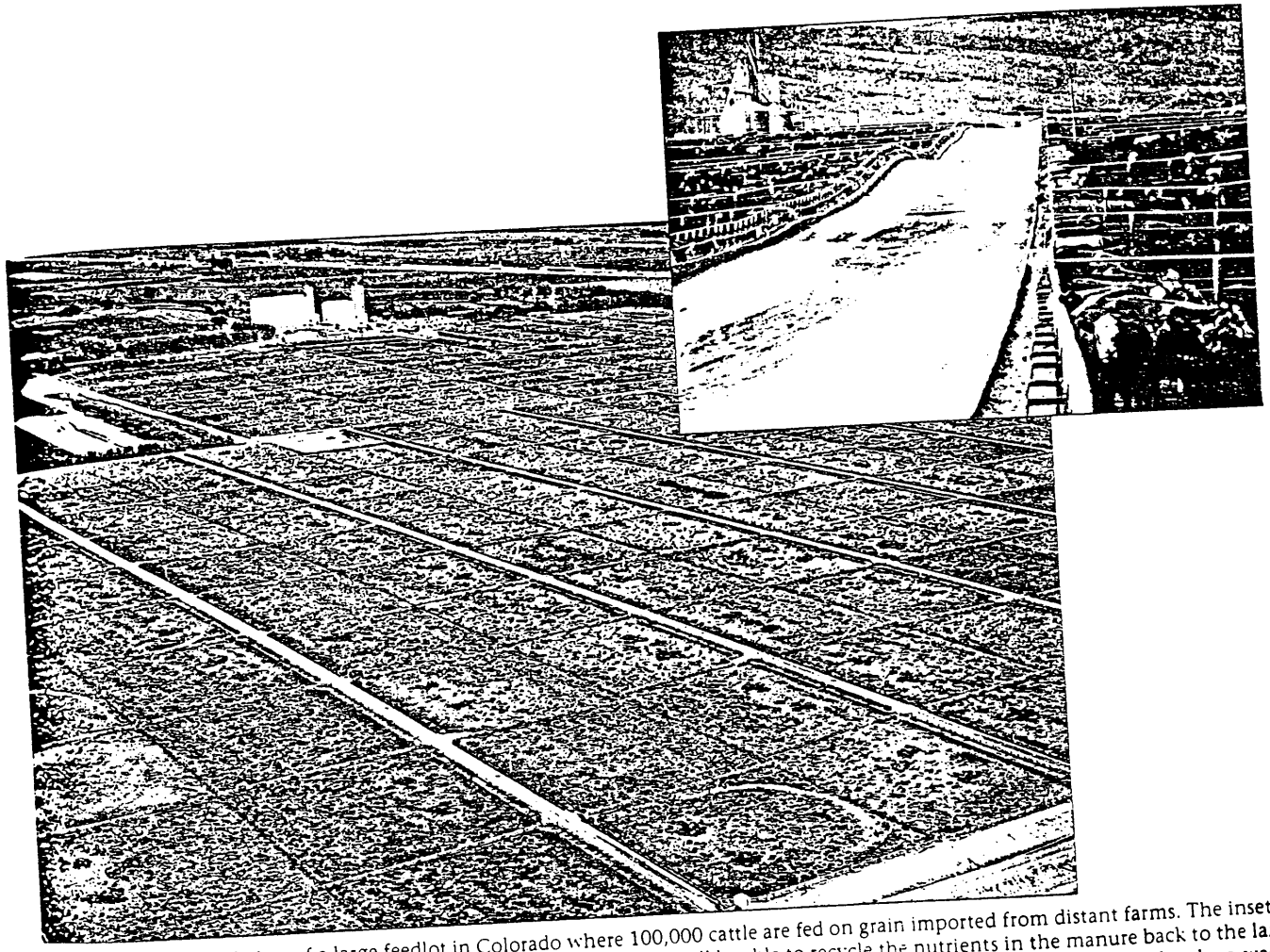


FIGURE 16.13 Aerial view of a large feedlot in Colorado where 100,000 cattle are fed on grain imported from distant farms. The inset is a closeup of a similar feedlot. It is unlikely that the feedlot managers will be able to recycle the nutrients in the manure back to the land on which the cattle feed was grown. Instead of being a valued resource, the manure in this situation may be considered to be a waste requiring disposal. The challenge is to find ways to structure agriculture in a more ecologically balanced manner. (Large photo courtesy Monfort Feed Lots, Greeley, Colo.; inset courtesy of R. Weil)

TABLE 16.6 Example of the Variable Composition of Farm Manure

The data are based on 28 samples of horse manure sent in to one lab over a period of five years.

	Total N	*Soluble N*	*Phosphorus*	*Potassium*	*Wat*
	Percent of fresh weight				
Lowest analysis	0.21	0.0	0.04	0.07	3
Highest analysis	0.85	0.14	0.75	1.0	8
Average analysis	0.51	0.03	0.16	0.35	6

Courtesy of V. A. Bandel, University of Maryland

and the conditions under which it has been stored. The variability from one type of animal to another (e.g., broiler chicken manure compared to horse manure) is even greater. Therefore one has to be cautious in interpreting general statements about the value and use of manure.

Animals excrete large portions of the nutrient elements consumed by them in their feeds. Generally, about three-fourths of the nitrogen, four-fifths of the phosphorus, and nine-tenths of the potassium ingested is voided by the animals and appears in the manures. For this reason, animal manures are valuable sources of both macro- and micronutrients (Table 16.7).

Both the urine (except for poultry, which produce solid uric acid instead of urine) and feces are valuable components of animal manure. On the average, a little more than *one-half of the nitrogen,* almost *all of the phosphorus,* and about *two-fifths of the potassium* are found in the solid manure. Nevertheless, this higher nutrient content of the solid manure is offset by the ready availability of the constituents carried by the urine. Care must be taken in handling and storing the manure to minimize the loss of the liquid portion.

The data in Table 16.7 show that manures have a relatively low nutrient content in comparison with commercial fertilizer, and a nutrient ratio that is considerably lower in phosphorus than in nitrogen and potassium. On a *dry weight basis* animal manures contain from 2 to 5% N, 0.5 to 2% P, and 1 to 3% K. These values are one-half to one-tenth as great as are typical for modern commercial fertilizers.

However, unless it has been specially processed, manure is not spread in the dry form, but contains a great deal of water. As it comes from the animal, manure has a high water content, commonly varying from 30 or 40% for poultry to 70 or 80% for dairy cattle (see Table 16.7). If the fresh manure is handled as a solid and spread directly on the land (Figure 16.14), the high water content is a nuisance and adds to the expense of hauling. But if the manure is handled and digested in a liquid form or slurry and applied to the land as such, even more water must be added. In any case, all this water dilutes the nutrient content of manure, as normally spread in the field, to values much lower than those cited for dry manure. The large water content makes it difficult to transport the manure to distant fields where it might do the most good.

16.6 STORAGE, TREATMENT, AND MANAGEMENT OF ANIMAL MANURES

Where animal and crop production are integrated on a farm, manure handling is not too much of a problem. The use of pasture can be maximized so that the animals themselves spread much of the manure while grazing. The manure from confined animals is produced in small enough quantities to be hauled daily to the fields, or stored under cover during periods when soil conditions are not favorable for spreading manure. The total amount of nutrients in the manure produced on the farm is likely to be somewhat less than that needed to grow the crops; thus modest amounts of inorganic fertilizers may be needed to make up the difference.

Where animals are raised in confined quarters in large numbers, the large concentration of manure production leads to problems of offensive odors, along with the possibilities of pollution of streams and drinking water with pathogens, organic materials, nitrates, and phosphates. The problem of disposal of manure then takes precedence over its utilization, bringing about major changes in manure management.

On farms with concentrated animal production, four general management systems are now being used to handle farm manures: (1) collection and spreading of the fresh manure daily; (2) storage and packing in piles and allowing the manure to ferment before spreading; (3) aerobic liquid (air stirred in) storage and treatment of the manure prior to application; and (4) anaerobic liquid storage and treatment prior to application. Each of these methods of handling affects the nutrient value of the manure (Table 16.8). The greatest loss of nutrients, especially nitrogen, occurs either from open-lot storage or from lagoon storage. In open-lot storage, much nitrogen is volatilized as ammonia gas (see Section 13.6), and considerable quantities of nutrients may be washed away when it rains. Proper choice of site and design are necessary to prevent pollution of the groundwater and surface water. When manures are stored anaerobically (as in a large, densely packed pile or in an unaerated lagoon), much nitrogen loss occurs through denitrification (see Section 13.9).

TABLE 16.7 Commonly Used Organic Nutrient Sources: Their Nutrient Contents and Other Characteristics

Material	Water[a] %	Total N	P	K	Ca	Mg	S	Fe	Mn	Zn	Cu	B	Mo	
	Percent of dry weight							g/Mg of dry weight						
Poultry (broiler) manure[b]	35	4.4	2.1	2.6	2.3	1.0	0.6	1,000	413	480	172	40	0.7	May contain high C bedding, high soluble salts, and ammonia.
Dairy cow manure	75	2.4	0.7	2.1	1.4	0.8	0.3	1,800	165	165	30	20		May contain high C bedding.
Swine manure[c]	72	2.1	0.8	1.2	1.6	0.3	0.3	1,100	182	390	150	75	0.6	May contain elevated Cu levels.
Sheep manure	68	3.5	0.6	1.0	0.5	0.2	0.2	—	150	175	30	30	—	
Horse manure	63	1.4	0.4	1.0	1.6	0.6	0.3	—	200	125	25[c]	—	—	May contain high C bedding.
Feedlot cattle manure[d]	80	1.9	0.7	2.0	1.3	0.7	0.5	5,000	40	8	2	14	1	May contain high (15%) soluble salts.
Young rye green manure	85	2.5	0.2	2.1	0.1	0.05	0.04	100	50	40	5	5	.05	Nutrient content decreases with advanced growth stage.
Spoiled legume hay	40	2.5	0.2	1.8	0.2	0.2	0.2	100	100	50	10	1,500	3	
Municipal solid waste compost[e]	40	1.2	0.3	0.4	3.1	0.3	0.2[f]	14,000	500	650	280	60	7	May have high C/N and contain heavy metals, plastic, glass.
Sewage sludge	80	4.5	2.0	0.3	1.5[g]	0.2	0.2	16,000[g]	200	700	500	100	15	May contain high soluble salts and toxic heavy metals.
Wood wastes	—	—	0.2	0.2	0.2	1.1	0.2	2,000	8,000	500	50	30	—	Very high C/N ratio, must be supplemented by other N.

Data derived from many sources.

[a]Water content given for fresh materials. Processing and storage methods may alter water content to less than 5% (heat-dried) or to more than 93% (slurry).

[b]Broiler and dairy manure composition estimated from means of approximately 800 and 400 samples analyzed by the University of Maryland manure analysis program from 1985–1990.

[c]Composition of swine, sheep, and horse manure calculated from North Carolina Cooperative Extension Service Soil Fact Sheets prepared by Zublena et al. (1993).

[d]Feedlot manure composition is based on average analysis reported in Eghball and Power (1994).

[e]Composition of municipal solid waste compost based on mean values for the products of 10 composting facilities in the United States as reported by He et al. (1995).

[f]Sulfate-S.

[g]Sludge contents of Ca and Fe may vary 10-fold depending on the wastewater treatment processes used.

TABLE 16.8 Influence of Handling and Storage Methods on Nutrient Losses from Animal Manure

The values are ranges of percent loss of nutrient from the time the manure is excreted until it is applied to the land.

Manure handling and storage method	*Percentage lost*		
	N	*P*	*K*
Solid Systems			
Daily scrape and haul	15–35	10–20	20–30
Manure pack or compost	20–40	5–10	5–10
Liquid Systems			
Aerobic tank storage	5–25	5–10[a]	0–5
Lagoon (anaerobic) storage	70–80	50–80	50–80

From Sutton (1994).
[a]Most of the P and K in a lagoon system settles to the bottom of the lagoon and is recoverable only when the sludge in the lagoon is dredged out.

Methods of manure handling that both prevent pollution and preserve nutrients in a form that can be easily transported and sold commercially would make a major contribution to ameliorating the manure problem for concentrated animal production enterprises. Several options are currently being developed, three of which are described below.

Heat-Dry and Pelletize

This technology dries the manure with heat and then compresses the dried product into small pellets that handle like commercial fertilizer. This manure-processing method requires considerable energy use and capital investment, but the product has generated a large demand, especially in the landscaping and lawn industries where much money is already being spent on slow-release fertilizers.



FIGURE 16.14 Spreading solid dairy manure on cropland recycles nutrients efficiently but is labor-intensive and time-consuming for the farmer. Many loads of manure will have to be hauled to fertilize this field. The manure should be incorporated as soon as possible after spreading, and spreading should not be done on frozen soils. Calibration of spreaders is important to prevent unintentional overapplication of nutrients. (Photo courtesy of R. Weil)

Commercial Composting

A second method under development is improved **composting** of manure (see Section 12.17). In the case of poultry manure, dead birds are composted along with the manure, and the final product is a very stable, nonoffensive, relatively high analysis, slow-release fertilizer that is also easy to handle and has been enthusiastically received in test markets. Composting is a natural aerobic decomposition process and is much less energy- and capital-intensive than heat-drying and pelleting.

Anaerobic Digestion with Biogas Production

In this method the manure is made into a liquid slurry and allowed to become anaerobic (air is not stirred in). As discussed in Section 12.6, methane is a major gaseous product of anaerobic decomposition. The biogas produced by anaerobic manure digestion contains about 80% methane and 20% carbon dioxide. This gas can be burned much like commercial natural gas. Developing countries have attempted to use small-scale manure digesters to supply cooking and heating fuel for remote villages.

Recently, several commercial ventures have been established in the United States for large-scale production of biogas from manure. The gas is most commonly used to generate electricity, which is sold to local utility companies. The slurry remaining after digestion still contains most of the nutrients from the manure (though most of the organic carbon has been transformed to gases) and can be pumped to nearby fields or further processed (see above methods) to allow for wider sale and distribution.

In the future, such technologies, along with more integrated animal farming systems, may help to redress the serious nutrient imbalances that have developed with regard to manure production in modern agriculture.

16.7 INDUSTRIAL AND MUNICIPAL BY-PRODUCTS

Farm animals are not alone in generating large quantities of nutrient-containing wastes. People, and their industrial activities, do likewise, mostly in the relatively concentrated setting of metropolitan urban areas. Four major types of organic wastes are of significance in land application: (1) municipal garbage, (2) sewage effluents and sludges, (3) food-processing wastes, and (4) wastes of the lumber industry. Because of their uncertain content of toxic chemicals, other industrial wastes may or may not be acceptable sources of organic matter and plant nutrients for land application.

Society's concern for environmental quality has forced waste generators to seek nonpolluting, but still affordable, ways of disposing of these materials. Although the primary reason for adding these wastes to land may be to safely dispose of them, they also serve as valuable soil amendments for agriculture, forestry, and disturbed-land reclamation. Once seen as mere waste products to be flushed into rivers and out to sea, these materials are increasingly seen as sources of nutrients and organic matter that can be beneficially used to promote soil productivity.

Garbage

Municipal garbage has traditionally been used extensively to enhance crop production in China and other Asian countries. In a growing number of locations in the United States and Europe, the inorganic glass and metal, etc., is first removed and municipal organic wastes are composted, sometimes in conjunction with sewage sludge, poultry manure, or other nutrient-rich materials, to produce municipal solid waste (MSW) compost that is then applied to the land. Most municipal garbage in the United States is incinerated or landfilled (see Section 18.10), but growing concerns about air quality and scarcity of landfill space are raising the level of interest in using soil application as a means of disposal. Because its nutrient content is even lower than that of most animal manures (see Table 16.7), and its source is even farther from the fields where it can be used as a soil amendment, MSW compost is subject to even greater economic limitations related to high transportation costs. On the other hand, municipalities have to dispose of the material somehow, and the cost of hauling MSW compost to land-application sites is becoming economically more competitive with alternative methods

of disposal. As with manures, there is a trend in some regions to produce an attractive product that can be sold to landscaping and specialty users as a soil amendment or planting medium.

Food-Processing Wastes

Land application of food-processing wastes is being practiced in selected locations, but the practice is focused almost entirely on pollution abatement and not on crop production. Liquid wastes are commonly applied through sprinkle irrigation to permanent grass. Plant-processing schedules dictate the timing and rate of application, which may not be suitable for optimum crop production.

Sawdust

Sawdust, wood chips, and shredded bark from the lumber industry have long been sources of soil amendments and mulches, especially for home gardeners and landscapers. These wastes are high in lignin and related materials, have very high C/N ratios, and therefore decompose very slowly—desirable properties in a mulch material. However, they do not readily supply plant nutrients. In fact, sawdust incorporated into soils to improve soil physical properties may cause plants to become nitrogen deficient unless an additional source of nitrogen is applied with the sawdust (see Section 12.8).

16.8 SEWAGE EFFLUENT AND SLUDGE

Sewage treatment has evolved over the past century in response to society's desire (and resultant regulations) to avoid polluting our rivers and oceans with pathogens, oxygen-demanding organic debris, and eutrophying nutrients. The ever more stringent efforts to clean up the wastewater before returning it to natural waters has two basic consequences: (1) The amount of material *removed* from the wastewater during the treatment process has increased tremendously. This solid material, known as *sewage sludge* or *biosolids,* must also be disposed of safely. (2) A goal of advanced wastewater treatment is to remove nutrients (mainly phosphorus, but increasingly also nitrogen) from the effluent (the treated water that is returned to the stream), a job that can be accomplished safely and economically by allowing the partially treated effluent to interact with a soil–plant system. Therefore there is a growing interest in using soils to assist with the sewage problem in two ways: (1) as a system of assimilating, recycling, or disposing of the solid sludge and (2) as a means of carrying out the final removal of nutrients and organics from the liquid effluent.

Sewage Effluent

Sewage effluents have been applied to land for decades in Europe and in selected sites in the United States. Some cities operate sewage farms on which they produce crops, usually animal feeds and forages, that offset part of the expense of effluent disposal. The City of Muskegon, Michigan, has operated such a farm for decades, as has Paris, France. Sewage effluent may become more important in the future as a source of organic matter, nutrients, and water for crop production.

One very beneficial use of nutrient-rich sewage effluent is the irrigation of forest land (Figure 16.15). This method of advanced wastewater treatment is used by a number of cities around the world. Forest irrigation is a cost-effective method of final effluent cleanup and produces enhanced tree growth as a bonus. The rate of wood production is greatly increased as a result of both the additional water and the additional nutrients supplied therewith.

In a carefully planned and managed effluent irrigation system, the combination of (1) nutrient uptake by the plants, (2) adsorption of inorganic and organic constituents by soil colloids, and (3) degradation of organic compounds by soil microorganisms results in the purification of the wastewater. Percolation of the purified water eventually replenishes the groundwater supply.



FIGURE 16.15 Final treatment of sewage effluent and recharge of groundwater are being accomplished by natural soil and plant processes in this effluent-irrigated forest on Ultisols near Atlanta, Georgia. Nutrient flows, groundwater quality, and tree growth are carefully monitored. Some of the greatly increased production of wood is used as an energy source to run the sewage treatment plant. (Photo courtesy of R. Weil)

Sewage Sludge

Sewage sludge is the solid by-product of domestic and/or industrial wastewater treatment plants (see Figure 16.16). It has been spread on the land for decades, and its use will likely increase in the future. The product Milorganite®, a dried sludge sold by the Milwaukee Sewerage Commission, has been used widely in North America since 1927, especially on turf grass. Numerous other cities market composted sludge products to landscaping and other specialty users. However, the great bulk of sewage sludge used on land is applied as a liquid slurry or as a partially dried cake. The cake is less costly to transport because it carries only 40 to 70% water, while the slurry is generally 80 to 90% water. Further drying and processing decreases the cost of transportation, an important consideration since large cities have difficulty finding sufficient nearby land to receive their biosolids. One program *daily* ships over 600,000 kg of dried, treated sludge by rail from New York City to western Texas, a distance of over 2000 km, for use in restoring fertility to 7000 hectares of degraded range land.

COMPOSITION OF SEWAGE SLUDGE. As might be expected, the composition of the sludge varies from one sewage treatment plant to another, depending on the nature of treatment the sewage receives, especially the degree to which the organic material is allowed to digest. Representative values for plant nutrients are given in Table 16.7. Like manure and other organic waste products, sewage sludge contributes micronutrients as well as macronutrients. Levels of plant micronutrient metals (zinc, copper, iron, manganese, and nickel) as well as other heavy metals (cadmium, chromium, lead, etc.) are determined largely by the degree to which industrial wastes have been mixed in with domestic wastes. In the United States, the levels of metals in sewage are far lower than they were in the past, because of source-reduction programs that require industrial facilities to remove pollutants *before* sending their sewage to municipal treatment plants (see Section 18.7).

In comparison with inorganic fertilizers, sludges are generally low in nutrients, especially potassium. Representative levels of N, P, and K are 4, 2, and 0.4%, respectively (Table 16.7). The potassium concentration in sewage sludge is rather low because most of the potassium in sewage is soluble and remains with the effluent during treatment. The phosphorus content is higher because advanced sewage treatment is designed to

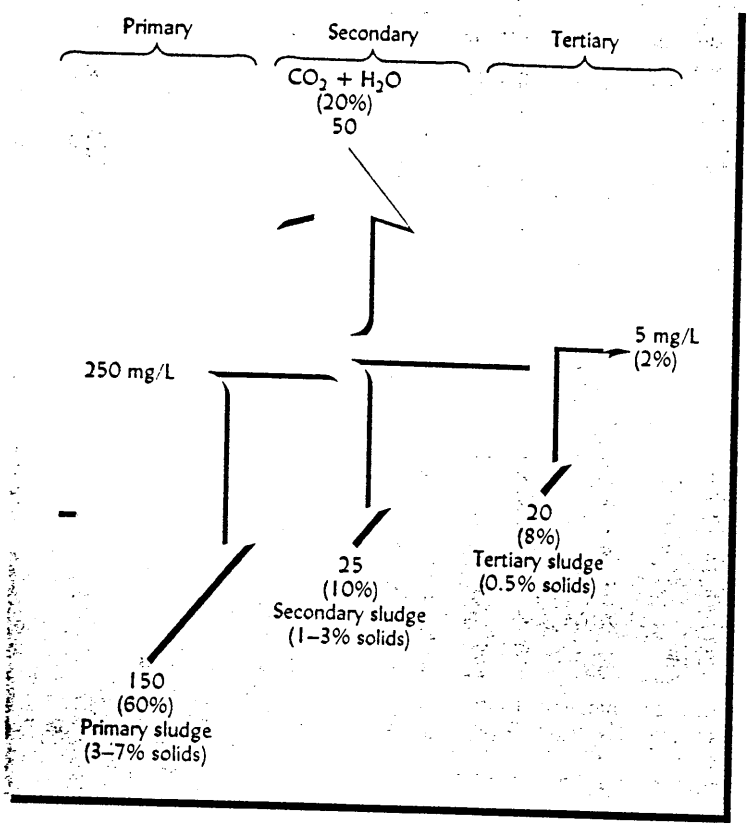


FIGURE 16.16 Diagram showing the removal of suspended solids from wastes. Primary treatment permits the separation of most of the solids from raw sewage. Secondary treatment encourages oxidation of much of the organic matter and separation of more solids. Tertiary treatment usually involves the use of calcium, aluminum, or iron compounds to remove phosphorus from the sewage water. [Redrawn from Loehr et al. (1979); used with permission of Van Nostrand Reinhold Company, New York]

remove phosphorus from the effluent and deposit it in the sludge (see Box 14.2). If the sewage treatment precipitates phosphorus by reactions with iron or aluminum compounds, the phosphorus in the sludge will likely have a very low availability to plants.

16.9 PRACTICAL UTILIZATION OF ORGANIC NUTRIENT SOURCES

In Section 12.11 we discussed the many beneficial effects on soil physical and chemical properties that can result from amendment of soils with decomposable organic materials such as manure or sludge. Here we will focus on the nutrient management aspects of organic waste utilization. Whether the material is sewage sludge, farm manure, or MSW compost, several general principles apply to the ecologically sound application of the material to soils:

1. The rate of application is generally governed by the amount of nitrogen that the organic material will make available to plants. This is the first criterion because nitrogen is needed in the largest quantity by most plants, and because excess nitrogen can present a pollution problem (see Section 13.8). It should be noted, however, that supply of plant nitrogen needs from most organic sources will include more phosphorus than the plants take up, and will thus eventually lead to excessive levels of soil phosphorus (see Section 14.2).
2. Most of the nitrogen in organic sources is not immediately available to plants, as it is with most inorganic commercial fertilizers (Section 16.11). A small fraction of the nitrogen in manure or sludge may be soluble (ammonium) forms and immediately available, but the bulk of the nitrogen must be released by microbial mineralization of organic compounds. Table 16.9 lists the percentage of the organic nitrogen that is likely to be released in the first, second, and third years after application. Note that those materials that have been partially decomposed during treatment and handling (e.g., composts and digested sludge) release a lower percentage of the nitrogen. The release rates of other nutrients are less critical because the availability from the organic sources is generally comparable (or even higher in the case of micronutrients) to commercial fertilizers.

BOX 16.1 CALCULATION OF AMOUNT OF ORGANIC NUTRIENT SOURCE NEEDED TO SUPPLY NITROGEN FOR A CROP

This example is based on the principle that the amount of nitrogen made available in any year should meet, but not exceed, the amount of nitrogen that plants can use for optimum growth. Therefore, the rate of release of available nitrogen usually determines the proper amount of manure, sludge, or other organic nutrient source to apply. Our example is a field producing corn two years in a row.

Year 1

Assumptions: Crop to be planted is corn. The goal is to produce 7000 kg/ha of grain, a yield that normally requires the application of 120 kg/ha of available nitrogen.

Available nitrogen needed = 120 kg.

Organic material to be applied is lime stabilized sewage sludge.

Analysis of the sludge showed 0.2% mineral N (ammonium and nitrate) and 4.5% total nitrogen.

Calculation of amount of sludge to apply:

% organic N in sludge = total N – mineral N = 4.5% – 0.2% = 4.3%.

Organic N in 1 Mg of sludge = 0.043 × 1,000 kg = 43 kg N.

Mineral N in 1 Mg of sludge = 0.002 × 1,000 kg = 2 kg N.

Mineralization rate for lime stabilized sludge (Table 16.9) = 30% of organic N.

Available N mineralized from 1 Mg sludge in first year = 0.30 × 43 kg N = 12.9 kg N.

Total available N from 1 Mg sludge = mineral N + mineralized N
= 2.0 + 12.9 = 14.9 kg N.

Amount of (dry) sludge needed = 120 kg N/(14.9 kg available N/Mg dry sludge)
= 120/14.9 Mg dry sludge = 8.05 Mg dry sludge.

Adjust for moisture content of sludge (e.g., assume sludge has 25% solids and 75% water).

Amount of wet sludge to apply: 8.05 Mg dry sludge/(0.25 Mg dry sludge/Mg wet sludge) = 8.05/0.25 = 32.2 Mg wet sludge.

Year 2

Assumptions: Crop to be planted is again corn. The goal again is to produce 7000 kg/ha of grain, a yield that normally requires the application of 120 kg/ha of available nitrogen.

Available nitrogen needed = 120 kg/ha.

Organic material to be applied is dairy manure.

Analysis of the manure showed 0.2% mineral N and 2.4% total N.

Calculation of amount of manure to apply:

% organic N in manure = total N – mineral N = 2.4% – 0.2% = 2.2%.

Organic N in 1 Mg of manure = 0.022 × 1,000 kg = 22 kg N.

Mineral N in 1 Mg of manure = 0.002 × 1,000 kg = 2 kg N.

Mineralization rate for dairy manure is (Table 16.9) = 35% of organic N.

Available N mineralized from 1 Mg manure in first year = 0.35 × 22 kg N = 7.7 kg N.

Total available N from 1 Mg manure = mineral N + mineralized N = 2.0 + 7.7 = 9.7 kg N.

(continued)

Agriculture is only one of the recipients of these wastes. Much is used for biogas production, as food for fish, and as a source of heat from compost piles to help warm homes, greenhouses, and household water. Most important, the plant nutrients and organic matter are recycled and returned to the soil for future plant utilization. Such conservation is likely to be practiced more widely in the future by other countries, including the United States.

BOX 16.1 (Continued) CALCULATION OF AMOUNT OF ORGANIC NUTRIENT SOURCE NEEDED TO SUPPLY NITROGEN FOR A CROP

Calculate amount of N mineralized in year 2 from sludge applied in year 1:

Second year mineralization rate (Table 16.9) = 11% of original organic N.

N mineralized from sludge in year 2 = 0.11 × 43 Kg N/Mg × 8.05 Mg dry sludge

= 38 kg N from sludge in second year.

Amount of N needed from manure in year 2 = N needed by corn − N from sludge

= 120 kg − 38 kg = 82 kg N needed/ha.

Amount of (dry) manure needed per ha = 82 kg N/(9.7 kg available N/Mg dry manure) = 82/9.7 = 8.5 Mg dry manure/ha.

Adjust for moisture content of manure (e.g., assume manure has 25% solids and 75% water):

Mg of wet manure to apply: 8.5 Mg dry manure/(0.25 Mg dry manure/Mg wet manure) = 8.9/0.25 = 34.0 Mg wet manure.

Note that the 8.09 Mg sludge and 8.5 Mg manure also provided plenty of P: 161 kg P/ha from the sludge plus 58 kg P/ha from the manure (assuming 2 and 0.65% P in the two materials; see Table 16.7).

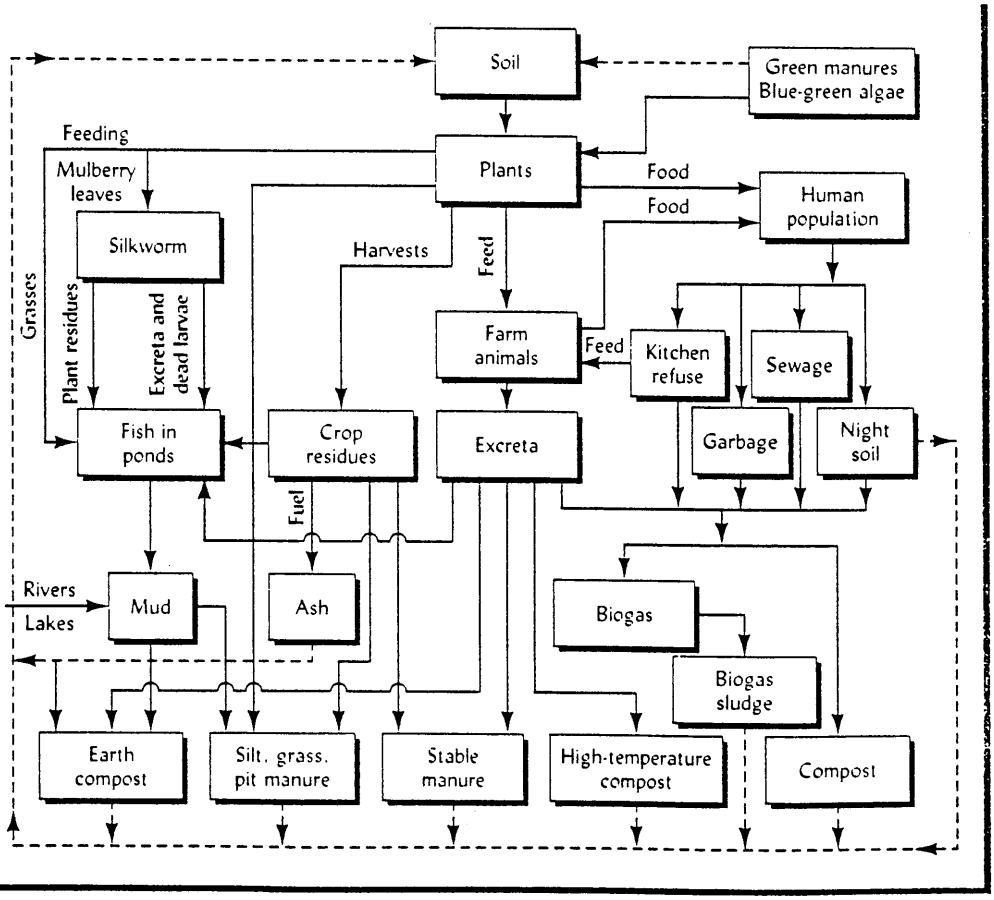


FIGURE 16.17 Recycling of organic wastes and nutrient elements in the People's Republic of China. Note the degree to which the soil is involved in the recycling processes. [Modified from FAO (1977)]

18 SOILS AND CHEMICAL POLLUTION

Black and portentous this humor prove, unless good counsel may the cause remove . . .
—W. SHAKESPEARE, ROMEO AND JULIET

Soil science is increasingly called upon to apply basic biological, chemical, and physical principles to understanding environmental problems. Examples of such applications discussed in this textbook include the production and sequestering of various greenhouse gases (e.g., Sections 12.2 and 13.9), the contamination of ground- and surface waters with excess nitrogen (Section 13.8) and phosphorus (Section 14.2), and the reactions of acids impinging on soils from atmospheric deposition (e.g., Section 9.6). Many of these issues involve effects of soil management on water and air pollution.

In this chapter we will focus on chemicals that contaminate and degrade soils, although in many cases the damages also extend to water, air, and living things. The soil is a primary recipient, by design or by accident, of the waste products and chemicals used in modern society. Once these materials enter the soil, they become part of a cycle that affects all forms of life. The brief review of soil pollution in this chapter is intended as an introduction to the nature of the major pollutants, their reactions in soils, and alternative means of managing, destroying, or inactivating them.

18.1 TOXIC ORGANIC CHEMICALS

Modern industrialized societies have developed thousands of synthetic organic compounds for thousands of uses. An enormous quantity of organic chemicals is manufactured every year—about 60 million metric tons in the United States alone. Included are plastics and plasticizers, lubricants and refrigerants, fuels and solvents, pesticides and preservatives. Some are extremely toxic to humans and other life. Through accidental leakage and spills or through planned spraying or other treatments, synthetic organic chemicals can be found in virtually every corner of our environment—in the soil, in the groundwater, in the plants, and in our own bodies.

Environmental Damage from Organic Chemicals

Some of these organic compounds are relatively inert and harmless, but others are biologically damaging even in very small concentrations. Those that find their way into soils may produce several undesirable results: (1) Certain soil organisms may be inhibited or killed, undermining the balance of the soil community (see Section 11.14). (2) The chemical may be transported from the soil to the air or water or vegetation, where

it may be contacted, inhaled, or ingested, over a wide area by any number of organisms. It is imperative, therefore, that we control the release of organic chemicals and that we learn of their fate and effects once they enter the soil.

Organic chemicals may enter the soil as contaminants in industrial and municipal organic wastes applied to or spilled on soils, as components of discarded machinery, in large or small lubricant and fuel leaks, and as pesticides applied to terrestrial ecosystems.

While some pesticides are meant to be applied to soils, most reach the soil because they have missed the insect or plant leaf that was the target of the application. When pesticides are sprayed in the field, most of the chemical misses the target organism. For pesticides aerially applied to forests, about 25% reaches the tree foliage and far less than 1% reaches a target insect. About 30% may reach the soil, while about half of the chemical applied is likely to be lost into the atmosphere or in runoff water.

Pesticides are probably the most widespread organic pollutant associated with soils. In the United States, pesticides are used on some 150 million hectares of land, three-fourths of which is agricultural land. We will therefore focus most of our discussion on the pesticide problem.

The Nature of Pesticides

Pesticides are chemicals that are designed to kill pests (that is, any organism that the pesticide user perceives to be damaging). Since the offending organisms may be plants (weeds), insects, fungi, nematodes, or rats, pesticides include different compounds designated as *herbicides, insecticides, fungicides, nematocides, rodenticides,* etc.

Some 600 chemicals in about 50,000 formulations are used to control pests. They are used extensively in all parts of the world. About 350 million kg of organic pesticide chemicals are used annually in the United States, with similar amounts used in western Europe and Asia. Although the total amount of pesticides used has remained relatively constant or even dropped since the 1980s, formulations in use today are generally more potent, so that smaller quantities are applied per hectare to achieve toxicity to the pest.

BENEFITS OF PESTICIDES. Pesticides have provided many benefits to society. They have helped control mosquitos and other vectors of human diseases such as yellow fever and malaria. They have protected crops and livestock against insects and diseases. Without the control of weeds by chemicals called *herbicides,* conservation tillage (especially no-tillage) would be much more difficult to adopt; much of the progress made in controlling soil erosion probably would not have come about without herbicides. Also, pesticides reduce the spoilage of food as it moves from farm fields to often distant dinner tables.

COSTS OF PESTICIDES. However, pesticides should not be seen as a panacea or as indispensable. Some farmers produce profitable yields without the use of pesticides. Even with the almost universal use of pesticides, insects, diseases, and weeds still cause the loss of one-third of the crop production in the United States, about the same proportion of crops lost to these pests in the 1940s, before many pesticides were in use. And while the benefits to society from pesticides are great, so are the costs (Table 18.1).

Designed to kill living things, many of these chemicals are potentially toxic to organisms other than the pests for which they are intended. Some are detrimental to nontarget organisms such as beneficial insects and certain soil organisms. Those chemicals that do not quickly break down may be biologically magnified as they move up the food chain. For example, as earthworms ingest contaminated soil, the chemicals tend to concentrate in the earthworm bodies. When birds and fish eat the earthworms, the pesticides can build up further to lethal levels. The near extinction of certain birds of prey (including the bald eagle) during the 1960s and 1970s called public attention to the sometimes devastating environmental consequences of pesticide use.

18.2 KINDS OF PESTICIDES

Pesticides are commonly classified according to the target group of pest organisms: (1) insecticides, (2) fungicides, (3) herbicides (weed killers), (4) rodenticides, and (5) nematocides. In practice, all find their way into soils. Since the first three are used in the

TABLE 18.1 **Total Estimated Environmental and Social Cost from Pesticide Use in the United States**

The death of an estimated 60 million wild birds may represent an additional substantial cost in lost revenues from hunters, bird watchers, etc.

Type of impact	*Cost ($ million/year)*
Public health impacts	787
Domestic animal deaths and contamination	30
Loss of natural enemies	520
Cost of pesticide resistance	1,400
Honeybee and pollination losses	320
Crop losses	942
Fishery losses	24
Groundwater contamination and cleanup costs	1,800
Cost of government regulations to prevent damage	200
Total	6,023

From Pimental et al. (1992). © Amer. Instit. of Biological Sciences.

largest quantities and are therefore more likely to contaminate soils, they will be given primary consideration. Figure 18.1 shows that most pesticides contain aromatic rings of some kind, but that there is great variability in pesticide chemical structures.

Insecticides

Most of these chemicals are included in three general groups. The *chlorinated hydrocarbons,* such as DDT, were the most extensively used until the early 1970s, when their use was banned or severely restricted in many countries due to their low biodegradability and persistence, as well as toxicity to birds and fish.

The *organophosphate* pesticides are generally biodegradable, and thus less likely to build up in soils and water. However, they are extremely toxic to humans, so great care must be used in handling and applying them. The *carbamates* are considered least dangerous because of their ready biodegradability and relatively low mammalian toxicity. However, they are highly toxic to honeybees and other beneficial insects and to earthworms.

Fungicides

Fungicides are used mainly to control diseases of fruit and vegetable crops and as seed coatings to protect against seed rots. Some are also used to protect harvested fruits and vegetables from decay, to prevent wood decay, and to protect clothing from mildew. Organic materials such as the thiocarbamates and triazoles are currently in use.

Herbicides

The quantity of herbicides used in the United States exceeds that of the other two types of pesticides combined. Starting with 2,4-D (a chlorinated *phenoxyalkanoic acid*), dozens of chemicals in literally hundreds of formulations have been placed on the market (see Figure 18.1). These include the *triazines* (used mainly for weed control in corn); *substituted ureas;* some *carbamates;* the relatively new *sulfonylureas,* which are potent at very low rates; *dinitroanilines;* and *acetanilides,* which have proved to be quite mobile in the environment. As one might expect, this wide variation in chemical makeup provides an equally wide variation in properties. Most herbicides are biodegradable, and most of them are relatively low in mammalian toxicity. However, some are quite toxic to fish and perhaps to other wildlife. They can also have deleterious effects on beneficial aquatic vegetation that provides food and habitat for fish and shellfish.

Nematocides

Although nematocides are not widely used, some of them are known to contaminate soils and the water draining from treated soils. For example, some carbamates used as nematocides are quite soluble in water, are not adsorbed by the soil, and consequently leach downward and into the groundwater.

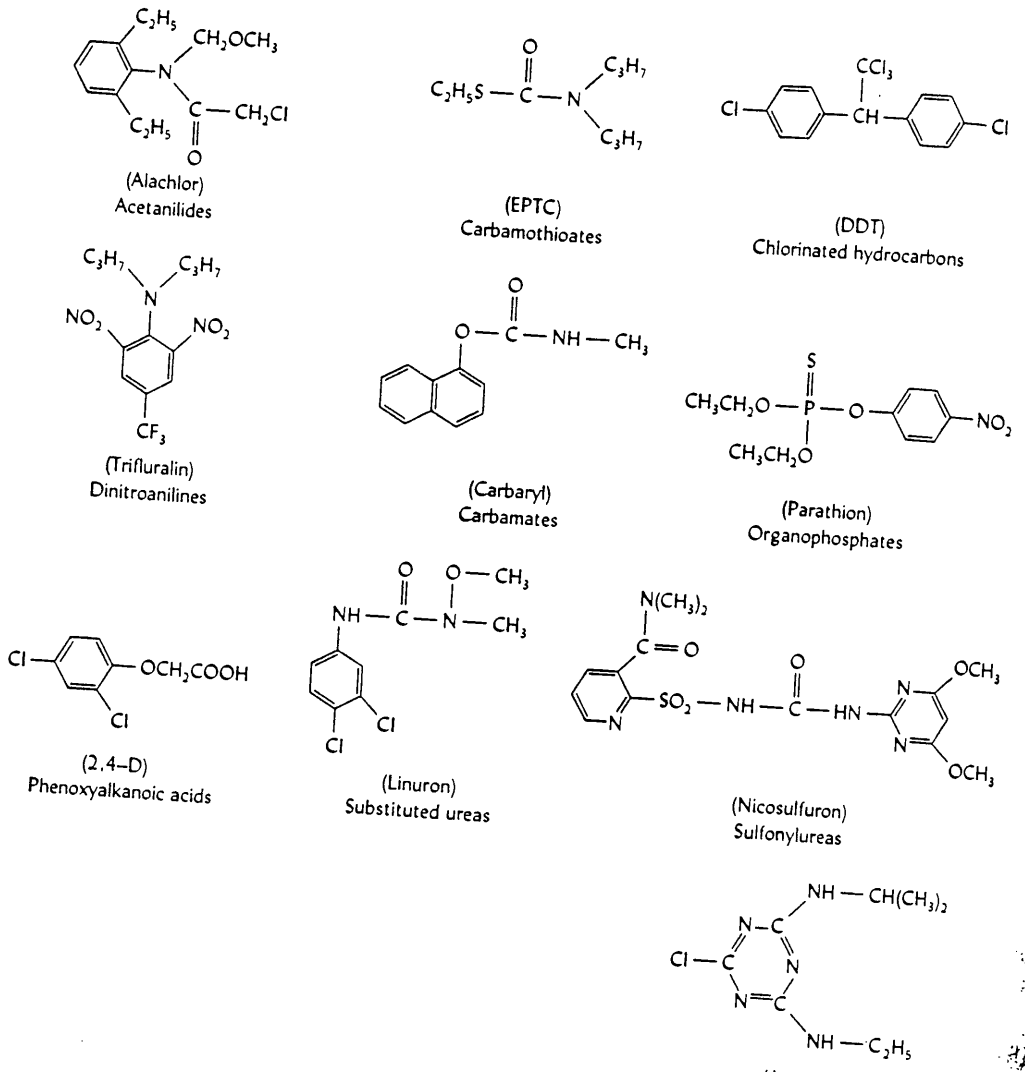


FIGURE 18.1 Structural formulae of representative compounds in 10 classes of widely used pesticides. Carbaryl, DDT, and parathion are insecticides; the other compounds shown are herbicides. The widely differing structures result in a great variety of toxicological properties and reactions in the soil.

.3 BEHAVIOR OF ORGANIC CHEMICALS IN SOILS[1]

Once they reach the soil, organic chemicals such as pesticides or hydrocarbons move in one or more of seven directions (Figure 18.2): (1) They may vaporize into the atmosphere without chemical change; (2) they may be absorbed by soils; (3) they may move downward through the soil in liquid or solution form and be lost from the soil by leaching; (4) they may undergo chemical reactions within or on the surface of the soil; (5) they may be broken down by soil microorganisms; (6) they may wash into streams and rivers in surface runoff; and (7) they may be taken up by plants or soil animals and move up the food chain. The specific fate of these chemicals will be determined at least in part by their chemical structures, which are highly variable.

tility

Organic chemicals vary greatly in their volatility and subsequent susceptibility to atmospheric loss. Some soil fumigants such as methyl bromide (now banned from most uses) were selected because of their very high vapor pressure, which permits them to penetrate soil pores to contact the target organisms. This same characteristic encourages

[1]For reviews on organic chemicals in the soil environment, see Sawhney and Brown (eds.) (1989) and Pierzynski et al. (1994); for pesticides, see Cheng (ed.) (1990).

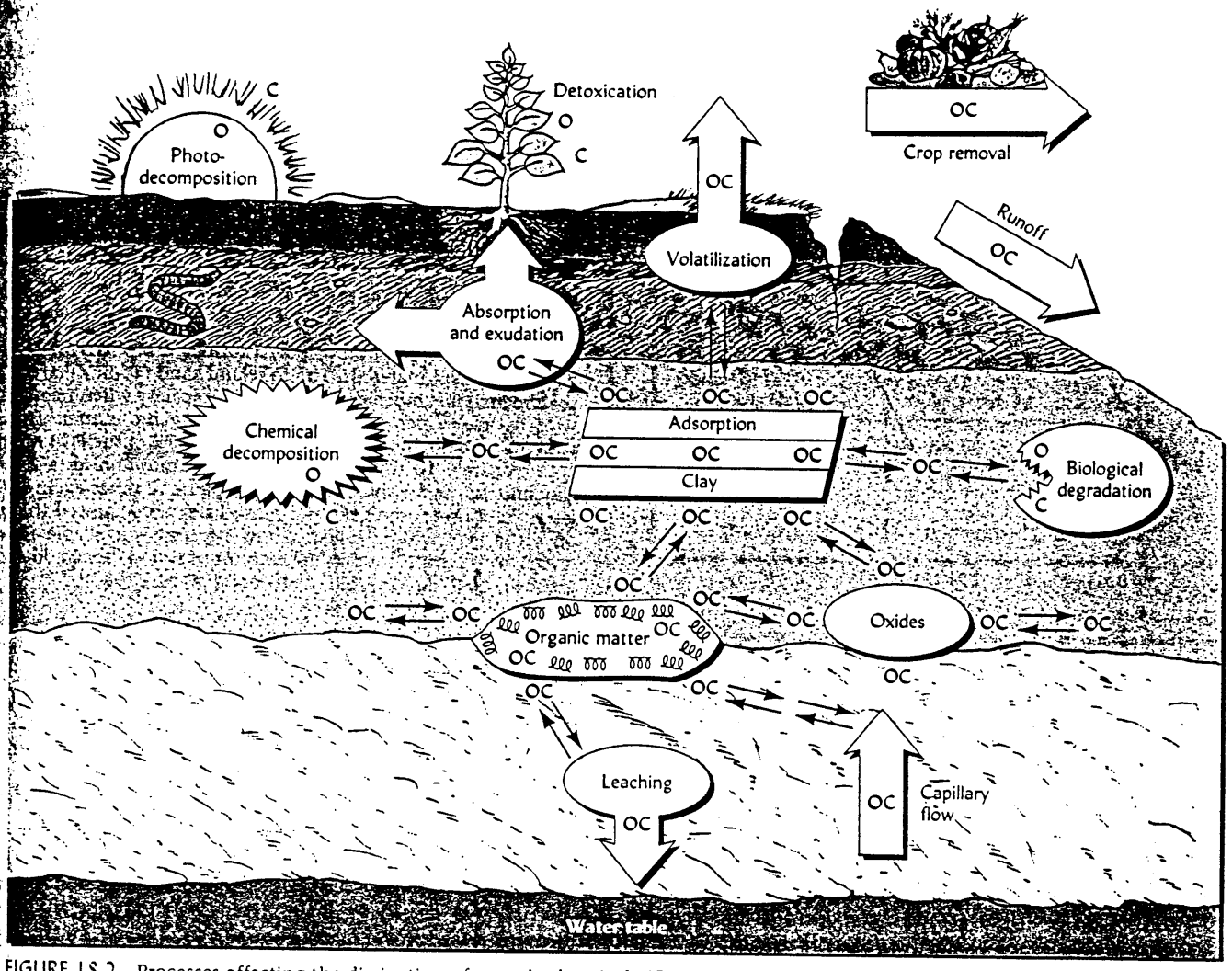


FIGURE 18.2 Processes affecting the dissipation of organic chemicals (OC) in soils. Note that the OC symbol is split up by decomposition (both by light and chemical reaction) and degradation by microorganisms, indicating that these processes alter or destroy the organic chemical. In transfer processes the OC remains intact. [From Weber and Miller (1989)]

rapid loss to the atmosphere after treatment, unless the soil is covered or sealed. A few herbicides (e.g., trifluralin) and fungicides (e.g., PCNB) are sufficiently volatile to make vaporization a primary means of their loss from soil. The lighter fractions of crude oil and many solvents vaporize to a large degree when spilled on the soil.

The assumption that disappearance of pesticides from soils is evidence of their breakdown is questionable. Some chemicals lost to the atmosphere are known to return to the soil or surface waters with the rain.

Adsorption

The adsorption of organic chemicals by soil is determined largely by the characteristics of the compound and of the soils to which they are added. Soil organic matter and high-surface-area clays tend to be the strongest adsorbents for some compounds (Figure 18.3), while oxide coatings on soil particles strongly adsorb others. The presence of certain functional groups such as —OH, —NH_2, —NHR, —$CONH_2$, —COOR, and —$^+NR_3$ in the chemical structure encourages adsorption, especially on the soil humus. Hydrogen bonding (see Section 8.3) and protonation (adding of H^+ to a group such as an —NH_2 (amino) group) probably promotes some of the adsorption. Everything else being equal, larger organic molecules with many charged sites are more strongly adsorbed.

Some organic chemicals with positively charged groups, such as the herbicides diquat and paraquat, are strongly adsorbed by silicate clays. Adsorption by clays of

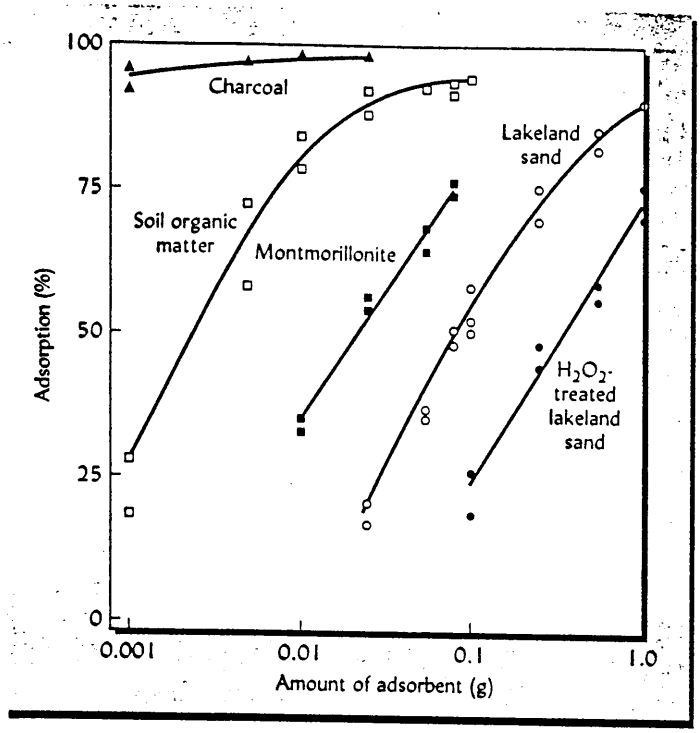


FIGURE 18.3 Adsorption of polychlorinated biphenyl (PCB) by different soil materials. The Lakeland sand (Typic Quartzipsamments) lost much of its adsorption capacity when treated with hydrogen peroxide to remove its organic matter. The amount of soil material required to adsorb 50% of the PCB was approximately 10 times as great for montmorillonite (a 2:1 clay mineral) as for soil organic matter, and 10 times again as great for H_2O_2-treated Lakeland sand. Later tests showed that once the PCB was adsorbed, it was no longer available for uptake by plants. Note that the amount of soil material added is shown on a log scale. [From Strek and Weber (1982)]

some pesticides tends to be pH-dependent (see Figure 18.4), maximum adsorption occurring at low pH levels, which encourages protonation. Adding an H^+ ion to functional groups (e.g., $—NH_2$) yields a positive charge on the herbicide, resulting in greater attraction to negatively charged soil colloids.

Leaching and Runoff

The tendency of organic chemicals to leach from soils is closely related to their solubility in water and their potential for adsorption. Some compounds, such as chloroform and phenoxyacetic acid, are a million times more water-soluble than others, such as DDT and PCBs, which are quite soluble in oil but not in water. High water solubility favors leaching losses.

Strongly adsorbed molecules are not likely to move down the profile (see Table 18.2). Likewise, conditions that encourage such adsorption will discourage leaching. Leaching is apt to be favored by water movement, the greatest leaching hazard occur-

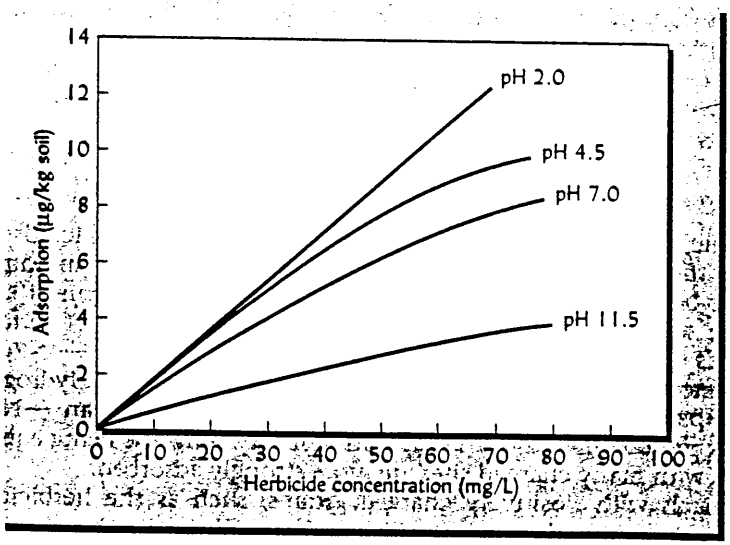


FIGURE 18.4 The effect of pH of kaolinite on the adsorption of glyphosate, a widely used herbicide. [Reprinted with permission from J. S. McConnell and L. R. Hossner, *J. Agric. Food Chem.* 33:1075–78 (1985); copyright 1985 American Chemical Society]

TABLE 18.2 The Degree of Adsorption of Selected Herbicides

Weakly adsorbed herbicides are more susceptible to movement in the soil than those that are more tightly adsorbed.

Common name or designation	*Trade name*	*Adsorptivity to soil colloids*
Dalapon	Dowpon	None
Chloramben	Amiben	Weak
Bentazon	Basagran	Weak
2,4-D	Several	Moderate
Propachlor	Ramrod	Moderate
Atrazine	AAtrex	Strong
Alachlor	Lasso	Strong
EPTC	Eptam	Strong
Diuron	Karmex	Strong
Paraquat	Paraquat	Very strong
Trifluralin	Treflan	Very strong
DCPA	Dacthal	Very strong

Selected data from DMI (1981).

ring in high-permeability, sandy soils that are also low in organic matter. Periods of high rainfall around the time of application of the chemical promote both leaching and runoff losses (Table 18.3). With some notable exceptions, herbicides seem to be somewhat more mobile than most fungicides or insecticides, and therefore more likely to find their way to groundwater supplies and streams.

Contamination of Groundwater

Experts once maintained that contamination of groundwater by pesticides occurred only from accidents such as spills; but it is now known that many pesticides reach the groundwater from normal agricultural use. Since many people (e.g., 40% of Americans) depend on groundwater for their drinking supply, leaching of pesticides is of wide concern. Table 18.4 lists some of the 46 pesticides found in a national survey of well waters in the United States. The concentrations are given in parts per billion (see Box 18.1). In some cases the amount of pesticide found in the drinking water has been high enough to raise long-term health concerns.

Chemical Reactions

Upon contacting the soil, some pesticides undergo chemical modification independent of soil organisms. For example, iron-cyanide compounds decompose within hours or days if exposed to bright sunlight. DDT, diquat, and the triazines are subject to slower photodecomposition in sunlight. The triazine herbicides (e.g., atrazine) and organophosphate insecticides (e.g., malathion) are subject to hydrolysis and subsequent degradation. While the complexities of molecular structure of the pesticides suggest different mechanisms of

TABLE 18.3 Surface Runoff and Leaching Losses (Through Drain Tiles) of the Herbicide, Atrazine, from a Clay Loam Lacustrine Soil (Alfisols) in Ontario Canada

The herbicide was applied at 1700 g/ha in late May. The data are the average of three tillage methods. Note that the rainfall for May and June is related to the amount of herbicide lost by both pathways.

	Grams of atrazine / ha				
Year of study	*Surface runoff loss*	*Drainage water loss*	*Total dissolved loss*	*Percent of total applied (%)*	*Rainfall, May–June (mm)*
1	18	9	27	1.6	170
2	1	2	3	0.2	30
3	51	61	113	6.6	255
4	13	32	45	2.6	165

Data abstracted from Gaynor et al. (1995).

TABLE 18.4 Pesticides Present in Groundwater from Normal Agricultural Use

Note the wide range in concentrations which are considered to be risky to health. The great majority of wells sampled were uncontaminated, but when pesticides were detected they were often near or above the health-advisory level.

Pesticide	Use[a]	Median level found	Maximum level found	Health-advisory level[b]
		(parts per billion)		
Alachlor	H	0.90	113.00	
Aldicarb	I	9.00	315.00	10.00
Atrazine	H	0.50	40.00	3.00
Bromacil	H	9.00	22.00	90.00
Carbofuran	I	5.30	176.00	40.00
Cyanazine	H	0.40	7.00	10.00
2,4-D (1,2-Dichlorophenoxyacetic acid)	F	1.40	49.50	70.00
DBCP*	FUM	0.01	0.02	—
DCPA	H	109.00	1,039.99	4,000.00
Dinoceb*	H, I, F	0.70	36.70	7.00
EDB	F	0.90	14.00	—
Fonofos	I	0.10	0.90	10.00
Malathion	I	41.50	53.00	200.00
Metolachlor	H	0.40	32.30	100.00
Metribuzin	H	0.60	6.80	200.00
Oxamyl	I	4.30	395.00	200.00
Trifluran	H	0.40	2.20	5.0

Data from General Accounting Office (1991).

[a]H = herbicide; I = insecticide; F = fungicide; FUM = fumigant.

[b]Health-advisory level is the concentration that is suspected of causing health problems over a 70-year lifetime. Blank means no advisory level has been set.

*Most uses of this pesticide have been banned in the United States.

breakdown, it is important to realize that degradation independent of soil organisms does in fact occur.

Microbial Metabolism

Biochemical degradation by soil organisms is the single most important method by which pesticides are removed from soils. Certain polar groups such as —OH, —COO^-, and —NH_2 on the pesticide molecules provide points of attack for the organisms.

DDT and other chlorinated hydrocarbons such as aldrin, dieldrin, and heptachlor are very slowly broken down, persisting in soils for 20 or more years. In contrast, the organophosphate insecticides such as parathion are degraded quite rapidly in soils, apparently by a variety of organisms (see Figure 18.5). Likewise, the most widely used herbicides, such as 2,4-D, the phenylureas, the aliphatic acids, and the carbamates, are readily attacked by a host of organisms. Exceptions are the triazines, which are slowly degraded, primarily by chemical action. Most organic fungicides are also subject to microbial decomposition, although the rate of breakdown of some is slow, causing troublesome residue problems.

Plant Absorption

Pesticides are commonly absorbed by higher plants. This is especially true for those pesticides (e.g., systemic insecticides and most herbicides) which must be taken up in order to perform their intended function. The absorbed chemicals may remain intact inside the plant or they may be degraded. Some degradation products are harmless, but others are even more toxic to humans than the original chemical that was absorbed. Understandably, society is quite concerned about pesticide residues found in the parts of plants that people eat, whether as fresh fruits and vegetables or as processed foods. The use of pesticides and the amount of pesticide residues in food are strictly regulated by law to ensure human safety. Despite widespread concerns, there is little evidence that the small amounts of residues permissible in foods by law have had any ill effects on public health. However, routine testing by regulatory agencies has shown that about 1 to 2% of the food samples tested contained pesticide residues above the levels permissible.

BOX [illegible] CONCENTRATIONS AND TOXICITY IN THE ENVIRONMENT

As analytical instrumentation becomes more sophisticated, contaminants can be detected at much lower levels than was the case in the past. Since humans and other organisms can be harmed by almost any substance if large enough quantities are involved, the subject of toxicity and contamination must be looked at *quantitatively*. That is, we must ask *how much*, not simply *what*, is in the environment. Many highly toxic (meaning harmful in very small amounts) compounds are produced by natural processes and can be detected in the air, soil, and water—quite apart from any activities of humans.

The mere presence of a natural toxin or a synthetic contaminant may not be a problem. Toxicity depends on (1) the *concentration* of the contaminant and (2) the level of *exposure* of the organism. Thus, low concentrations of certain chemicals that would cause no observable effect by a single exposure (e.g., one glass of drinking water) may cause harm (e.g., cancer, birth defects) to individuals exposed to these concentrations over a long period of time (e.g., three glasses of water a day for many years).

Regulatory agencies attempt to estimate the effects of long-term exposure when they set standards for no-observable-effect levels (NOEL) or health-advisory levels (see Table 18.4). Some species and individuals within a species will be much more sensitive than others to any given chemical. Regulators attempt to consider the risk to the most susceptible individual in any particular case. For nitrate in groundwater, this might harm a human infant whose entire diet consists of infant formula made with the contaminated water. For DDT, the individual at greatest risk might be a bird of prey that eats fish which eat worms that ingest lake sediment contaminated with DDT. For a pesticide taken up by plants from the soil, the individual at greatest risk might be an avid gardener who eats vegetables and fruits mainly from the treated garden over the course of a lifetime.

It is important to get a feel for the meaning of the very small numbers used to express the concentration of contaminants in the environment. For instance, in Table 18.4, the concentrations are given in parts per billion (ppb). This is equivalent to micrograms per kilogram or μg/kg. In water this would be μg/liter. To comprehend the number *1 billion* imagine a billion golf balls: lined up they would stretch completely around the earth. One bad ball out of a billion (1 ppb) seems like an extremely small number. On the other hand, 1 ppb can seem like a very large number. Consider water contaminated with 1 ppb of cyanide, a very toxic substance consisting of a carbon and a nitrogen atom linked together. If you drank just *one drop* of this water you would be ingesting over 10 *trillion* molecules of cyanide:

$$\frac{6.3 \times 10^{23}\ \text{molecules}}{1\ \text{mol}} \times \frac{1\ \text{mol}}{27\ \text{g HCN}} \times \frac{1\ \mu\text{g HCN}}{\text{liter}} \times \frac{1\ \text{g HCN}}{10^{6}\ \mu\text{g HCN}} \times \frac{\text{Liter}}{10^{3}\ \text{cm}^3} \times \frac{\text{cm}^3}{10\ \text{drops}} = \frac{2.3 \times 10^{10}\ \text{molecules}}{\text{drop}}$$

In the case of cyanide, the molecules in this drop of water would probably not cause any observable effect. However, for other compounds, this many molecules may be enough to trigger DNA mutations or the beginning of cancerous growth. Assessing these risks is still an uncertain business.

Persistence in S[illegible]

The persistence of chemicals in soils is a summation of all the reactions, movements, and degradations affecting these chemicals. Marked differences in persistence are the rule (see Figure 18.5). For example, organophosphate insecticides may last only a few days in soils. The widely used herbicide 2,4-D persists in soils for only two to four weeks. PCBs, DDT, and other chlorinated hydrocarbons may persist for from 3 to 20 years or longer (Table 18.5). The persistence times of other pesticides and industrial organics fall generally between the extremes cited. The majority of pesticides degrade rapidly enough to prevent buildup in soils having normal annual applications. Those that resist degradation have a greater potential to cause environmental damage.

Continued use of the same pesticide on the same land can increase the rate of microbial breakdown of that pesticide. Apparently, having a constant food source allows the population to build up among those microbes equipped with the enzymes needed to break down the compound. This is an advantage in relation to environmental quality and is a principle sometimes applied in environmental cleanup of toxic organic compounds, but the breakdown may become sufficiently rapid to reduce a pesticide's effectiveness.

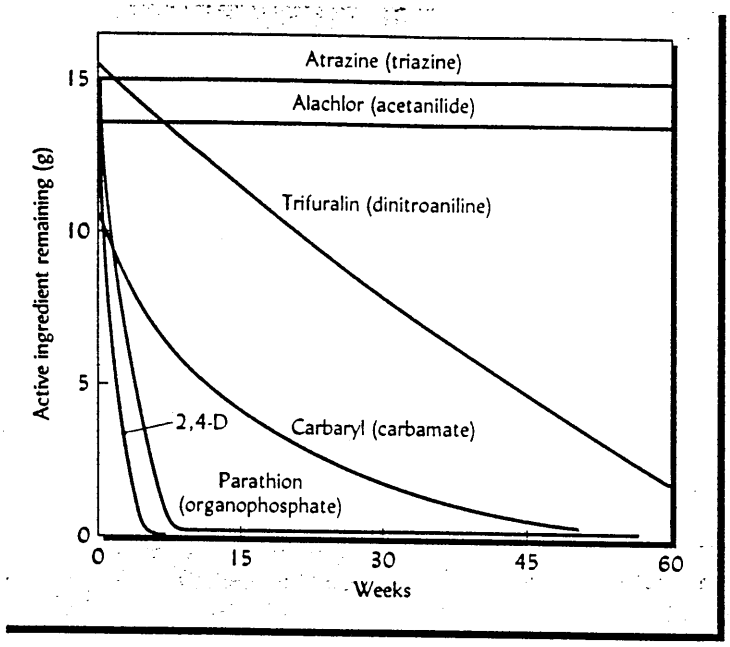


FIGURE 18.5 Degradation of four herbicides (alachlor, atrazine, 2,4-D, and trifuralin) and two insecticides (parathion and carbaryl), all of which are used extensively in the Midwest of the United States. Note that atrazine and alachlor are quite slowly degraded, whereas parathion and 2,4-D are quickly broken down. [Reprinted with permission from R. G. Krueger and J. N. Seiber, *Treatment and Disposal of Pesticide Wastes*, Symposium Series 259; copyright 1984 American Chemical Society]

18.4 EFFECTS OF PESTICIDES ON SOIL ORGANISMS

Since pesticides are formulated to kill organisms, it is not surprising that some of these compounds are toxic to specific soil organisms. At the same time, the diversity of the soil organism population is so great that, excepting a few fumigants, most pesticides do not kill a broad spectrum of soil organisms.

Fumigants

Fumigants are compounds used to free a soil of a given pest, such as nematodes. These compounds have a more drastic effect on both the soil fauna and flora than do other pesticides. For example, 99% of the microarthropod population is usually killed by the fumigants DD and vampam, and it may take as long as two years for the population to fully recover. Fortunately, the recovery time for the microflora is generally much less.

Fumigation reduces the number of species of both flora and fauna, especially if the treatment is repeated, as is often the case where nematode control is attempted. At the same time, the total number of bacteria is frequently much greater following fumigation than before. This increase is probably due to the relative absence of competitors and predators following fumigation.

TABLE 18.5 **Common Range of Persistence of a Number of Organic Compounds**

Risks of environmental pollution are highest with those chemicals with greatest persistence.

Organic chemical	*Persistence*
Chlorinated hydrocarbon insecticides (e.g., DDT, chlordane, dieldrin)	3–20 yr
PCBs	2–10 yr
Triazine herbicides (e.g., atrazine, simazine)	1–2 yr
Benzoic acid herbicides (e.g., amiben, dicamba)	2–12 mo
Urea herbicides (e.g., monuron, diuron)	2–10 mo
Vinyl chloride	1–5 mo
Phenoxy herbicides (2,4-D, 2,4,5-T)	1–5 mo
Organophosphate insecticides (e.g., malathion, diazinon)	1–12 wk
Carbamate insecticides	1–8 wk
Carbamate herbicides (e.g., barban, CIPC)	2–8 wk

Effects on Soil Fauna

The effects of pesticides on soil animals varies greatly from chemical to chemical and from organism to organism. Nematodes are not generally affected except by specific fumigants. Mites are generally sensitive to most organophosphates and to the chlorinated hydrocarbons, with the exception of aldrin. Springtails vary in their sensitivity to both chlorinated hydrocarbons and organophosphates, some chemicals being quite toxic to these organisms.

EARTHWORMS. Fortunately, many pesticides have only mildly depressing effects on earthworm numbers, but there are exceptions. Among insecticides, most of the carbamates (carbaryl, carbofuran, aldicarb, etc.) are highly toxic to earthworms. Among the herbicides, simazine is more toxic than most. Among the fungicides, benomyl is unusually toxic to earthworms. The concentration of pesticides in the bodies of the earthworms are closely related to the levels found in the soil (see Figure 18.6). Thus earthworms can magnify the pesticide exposure of birds, rodents, and other creatures that prey upon them.

Pesticides have significant effects on the numbers of certain predators and, in turn, on the numbers of prey organisms. For example, an insecticide that reduces the numbers of predatory mites may stimulate numbers of springtails which serve as prey for the mites (see Figure 18.7). Such organism interaction is normal in most soils.

Effects on Soil Microorganisms

The overall levels of bacteria in the soil are generally not too seriously affected by pesticides. However, the organisms responsible for nitrification and nitrogen fixation are sometimes adversely affected. Insecticides and fungicides affect both processes more than do most herbicides, although some of the latter can reduce the numbers of organisms carrying out these two reactions. Recent evidence suggests that some pesticides can enhance biological nitrogen fixation by reducing the activity of protozoa and other organisms that are competitors or predators of the nitrogen-fixing bacteria. These findings illustrate the complexity of life in the soil.

Fungicides, especially those used as fumigants, can have marked adverse effects on soil fungi and actinomycetes, thereby slowing down the humus formation in soils. Interestingly, however, the process of ammonification is often stimulated by pesticide use.

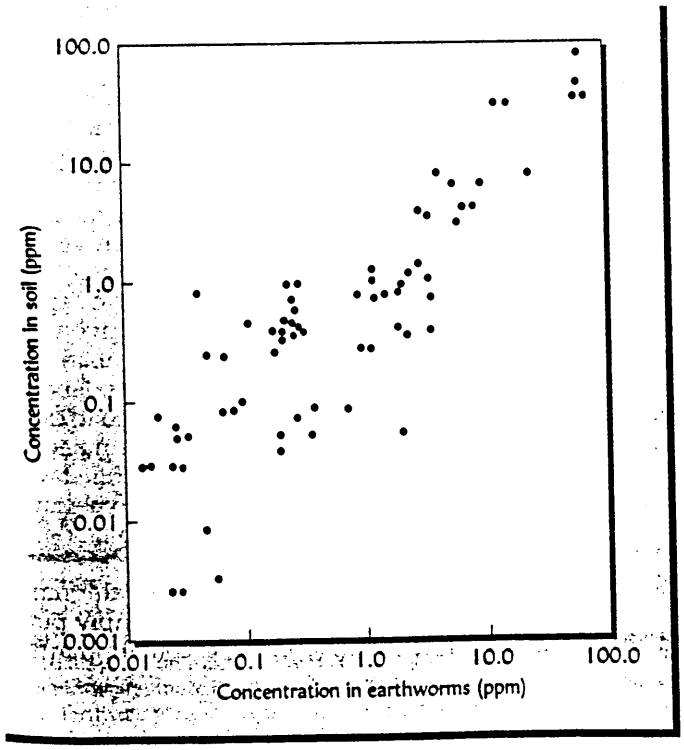


FIGURE 18.6 Effect of concentration of pesticides in soil on their concentration in earthworms. Birds eating the earthworms at any level of concentration would further concentrate the pesticides. [Data from several sources gathered by Thompson and Edwards (1974); used with permission of Soil Science Society of America]

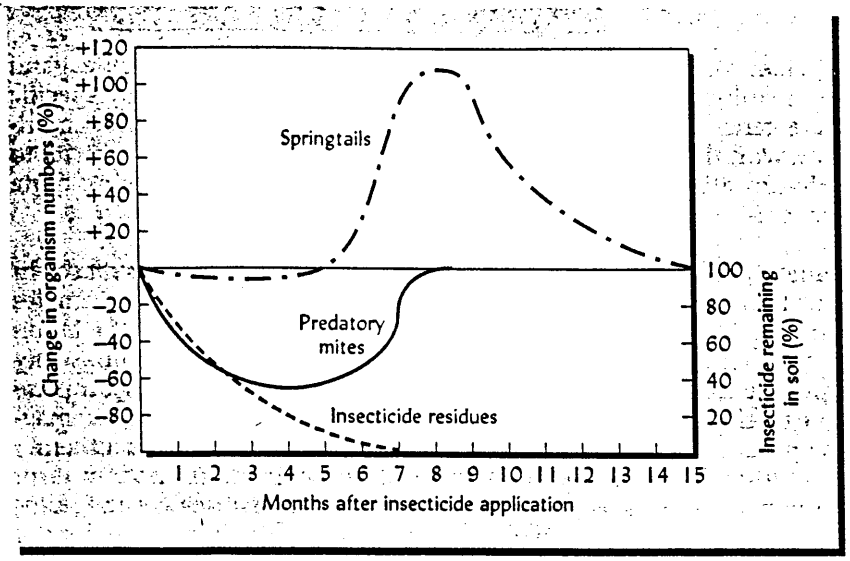


FIGURE 18.7 The direct effect of insecticide on predatory mites in a soil and the indirect effect of reducing mite numbers on the population of springtails (tiny insects) that serve as prey for the mites. [Replotted from Edwards (1978); used with permission of Academic Press, Inc., London]

The negative effects of most pesticides on soil microorganisms are temporary, and after a few days or weeks, organism numbers generally recover. But exceptions are common enough to dictate caution in the use of the chemicals. Care must be taken to apply them only as recommended on their labels.

This brief review of the behavior of organic chemicals in soils reemphasizes the complexity of the changes that take place when new and exotic substances are added to our environment. Our knowledge of the soil processes involved certainly reaffirms the necessity for a thorough evaluation of potential environmental impacts prior to approval of new chemicals for extensive use on the land.

18.5 BIOREMEDIATION OF SOILS CONTAMINATED WITH ORGANIC CHEMICALS[2]

Organic chemical contamination of soils presents serious public health and ecological hazards that must be addressed. The widespread but less acute contamination of soils by intentional pesticide application is probably best addressed by reducing the amounts of pesticides used and by using less toxic, less mobile, and more rapidly degraded compounds. In most cases the soil ecosystem will recover its function and diversity (self-remediation) within a reasonably short time after the offending chemicals cease to be applied at damaging rates. The recovery process can be accelerated by incorporating plenty of organic matter into the soil, using the practices outlined in Section 12.14.

SOIL WASHING AND INCINERATION. *Remediation* of *acute* contamination, such as in industrial waste sites and from accidental leaks and spills of organic chemicals, is a more complicated matter. Industry and government are spending billions of dollars annually to clean up contaminated soils. To date, most of the methods used take an engineering approach that virtually "kills the soil in order to save it." Typical off-site remediation involves excavating huge quantities of contaminated soil, then treating the excavated material in a "soil washer" that removes the toxic organic chemical by means of solvents. Finally, the pollutants are recovered and destroyed by incineration or placed in a secured toxic-waste landfill (see Section 18.9). Other systems essentially incinerate the contaminated soil in order to destroy the contaminant. Sometimes the contaminated soil is landfilled without attempting to cleanse it. These approaches to remediation are extremely expensive and rarely result in a truly recovered soil that resembles a productive natural soil.

BIOREMEDIATION. For many heavily contaminated soils there is a biological alternative to incineration, soil washing, and landfilling—namely, ***bioremediation.*** Simply put, this technology uses enhanced microbial action to degrade organic contaminants into

[2]For a comprehensive treatment of this topic see Alexander (1994).

harmless metabolic products. The process is sometimes carried on in situ (on-site), thus avoiding the high cost and disruptive effects of excavation and of hauling large quantities of soil.

NUTRIENT SUPPLEMENTATION. Bioremediation technology assists natural chemical breakdown in several ways. Usually, the soil naturally contains some bacteria or other microorganisms that can degrade the specific contaminant. But the rate of natural degradation may be far too slow to be very effective. Both growth and metabolic rate of organisms capable of using the contaminant as a carbon source are often limited by insufficient mineral nutrients, especially nitrogen and phosphorus (see Section 12.8 for a discussion of the C/N ratio in organic decomposition). Special fertilizers have been formulated and used successfully to greatly speed up the degradation process.

OIL SPILL CLEANUP. The 30 or more different genera of bacteria and fungi known to degrade hydrocarbons are found in almost any soil or aquatic environment. But they may need help. The cleanup of crude oil contamination from the 1989 Exxon Valdez oil spill in Alaskan waters was a spectacular case of successful bioremediation by fertilization (Figure 18.8). A special fertilizer was sprayed on the oil-soaked beaches (Entisols). The fertilizer was formulated to be oliophilic (soluble in oil but not in water) so that it would stay with the oil and not contribute to eutrophication of Prince William Sound. Within a few weeks, and despite the cold temperatures, most of the oil was degraded. The success of bioremediation was greatest where nitrogen was most available to the microorganisms.

IN SITU TECHNIQUES. Other situations call for other bioremediation techniques. In some cases, low soil porosity causes oxygen availability to be limiting. Techniques are being developed for the use of bioremediation to clean up soils and groundwater contamination in situ. For example, organic-solvent-contaminated soils have been bioremediated (Figure 18.9) by piping in a mixture of air (for oxygen), methane (to act as a carbon source to stimulate specific bacteria), and phosphorus (a nutrient that limits bacteria growth).

Some success has been achieved by inoculating contaminated soils with improved organisms that can degrade the pollutant more readily than can the native population. Although genetic engineering may prove useful in making "superbacteria" in the future, most inoculation has been achieved with naturally occurring organisms. Organ-

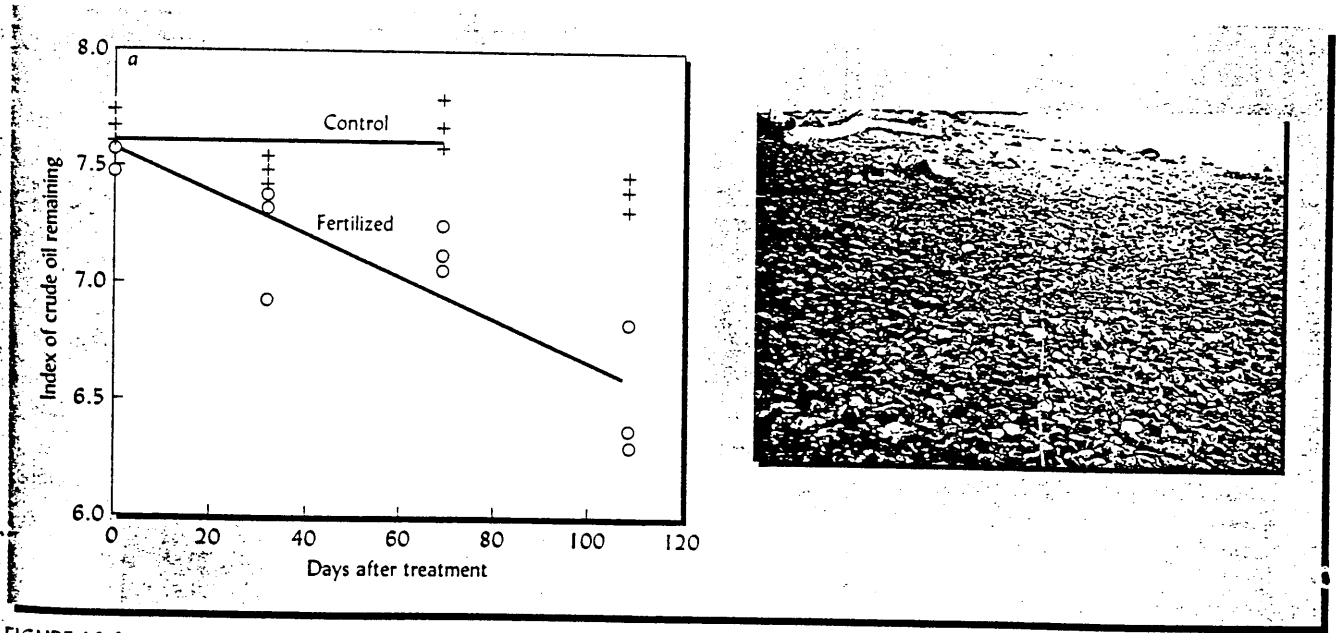


FIGURE 18.8 Bioremediation of crude oil from the Exxon Valdez oil spill off the coast of Alaska. The oil contaminating the beach soils was degraded by indigenous bacteria when an oil-soluble fertilizer containing nitrogen and phosphorus was sprayed on the beach (o data points). The control sections of the beach (+ data points) were left unfertilized for 70 days. By then the effect of the fertilization was so dramatic that a decision was made to treat the control sections as well. The index of oil remaining is based on natural logarithms, so each whole number indicates more than doubling of oil remaining. The photo inset shows the clear delineation between the oil-covered control section and the fertilized parts of the beach. [Data from Bragg (1994); reprinted with permission from *Nature*, © 1994 Macmillan Magazines Limited; photo P. H. Pritchard, USEPA, Gulf Breeze, Fla.; courtesy of Pritchard et al. (1992); reprinted by permission of Kluwer Academic Publishers]

isms isolated from sites with a long history of the specific contamination or grown in lab culture on a diet rich in the pollutant in question tend to become acclimated to metabolizing the target chemical.

18.6 CONTAMINATION WITH TOXIC INORGANIC SUBSTANCES[3]

The toxicity of inorganic contaminants released into the environment every year is now estimated to exceed that from organic and radioactive sources combined. A fair share of these inorganic substances ends up contaminating soils. The greatest problems most likely involve mercury, cadmium, lead, arsenic, nickel, copper, zinc, chromium, molybdenum, manganese, fluorine, and boron. To a greater or lesser degree, all of these elements are toxic to humans and other animals. Cadmium and arsenic are extremely poisonous; mercury, lead, nickel, and fluorine are moderately so; boron, copper, manganese, and zinc are relatively lower in mammalian toxicity. Although the metallic elements (which exclude fluorine and boron) are not all, strictly speaking, "heavy" metals, for the sake of simplicity this term is often used in referring to them. Table 18.6 provides background information on the uses, sources, and effects of some of these elements.

Sources and Accumulation

There are many sources of the inorganic chemical contaminants which can accumulate in soils. The burning of fossil fuels, smelting, and other processing techniques release into the atmosphere tons of these elements, which can be carried for miles and later deposited on the vegetation and soil. Lead, nickel, and boron are gasoline additives that are released into the atmosphere and carried to the soil through rain and snow.

[3]For a review of this subject, see Kabata-Pendias and Pendias (1992).

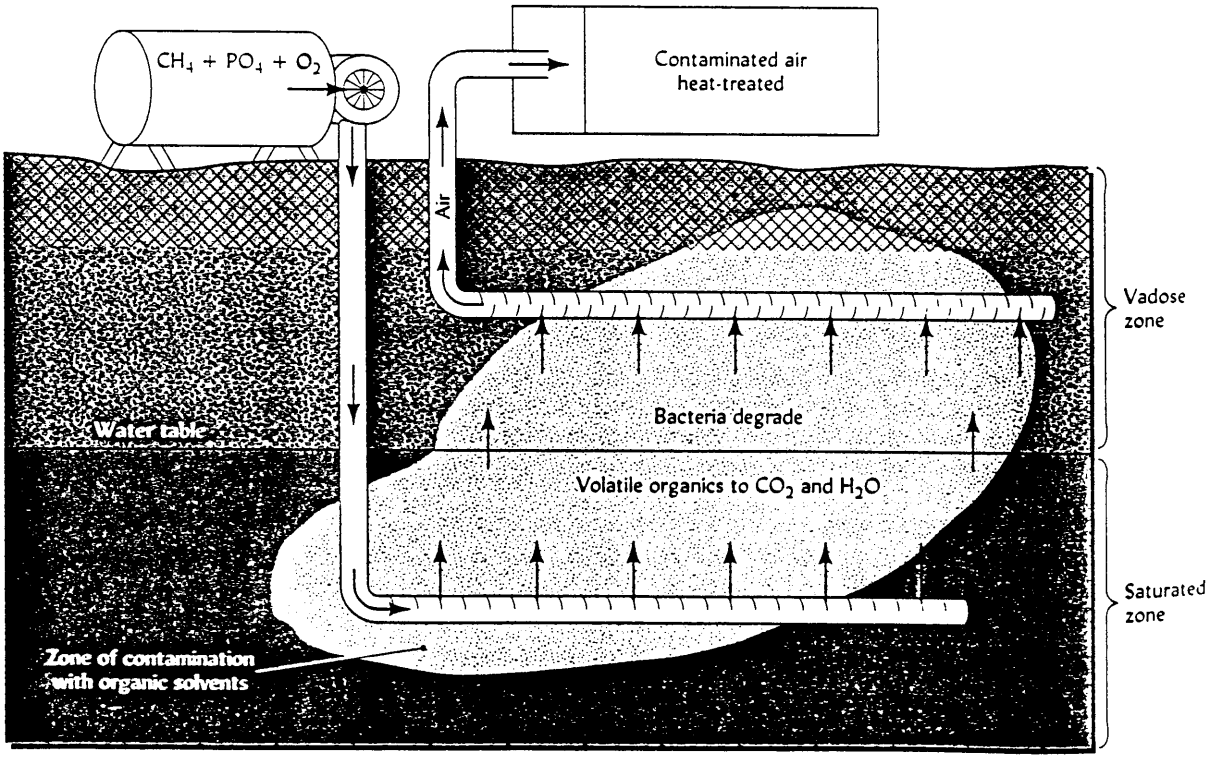


FIGURE 18.9 In situ bioremediation of soil and groundwater contaminated with volatile organic solvents at an industrial site in Georgia. The methane-air-phosphorus mixture was pumped *intermittently* into the soil through slotted pipes, while another pipe "vacuumed" air out of the soil. The air and nutrients stimulated the growth of certain bacteria which, when the methane was taken away, turned to the solvent for a carbon source. It was estimated that the bioremediation technology would cut the time to clean up the site from more than 10 years to less than 4, saving $1.6 million in costs. [Redrawn from Hazen (1995)]

TABLE 18.6 Sources of Selected Inorganic Soil Pollutants

Chemical	*Major uses and sources of soil contamination*	*Organisms principally harmed*[a]	*Human health effects*
Arsenic	Pesticides, plant desiccants, animal feed additives, coal and petroleum; mine tailings and detergents	H, A, F, B	Cumulative poison, possibly cancer
Cadmium	Electroplating, pigments for plastics and paints, plastic stabilizers, and batteries, phosphate fertilizers	H, A, F, B, P	Heart and kidney disease, bone embrittlement
Chromium	Stainless steel, chrome-plated metals, pigments, and refractory brick manufacture, leather tanning	H, A, F, B	Mutagenic, also essential nutrient
Copper	Mine tailings, fly ash, fertilizers, windblown copper-containing dust, water pipes	F, P	Rare, essential nutrient
Lead	Combustion of oil, gasoline, and coal; iron and steel production, solder on water pipe joints	H, A, F, B	Brain damage, convulsions
Mercury	Pesticides, catalysts for synthetic polymers, metallurgy, thermometers	H, A, F, B	Nerve damage
Nickel	Combustion of coal, gasoline, and oil; alloy manufacture, electroplating, batteries, mining	F, P	Lung cancer
Zinc	Galvanized iron and steel, alloys, batteries, brass, rubber manufacture, mining, old tires	F, P	Rare, essential nutrient

Data selected from Moore and Ramamoorthy (1984) and numerous other sources.
[a]H = humans, A = animals, F = fish, B = birds, P = plants.

Borax is used in detergents, fertilizers, and forest fire retardants, all of which commonly reach the soil. Superphosphate and limestone usually contain small quantities of cadmium, copper, manganese, nickel, and zinc. Cadmium is used in plating metals and in the manufacture of batteries. Arsenic was for many years used as an insecticide on cotton, tobacco, fruit crops, lawns, and as a defoliant or vine killer. Some of the above-mentioned elements are found as constituents in specific organic pesticides and in domestic and industrial sewage sludge. Additional localized contamination of soils with metals results from ore-smelting fumes, industrial wastes, and air pollution.

Some of the toxic metals are being released to the environment in increasing amounts, while others (most notably lead, because of changes in gasoline formulation) are decreasing. All are daily ingested by humans either through the air or through food, water, and—yes—soil.

Concentration in Organism Tissue

Irrespective of their sources, toxic elements can and do reach the soil, where they become part of the food chain: soil → plant → animal → human (see Figure 18.10). Unfortunately, once the elements become part of this cycle, they may accumulate in animal and human body tissue to toxic levels. This situation is especially critical for fish and other

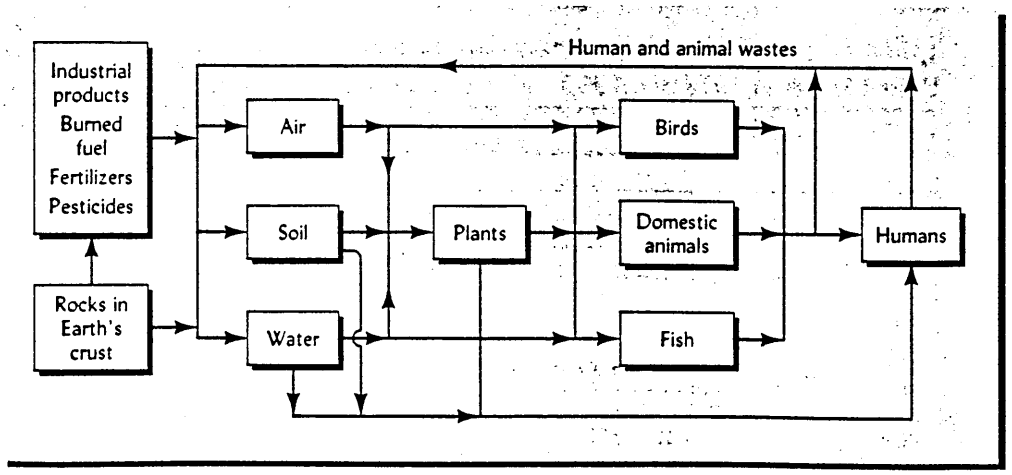


FIGURE 18.10 Sources of heavy metals and their cycling in the soil–water–air–organism ecosystem. It should be noted that the content of metals in tissue generally builds up from left to right, indicating the vulnerability of humans to heavy metal toxicity.

wildlife and for humans at the top of the food chain. It has already resulted in restrictions on the use of certain fish and wildlife for human consumption. Also, it has become necessary to curtail the release of these toxic elements in the form of industrial wastes.

18.7 POTENTIAL HAZARDS OF CHEMICALS IN SEWAGE SLUDGE

The domestic and industrial sewage sludges considered in Chapter 16 can be important sources of potentially toxic chemicals. Nearly half of the municipal sewage sludge produced in the United States is being applied to the soil, either on agricultural land or to remediate land disturbed by mining and industrial activities. Industrial sludges commonly carry significant quantities of inorganic as well as organic chemicals that can have harmful environmental effects.

SOURCE REDUCTION PROGRAMS. A great deal was learned during the 1970s and 1980s about the contents, behavior, and toxicity of metals in municipal sewage sludges. As a result of the research, source reduction programs were implemented which required industries to clean pollutants out of their wastewater *before* sending it to municipal wastewater treatment plants. In many cases, the recovery of valuable metal pollutants was actually profitable for industries. Because of these programs, municipal sewage sludges are much cleaner than in the past (see Table 18.7). Note that the median levels of the most toxic industrial pollutants (Cd, Cr, Pb, and PCB) declined dramatically between the 1976 survey and the 1990 survey. Since much of the copper comes from the plumbing in homes (metallic copper is slightly solubilized in areas with acidic water supplies), that metal has been less affected by the source reduction regulations.

REGULATION OF SLUDGE APPLICATION TO LAND. The lower levels of metals (and of organic pollutants) make municipal sewage sludges much more suitable for application to soils than in the past. Today, the amount of sludge that can be applied to agricultural land is more often limited by the potential for nitrate pollution from nitrogen it contains, rather than by the metal content of the sludge. Nonetheless, application of sewage sludge to farmland is closely regulated to ensure that the metal concentrations in the sludge do not exceed the standards and that the total amount of metal applied to the soil over the years does not exceed the maximum accumulative loading limit listed in Table 18.8. The fact that metal loading standards differ considerably between the United States and Europe (Table 18.8) is an indication that the nature of the metal contamination threat is still somewhat controversial.

TOXIC EFFECTS FROM SLUDGE. The uncertainties as to the nature of many of the organic chemicals found in the sludge, as well as the cumulative nature of the metals problem, dictate continued caution in the regulations governing application of sludge to croplands. The effect of application of a high-metal sludge on heavy metal content of soils and of earthworms living in the soil is illustrated in Table 18.9. The sludge-treated soil areas, as well as the bodies of earthworms living in these soils, were higher in some of

TABLE 18.7 Median Pollutant Concentrations Reported in Sewage Sludges Surveyed Across the United States in 1976 and 1990 and Uncontaminated Agricultural Soils and Cow Manure

Pollutant	*Sludges surveyed in 1990*[a]	*Sludges surveyed in 1976*[b]	*Agricultural soils*[d]	*Typical values for cow manure*
	(mg/kg dry weight)			
As	6	10	—	4
Cd	7	260	0.20	1
Cr	40	890	—	56
Cu	463	850	18.5	62
Hg	4	5	—	0.2
Mo	11	—	—	14
Ni	29	82	18.2	29
Pb	106	500	11.0	16
Zn	725	1,740	53.0	71
PCB	0.21	9[c]	—	0

[a]Data from Chaney (1990).
[b]Data from Sommers (1977).
[c]1976 PCB value is median of cities in New York; from Furr et al. (1976).
[d]Median of 3045 surface soils reported by Holmgren et al. (1993).

TABLE 18.8 Regulatory Limits on Inorganic Pollutants (Heavy Metals) in Organic Wastes Applied to Agricultural Land

Element	Maximum concentration in sludge, USEPA[a] (mg/kg)	Annual pollutant loading rates, USEPA (kg/ha/yr)	Cumulative pollutant loading rates (in kg/ha)		
			USEPA	Germany	Ontario
As	75	2.0	41		14
Cd	85	1.9	39	6	1.6
Cr	3000	150.0	3000	200	210
Cu	4300	75.0	1500	200	150
Hg	840	15.0	300	4	0.8
Mo	57	0.85	17	—	4
Ni	75	0.90	18	100	32
Pb	420	21.0	420	200	90
Se	100	5.0	100	—	2.4
Zn	7500	140	2800	600	330

[a]U.S. Environmental Protection Agency (1993).

these elements than in areas where sludge had not been applied. One would expect further concentration to take place in the tissue of birds and fish, many of which consume the earthworms.

Farmers must be assured that the levels of inorganic chemicals in sludge are not sufficiently high to be toxic to plants (a possibility mainly for zinc and copper) or to humans and other animals who consume the plants (a serious consideration for Cd, Cr, and Pb). For relatively low-metal municipal sludges, application at rates just high enough to supply needed nitrogen seems to be quite safe (Table 18.10).

Direct ingestion of soils and sludge is also an important pathway for human and animal exposure. Animals should not be grazed on sludge-treated pastures until rain or irrigation has washed the sludge from the forage. Children may eat soil while they play, and a considerable amount of soil eventually becomes dust in many households.

18.8 REACTIONS OF INORGANIC CONTAMINANTS IN SOILS

Heavy Metals in Sewage Sludge

Concern over the possible buildup of heavy metals in soils, resulting from large land applications of sewage sludges, has prompted research on the fate of these chemicals in soils. Most attention has been given to zinc, copper, nickel, cadmium, and lead, which are commonly present in significant levels in these sludges. Studies have shown that these elements are generally bound by soil constituents, that they do not easily leach from the soil, and that they are not readily available to plants. Only in moderately to strongly acid soils is there significant movement down the profile from the layer of application of the sludge. Monitoring soil acidity and using judicious applications of lime can prevent leaching into groundwaters and can minimize uptake by plants.

TABLE 18.9 The Effect of Sewage Sludge Treatment on the Content of Heavy Metals in Soil and in Earthworms Living in the Soil

Note the high concentration of cadmium and zinc in the earthworms.

Metal	Concentration of metal (mg/kg)			
	Soil		Earthworms	
	Control	Sludge-treated	Control	Sludge-treated
Cd	0.1	2.7	4.8	57
Zn	56	132	228	452
Cu	12	39	13	31
Ni	14	19	14	14
Pb	22	31	17	20

From Beyer et al. (1982).

TABLE 18.10 Uptake of Metals by Corn After 19 Years of Fertilizing a Minnesota Soil (Typic Hapludoll) with Lime-Stabilized Municipal Sewage Sludge

Note that the metals show the typical pattern of less accumulation in the grain than in the leaves and stalks (stover). The annual sludge rate of about 10.5 Mg was designed to supply the nitrogen needs of the corn. The sludge had little effect on the metal content of the plants, except in the case of zinc (which increased, but not beyond the normal range for corn).

Treatment	Zn	Cu	Cd	Pb	Ni	Cr
	(mg/kg)					
	Stover					
Fertilizer	18	8.4	0.16	0.9	0.7	0.9
Sludge	46.5	7.0	0.18	0.8	0.6	1.4
	Grain					
Fertilizer	20	3.2	0.29	0.4	0.4	0.2
Sludge	26	3.2	0.31	0.5	0.3	0.2
	kg/ha					
Cumulative metal applied	175	135	1.2	49	4.9	1045

Data abstracted from Dowdy et al. (1994).

FORMS FOUND IN SOILS TREATED WITH SLUDGE. By using chemical extractants, researchers have found that heavy metals are associated with soil solids in four major ways (Table 18.11). *First,* a very small proportion is held in adsorbed or exchangeable forms which are available for plant uptake. *Second,* the elements are bound by the soil organic matter and by the organic materials in the sludge. A high proportion of the copper is commonly found in this form, while lead is not so highly attracted. Organically bound elements are not readily available to plants, but can be released over a period of time.

The *third* association of heavy metals in soils is with carbonates and with oxides of iron and manganese. These forms are less available to plants than either the exchangeable or organically bound forms, especially if the soils are not allowed to become too acid. The *fourth* association is commonly known as the *residual form,* which consists of sulfides and other very insoluble compounds that are less available to plants than any of the other forms.

It is fortunate that soil-applied heavy metals are not readily absorbed by plants and that they are not easily leached from the soil. However, the immobility of the metals means that they will accumulate in soils if repeated sludge applications are made. Care must be taken not to add such large quantities that the capacity of the soil to react with a given element is exceeded. It is for this reason that regulations set maximum cumulative loading limits for each metal (Table 18.8).

TABLE 18.11 Forms of Six Heavy Metals Found in a Greenfield Sandy Loam (Coarse Loamy, Mixed, Thermic Typic Haploxeralf) That Had Received 45 Mg/ha Sewage Sludge Annually for 5 Years

Forms	Percentage of elements in each form					
	Cd	Cr	Cu	Ni	Pb	Zn
Exchangeable/adsorbed	1	1	2	5	1	2
Organically bound	20	5	34	24	3	28
Carbonate/iron oxides	64	19	36	33	85	39
Residual[a]	16	77	29	40	12	31

From Chang et al. (1984).
[a]Sulfides and other very insoluble forms.

Arsenic has accumulated in orchard soils following years of application of arsenic-containing pesticides. Being present in an anionic form (e.g., $H_2AsO_4^-$), this element is absorbed (as are phosphates) by hydrous iron and aluminum oxides, especially in acid soils. In spite of the capacity of most soils to tie up arsenates, long-term additions of arsenical sprays can lead to toxicities for sensitive plants and earthworms. The arsenic toxicity can be reduced by applications of sulfates of zinc, iron, and aluminum, which tie up the arsenic in insoluble forms.

Contamination of soils with *lead* comes primarily from airborne lead from automobile exhausts; therefore, it is most concentrated within 100 m of major roadways and near urban centers. Some lead is deposited on the vegetation and some reaches the soil directly. In any case, most of the lead is tied up in the soil as insoluble carbonates, sulfides, and in combination with iron, aluminum, and manganese oxides (Table 18.11). Consequently the lead is largely unavailable to plants.

Soil contamination by *boron* can occur from irrigation water high in this element or by excessive fertilizer application. The boron can be adsorbed by organic matter and clays but is still available to plants, except at high soil pH. Boron is relatively soluble in soils, toxic quantities being leachable especially from acid sandy soils. Boron toxicity is usually considered a localized problem and is probably much less important than a deficiency of the element.

Fluorine toxicity is also generally localized. Drinking water for animals and fluoride fumes from industrial processes often contain toxic amounts of fluorine. The fumes can be ingested directly by animals or deposited on nearby plants. If the fluorides are adsorbed by the soil, their uptake by plants is restricted. The fluorides formed in soils are highly insoluble, the solubility being least if the soil is well supplied with lime.

Mercury contamination of lake beds and of swampy areas has resulted in toxic levels of mercury among certain species of fish. Insoluble forms of mercury in soils, not normally available to plants or (in turn) to animals, are converted by microorganisms to an organic form (methylmercury), in which it is more soluble and available for plant and animal absorption. The methylmercury is concentrated in fatty tissue as it moves up the food chain, until it accumulates in some fish to levels that may be toxic to humans. This series of transformations illustrates how reactions in soil can influence human toxicities.

18.9 PREVENTION AND ELIMINATION OF INORGANIC CHEMICAL CONTAMINATION

Three primary methods of alleviating soil contamination by toxic inorganic compounds are (1) to eliminate or drastically reduce the soil application of the toxins; (2) to immobilize the toxin by means of soil management, to prevent it from moving into food or water supplies; and (3) in the case of severe contamination, to remove the toxin by chemical, physical, or biological remediation.

Reducing Soil Application

The first method requires action to reduce unintentional aerial contamination from industrial operations and from automobile, truck, and bus exhausts. Decision makers must recognize the soil as an important natural resource that can be seriously damaged if its contamination by accidental addition of inorganic toxins is not curtailed. Also, there must be judicious reductions in intended applications to soil of the toxins through pesticides, fertilizers, irrigation water, and solid wastes.

Immobilizing the Toxins

Soil and crop management can help reduce the continued cycling of these inorganic chemicals. This is done primarily by keeping the chemicals in the soil rather than encouraging their uptake by plants. The soil becomes a "sink" for the toxins, and thereby breaks the soil–plant–animal (humans) cycle through which the toxin exerts its effect. The soil breaks the cycle by immobilizing the toxins. For example, most of these elements are rendered less mobile and less available if the pH is kept near neutral or above (Figure 18.11). Liming of acid soils reduces metal mobility; hence, regulations require that the pH of sludge-treated land be maintained at 6.5 or higher.

Draining wet soils should be beneficial since the oxidized forms of the several toxic elements are generally less soluble and less available for plant uptake than are the

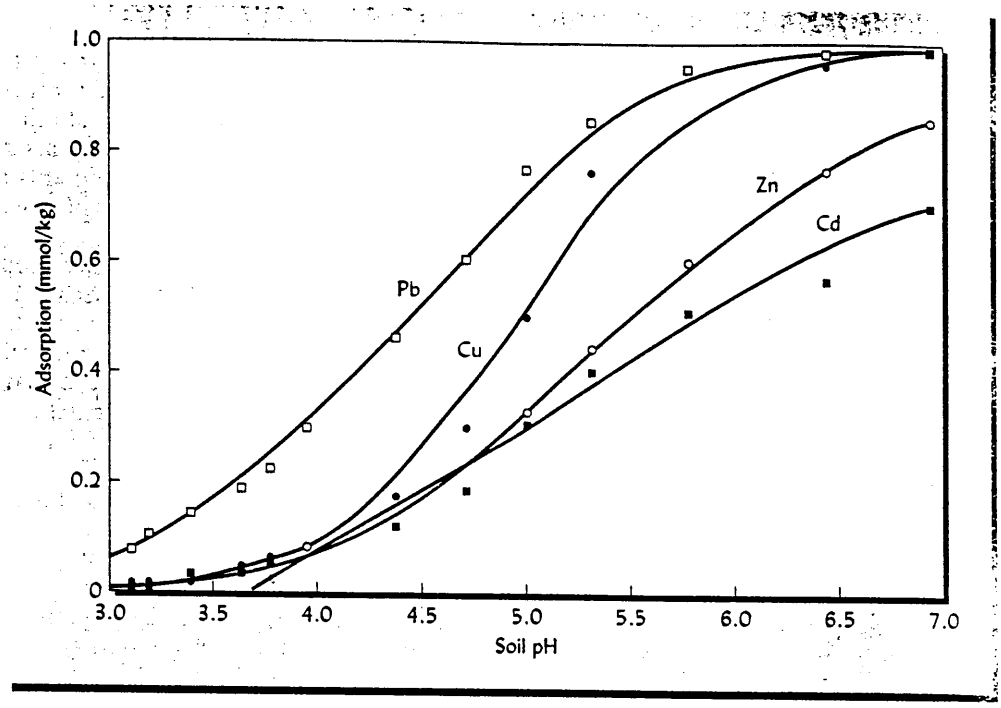


FIGURE 18.11 The effect of soil pH on the adsorption of four heavy metals. Maintaining the soil near neutral provides the highest adsorption of each of these metals and especially of lead and copper. The soil was a Typic Paleudult (Christiana silty clay loam). [From Elliot et al. (1986)]

reduced forms. However, the opposite is true for chromium, which occurs principally in two forms, Cr^{3+} and Cr^{6+}. Hexavalent Cr forms compounds that are mobile under a wide range of pH conditions and that are highly toxic to humans. Trivalent Cr, on the other hand, forms oxides and hydroxides that are quite immobile except in very acid soils. Therefore, it is desirable to reduce Cr^{6+} to Cr^{3+} in chromium-contaminated soils. Fortunately, active soil organic matter is quite effective at reducing chromium, and the Cr^{3+}, once formed, does not tend to reoxidize (see Figure 18.12).

Heavy phosphate applications reduce the availability of some metal cations but may have the opposite effect on arsenic, which is found in the anionic form. Leaching may be effective in removing excess boron, although moving the toxin from the soil to water may not be of any real benefit.

Care should be taken in selecting plants to be grown on metal-contaminated soil. Generally, plants translocate much larger quantities of metals to their leaves than to their fruits or seeds (Table 18.10). The greatest risk for food chain contamination with metals is therefore through leafy vegetables, such as lettuce and spinach, or through forage crops eaten by livestock.

Bioremediation by Metal Hyperaccumulating Plants

Certain plants that have evolved in soils naturally very high in metals are able to take up and accumulate extremely high concentrations of metals without suffering from toxicity. Plants have been found that accumulate more than 20,000 mg/kg nickel, 40,000 mg/kg zinc, and 1000 mg/kg cadmium. While such *hyperaccumulating* plants would pose a serious health hazard if eaten by animals or people, they may facilitate a new kind of bioremediation for metal-contaminated soils.

If sufficiently vigorously growing genotypes of such plants can be found, it may be possible to use them to remove metals from contaminated soils. For example, several plants in the genus *Thalaspi* have been grown in soils contaminated by smelter fumes (Figure 18.13). These soils are so contaminated that they are virtually barren. Accumulating more than 30,000 mg/kg (about 3%) zinc in their tissues, the *Thalaspi* plants grown on this site could be harvested to remove large quantities of the metals from the soil. The plant tissue is so concentrated that it could be used as an "ore" for smelting new metal. This and other bioremediation technologies for metals (e.g., the bioreduction of

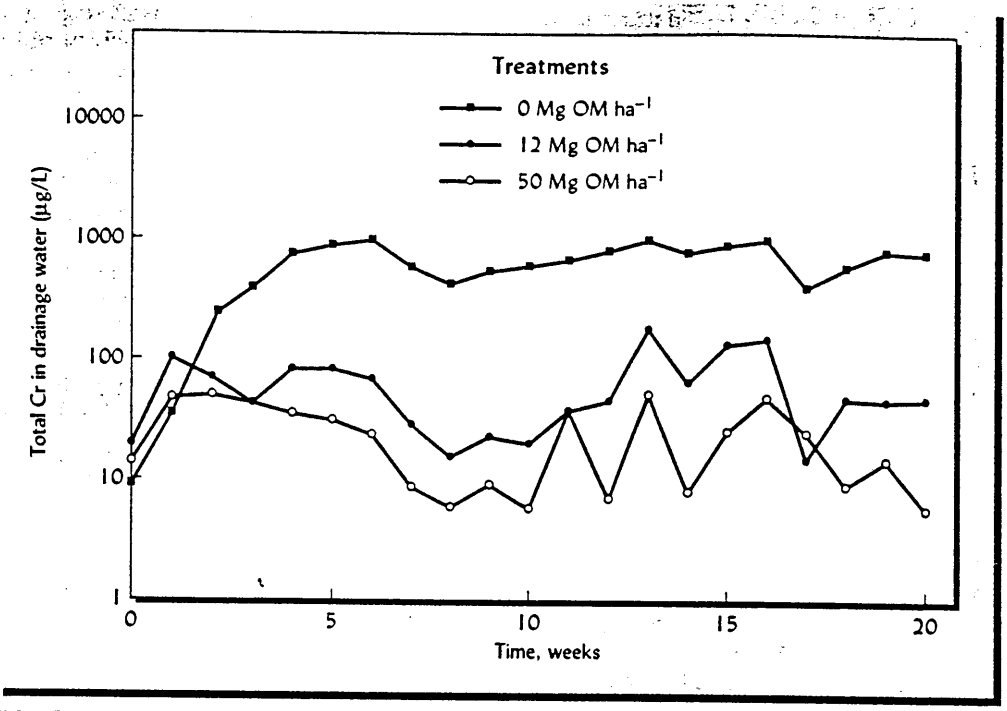


FIGURE 18.12 Effect of adding dried cattle manure (OM) on the concentration of chromium in drainage water from a chromium-contaminated soil. Oxidation of the manure caused the reduction of toxic, mobile Cr^{6+} to relatively immobile Cr^{3+}. Note the log scale for Cr in the water. The coarse-textured soil was a Typic Torripsamment in California. [Adapted from Losi, et al. (1994)]

chromium discussed earlier) hold promise for cleaning up badly contaminated soils without resorting to expensive and destructive excavation and soil-washing methods.

18.10 LANDFILLS[4]

A visit to the local landfill would convince anyone of the wastefulness of modern societies. Roughly 250 million metric tons of municipal wastes are generated each year by people in the United States. Most (about 70%) of this waste material is organic in

[4]For a good technical review of landfill design and function, see Baghchi (1994).

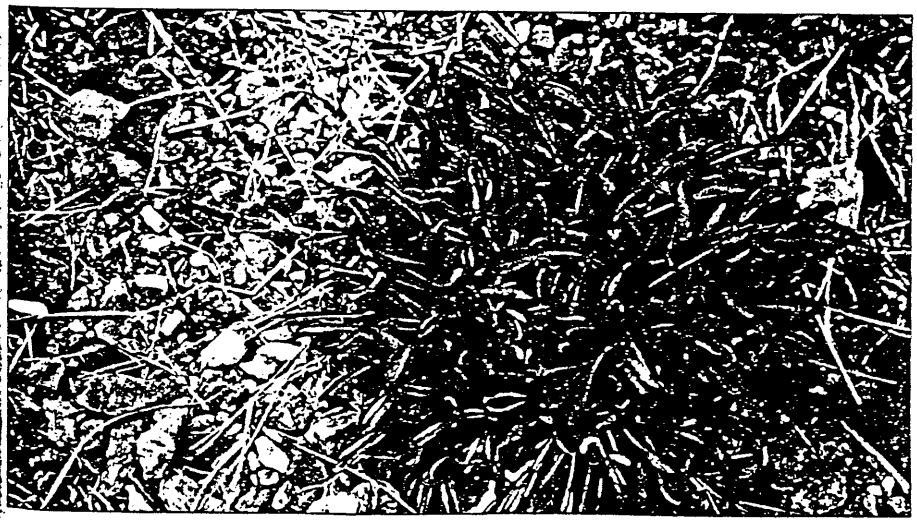


FIGURE 18.13 *Thalaspi caerulescens*, a zinc and cadmium hyperaccumulator plant growing in smelter-contaminated soil near Palmerton, Pa. This plant has been reported to accumulate up to 4% zinc in its tissue (dry weight basis). Research with such plants aims at developing technology to biologically remove and recover metals from heavily contaminated soils. (Photo by H. Witham; courtesy of R. Chaney, USDA)

nature, largely paper, cardboard, and yard wastes (e.g., grass clippings, leaves, and tree prunings). The other 30% consists mainly of such nonbiodegradables as glass, metals, and plastic. Currently, despite an upsurge in recycling efforts, the great majority of these materials are buried in the earth.

The Solid Waste Problem

We know that the entire waste disposal problem could be greatly reduced by creating less waste in the first place. Second, it is possible to eliminate most problems associated with waste disposal by two simple measures: (1) keeping the metals, glass, plastics, and paper separate in the household for easy recycling and (2) composting the yard wastes, food wastes, and some of the paper products. The composted product from a number of municipalities is successfully used as a beneficial soil amendment (see Section 16.7). The small fraction of more hazardous wastes remaining can then be detoxified or concentrated and immobilized.

The present reality is that most municipal solid wastes are buried in the earth and will probably continue to be disposed of in this manner for some time to come. In the past, wastes were merely placed in open dumps and often set afire. The term *landfill* came into use because wastes were often dumped in swampy lowland areas where, eventually, their accumulation filled up the lowland, creating upland areas for such uses as city parks and other facilities. Locating landfills on wetlands is no longer an acceptable practice.

Environmental Impacts of Landfills

Today, regulations require that wastes be buried in carefully located and designed sanitary landfills. A major concern with regard to landfills is the potential water pollution from the rainwater that percolates through the wastes, dissolving and carrying away all manner of organic and inorganic contaminants (Table 18.12). In addition to the oxygen-demanding general dissolved organics, many of the contaminants in landfill leachate are highly toxic and would create a serious pollution problem if they reached the groundwater under the landfill.

The production of methane gas by the anaerobic decomposition of organic wastes in a landfill can present a very serious explosion hazard if this gas is not collected (and possibly burned as an energy source). Where the soil is rather permeable, the gas may dif-

TABLE 18.12 Partial List of Organic and Inorganic Contaminants in Untreated Leachate from the City of Guelph (Ontario, Canada) Municipal Solid Waste Landfill

Typical sources of these contaminant in landfills and mechanisms by which soils can attenuate the contaminants are also given. Although leachates vary greatly among landfills, the contaminants in this list are fairly typical.

Chemical	*Concentration (μg/L)*	*Common sources*	*Mechanisms of attenuation*
		Organics	
Chemical oxygen demand (COD)	14,300	Rotting yard wastes, paper, garbage	Biological degradation
Benzene	20	Adhesives, deodorants, oven cleaner, solvents, paint thinner, medicines	Filtration, biodegradation, methanogenesis
Dichloroethane	406	Adhesives, degreasers	Biodegradation, dilution
Toluene	165	Glues, paint cleaners and strippers, adhesives, paints, dandruff shampoo, carburetor cleaners	Biodegradation, dilution
Xylene	212	Oil and fuel additives, paints, carburetor cleaners	Biodegradation, dilution
		Metals	
Nickel	0.38	Batteries, electrodes, spark plugs	Adsorption, precipitation
Chromium	0.14	Cleaners, paint, linoleum, batteries	Precipitation, adsorption, exchange
Cadmium	0.03	Paint, plastics	Precipitation, adsorption

Leachate data from Cureton et al. (1991).

fuse into basements up to several hundred meters away from the landfill. A number of fatal explosions have occurred by this process. Anaerobic decomposition in landfills also emits other harmful gases, the effects of which are less well known.

Although landfill designs vary with the characteristics of both the site and the wastes, two basic types of landfills (see Figure 18.14) can be distinguished: (1) the natural attenuation or unsecured landfill and (2) containment or secured landfill. We will briefly discuss the main features of each.

Natural Attenuation Landfills

The purpose of a natural attenuation landfill is to contain nonhazardous municipal wastes in a sanitary manner, protect them from animals and wind dispersal, and finally to cover them sufficiently to allow revegetation and possible reuse of the site. Some rainwater is allowed to percolate through the waste and down to the groundwater. Natural attenuation processes are relied upon to attenuate the leachate contaminants before the leachate reaches the groundwater. Soils play a major role in these natural attenuation processes through physical filtering, adsorption, biodegradation, and chemical precipitation (see Table 18.12).

SOIL REQUIREMENTS. Finding a site with suitable soil characteristics is critical for this type of landfill. There must be at least 1.5 meters of soil material between the bottom of the landfill and the highest groundwater level. This layer of soil should be only moderately permeable. If too permeable (sandy or gravelly or highly structured), it will allow the leachate to pass through so quickly that little attenuation of contaminants will take place. The soil must have sufficient cation exchange capacity to adsorb the cations (NH^{4+}, K^+, Na^+, and other metallic cations) that the wastes are expected to release. If too slowly permeable, the leachate will build up, flood the landfill, and seep out laterally.

The site for a natural attenuation landfill should also provide soils suitable for daily and final cover materials (Figure 18.14). At the end of every workday the waste must be covered by a layer of relatively impermeable soil material. The final cover for the landfill is much thicker than the daily covers, and includes a thick layer of low-permeability, fine-textured material underneath a thinner layer of loamy "topsoil." The impermeable cover is meant to minimize percolation of water into the landfill, and the topsoil is meant to support a vigorous plant cover that will prevent erosion and use up water by evapotranspiration. The whole system is designed to limit the amount of water percolating through the waste, so that the amounts of contaminated leachate generated will not overwhelm the attenuating capacity of the soil between the landfill bottom and the groundwater.

Containment or Secured Landfills

The second main type of landfill is much more complex and expensive to construct, but its construction is much less dependent on finding a site with suitable soils. The design is intended to contain all leachate from the landfill, rather than depending on the soil for cleansing before the leachate enters the groundwater. To accomplish the containment, one or more impermeable liners are set in place around the sides and bottom of the landfill. These are often made of expanding clays (e.g., bentonite) that swell to a very low permeability when wet. Plastic and tough, nonwoven, synthetic fabric (geotextiles) are also used in making the liners. A layer of gravel or sand is used to protect the liner from accidental punctures, and a system of slotted pipes and pumps is installed to collect all the leachate from the bottom of the landfill. The collected leachate is then treated on or off the site. The principal soil-related concern is the requirement for suitable sources of sand and gravel, for clayey material to form the final cover, and for topsoil to support protective vegetation (see Figure 18.14).

18.11 SOILS AS ORGANIC WASTE DISPOSAL SITES

In the United States nearly 250 million Mg of domestic wastes are generated each year. To this must be added the nearly 2 billion Mg of farm animal wastes, as well as millions of megagrams of organic wastes from food and fiber processing plants and industrial operations.

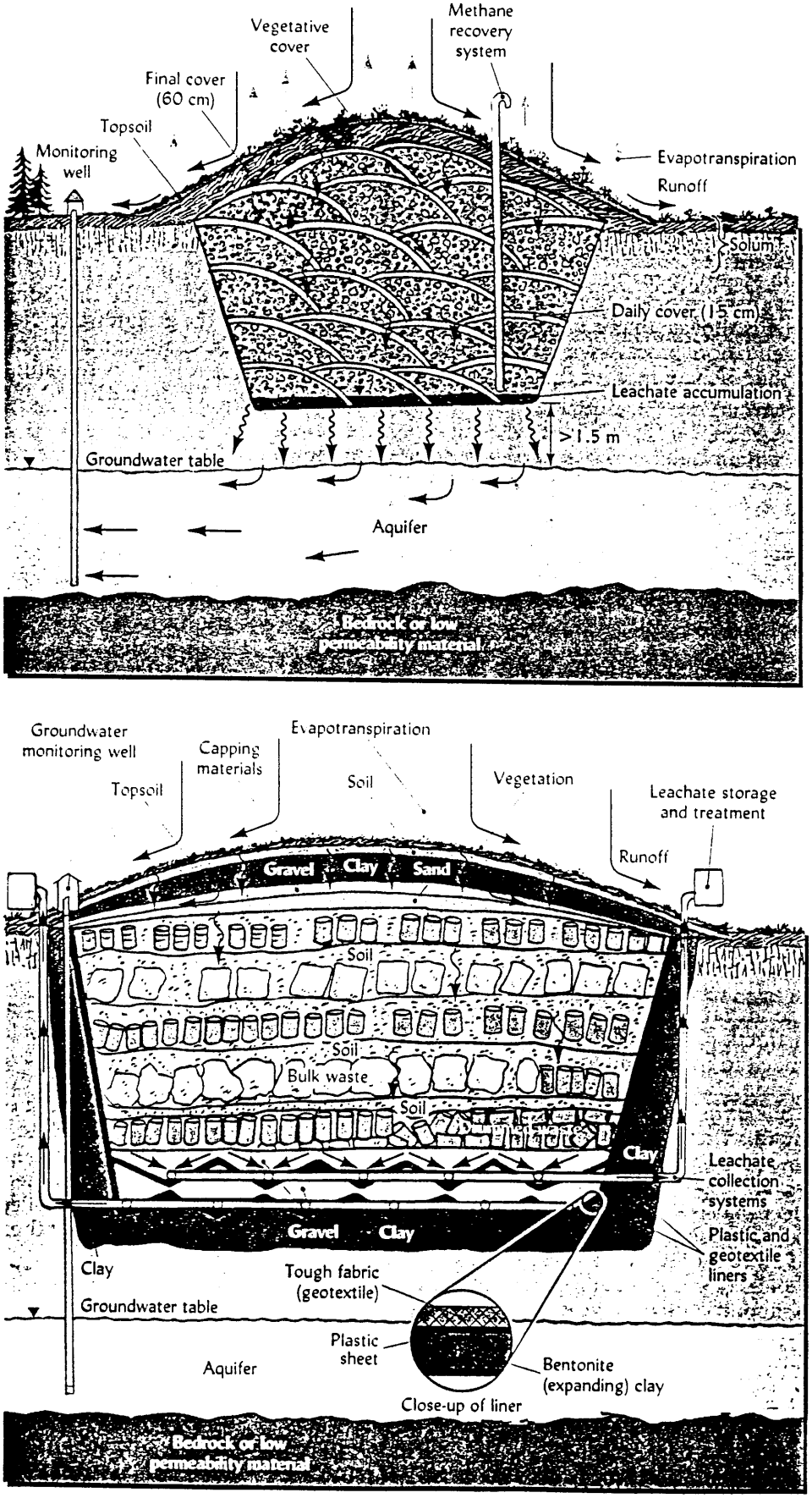


FIGURE 18.14 Two types of landfills. The natural attenuation landfill (top) depends largely on soil processes to attenuate the contaminants in the leachate before they reach the groundwater. The containment-type landfill (bottom) is used for more hazardous wastes or when soil conditions on the site are unsuitable for natural attenuation. It is designed to collect all the leachate and pump it out for storage and treatment.

It is no longer environmentally acceptable to dispose of these wastes by dumping them into waterways or the oceans or by burning, thus releasing reaction products into the atmosphere. The soil offers an alternative disposal sink which is being more and more widely used. These organic wastes can improve soil physical and chemical properties and can provide nutrients for increased plant growth. Such positive effects will likely encourage continued land application of these wastes. At the same time, when wastes are applied in excess quantities, soil productivity may be depressed by salts, or soil and water pollution may occur.

18.12 SOIL SALINITY

Contamination of soils with salts is primarily an agricultural pollution problem. More than 4 million hectares of land are affected in the western United States and many times that amount in other arid regions of the world. Whole civilizations in both the New and Old Worlds are known to have crumbled due to salt buildup in their irrigated soils. The same principles govern the management of irrigated soils today; and the same dangers—salt buildup and concomitant soil deterioration—continue to exist (see Section 10.2).

When more salt moves into the plant rooting zone than moves out, salt accumulation ensues. Salt buildup is often caused by irrigating poorly drained soils or by applying too much irrigation water without providing appropriate artificial drainage to prevent a rise in the water table. The mistakes of the ancients are today still being repeated in large and small irrigation projects the world over (see Figure 19.11 for space satellite documentation of this problem).

The standard solution to the problem of salt buildup is to apply extra irrigation water to promote leaching of the salts from the profile. Unfortunately, as with all such pollution problems, this apparent solution may save the farmers' soils but merely shift the problem somewhere else—namely, to the rivers draining the irrigated areas, causing damage and great expense elsewhere in the environment (Section 10.7). A relatively new approach is to apply a carefully controlled amount of leaching water to move the salts to a depth just below the root zone, where some of the salts will precipitate as relatively insoluble carbonate compounds. This, too, is only a temporary and a partial solution to the problem of salt pollution of soils.

Other sources of soluble salt pollution include manures (especially those from confined animals fed high-salt diets) and sewage sludge when these materials are applied for disposal purposes at levels far higher than needed to supply plant nutrients.

18.13 RADIONUCLIDES IN SOIL

Nuclear fission in connection with atomic weapons testing and nuclear power generation provides another source of soil contamination. To the naturally occurring radionuclides in soil (e.g., ^{40}K, ^{87}Rb, and ^{14}C), a number of fission products have been added. However, only two of these are sufficiently long-lived to be of significance in soils: strontium 90 (half-life = 28 years) and cesium 137 (half-life = 30 years). The average levels of these nuclides in soil in the United States are about 388 millicuries (mC)/km^2 for ^{90}Sr and 620 mC/km^2 for ^{137}Cs. A comparable figure for the naturally occurring ^{40}K is 51,800 mC/km^2. These normal soil levels of the fission radionuclides are not high enough to be hazardous. Even during the peak periods of weapons testing, soils did not contribute significantly to the level of these nuclides in plants. Atmospheric fallout on the vegetation was the primary source of radionuclides in the food chain. Consequently, only in the event of a catastrophic supply of fission products could toxic soil levels of ^{90}Sr and ^{137}Cs be expected. Fortunately, considerable research has been accomplished on the behavior of these two nuclides in the soil–plant system.

Strontium 90

Strontium 90 behaves in soil in much the same manner as does calcium, to which it is closely related chemically. It enters soil from the atmosphere in soluble forms and is quickly adsorbed by the colloidal fraction, both organic and inorganic. It undergoes

cation exchange and is available to plants much as is calcium. Contamination of forages and ultimately of milk by this radionuclide is of concern, as the ^{90}Sr could potentially be assimilated into the bones of the human body. The possibility that strontium is involved in the same plant reactions as calcium probably accounts for the fact that high soil calcium tends to decrease the uptake of ^{90}Sr.

Cesium 137

Although chemically related to potassium, cesium tends to be less readily available in many soils. Apparently ^{137}Cs is firmly fixed by vermiculite and related interstratified minerals. The fixed nuclide is nonexchangeable, much as is fixed potassium in some interlayers of clay (see Section 14.15). Plant uptake of ^{137}Cs from such soils is very limited. Where vermiculite and related clays are absent, as in some tropical soils, ^{137}Cs uptake is more rapid. In any case, the soil tends to dampen the movement of ^{137}Cs into the food chain of animals, including humans.

Radioactive Wastes[5]

In addition to radionuclides added to soils as a result of weapons testing and accidents (such as that which occurred at Chernobyl, Ukraine), soils may interact with low-level radioactive waste materials which have been buried for disposal. Even though the materials may be in solid form when placed in shallow land burial pits, some dissolution and subsequent movement in the soil are possible. Plutonium, uranium, americium, neptunium, curium, and cesium are among the elements whose nuclides occur in radioactive wastes.

Nuclides in wastes vary greatly in water solubility, uranium compounds being quite soluble, compounds of plutonium and americium being relatively insoluble, and cesium compounds intermediate in solubility. Cesium, a positively charged ion, is adsorbed by soil colloids. Uranium is thought to occur as a UO_2^{2+} ion that is also adsorbed by soil. The charge on plutonium and americium appears to vary, depending on the nature of the complexes these elements form in the soil.

There is considerable variability in the actual uptake by plants of these nuclides from soils, depending on properties such as pH and organic matter content. The uptake from soils by plants is generally lowest for plutonium, highest for neptunium, and intermediate for americium and curium. Fruits and seeds are generally much lower in these nuclides than are leaves, suggesting that human foods may be less contaminated by nuclides than forage crops.

Since soils are being used as burial sites for low-level radioactive wastes, care should be taken that soils are chosen whose properties discourage leaching or significant plant uptake of the chemicals. Data in Table 18.13 illustrate differences in the ability of different soils to hold breakdown products of two radionuclides. It is evident that monitoring of nuclear waste sites will likely be needed to assure minimum transfer of the nuclides to other parts of the environment.

[5]This summary is based largely on papers on this subject in *Soil Science*, 132 (July 1981).

TABLE 18.13 Concentrations of Several Breakdown Products of Uranium 238 and Thorium 232 (Nucleotides) in Six Different Soil Suborders in Louisiana

Note marked differences among levels in the different soils.

		^{238}U breakdown products			^{232}Th breakdown products		
Soil suborder	*No. of samples*	^{226}Ra	^{214}Pb	^{214}Bi	^{212}Pb	^{137}Cs	^{40}K
Udults	22	37.3	27.7	28.9	27.4	16.7	136
Aquults	24	30.4	36.7	38.1	50.0	10.9	100
Aqualfs	37	51.1	38.3	36.6	59.7	13.5	263
Aquepts	93	92.2	47.6	45.2	63.8	16.1	636
Aquolls	57	90.4	45.8	44.7	59.5	8.7	608
Hemists	18	136.3	49.4	49.0	74.9	19.4	783

From Meriwether et al. (1988).

18.14 RADON GAS FROM SOILS

The soil is the primary source of the colorless and odorless radioactive gas *radon,* which has been shown to cause lung cancer. Radon is formed from the radioactive decay of radium, a breakdown product of uranium found in minute quantities in most soils (see Figure 18.15). The health hazard from this gas stems from the transformation of its radioactive decay products into alpha rays, which can penetrate the lung tissue and cause cancer. Radon enters homes and other buildings from the surrounding soil. Since modern airtight buildings permit little exchange of air with the outside, radon can accumulate to harmful levels.

Radon usually moves into the buildings through cracks in the basement walls and floors and around openings where utility pipes enter the basement. If radon tests show that undesirable levels are present, the simplest remedial action is to seal all cracks and points of entry. Additional steps include constructing more elaborate systems to better ventilate the basement with outside air, in order to prevent a buildup of unhealthful levels of radon gas.

Since radon is an inert gas, it does not react with the soil, which merely serves as a channel through which the gas moves. Coarse, gravelly soils are more likely to transfer radon rapidly to basements than would finer-textured soils.

18.15 CONCLUSION

Three major conclusions may be drawn about soils in relation to environmental quality. First, since soils are valuable resources, they should be protected from environmental contamination, especially that which does permanent damage. Second, because of their vastness and remarkable capacities to absorb, bind, and break down added materials, soils offer promising mechanisms for disposal and utilization of many wastes that otherwise may contaminate the environment. Third, soil contaminants and products of their breakdown in the soil reactions can be toxic to humans and other animals if they move from the soil into plant, the air, and particularly into water supplies.

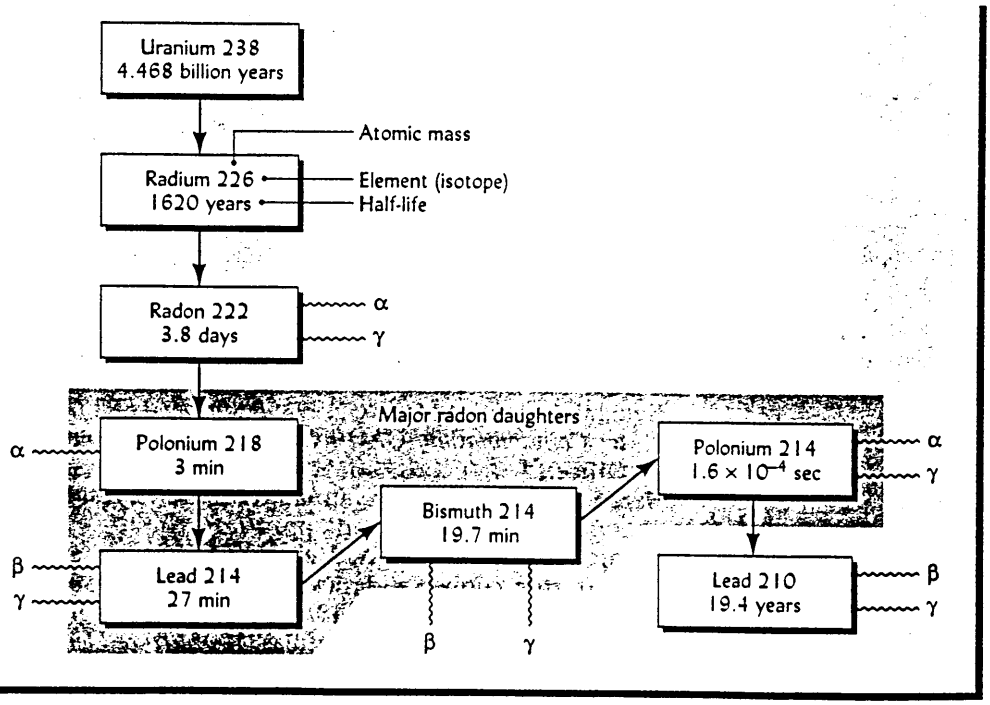


FIGURE 18.15 Radioactive decay of uranium 238 in soils that results in the formation of inert but radioactive radon. This gas emits alpha (α) particles and gamma (γ) rays and forms *radon daughters* that are capable of emitting alpha (α) and beta (β) particles and gamma (γ) rays. The alpha particles damage lung tissue and cause cancer. Radon gas may account for about 10,000 deaths annually in the United States. [Modified from Boyle (1988)]

To gain a better understanding of how soils might be used and yet protected in waste management efforts, soil scientists devote a considerable share of their research effort to environmental-quality problems. Furthermore, soil scientists have much to contribute to the research teams that search for better ways to clean up environmental contamination. Finding appropriate sites where soils can be safely used to clean up or store hazardous wastes involves geographic information about soils, the topic of the next chapter.

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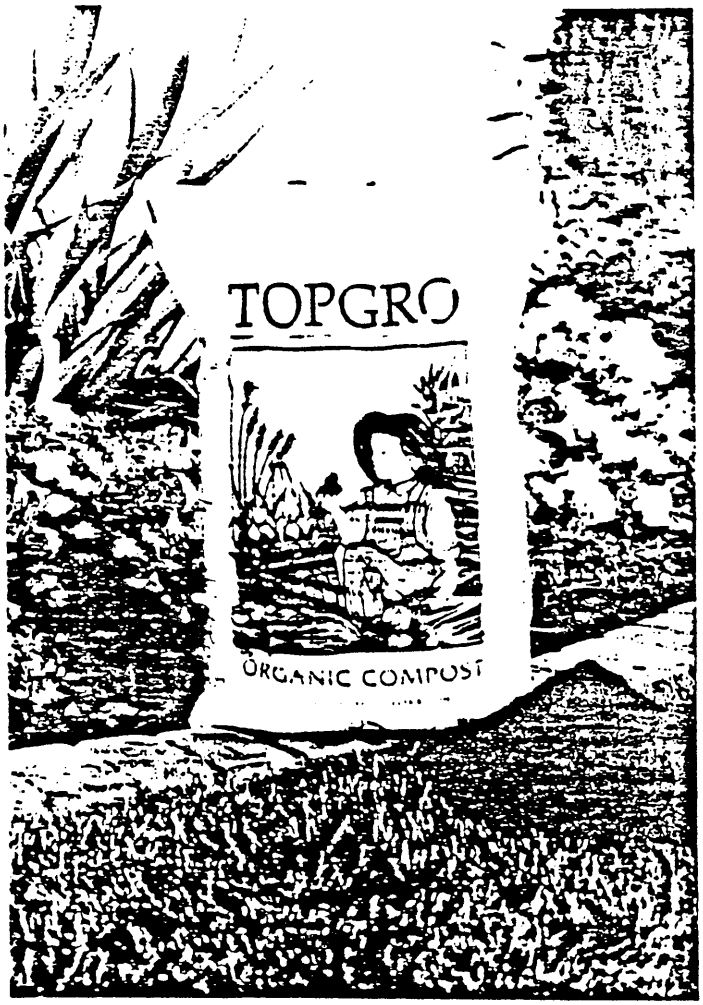
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ATTACHMENT D

PAGE 3 OF THE PLAIN ENGLISH GUIDE TO BIOSOLIDS (IN RESPONSE TO COMMENT MM5)





TopGrow organic compost is produced from biosolids and other waste materials by the City of Los Angeles.

Risk Assessment Basis of the Part 503 Rule

Many of the requirements of the Part 503 rule are based on the results of an extensive multimedia risk assessment. This risk assessment was more comprehensive than for any previous Federal biosolids rulemaking effort, the earliest of which began in the mid-1970s. Research results and operating experience over the past 25 years have greatly expanded EPA's understanding of the risks and benefits of using or disposing of biosolids.

Development of the Part 503 rule began in 1984. During this extensive effort, EPA addressed 25 pollutants using 14 exposure pathways in the risk assessment. In this assessment, EPA also developed a new methodology that provided for the protection of the environment and public health. The new method for conducting the multimedia risk assessment was reviewed and approved by EPA's Science Advisory Board.

ATTACHMENT E

ENGINEERING PROGRESS REPORT FOR CONSTRUCTION OF THE COMPOST PAD (COMMENT DD43)



PATRICK J. CONWAY
CONSULTING GEOTECHNICAL ENGINEER
465 STONY POINT ROAD, SUITE 170
SANTA ROSA, CA 95401
(707) 573-7355

September 12, 1995

Job No. 023.04

DLF Engineers
P.O. Box 717
Windsor, CA 95492

Attention: Dave Flum, P.E.

Subject: **Progress Report**
Observation and Testing Services During Grading
Cold Stream Composting Facility
Potter Valley Road
Mendocino County, California

References:

- Report titled "Geotechnical Recommendations for Site Grading, Guntly Ranch Composting Facility, Potter Valley Road, Mendocino County, California"
- Grading Plan for M&M Feed - Martin Mileck, Located at Guntly Ranch, APN 177-150-01, -02, Potter Valley Road, Sheet C1-7, prepared by DLF Engineers, latest revision dated May 29, 1995

Dear Mr. Flum:

This progress report presents the results of observation and testing services provided by Patrick J. Conway (PJC), consulting geotechnical engineer, during the earthwork construction of the Cold Stream Composting Facility earth pad located at Guntly Ranch, Potter Valley Road, Mendocino County, California. The laboratory and field density test results are presented in Tables 1 and 2, respectively.

A. AUTHORIZATION

The work described in this report was performed in accordance with the verbal Agreement for Professional Engineering Services between PJC and DLF Engineers.

B. PROJECT DESCRIPTION

The project consisted of construction of an earth pad to store and process composting material. The California Regional Water Quality Control Board (RWQCB) previously waived the requirement of construction of an impermeable clay liner on the pad. This was

outlined in a letter dated July 5, 1995. The earth pad was rough graded in the summer of 1994. The work addressed in this report consisted of regrading the pad. The regrading consisted of significant cuts and fills to expand the pad, upgrading existing fills, and altering the grades of the pad. The grading of the pad commenced on July 13, 1995, and was near completion on my last visit on July 31, 1995.

C. PREVIOUS WORK

The general site conditions, subsurface soil conditions and earthwork recommendations are summarized in the previous geotechnical reports prepared by PJC and provided guidelines and specifications for the earthwork activities.

D. SCOPE OF WORK

The following scope of services was performed during grading at the site:

1. Observation of overexcavation of the existing uncontrolled fill and weak surface soils.

2. Observation, field density testing during scarification, moisture conditioning, and compaction of subgrade native soils.

3. Field density testing during compaction of fill soils.

4. Laboratory testing to determine the maximum dry density and optimum moisture content of the soils used as fill.

5. Consultations during grading.

6. Preparation of this summary report.

Field density test locations were selected on a basis of random sampling and included those areas considered to be initially below average. Field density tests were performed in accordance with ASTM Test Designation D2922-81 and D3017-78 (nuclear methods). The results of the field density tests are summarized in Table 1.

The maximum laboratory dry density and optimum moisture content of the soils utilized for fill were determined in accordance with ASTM D1557-78 test method. The results of the laboratory compaction tests are summarized in Table 2.

E. CONSTRUCTION OBSERVATION SERVICES

The site grading consisted of stripping vegetation and weak surface soils, and removing trees and associated stumps. These materials were removed from the areas to be graded. Areas that received engineered fill were stripped of old fill, scarified, moisture conditioned, and compacted to a minimum of 90 percent relative compaction. Subsequent fill was then spread in thin lifts, moisture conditioned to near optimum moisture content,

and compacted to at least 90 percent relative compaction. A summary of the field density tests is presented in Table 1. A summary of the laboratory compaction tests is presented in Table 2.

F. DISCUSSION

Based on the results of the field density testing, observation of the construction procedures, and PJC's experience, the fill for the Cold Stream Composting Facility earth pad was completed in substantial accordance with the criteria outlined in section four of the Geotechnical Recommendations for Site Grading Report prepared by PJC.

Prior to the rainy season, erosion control measures must be implemented at the site to maintain stability of the fill slopes. Ponding of water on the fill slopes should not be permitted. The roof should be provided with continuous gutters to reduce the possibility of saturation of the nearby fill slopes. Downspouts from the gutters should be provided. The downspouts should be connected to closed conduits and discharged at least 20 feet from the toe of any fill slopes. An energy dissipator should be placed to reduce erosion at the exits of pipes. Rip-rap would be suitable. The fill slopes should be adequately planted to retard erosion before it could enlarge into slope failures.

The presence of PJC at the site was to provide a continuing source of professional advice, opinions and recommendations, based upon PJC's observations of the contractor's work and did not include any superintending, supervision or direction of the actual work of the contractor or the contractor's workers. No review was made of the adequacy of the contractor's safety measures on or near the site, since working conditions on any construction project are the sole responsibility of the contractor.

We appreciate this opportunity to be of service. If you need any clarification of any of the information in this report, please do not hesitate to contact us.

Sincerely,

Patrick J. Conway
Project Manager
Geotechnical Engineer
GE 2303, California

REGISTERED PROFESSIONAL ENGINEER
PATRICK J. CONWAY
No. 2303
Exp. 3-31-98
GEOTECHNICAL
STATE OF CALIFORNIA

PJC/jc

TEST NO.	DATE OF TEST (1995)	APPROX. ELEVATION (feet)	APPROX. DEPTH OF FILL (feet)	LOCATION (ft) South	LOCATION (ft) East	FIELD WATER CONTENT (%)	FIELD DRY DENSITY (pcf)	MAX. LAB DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	REQ'D COMP. (%)	REMARKS
29	7/27	1538	15	130	410	12.0	120.0	130.0	92	90	
30	7/28	1536	10	365	327	8.7	113.1	123.5	91	90	
31	7/28	1536	12	350	368	8.8	130.0	118.2	91	90	
32	7/28	1536	10	332	415	9.3	113.6	123.5	92	90	
33	7/28	1530	2	190	530	10.8	111.9	123.5	91	90	
34	7/31	1535	10	197	460	12.6	118.5	130.0	91	90	
35	7/31	1535	5	235	476	18.1	110.5	124.0	89	90	Rework; O.K.

★ ELEVATIONS FROM GRADING PLAN BY DLE ENGINEERS, May 29, 1995

★★ LOCATIONS BASED FROM NORTHWEST CORNER OF ROOF LINE AS SHOWN ON SITE GRADING PLAN. North Assumed TOWARDS TOP of PLAN

COLD STREAM COMPOSTING
Potter Valley Road
Mendocino County, CA

SUMMARY OF FIELD DENSITY TEST RESULTS

PROJECT NO.	DATE	SHEET NO.	TABLE NO.
022.01	9/97	2 OF 2	1

TEST NO.	DATE OF TEST (1997)	APPROX. ELEVATION (feet)	APPROX. DEPTH OF FILL (feet)	** LOCATION (ft.) South	** LOCATION (ft.) East	FIELD WATER CONTENT (%)	FIELD DRY DENSITY (pcf)	MAX. LAB DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	REQ'D COMP. (%)	REMARKS
1	7/13	1524	3	61	395	10.7	111.3	124.0	90	90	
2	7/13	1524	2	35	385	11.7	111.5	124.0	90	90	
3	7/14	1530	8	109	383	19.7	118.8	129.0	92	90	
4	7/14	1529	7	70	372	14.5	120.0	129.0	93	90	
5	7/14	1529	7	25	358	16.2	116.8	129.0	91	90	
6	7/17	1534	12	2	345	10.7	114.7	124.0	93	90	
7	7/17	1534	12	48	362	16.0	112.0	124.0	90	90	
8	7/17	1534	11	93	379	15.2	112.0	124.0	90	90	
9	7/18	1537	14	80	320	16.2	111.3	124.0	90	90	
10	7/18	1537	14	44	301	19.2	114.1	124.0	92	90	
11	7/18	1537	13	13	292	12.5	113.8	124.0	92	90	
12	7/19	1530	4	117	30	15.2	112.2	124.0	90	90	
13	7/19	1530	6	180	55	14.3	116.7	130.0	90	90	
14	7/19	1529	6	255	85	12.0	120.3	130.0	93	90	
15	7/19	1528	2	320	112	14.0	112.9	124.0	91	90	
16	7/20	1536	10	110	48	12.5	116.8	130.0	90	90	
17	7/20	1534	8	185	85	13.2	115.2	130.0	89	90	Rework; O.K.
18	7/20	1535	7	245	103	12.0	113.2	124.0	91	90	
19	7/20	1536	8	320	135	12.0	117.6	124.5	94	90	
20	7/24	1539	10	119	62	13.1	111.7	124.0	90	90	
21	7/24	1539	10	170	90	12.9	113.1	124.0	91	90	
22	7/24	1539	9	231	109	12.4	108.8	124.0	87	90	Rework; O.K.
23	7/24	1539	10	295	123	13.1	121.2	124.0	98	90	
24	7/24	1539	11	330	355	13.7	111.2	124.0	90	90	
25	7/27	1538	10	130 North	295	11.7	119.8	123.5	93	90	
26	7/27	1538	8	80 North	340	18.5	109.1	123.5	88	90	
27	7/27	1538	15	15 North	360	11.2	117.9	130.0	91	90	Rework; O.K.
28	7/27	1538	20	50	386	10.9	121.3	130.0	93	90	

COLD STREAM Composting
Potter Valley Road
Mendocino County, CA

SUMMARY OF FIELD DENSITY TEST RESULTS

PROJECT NO. 022 04 | DATE 12/97 | SHEET NO. 1 of 2

TABLE NO. 1

TABLE 2

SUMMARY OF LABORATORY COMPACTION TESTS

Material No.	Description	Optimum Moisture Content* (%)	Maximum Dry Density* (pcf)
1	Dark Olive Brown Sandy Clay (CL)	12.5	124.0
2	Yellow Brown Sandy Clay (CL)	9.5	130.0
3	Dark Yellowish Brown Clayey Sand (SC)	10.5	129.0
4	Brown Sandy Silt (ML)	12.5	123.5

Note: *Optimum moisture content and maximum dry density were determined in accordance with ASTM Test Method ASTM D1557-78.