Sanitary Landfill Plan Policy Summary

It was moved by Commissioner HEARN that the following Resolution be adopted:

BEFORE THE PLANNING COMMISSION

COUNTY OF JEFFERSON

STATE OF COLORADO

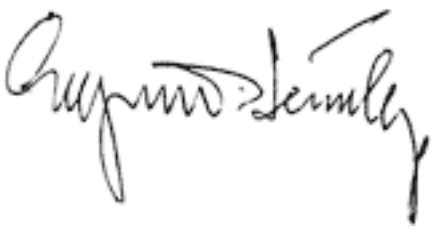
RESOLUTION

IN THE MATTER OF: Jefferson County Land Use Policy Plan
Sanitary Landfill Policies

The Jefferson County Planning Commission hereby recommends that the Sanitary Landfill Policies be ADOPTED.

Commissioner ALLRED seconded the adoption of the foregoing Resolution, and upon a vote of the Planning Commission the Resolution was adopted by majority (4-1) vote of the Planning Commission of the County of Jefferson, State of Colorado.

I, EUGENE STERNBERG, Secretary of the Jefferson County Planning Commission do hereby certify that the foregoing is a true copy of a Resolution duly adopted by the Jefferson County Planning Commission at an executive meeting held in Jefferson County, Colorado, on the 23rd day of February, 1983.



Eugene Sternberg, Secretary

Introduction

This document is a summary of the policies that relate to sanitary landfills. Sanitary landfills are evaluated based on the suitability ratings for each specific management area. The site development policies are guidelines to help landfill operators and consultants resolve problems associated with landfill operations and improve the suitability of a site for a landfill operation. The goal is to ensure that these operations are located and operated in a manner where all the policies are met.

A more detailed analysis and documentation of solid waste management is contained in a report entitled Jefferson County Solid Waste Management Plan. This report provides a comprehensive review of the solid waste industry and the impact of and need for solid waste disposal sites in Jefferson County. An outline of the Solid Waste Management Plan is at the end of this document.

I. Suitability Policies

How suited a site will be for landfilling is based on specific suitability policies which evaluate the level of impacts each proposal has on the site, community, and regional characteristics of an area.

H - means high suitability, or few or no impacts to the component listed
M - means moderate suitability, with moderate impacts to the component listed
L - means low suitability, with large or impacts to the component listed.

A particular site which has a greater number of high suitability ratings for management area components is more appropriate to serve as a sanitary land fill than one that has lower suitability ratings.

The following is a list of suitability policies that have been developed to evaluate sanitary landfill proposals. Explanations of issue areas A-E are found in the Jefferson County General Land Use Plan.

Management Area Components	Suitability Rating
A. Water Quality and Quantity	
1. Drainage and Infiltration	
a. Intermittent streams and their banks	L
b. Perennial streams and their banks	L
c. Recent alluvium contiguous with intermittent streams	L
d. Recent alluvium (perennial stream)	L
e. 100-year floodplains	L
f. Seasonal bodies of water	L
g. Bodies of water and their shoreline	L
h. Major aquifer recharge areas:	L
1) faults	L
2) recent alluvium	L
3) marsh or meadow area	L
4) consolidated aquifer recharge area	L
i. Bedrock types:	
1) Benton, Laramie, Pierce	H
2) Denver	M
3) others	L
j. No significant component present	H
2. Runoff	
a. Areas of high existing runoff potential	L
b. Areas of moderate existing runoff potential	M
c. Areas of low existing runoff potential	L
3. Erosion and sedimentation	
a. High natural erosion potential	H
b. Moderate natural erosion potential	H
c. Low natural erosion potential	M

4. Individual Waste Disposal system	
a. Type 1 system: Local material	
Hydrologic Constraints	L
Slope Constraints	L
Absorption Constraints of Existing Material	L
Soil Depth Constraints of Existing Material	L
No Significant Constraints	H
b. Type 2 system: Imported material	
Hydrologic Constraints	L
Slope Constraints	L
Absorption Constraints of Existing Material	L
Soil Depth Constraints of Existing Material	L
No significant Constraints	H
B. Wildlife and Vegetation (Biota)	
1. Wildlife	
a. Critical wildlife and/or habitat	L
b. High wildlife significance	L
c. Moderate wildlife significance	M
d. Low wildlife significance	H
e. No wildlife significance	H
2. Vegetation	
a. Threatened or endangered species (unique)	L
b. No threatened, endangered or unique species	H
C. Hazards	
1. Geologic	
a. No hazard present	H
b. Swelling soils	H
c. Known geologic hazard complex	L
d. slopes-high potential instability	L
e. slopes-moderate potential instability	M
f. Abandoned oil or gas wells	M
g. Known radioactive minerals	L
h. Old mine workings (surface mines)	H
i. Subsidence hazard (deep mines)	L

2. Flood	
a. Floodway	L
b. Flood fringe	L
c. outside of floodplain	H
3. wildfire	
a. Areas: fireline intensity <100 BTU/ft./sec.	H
b. Areas: fireline intensity <100-400 BTU/ft./sec.	M
c. Areas: fireline intensity >400 BTU/ft./sec.	L
4. Airport	
a. within the 65 LDN noise Contour	Li
b. Within the Primary Approach & Departure Zones	Li
c. Within the remaining airport influence area	L
d. outside of the airport influence area	H
5. Radiation	
a. Sites within 4 miles of the Rocky Flats plant	M
b. Sites within 4-10 miles of the Rocky Flats Plant	H
c. Farther from the Rocky Flats Plant than 10 miles	H
D. Image Resources	
1. Landscape Visibility	
a. Very high sensitivity	Li
b. High sensitivity	L
c. Moderate sensitivity	L
d. Low sensitivity	M
e. Very low sensitivity	H
2. Landscape Quality	
a. Unique visual character	L
b. High visual character	L
c. Moderate visual character	M
a. Poor visual character	H

3. Landscape Screening	
a. High visual vulnerability	H
b. Moderately high visual vulnerability	M
c. Moderate vulnerability	M
d. Moderately low vulnerability	L
e. Low vulnerability	L
4. Historic	
a. Single structure (state or local interest)	L
b. Single structure (national register)	L
c. Cluster of sites	L
d. Historic area	L
e. Historic roads and trails	L
f. Historic railroad	L
g. Historic railroad (destroyed grade)	M
h. No existing site	H
5. Archaeologic	
a. Single archaeologic site	L
b. Multiple archaeologic site	L
c. No site	H
E. Public Service	
1. Water & Sewer Service	
a. High feasibility for service expansion	L
b. Moderate feasibility for service expansion	L
c. Low feasibility for service expansion	H
F. Transportation[1]	
1. Range of transportation methods[2]	
a. Sites not served by auto/truck facility	L
b. sites served by bus, light rail, or rail	L
c. Sites served by auto/truck	H
d. Site served by auto-truck and freight rail	H

2. Road class by existing design capacity[3]	
Public Roads	
a.Access to local	L
b.Access to collector	M
c.Access to major/minor arterials	H
d.Access to principal arterials	H
3.Roads class by proposed design capacity[4]	
Public Roads	
a.Access to local	L
b.Access to collector	M
c.Access to major/minor arterials	H
d.Access to principal arterials	H
4.Existing voiume/capacity ratios[5]	
a.>1.0	L
b..75≤1.0	M
c.<.75	H
5.Projedted volume/capacity ratios[6]	
a.>1.0	L
b..75≤1.0	M
c.<.75	H
6.Efficiency[7]	
a.New public road Construction required	L
b.No new public road Construction required	H
G.Sensory Impact-Noise[8]	
1.Existing noise contours	
a. <55db (a)	L
b. 55-65db (a)	M
c. 65-75db (a)	H
d. >75db (a)	L

Footnotes

1 Assumptions

a. The determinant of landfill trip generation is not so much the size of the landfill as it is the size of the population it serves. Therefore, the standard trips/acre criterion used in determining suitability ratings for other land uses is not applicable.

b. A landfill generates a relatively low volume of trips/day. Average is +/-400 trips, 200 in and 200 out.

c. Even though the volume of traffic is low, the nature of vehicles going to and from landfills requires special consideration. Garbage trucks are larger and slower moving than most vehicles on the road. It is not the number of vehicles that affects capacity, rather the bulk and speed.

2 Landfiils require only a basic road network (auto/truck) and not bus, light rail, freight rail, or air service.

3-4 Even though trip generation is relatively low, the nature of traffic requires access to public streets with four-six lanes.

5 The volume-capacity (v/c) ratio measures the number of vehicles on a road relative to the theoretical design capacity of the road. A ratio less than 1.0 means the road is at capacity and a ratio greater than 1.0 indicates the road is operating over factors, the most significant being the number of lanes; the width of lanes; the percentage of trucks and busses in the traffic flow; the length and percent of grades; the number of curb cuts and intersections? and signalization facilities. The theoretical capacity changes depending on the level of quality of service considered. For the purpose of these suitability policies, Level of Service C is used.

6 Proposed volume-capacity ratios measure a similar condition to existing; however the measure accounts for future increases in the capacity of roads as well as future changes in the volume of traffic.

7 The intent of the suitability policies relating to efficiency is to avoid or minimize public costs for new road construction or improvements. Sites that can be accessed by landfill traffic without requiring new public road construction or improvements are more suitable than sites that lead to new construction or improvement.

8 This measure rates the noise levels associated with landfills (average 75db/a, at 50 feet) against existing surrounding ambient noise conditions.

II. Site Development Policies

The following sanitary landfill site development principais are intended to help landfill operators soive specific site problems. The application of these principles can increase the suitability of a site for landfilling.

A. water Quality and Quantity

1. Drainage and infiltration

a. Stream boundaries and alignments should be preserved in a natural undisturbed state whenever possible. When disruption or rerouting of these areas is unavoidable, rehabilitation will result in conditions that emulate the form and vegetative character that would occur under long term natural processes.

b. Landfills should be sited, designed, operated, and reclaimed in a manner which prevents ground or surface water pollution and the off-site migration of either methane gas or leachate.

2. Runoff

a. Surface runoff should be diverted in a manner that prevents contact with the working face of the fill, other disturbed areas, or stockpiled soil materials.

b. The amount of surface runoff during operation and after reclamation should not exceed the off-site levels existing before development.

c. The rate (velocity) and volume of runoff released into stream channels should be controlled to prevent channel erosion.

3. Erosion and sedimentation

a. Soil erosion generated concurrent with landfill development and operational activities should be controlled to prevent any increased sedimentation of drainageways and windborne dispersion of soil particles.

4. Septic constraints

a. Individual waste disposal system should be sited, designed, and constructed in a manner that prevents the pollution of group or surface water.

B. wildlife/Vegetation

1. No habitat deterioration is to occur where critical species or habitats exist. Enhancement of all available habitat is encouraged.

2. Maintain the naturally occurring carrying capacity (methobolic activity) of sites which contain moderate or high wildlife significance. Toward this end it is acceptable to improve the carrying capacity of portions of the site to offset the loss of habitat in disturbed areas.

3. Where intermediately tolerant or intolerant species occur, proviSion must be made to insure the continuous use of habitat by those species.

4. The location of structures and activities, during and after the landfill process should not cause the removal of any unique vegetation.

C. Hazards

1. Geologic

a. Abandonment of all oil or gas exploration or production well areas to be used for landfilling should be designed fluids into adjacent areas.

b. Landfilling operations and reclamation should not aggravate adjacent unstable slope areas.

2. Flood

a. All proposed drainage modifications, including channelization and relocation, should be designed so that flooding hazards and associated erosion of material debris deposition is not increased upstream or downstream of the proposed work.

3. wildfire

a. For all land use areas where there is a risk of wildfire ignition due to landfill operations, hazard abatement through fuel modification will result in fireline intensities which will not exceed approximately 100 BTU/ ft. /sec.

b. A procedure for continuous maintenance of wildfire hazard abatement should be established to prevent the reestablishment of the original hazard.

4. Radiation

a. Any development within the emergency response plan sector grid should be accomplished with information integrated to site design and transportation networks proposed which reflects the ability to comply with the emergency response plan. This should include as a minimum the assessment of off-site and on-site transportation means and corridors necessary to comply with an evacuation order.

b. No development should be permitted which would Create an evacuation hazard or be unable to comply with an evacuation order.

c. Site design, operation and construction should maintain safe levels of human exposure to radiation. Any existing radioactive materials shall be disposed only in approved hazardous waste disposal area. d.

All landfill operators should be informed of the emergency response plan as part of the certificate of designation approval procedure.

5. Methane

a. Provisions should be made to vent or collect methane gas and adequately monitor and maintain such systems in landfill design.

D. Image Resources

1. Visual

a. Landfill operations should be visually screened from nearby off-site activity areas.

2. Archaeologic

a. All development in an archaeologic resource area should provide for the permanent preservation of the resource or provide for the completion of the necessary and appropriate study and work as specified by the office of the State Archaeologist before any development begins.

3. Historic

a. Historic sites should be preserved or salvaged.

E. Reclamation

1. Final landforms and vegetative character should emulate surrounding natural landforms and topography (i.e. similar color, line, texture, form) . when this is incompatible with the after use development, final landforms should enhance the visual diversity and landscape character of the site.

2. Maintain visually attractive and high quality elements of the site's landscape. During the final reclamation, enhance less attractive and lower quality portions of the site.

3. There should be a minimal disturbance of soil cover on the landfill site at any given time. only those areas necessary for operations shall be disturbed.

4. As soon as portions of the landfill are completed, reclamation should being. Reclamation activities should be scheduled to coincide with the development of new fill areas to minimize the total area of disturbance at any given point in time.

5. Existing topsoil should be reused. Sufficient topsoil to ensure the viability of proposed vegetation should be used.

6. If operations temporarily cease for a period of one year or more, an interim reclamation program should be established for all disturbed area.

7. In progress reclamation should be compatible with final reclamation plans and proposed after uses.

8. Final reclamation should commence as soon as growing and weather conditions permit after the operation ceases and should be completed no more than two years after the operation ceases.

9. Where open space or related after uses are planned, final reclamation should achieve the following objectives:

a. creation of an ecologically balanced site that prevents environmental deterioration;

b. restoration or enhancement of pre-existing visual character.

10. where after uses involving structures are planned, landfill design and operational procedures should adequately address the following hazards:

a. subsidence related to foundations, utility lines, and roads;

b. methane production and migration; and

c. introduction of fluids into subsurface materials.

11. Final soil profiles should be designed to:

a. prevent infiltration of surface water into the fill material;

b. equal or reduce soil erosion potentials over stable predevelopment conditions.

12. Vegetative material common to the area should be used to enhande visual integration with adjacent areas.

13. The operator will maintain control of a completed site until revegetation areas are permanently established, hazards (e.g. methane) eliminated, and positive drainage from all areas is permanently assured.

14. The final land forms should be stable.

F. Traffic

1. Rights-of-way for roads should be provided to accommodate both existing and projected volumes.

2. Appropriate design and construction standards shall be applied to roads to:

a. assure adequate capacity for existing and projected traffic volumes;

b. provide efficient movement of traffic;

c. minimize hazards to users and adjacent property and human activity.

3. Major truck movement all be managed to minimize road use at those times of day of peak pedestrian and vehicular demands.

4. Informational signs should not compete with traffic control signstfor driver attention.

G. Noise, Dust, Litter

1. operators should establish substantial fee disincentives or other more effective means to prevent the transportation of refuse in such a manner that highways are littered.

2. Landfilling operations should be conducted in a manner so that any noise produced is not objectionable due to intensity, intermittence, beat and rhythm, frequency, shrillness or combination of these aspects as measured at the perimeter of the site.

3. Noise level at the property line should not exceed the average noise level associated with activities on that adjacent site.

4. The greatest feasible level of dust suppression should be achieved, including, but not limited to, the following techniques:

a. utilization of the best available technology;

b. optimization of site design, phasing and in progress reclamation.

5. Litter should be prevented from blowing outside of active operational areas. The operator should be responsible for the removal

of all off-site litter originating (with reasonable probability) from the site or vehicles enroute to the site.

H. Resource Recovery

1. Operators should develop programs to maximize resource recovery and recycling, both at the disposal site and in collection programs.

III. Appendix

A. Solid Waste Management Plan Outline

The following is an outline of the Jefferson County Solid Waste Management Plan. It is available at the Jefferson County Planning Department.

1. The Concern That is confronting Us
1.1 The Big Problem: Increasing Solid Waste
1.2 Types of solid Waste Systems

2. Considerations for Selecting a Solid Waste Disposal System
2.1 what to Consider When Selecting a Solid Waste system
2.2 consideratibn 1: Management and Operation Structure
2.3 Management and Operation Activities: Storage, Collection, and Transportation
2.4 Management and Operation Activities: Processing and Disposal
2.5 consideration 2: Environmental Impacts
2.6 Consideration 3: Legislative Constraints
2.7 Consideration 4: Resource Conservation
2.8 The Advantages and Disadvantages of Various Solid Waste Systems For the Four (4) Evaluation Categories

3. One Land Use Prototype for Accommodating solid Waste: Sanitary Landfill
3.1 The Demand for Landfills
3.2 A General Description of the Sanitary Landfill Prototype

3.3 Typical Landfilling Methods
3.4 Typical Landfill Site Characteristics: Lift/Cell Construction
3.5 Impacts on the Site and its Environs
3.6 Design Solutions for Alleviating Site Impacts
3.7 Impacts on the Community
3.8 Design Solutions for Alleviating Community Impacts
3.9 Impacts on the Region
3.10 Design Solutions for Alleviating Regional Impacts

4. New Directions in Solid Waste Management
4.1 Alternative Design Solutions for community/Regional Impacts: Transfer Stations
4.2 Why We Should Recover/Recycle Our Resources.
4.3 Alternative Design Solutions: Recovery/Recycling Plants

5. Planning for Solid Waste in Jefferson County
5.1 The Provision of Landfill Services in Jefferson County
5.2 Future Provision Scenarios
5.3 How Jefferson county is Dealing With Sanitary Landfills in Our Policy Planning
5.4 Jefferson County: Suitability Policies for Landfill Proposals
5.5 Suitability for Sanitary Landfills on Undeveloped Lands (S.L. Fll Undev.)
5.6 sanitary Landfill: Site Development Policies
5.7 Develop an Efficient and Effective System for Reviewing and Monitoring Sanitary Landfill Operations: processing of Proposal
5.8 Develop an Efficient and Effective system for Reviewing and Monitoring Sanitary Landfill operations: Post-Closure of Site
5.9 implementation of Plan Policies by the County
5.10 Develop Long-Range Implementation Programs for Recovering/Recycling Resources
5.11 Policies for Recovering/Recycling Resources