

STATE OF COLORADO

Bill Owens, Governor
Douglas H. Benevento, Executive Director

Dedicated to protecting and improving the health and environment of the people of Colorado

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Located in Glendale, Colorado

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Denver, Colorado 80230-6928
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Colorado Department
of Public Health
and Environment

May 9, 2005

Mr. Joe Legare
Assistant Administrator for Environment and Stewardship
U.S. Department of Energy-RFFO
10808 Highway 93, Unit A
Golden CO 80403-8200

RE: Applicability of Part 2 Siting Requirements (6 CCR 1007-2) to the Present Landfill

Dear Mr. Legare:

It is the position of CDPHE that the State's Part 2 Siting Requirements are generally applicable to the Present Landfill. In a letter dated August 9, 2004, DOE agreed to perform a review of the design elements of the Present Landfill against these requirements. This review was to be independent of the approval of the IM/IRA decision document and was to be assisted by CDPHE.

The applicability of the requirement to obtain a certificate of designation (CD) in these regulations has changed over the life of regulations. Although at some point a CD should have been obtained, the requirement applies to operating landfills and will not be required now that the Present Landfill in no longer operating.

Sections 2.4 and 2.5 of the Part 2 Siting requirements are excerpted in an attachment. Requirements that might apply to the Present Landfill are highlighted in yellow; requirements considered not applicable are highlighted in red. Comments are added in italics; some key words have been bolded.

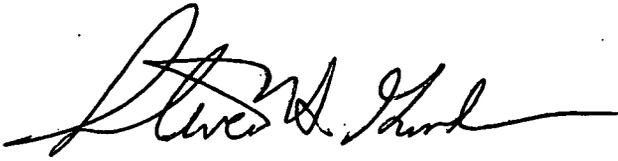
Most of the highlighted requirements have been met by meeting the requirements for a closure plan (IM/IRA) and the various design documents, which have already been submitted. For the purposes of this review, requirements, which have been substantively met by those previously submitted documents, can be addressed by stating *"This requirement has been met by submitting an Interim Measures/Interim Remedial Action decision document and/or by various design documents, which have been previously approved by CDPHE."* For other requirements, state how the designed remedy will fulfill the requirement.

BZ-A-000851

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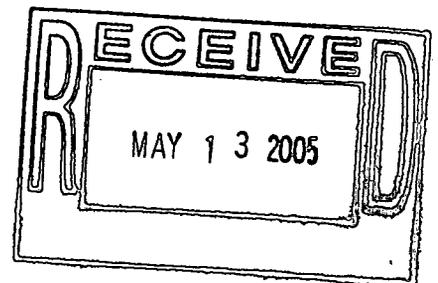
If you have any questions please contact me at 303-692-3367 or Carl Spreng at 303-692-3358.

Sincerely,



Steven H. Gunderson
RFCA Project Coordinator
Colorado Department of Public
Health and Environment

cc: Dave Shelton, K-H
Mark Aguilar, EPA
Pat Smith, EPA
Susan Chaki, CDPHE
Dan Miller, AGO
Mark Sattelberg, USF&WS
Administrative Record, T130G



ADMIN RECORD

Revised 05/05

CORRES. CONTROL
INCOMING LTR NO.

002466 RFOS

RECEIVED

2005 MAY 18 A 8:59

STATE OF COLORADO

DUE DATE

ACTION

Bill Owens, Governor
Douglas H. Benevento, Executive Director

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Colorado Department
of Public Health
and Environment

DIST.	LTR	ENC
BERARDINI, J.H.	X	X
BOGNAR, E.S.	X	X
BROOKS, L.	X	X
CARPENTER, M.	X	X
CIUCCI, J.A.		
CROCKETT, G. A.	X	X
DECK, C. A.	X	X
DEGENHART, K. R.	X	X
DEL VECCHIO, D.		
FERRERA, D. W.	X	X
GIACOMINI, J. J.		
GILPIN, H.		
LINDSAY, D. C.	X	X
LONG, J. W.		
NESTA, S.		
SHELTON, D. C.	X	X
SPEARS, M. S.	X	X
TUOR, N. R.	X	X
WARD, D.	X	X
WIEMELT, K.	X	X
ZAHM, C.	X	X

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Walsh, J. X X

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COR. CONTROL	X	X
ADMIN. RECORD	X	X

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Reviewed for Addressee
Corres. Control RFP

5/19/05 *dc*
Date By

Ref. Ltr. #

DOE ORDER #

5400.1

Most of the highlighted requirements have been met by meeting the requirements for a closure plan (IM/IRA) and the various design documents, which have already been submitted. For the purposes of this review, requirements, which have been substantively met by those previously submitted documents, can be addressed by stating, "This requirement has been met by submitting an Interim Measures/Interim Remedial Action decision document and/or by various design documents, which have been previously approved by CDPHE." For other requirements, state how the designed remedy will fulfill the requirement.

RULES AND REGULATIONS PERTAINING TO SOLID AND HAZARDOUS WASTES
PART 2 - REQUIREMENTS FOR SITING OF HAZARDOUS WASTE DISPOSAL SITES

2.4 Minimum Design Performance Criteria for Off-Site Hazardous Waste Disposal Sites and On-Site Hazardous Waste Landfills.

2.4.1 Sites intended for use as landfills, surface impoundments and land treatment facilities subject to these regulations shall be located and designed in manner that the design performance will assure long-term protection of human health and the environment.

2.4.2 Hazardous waste disposal sites shall be designed to prevent adverse effects on groundwater quality, considering:

- a) The volume and physical and chemical characteristics of the waste in the facility, including its potential for migration through any liners provided in the design and the surrounding soils or bedrock strata;
- b) The hydrogeological characteristics of the facility and the surrounding land and other site specific factors which are basic to preventing adverse effects on groundwater quality;
- c) The quantity, quality, and directions of flow of groundwater;
- d) The proximity of existing and planned groundwater users and the withdrawal rates of such uses;
- e) The existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater;
- f) The potential for health risks caused by human exposure to waste constituents;
- g) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and
- h) The persistence and permanence of the potential adverse effects.

2.4.3 Hazardous waste disposal sites shall be designed to prevent adverse effects on surface water quality, considering:

- a) The volume and physical and chemical characteristics of the waste in the facility;
- b) The hydrogeological characteristics of the facility and surrounding land and other site specific factors which are basic to preventing adverse effects on surface water quality, including the topography of the area around the facility and any engineering features to influence surface water flow patterns that may be appropriate;
- c) The quantity, quality, and directions of flow of surface water;
- d) The patterns of precipitation in the region and potential impacts on disposal locations, including removal of wastes;
- e) The proximity of the facility to surface waters;
- f) The existing and planned uses of nearby surface waters and any water quality standards established for those surface waters;
- g) The existing quality of surface water, including other sources of contamination and their cumulative impact on surface water;
- h) The potential for health risks caused by human exposure to waste constituents;
- i) The potential damage to wildlife, crops, vegetation and physical structures caused by exposure to waste constituents; and
- j) The persistence and permanence of the potential adverse effects.

2.4.4 Hazardous waste disposal sites shall be designed to prevent adverse effects on air quality, considering:

- a) The volume and physical and chemical characteristics of the waste in the facility, including its potential for volatilization and wind dispersal;

- b) The existing quality of the air, including other sources of contamination and their cumulative impact on air quality;
- c) The potential for health risks caused by human exposure to waste constituents;
- d) The prevailing wind patterns in the region and other site specific factors that may influence or cause adverse effects on air quality;
- e) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and
- f) The persistence and permanence of the potential adverse effects.

2.4.5 Hazardous waste disposal sites shall be designed to prevent long-term adverse effects on public health and the environment due to migration of waste constituents in the surface and subsurface environment, considering:

- a) The volume and physical and chemical characteristics of the waste in the facility, including its potential for migration through soil;
- b) The geologic characteristics of the facility and surrounding land and other site specific factors that may effect the potential for migration of waste constituents into surface and subsurface physical structures;
- c) The potential for migration of waste constituents into the root zone of food-chain and other vegetation;
- d) The potential for health risks caused by human exposure to waste constituents;
- e) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and
- f) The persistence and permanence of the potential adverse effects.

2.4.6 The function and physical integrity of any liner emplaced in hazardous waste disposal sites to accomplish the design performance of the site shall be protected.

2.4.7 Any leachate and runoff control system shall be designed with sufficient capacity such that the design performance will comply with paragraphs 2.4.1, 2.4.2, 2.4.3, 2.4.4 and 2.4.5 of these regulations, considering:

- a) The volume and types of leachate or contaminated runoff produced at the facility;
- b) The climatic and hydrogeological conditions of the area; and
- c) The available alternatives for managing any leachate or contaminated runoff produced.

2.4.8 The design of a hazardous waste disposal site and facility shall include a method for closure that will provide reasonable assurance of long-term compliance with paragraphs 2.4.1, 2.4.2, 2.4.4, 2.4.5, and 2.4.7 of these regulations, considering:

- a) The types and amounts of waste in the facility, including the amount of free liquids;
- b) The mobility and expected rates of migration of emplaced wastes;
- c) The site location, topography, and surrounding land use;
- d) Climatic conditions in the area;
- e) The thickness, porosity and permeability of the cover proposed to be used, the slope and length of run of the slope, the final surface contours of the completed cover, and the types and durability of vegetation proposed to be placed on the cover;
- f) Geological and soil profiles and the surface and subsurface hydrology of the site; and
- g) The maintenance of any post-closure groundwater monitoring system and any leachate and runoff control system.

2.4.9 The design of a hazardous waste landfill, surface impoundment, or land treatment facility shall include systems for monitoring ground water, surface water, and providing quality control of materials in construction.

Such systems shall be sufficient to demonstrate via professionally accepted methods (e.g., those of the American Society of Testing Materials) that the design performance requirements of these regulations are satisfied.

2.4.10 The design of a hazardous waste disposal landfill, surface impoundment, or land treatment facility shall include procedures to be followed during construction, including supervision and certification by a professional geologist or professional engineer, to demonstrate that the facility is constructed in accordance with the design as approved.

2.5 Requirements for Siting and Design of Off-Site Hazardous Waste Disposal Sites and On-Site Hazardous Waste Landfills.

2.5.1 The siting and design of each site for disposal of hazardous waste shall demonstrate that the minimum design performance criteria contained in Section 2.4 of these regulations will be satisfied after site construction and implementation of the proposed design.

2.5.2 The proposed design, and design performance of a hazardous waste disposal site shall satisfy or satisfactorily mitigate the following conditions:

- a) Under normal climatic conditions odor-threshold concentration levels established in State air pollution regulations will not be exceeded;
- b) Proposed access routes shall be reasonably safe based on minimizing public exposure to transportation incidents, and a finding that such routes can be shown to meet or exceed classification standards for State roads;
- c) Adequate fire protection is provided on a 24-hour day basis by an organized fire department or equivalent such service is provided by the owner/operator of the site;
- d) Adequate security to provided for the site and its operations on a 24-hour daily basis by security personnel and/or adequate security barriers to the site and its operations;
- e) The proper materials will be available in adequate supply for constructing liners of disposal cells and for providing a compacted impermeable cover to prevent any seepage into the completed fill upon closure; and
- f) Adequate professional competence and resources exist to design and construct the site, to operate the site for its approved period of operation, and to provide for closure and post-closure care to guarantee long-term protection of public health and the environment.
[Requirements apply to operating disposal sites.]

2.5.3 The geological and hydrological conditions of a site in which hazardous wastes are to be disposed shall be such that reasonable assurance is provided that such wastes are isolated within the designated disposal area of the site and away from natural environmental pathways that could expose the public for **1,000 years, or some demonstrated shorter period in which the wastes are transformed to an innocuous condition.** Such assurance is to be based on the following considerations:

[The purpose of this requirement is to identify the potential critical exposure pathways and to estimate the time period required for the pathways to no longer be of concern. In this case the pathways are direct contact with the waste and exposure to the leachate. The cover prevents contact. The period in which the waste and leachate are transformed into an innocuous condition can be estimated with a simple calculation or model.]

- a) Geomorphic conditions either will not vary significantly from the present state or will occur to a predictable degree, which can be accommodated in the facility design;

b) The immediate area of the site is in strata of minimal groundwater flow;

c) The geologic strata surrounding the site combined with engineered barriers included in the design shall provide a minimum permeability of 10⁻⁷ cm/sec or equivalent of sufficient thickness between the disposal location and the nearest domestically or agriculturally useable aquifer to isolate any materials to be disposed therein;

d) The juxtaposition of the site and any free flowing or standing natural surface waters shall be such that disposal locations will not impact nor be impacted by such surface waters;

e) The terrain is such that good drainage exists for movement of precipitation away from the disposal area, and such that water and wind erosion will be minimal; and

f) The geochemical characteristics of the geologic strata at the site are compatible with the waste categories **proposed** to be disposed at the site especially in terms of providing high adsorption, absorption, or chemical fixation of any wastes that may migrate from the immediate areas where disposed.

[These requirements are clearly specific to locating/siting new disposal sites. They could still be reviewed and addressed, realizing and stipulating that the location is fixed.]

2.5.4 The design of a hazardous waste disposal site shall, unless it is demonstrated to be unnecessary, include a liner the performance of which will comply with paragraphs 2.4.1, 2.4.2, 2.4.3, and 2.4.5 of these regulations, considering:

a) The physical and chemical characteristics of the waste in the facility, including any treatment of wastes to promote the immobilization of hazardous substances;

b) The pressure head of leachate on the liner under worst case conditions;

c) The permeability of the liner material at specified compaction density and moisture content where earthen materials are used;

d) The potential chemical reactions between the wastes and the liner material that could affect the integrity of the liner;

e) The physical and chemical properties of the soil underlying the facility that supports any emplaced liner; and

f) The potential for damage to the liner system that could occur during installation or planned use.

[The substrate at the Present Landfill is bedrock (claystone); no liner was ever installed.]

2.5.5 The design of each hazardous waste disposal site shall include a leachate and runoff control system which will provide compliance with Section 2.4 of these regulations, considering:

a) The physical and chemical characteristics of the waste in the facility;

b) Climatic conditions in the area, including precipitation events;

c) The volume of leachate or contaminated runoff that could be produced at the facility; and

d) The available options for managing any leachate or contaminated runoff that is collected at the facility.

2.5.6 The **location** of any facility for disposal or **preparation for disposal** of hazardous wastes shall be within a distance controlled by the owner/operator by an acceptable means to prevent adverse effects on the public health should unexpected discharges of hazardous waste occur.

[A location/siting requirement.]

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