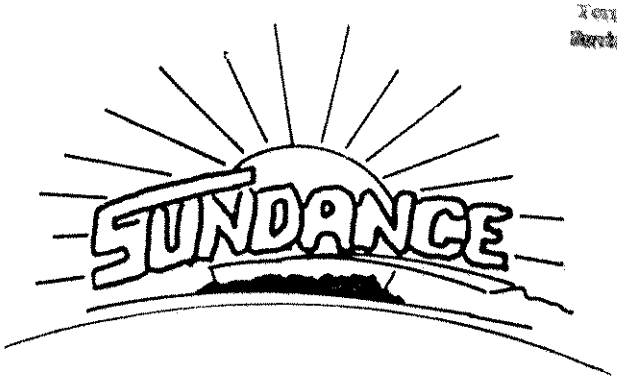
APPLICATION FOR VARIANCE

FOR

TOWN OF SUNDANCE
SANITARY SOLID WASTE LANDFILL



Prepared for: THE TOWN OF SUNDANCE
P.O. Box 542
Sundance, WY 82729

Prepared by: BEARLODGE LTD. INC.
P.O. Box 130
Sundance, WY 82729

Docket # 2374-92

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20 February 1992

Mr. Vince Lee
Environmental Quality Council
Room 407, Barrett Bldg.
Cheyenne, WY 82002

SUBJECT: APPLICATION FOR VARIANCE, SANITARY LANDFILL, TOWN OF SUNDANCE, WYOMING

Dear Mr. Lee:

The Town of Sundance is applying to the Department of Environmental Quality for a sanitary landfill Permit. In the course of preparing the Permit application, it has been determined that the Town will require a variance to the location standards specified in W.S. 35-11-502(c). The landfill facility does not meet minimum location standards for:

- occupied dwellings
- water wells permitted or certificated for domestic or stock-watering use.
- proximity to the Corporate Limits of the town.
- proximity to a State or Federal highway centerline.

It is not economically feasible to attempt to find an alternative location for Sundance's sanitary landfill facility. Although the existing location does not meet the minimum location standards in those categories listed above, current operating procedures and the excellent record of the facility are indicative that the facility at its present location (as specified in the Permit application) is not a public nuisance.

Therefore, as specified in W.S. 35-11-502(c), the Town of Sundance is hereby applying to the Environmental Quality Council for a variance to those location standards that the facility, as it is being permitted, does not meet. The completed application for variance and associated attachments are included herein.

Sincerely Yours,

James A. Mills, MAYOR

APPLICATION FOR VARIANCE FOR THE PERMITTING OF THE CITY OF SUNDANCE SANITARY LANDFILL

Ch 1, Sec 2, (i)
GENERAL

The existing Sundance Landfill, as well as the proposed expansion site do not meet proximity requirements specified in paragraphs (i) through (iv) of W.S. 35-11-502(c) with respect to dwellings, state and federal highways, water wells permitted for stock watering purposes, and corporate city limits. Therefore, a variance is requested for permitting of the existing landfill and proposed expansion, as authorized by W.S. 35-11-502(c).

All owners of occupied dwelling houses within 1 mile of the landfill were notified by letter and requested to respond with their written consent in January of 1992. All the persons that responded up to this time have given their consent except one. That individual's response was returned by her son, who stated that his elderly mother (who is the owner) was unable to comprehend all of the ramifications of giving her consent, and that he therefore recommended that she neither consent nor dissent. Based on that response a variance is being requested for proximity to occupied dwelling houses.

Two water wells located within 1/2 mile of the landfill were identified as being permitted or certificated for either stock or domestic purposes. The owners of both wells were asked to respond with their written consent in January of 1992. Neither party has returned the written consent. One of the parties has indicated that they are hesitant to consent to the landfill, but will make a decision when they return to Sundance from Arizona in the Spring. Based on not receiving either consent, a variance is being requested for proximity to water wells located within 1/2 mile and permitted for stock or domestic use.

The landfill is located within 1 mile of the east end of the Sundance Town Limits, and within 1/2 mile of the centerline of U.S. Highway I-90 just east of Sundance. Therefore, variance is being sought due to proximity to a State or Federal highway and to the Town Limits.

The following addresses the issues of concern.

Ch 1, Sec 2, (i)(i)(A)(I)
TRAFFIC ANALYSIS

Access to the landfill is via County Road 136 (Fuller County Road) which begins approximately 2 miles south of Sundance on Wyoming Highway 585. The landfill is open to the public Wednesday thru Saturday from 8 a.m. to 4 p.m. during the winter and 9 a.m. to 5 p.m. in the summer. During the 1991 fiscal year 1168 paid visits were made to the landfill. (Records were not kept for brush that was brought in because there is no charge. It is estimated that this is an

additional 200 visitations.) The city garbage truck makes one trip a day, five days a week. A front end loader makes trips to the landfill as needed for cell maintenance, usually five times per week.

This level of traffic is not expected to increase appreciably in the future because of the permitting or expansion. This is due to the fact that there is no foreseeable increase in population of the area based on the history of growth. It is uncommon to see more than one vehicle at the landfill at a time. Other advantages are the fact that Highway 585 is not a high density road and the intersection of County Road 136 is well outside the normal traffic patterns of the city. With the low number of visitations to the landfill, the impact on traffic safety is negligible.

Ch 1, Sec 2, (i)(i)(A)(II)
AESTHETICS

Clean up is done once or twice a week to remove any paper etc. that may blow out of the cell and get caught in the fences around the landfill. There are six foot chainlink fences along the south and east boundaries to catch wind blown trash. The chainlink fence will be extended along the east side of the proposed expansion when that area is placed into service. Prevailing winds keep the landfill down-wind from the city and any dwellings within one mile. The cell is maintained throughout the week, compacted and covered, to minimize the chance for trash to escape. Due to the nature of the soils at the site, dust is not a problem. Again, prevailing winds carry any dust there may be away from the town and occupied dwellings. Because of the ongoing maintenance at the landfill and the fact that the prevailing winds blow away from the City Limits and any occupied dwellings, the impact of odor or insect problems at the landfill is not a factor.

Ch 1, Sec 2, (i)(i)(A)(III)
METHANE MIGRATION:

Methane monitoring stations have been determined to be unnecessary at this facility. Contributing factors for this decision are as follows:

a) Limited size of facility;
b) Nature of soils in vicinity of facility;
c) Characteristics of methane migration;
d) Saturation of soil between facility and occupied dwellings due to sewage lagoon leach fields.

Specifically, the streambed that runs along the west side of the landfill site will preclude methane migration toward any occupied dwellings located within 1 mile. Although this is not a perennial stream, the soil is continually saturated due to the effluent from the sanitary sewage lagoons that are located immediately to the west of the landfill. This saturated zone will act as an effective block to methane migration in that direction. A map showing these features along with their proximity to the occupied

dwelling houses is included herein as Exhibit 1.

Should an apparent methane problem arise, department approved measures shall be undertaken. As set forth in the permit application under the direction of the department, if an off-site building is sited within one thousand (1000) feet of the facility specified conditions shall be met.

Ch 1, Sec 2, (i)(i)(B)
PROXIMITY TO STATE OR FEDERAL HIGHWAYS

Another area of concern is the visual effects the landfill has on I-90. Two methods of screening were discussed, the first being an earthen berm, or barrier. This method would not be feasible due to the incredible amount of soil this would require. The berm would have to be, at a minimum, 50 feet high and approximately 1/2 of a mile long. The second possibility discussed was a solid fence type structure built along the Interstate. This too, would not be feasible. Such a fence would create problems by drifting snow in the winter along the Interstate. Economics was the major factor in rejecting both solutions. The following justifies the decision for not installing some form of barrier.

Because of the small size of the site and the ongoing maintenance, it is difficult to tell from this location that it is a landfill. The professional and concerned attitude of the personnel in charge of the landfill have consistently made it one of the best landfills in the state, and the efforts of the city in this area have kept this facility in top condition at all times. Because of the city's excellent landfill operation, this sanitary landfill is not aesthetically unappealing from Interstate 90, and its location is not considered a public nuisance due to its proximity to the highway. To paraphrase, if you don't know it is there, you don't notice it. Please see photos enclosed as Exhibit 2.

Ch 1, Sec 2, (i)(i)(C)(I)
WATER WELLS:

Two permitted water wells, one permitted for domestic and stock use and one for stock use only, fall within one-half mile to the north but greater than 1000 feet from the facility. A groundwater monitoring well has been drilled (see topographic map, Exhibit 3) in a location that was determined to best indicate if leachate is being transmitted via groundwater off of the property. This well was located in the only location where an alluvial layer was found during the on-site soil survey. This layer is confined to the immediate streambed area. It is also a point at which the topographical drainage is concentrated. The on-site soil survey indicates that it is improbable that groundwater could move through the underlying formation to these wells. This survey indicates that on-site soils may be classified as CL in the USCS. The supporting geology report prepared by Dr. J. Paul Gries is enclosed as Appendix A, and subsurface soil boring logs and location map are found in Exhibit 3.

Ch 1, Sec 2, (i)(i)(C)(II)
CONTAINMENT SYSTEM

Because of the nature of the soils at this site, it was determined that an engineered containment system is not necessary. That is, an imported clay or synthetic membrane liner will not be used. From the surface to a depth of approximately seven (7) feet soils may be classified as CL in the USCS. A hard red clay (Spearfish Formation) begins at this point and extends beyond the on-site test holes. Current practice at the landfill is to excavate approximately eight (8) feet into this formation. This in effect acts as a clay liner.

Surface water drainage at the site is largely sheet drainage, but those areas that are obviously small drainages will be left as they are. No cells will be constructed in the bottom of these drainages.

Ch 1, Sec 2, (i)(i)(C)(III)
GROUNDWATER MONITORING PROGRAM

The monitoring well shall be tested as follows:

An initial baseline monitoring program shall be executed to analyze groundwater for pH, Total Dissolved Solids (TDS), Chemical Oxygen Demand (COD), Total Organic Carbon (TOC), Ammonia as N, Nitrate as N, Bicarbonate, Carbonate, Chloride, Fluoride, Calcium, Manganese, Nickel, Zinc, Arsenic, Barium, Cadmium, Chromium, Cyanide, Lead, Mercury, Selenium, and Silver. Water temperature and static water levels shall also be taken. The length of this initial monitoring period shall not exceed one year; samples acquired during this period shall be taken at least quarterly.

Following this initial period, with the approval of the department, a monitoring program with a reduced set of sampling parameters will be undertaken. The reduced set of parameters shall include at a minimum: pH, temperature, static water level, Total Dissolved Solids (TDS), Chlorides, Ammonia as N, Iron, Hardness, and Total Organic Carbon (TOC). These tests shall occur at least semi-annually.

Should ground water monitoring data indicate that the facility is impacting ground water quality, a revised monitoring program shall be initialized following parameters set forth by the department.

In addition to the monitoring well that was constructed for this permit, there are three additional groundwater monitoring wells in place between the landfill and the sanitary sewage lagoons. These are monitored on a regular basis as part of the operation of the lagoons, and will also serve to strengthen the groundwater monitoring system for the landfill. See Exhibit 3 for location of monitoring wells.

Ch 1, Sec 2, (i)(i)(C)(IV)
POTENTIAL GROUNDWATER CONTAMINATION

The geology report (Appendix A) prepared by Dr. J. Paul Gries indicates that there is virtually no possibility that the two permitted water wells could become contaminated from this landfill. Also included (Exhibit 4) is a geological strip chart from a City water well that was drilled approximately 4 miles west of the landfill. Although a test hole this deep was not drilled at the site, it is our opinion that this chart is indicative of the formations of the entire Sundance area. Similar charts from as far away as Hulett reflect this data.

Ch 1, Sec 2, (i)(i)(D)(I)
PROPOSED SIZE OF FACILITY

The facility encompasses 62.91 acres more or less.

Ch 1, Sec 2, (i)(i)(D)(II)
APPLICANT

Town of Sundance, Wyoming
213 Main Street
Sundance, Wyoming 82729

Telephone: (307) 283-3451

Ch 1, Sec 2, (i)(i)(D)(III)
LEGAL DESCRIPTION

A TRACT OF LAND LOCATED IN THE S1/2NE1/4 AND N1/2SE1/4 OF SECTION 18, T.51N., R.62W. OF THE SIXTH PRINCIPAL MERIDIAN, CROOK COUNTY, WYOMING, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF SAID SECTION 18, WHERE FOUND A 5/8" REBAR, WHICH BEARS S 89°52' E, 2659.04 FEET FROM THE SOUTH 1/4 CORNER OF SAID SECTION 18, WHERE FOUND A 5/8" REBAR, THE BASIS OF BEARING FOR THIS SURVEY;

THENCE N 01°54'50" E, 1315.14 FEET **TO A 2 1/2" ALUMINUM SURV CAP MARKING THE S 1/16 CORNER BETWEEN SECTION 18 & SECTION 17 AND THE TRUE POINT OF BEGINNING;**

THENCE N 89°39'15" W, 1047.35 FEET TO A "POINT" ON THE SIXTEENTH LINE THAT MARKS THE SOUTH BOUNDARY OF THE TRACT;
THENCE N 28°53'48" W, 630.47 FEET TO A "POINT";
THENCE N 28°52'55" E, 239.25 FEET TO A "POINT";
THENCE N 04°31'37" W, 219.71 FEET TO A "POINT";
THENCE N 80°23'21" E, 196.83 FEET TO A "POINT";
THENCE N 02°25'53" E, 814.10 FEET TO A "POINT";
THENCE N 36°36'37" E, 665.47 FEET TO A "POINT";
THENCE N 10°35'28" E, 289.35 FEET TO A "POINT" ON THE SIXTEENTH LINE THAT MARKS THE NORTH BOUNDARY OF THE TRACT;
THENCE S 89°31'49" E, 539.56 FEET TO A 2 1/2" ALUMINUM SURV CAP MARKING THE N 1/16 CORNER BETWEEN SECTION 18 & SECTION 17;
THENCE S 03°24'54" E, 1335.13 FEET TO A 3" ALUMINUM SURV CAP MARKING THE 1/4 CORNER BETWEEN SECTION 18 & SECTION 17;
THENCE S 01°54'50" W, 1315.14 FEET **TO THE 2 1/2" ALUMINUM SURV CAP MARKING THE S 1/16 CORNER BETWEEN SECTION 18 & SECTION 17 AND THE TRUE POINT OF BEGINNING.**

EACH "POINT" MARKED WITH A 1 1/2" ALUMINUM SURV-CAP STAMPED PE&LS 2395, ATOP A #5 x 24" REBAR.

SAID PARCEL ENCOMPASSES AN AREA OF 62.91 ACRES MORE OR LESS.

Ch 1, Sec 2, (i)(i)(D)(VI)
DETAILED FACILITY DESCRIPTION

TYPES & AMOUNT OF INCOMING WASTE: Wastes received at the landfill may be classified as household garbage, with an occasional receipt of old washing machines, refrigerators, etc., brush (which is periodically burned by permit), a small amount of tires, and dead animal waste. It is estimated that the landfill receives approximately 3.7 TPD of garbage based on last years records. These items are separated into individual pits which include; a household garbage cell, a tire and concrete rubble pit, a brush pit, a dead animal pit (covered when necessary), and a scrap metal pit. There is also an abandoned asbestos pit which has been sealed and fenced off. No friable asbestos was ever accepted. Asbestos will no longer be accepted at this landfill. All pits and cells are maintained with accordance to the SWM/DEQ Rules and Regulations.

SOURCES OF INCOMING WASTE: This facility serves the City of Sundance, estimated at 1200; Vista West housing area, estimated at 150; and surrounding County residents, estimated at 100-200. In addition Devils Tower National Monument hauls garbage and refuse; the Wyoming Highway Department hauls District Office refuse and garbage, plus rest area and highway right-of-way garbage and refuse; and the U.S. Forest Service hauls picnic and camp site refuse and garbage to this site.

CAPACITY: The estimated available site capacity of the existing landfill is 93,666 cy of solid waste , with an additional estimated capacity of 94,449 cy of solid waste in the proposed expansion. The proposed site is designed for a life expectancy of 49 years with an additional 49 years remaining at the existing facility.

Ch 1, Sec 2, (i)(i)(D)(V)
PROPERTY OWNERS WITHIN 1 MILE

Names and addresses of all property owners within 1 mile of the landfill are listed in Appendix B.

Ch 1, Sec 2, (i)(i)(D)(VI)
TOPOGRAPHICAL MAP WITH LOCATION

The boundaries of the proposed landfill site are outlined on the 7.5 minute USGS topographic map "SUNDANCE EAST" at a scale of 1:24,000 and is included herein as Exhibit 6.

Ch 1, Sec 2, (i)(ii)
ALTERNATIVE LOCATIONS

It would not be economically feasible for the City of Sundance to procure land for an alternative site for this facility. There is no permitted solid waste management disposal facility within a distance that would be economically viable to transport the Cities wastes to. Therefore, this site as described above, is the only feasible location for the City of Sundance Solid Waste facility.

APPENDIX A

JOHN PAUL GRIES
Consulting Geologist
238 ST. CHARLES STREET
RAPID CITY, SOUTH DAKOTA

January 31, 1992

Observations at Sundance City Dump, January 29, 1992.

The surface soil to a depth of several feet is colluvium, or fine grained sheet wash from higher on the slope.

The rocky zone beneath it consists entirely of angular chips and slabs of Minnekahta limestone which also originated higher on the mountainside. The fragments accumulated, perhaps on the old surface, or, more likely, in gullies draining off the west flank of the mountain. The fragments are not water worn, and are not stream gravel. I suspect that during a period of greater rainfall, the fine material was carried away, leaving the limestone fragments as a sort of lag deposit. What permeability the rock zone has must be in a westward, downslope direction; I don't believe there is lateral continuity between streaks of rocky material coming off the mountain. I see no chance at all that groundwater could move through that zone to the wells along Sundance Creek north of the dump extension.

There is an interval of a very few feet between the pebble zone and the bedrock. It is colluvial in origin also, and dark streaks within it suggest that they may represent a buried, fossil soil zone.

Bedrock is hard, but highly fractured. From the nature of the fractures, I think most fracturing occured when the mountain was domed up by the intrusion of a blister of lava. Near the surface, the fractures appear to be mostly sealed by veins of satinspar gypsum.

Perhaps 100 feet below the surface is a fairly persistent bed of gypsum, whose outcrops make the ring of white hillocks around the base of the mountain. Normally it is tight, but solution openings do occur. Long ago, the city drilled a test well in SE¼ NE¼ sec. 23, 51N-63W, They hit a very large flow of 48° water, but it was far too gyppy to use.

About 200 feet below the dump site, is the Minnekahta limestone, which crops out as a series of flatirons around the base of the mountain, and comes back to the surface west of the Interstate. The limestone is a potential aquifer for domestic wells, but I see no chance that it could ever be contaminated by effluent from the dump.

Looking far down the road, the only aquifer which could be contaminated by the dump would be the little tributary to Sundance Creek, and any subflow associated with it. You have apparently addressed that with monitoring wells down gradient from the dump.

J. P. Gries
Certified Professional Geologist
#771

APPENDIX B

PROPERTY OWNERS WITHIN 1 MILE OF LANDFILL

Note: Addresses with Box and P.O. Box numbers only refer to Sundance, WY 82729.

Ruby M. Sager	Box 101
State of Wyoming	
William James Jones	6214 Western Ave.
	Chevy Chase MD 20815-3309
BLM	
Eleanor M. Phillips	Box 924
Vera J. Sommers	Box 766
City of Sundance	
Arlene J. Tenke	P.O. Box 494
Darlene J. Speidel	Box 966
Donna G. Blackburn	925 W. Greenfield Ave.
	Hanford CA 93230-3522
Billy D. and Betty J. Myers	P.O. Box 570
Howard O. and Connie J. Haagensen	Box 961
Lawerence C. and Hazel L. Crawford	1245 10th St
	Redwood Apt. G-3
	Spearfish SD 57783
Larry G. and Eileen Coleman	Box 852
Fred D. and Mary Lou Tschetter	P.O. Box 153
Jessie Tschetter	Box 306
Charles J. and Loretta G. Durfee	Box 548
Tommy E. and Ted E. Seeley	P.O. Box 208
The Trustees of the University of Wyoming	c/o Joe Graham & Sons Ranch
	Kara Rt.
	Moorecroft WY 82721
Dennis R. and Marlene Edwards	P.O. Box 821
Glenn L. and Jeanne L. Wyatt	Box 68
Gaylord G. and Jean D. Lenz	Box 797
James R. Durfee	Box 705
1 Hi Mile Subdivision	c/o Douglas Malcom Watson
	P.O. Box 89
Tri-County Electric	Box 930
Energy Electric	Box 620
David Bailey	P.O. Box 1130
Julius and Wilma Johner	Box 1035
Lowell R. and Trudy J. Amiotte	Box 1044
Sundance State Bank	Box 950
Edward I. and Norman T. Shamion	Box 887
Terry B. Speidel	Box 663
W.E. and Georgia Mathews	c/o Ronald Watson Box 59
Gary E. and Beverly B. Darland	Box 824
Ronald R. and Joyce E. Harper	P.O. Box 724
James R. and Kimberly M. Durfee	Box 705
Ottlin A. and Maxine M. Wegner	Box 66
Kurt Joseph Holt	RR2 Box 60
	Wecota SD 57438
David Bailey	P.O. Box 1130
Positive Loving Trust	c/o Rodger Mathis
	P.O. Box 927
Richard D. and Mary L. Cirks	Box 741
George H. and Gayla Ann Eppler	Box 116
Gene and Helen M. Snell	Box 252
Merle A. and Evelyn M. Sisson	Box 156
Lois Joy and James Daniel Wright	Box 335
George A. and Beverly J. Peterson	Box 265

EXHIBIT 1