November 13, 1980

Report on the plans and specifications entitled "Final Engineering Plan Facility Abandonment Master Disposal Corporation Landfill".

General Information

Name of Site: Master Disposal Corporation Landfill
Owner of Site: Master Disposal, Inc.
Licensee of Site: Master Disposal, Inc.
Operator of Site: Master Disposal, Inc.

Location of Site: Approximately 25 acres of land are licensed as a landfill on 40 acre parcel of land owned and operated by Master Disposal, Inc. The landfill is located in the SW 1/4 of the SW 1/4 of Section 5, T24N, R20E, Town of Brookfield, Waukesha County, Wisconsin. This proposal is for the proposed abandonment of the Master Disposal Corporation Landfill.

Facilities Served: The site currently serves the commercial and industrial customers of Master Disposal, Inc., in the Town of Brookfield and the Milwaukee Metropolitan area industrial plants.

Materials Disposed of: Currently about 60 percent of the waste being deposited at this facility on an annual basis are foundry wastes in the form of core sand, molding sand, air pollution control residues, and slag. The remaining approximate 40 percent of the waste being disposed of consists of commercial/industrial waste such as cardboard, dunnage, office paper, solvents, and paints. The April 2, 1979, Facility Abandonment Plan estimated the daily waste load disposed of at the site at 280 cubic yards per day. But, in a letter to the department dated December 10, 1979, Master Disposal Corporation estimated that the daily waste load is down approximately 25% due to the current recession and energy conservation units employed by the industrial plants they serve.

Life Expectancy: The April 2, 1979, Facility Abandonment Plan estimated that Master Disposal Corporation will be provided with sufficient capacity to dispose of solid waste at this location until August, 1980. Due to the current recession and decrease in the daily waste load, the time remaining until final grades are reached has been extended. On September 9, 1980, employees of the DNR performed a survey of the site to estimate remaining capacity of the site.
Type of Operation: the mode of operation in filling to this point has been area filling and will continue to remain as such until the site is closed.

Final Use: The site will be revegetated with grasses to form an open green area.

Person Responsible for Site Operation: Gene P. Blackmer, President, Master Disposal, Inc., 4706 North Lannon Road, Pewaukee, Wisconsin 53172.

Final Use: The site will be revegetated with grasses to form an open green area.

Stipulated Injunction: The Master Disposal Corporation Landfill operation commenced in 1966. Poor site location (wetland) and operational violations led to a stipulation and order approved on August 24, 1977. Under the stipulation and order, the Department of Natural Resources agreed to issue a license to Master Disposal as long as the landfill was operated subject to the regulations of NR 151, replaced by HR 180 on March 1, 1980, of the Wisconsin Administrative Code and that a facility abandonment engineering plan was developed that would address the following provisions:

1. That Master Disposal would undertake to plan, install and operate an air-curtain destructor for the purpose of burning wood refuse received at the site. This was approved by the Department in February, 1978.

2. In lieu of daily cover with 6 inches of earth, the trash may be covered with 6 inches of foundry sand at the conclusion of each day's operation on a demonstration basis, provided, that if the DNR determined that such use of foundry sand as cover, creates environmental problems that are not otherwise correctable, the Master Disposal must cover the trash with 6 inches of earth on a daily basis.
3. To be included in the final engineering plans will be a procedure for the encapsulation of air pollution residue, cupola residue, and similar industrial wastes in order to minimize the contact between these wastes and surface water.

4. That Master Disposal would not accept any waste designated as toxic and hazardous by the Department.

5. That the final engineering plans would set forth a program for placement of additional groundwater monitoring wells.

6. The final engineering plans would set forth a detailed program for final abandonment of the facility specifying final elevations consistent with the preliminary engineering plans submitted by Warzyn, Inc. and dated August 22, 1977.

**Site Investigation**

The existing site has been inspected by personnel from the Southeast District office and the Madison office. In addition, detailed soils and hydrogeologic investigations have been performed at this site.

The subsurface investigation was performed by Warzyn Engineering, Inc., and was presented in the infield conditions report where a detailed description of field and laboratory studies and soil conditions can be found. In addition, a report on the hydrogeologic setting of the Master Disposal landfill was developed by the Department to obtain additional information regarding the physical setting of the Master Disposal landfill and its effects on the environment.

**Soils:** Soil borings have been performed at three different times with the first work performed in spring 1976. To date, 35 soil borings have been placed on and adjacent to the site. The soils at the site are glacially derived unconsolidated deposits which range in thickness from 24' to 58'. The deposits consist of interbedded layers of sand deposits, silts, and silty clay. The general stratigraphy of the unconsolidated deposits in the landfill area is as follows: waste varies from 0'-18'; sand deposits vary from 0-24'; peat deposits vary from 0'-44'; and clay and silt vary from 1 1/2' to greater than 25'. Average permeabilities were \( 1 \times 10^{-4} \) cm/sec for the peat and organic silt; \( 1 \times 10^{-3} \) cm/sec for the sand; clay and silt was \( 6 \times 10^{-7} \) cm/sec.

**Bedrock:** Niagra dolomite is the uppermost bedrock aquifer in the Waukesha area. The Niagra aquifer (Silurian) is composed of the Niagra and Waubakee Dolomites. The Maquoketa Shale acts as an impermeable, confining layer for the underlying formations. The Cambrian sandstone aquifer of southeastern Wisconsin is the principal source of water in the area for municipal, industrial and commercial users. The Niagra aquifer is the primary bedrock source of water for private water supplies and is hydraulically connected with overlying, permeable, unconsolidated deposits where these deposits exist. The Master Disposal Corporation Landfill site is underlain by consolidated rock ranging in age from pre-Cambrian to Silurian.
Hydrology: The Master Disposal Corporation Landfill in appearance resembles a raised plateau surrounded by flat-lying low lands. Most of the surface water which enters the site via precipitation is confined to the disposal area by a perimeter berm. The upper elevation of the exterior perimeter berm ranges from elevation 034 to 040 site datum. Only a portion of the precipitation which falls on the site actually leaves the site via surface runoff. Most of the surface water leaves the site via groundwater infiltration and evaporation. Of the total precipitation event, only approximately 10 percent drains off site along the entrance road in the southeast corner of the site. Groundwater flow on a regional basis through the landfill appears to be from the northeast to the southwest based on water elevations obtained from site borings.

Site Characteristics

A detailed description of the site characteristics can be found in the In-Field Conditions Report, Master Disposal Corporation Landfill, Waukesha County, Wisconsin prepared by Jarzyn Engineering, Inc., dated June 30, 1977. A summary of the major characteristics of the existing landfill areas follows:

Topography: The prime feature associated with the regional site setting is the extensive wetland areas. The surrounding land immediately adjacent to the landfill is quite flat and level at approximate elevation 025, USGS Datum. The site itself exists as a flat plain approximately 15 feet above the surrounding ground. The next most important feature associated with the landfill site is the confining berms located along the edge of the landfill. These berms extend from 1 to 6 feet above the elevations of the landfill site and extend completely around the landfill. The remainder of the landfill site is quite flat with top slopes varying from 0 to 2 percent. The outboard slopes of the berms vary from 1:1 (horizontal to 1 vertical) to 2:1.

Land Use: The land surrounding the site to the west north and east is primarily wetlands. Entrance to the site is off Capitol Drive to the south. The heavily urbanized area associated with the City of Milwaukee is located approximately 3/4 mile to the east with Capitol Drive Airport located about 1/2 mile southwest of the site. Regional topography and vicinity are shown on sheet 1 of the final engineering report.

Cover Material: To obtain part of the soil required for final cover, a dredging operation is taking place in an area west of the disposal area. Calculations indicate that approximately 85 percent of the cover material necessary for abandonment would come from the dredging project. The remaining cover would be imported to the landfill under separate contract. Possible sources of material include construction projects.

Site Operation

A detailed description of the site operational techniques can be found in the April 2, 1979 Facility Abandonment report for the Master Disposal
Coroora Lion Landfill and associated drawings. A summary of major details is as follows:

**Typical Operation**: The landfill is operated with the normal operating procedures for an area fill. The filling is done in phases as shown on drawing C6970-25.

Wastes received are covered daily. Certain waste materials such as air pollution residuals, cupola sludges, and similar industrial wastes are required to be encapsulated. The purposes of encapsulation are to confine the designated wastes within certain areas to prevent the increased infiltration of surface waters in the designated areas, to prevent the increased migration of percolated water out of the area and to provide a method in which those wastes to be encapsulated are more easily handled.

Master Disposal Corporation was ordered by the August 24, 1977 stipulated injunction to construct an air curtain destructor (ACD) on-site for the purpose of burning wood refuse received at the site. The ACD will be located in the northwest corner of the landfill with a one acre ash disposal located just to the east. This area will be used solely for the disposal of ash and has a life expectancy of approximately 5 years. At the present time final construction items are being completed on the ACD. Upon completion of the remaining items an inspection by the Department's District prior to licensing and operation will be necessary.

**Abandonment**: Abandonment of the landfill site will proceed through the utilization of four phases as shown on drawing C6970-25. In general, the numbering of the phases coincides with the consecutive abandonment. As phases reach final filling contours, they shall be abandoned with a minimum two-foot final cover, with six inches of topsoil and properly seeded. Abandonment will also include straightening and reshaping of the outer banks of the landfill.

**Recommendations and Conditions of Approval**

From our review of the submitted information for the facility abandonment of the site it is our opinion that the facility can be satisfactorily operated, maintained, and abandoned subject to the following conditions and recommendations:

**Site Operation**:

1. All items of construction and methods of operation at the site shall be in accordance with this report and the accompanying drawings and NR 180 Wisconsin Administrative Code, except as otherwise noted in this approval.

2. Copies of the plans, specifications, and approval for this site, shall be made available for reference by the site operator.
3 All changes in the plan of operation or any deviation from the conditions of this report will be presented to the Southwest District Office in writing, before such changes or deviations are implemented at the site. If such changes are compatible to the operation of the site, the Department will indicate the acceptance of those changes.

4 Master Disposal Inc., shall immediately cease to accept all toxic and hazardous wastes, as identified by U.S. EPA in CFR Part 261.

5 All operations at this facility are to minimize erosion, protect surface and groundwater from contamination, prevent vector and nuisance problems and to maintain environmentally acceptable operations at this sanitary landfill site. All solid waste materials are to be covered at the end of the working day with 6 inches of uniformly compacted foundry sand.

6 Waste materials such as air pollution residuals, cupola sludges and similar industrial wastes shall be encapsulated to minimize contact between the wastes and surface water. Encapsulation will be achieved by constructing berms around an area where waste materials are to be encapsulated as per Drawing C6970-31. The materials used for constructing the berms will be foundry sands containing a high percentage of bentonite, organic silty material available from the dredging area, or clayey materials hauled in from private contractors as addressed in the facility abandonment report dated April 2, 1979.

7 Areas of erosion shall be properly regraded. This shall include 2 feet of clean earth final cover, 6 inches of top soil and properly fertilized, seeded and mulched.

8 Ash disposal shall take place as specified in the April 2, 1979 abandonment plan and accompanying plan sheets. Air curtain destructor residue (ash) will not be considered as suitable cover and must be handled as a waste product to be covered on a daily basis.

9 Upon termination of landfill site operations according to the abandonment plan, the Department will continue to license a specified site, as per the stipulated agreement of August 24, 1977, of approximately one acre (as shown on Harzyn Inc., drawing No. C6970-26 dated April 2, 1979) for the continued operation of the air curtain destructor as long as the provisions of Chapters NR 180 and NR 154 Wisconsin Administrative Code are complied with.

10 To obtain part of the soil required for final cover, an area will be dredged west of the disposal site. As of the date of this approval the dredging operation has not yielded very much cover material due to operational problems caused by weather conditions, therefore as soon as the weather permits, the dredging operation shall be continued. Master Disposal shall
estimate the volume of material excavated each week and report this amount to the Department's Southeast District office on a monthly basis. The first report is due in the Southeast District office by December 15, 1980, with each subsequent month's report due on the 15th of the following month.

11. The dredging will account for approximately 45 percent of the required cover soil for the site. The remaining cover material required will be imported to the landfill under separate contract to achieve final abandonment. Possible sources of material include construction projects. Therefore, on a monthly basis, Master Disposal will report in writing to the Department's Southeast District office the volume amounts received during that month. These reports will be due in the Southeast District office on the 15th of each month following the month for which the volumes are being reported. The first report will be due on December 15, 1980.

12. Water level measurements and sampling of monitoring wells and surface water locations shall be accomplished in accordance with the following schedule. The results of all water elevation measurement and sampling shall be reported to the Department within 60 days of sampling. Unless otherwise specified by the Department the frequency shall be within 15 days of March 15, June 15, September 15, and December 15. The methods of groundwater and leachate sample collection, preservation, and analysis shall be accomplished in accordance with standard methods for the examination of water and wastewater or other methods approved in writing from the Department. If for any reason a monitoring well is destroyed or otherwise fails to properly function, the site operator shall immediately notify the Department in writing. All such devices shall be properly abandoned and replaced with a functioning device within 60 days of notification of the Department unless the operator is notified otherwise in writing by the Department. The parameters to be sampled for are as follows:

- water elevation,
- field pH,
- specific conductivity,
- dissolved iron,
- total alkalinity,
- sodium,
- COD

In all cases, the physical appearance of the water sample including:

- odor,
- color,
- turbidity

at the time of sampling shall be recorded. Sampling will be required for five years or more after abandonment at which time Master Disposal may apply to the Department for a reduction on the number and frequency of parameters to be tested for.
the following locations:

10. Open burning at this site is prohibited. Burning will only take place in the Air Curtain Destructor upon completion of its construction and licensing by the Department.
18. The final grading shall be finished to provide for positive surface runoff and to minimize potential soil erosion. Final contours are shown in Warzyn Engineering, Inc. drawing No. C6970-75, dated April 2, 1979.

19. After completion of the last phase of abandonment, five copies of an as-built report prepared by a professional engineer documenting site construction shall be submitted to the Department within 30 days after completion of construction. The report shall consist of the following:

a. A letter signed by a registered professional engineer indicating if the site abandonment has been performed in accordance with the approved plans and specifications and conditions of this approval and that the report accurately reflects what has been constructed on the field.

b. One or more plot plans showing site topography for abandoned fill areas, monitoring wells, surface water drainage patterns and other appurtenances related to abandonment.

c. The application rates and specifications for the lime, fertilizer, seeding and mulching actually used.

Please note that this approval does not entitle this facility to expenditures from the Waste Management Fund as the approved plan is considered a facility abandonment or closure plan and because this facility operated as a solid waste disposal operation for several years before becoming licensed on August 24, 1977.

If you have any questions, feel free to contact Roger Klett of the district office at (414) 257-4415 or Curt Madsen at (608) 267-7575.

Sincerely,
Bureau of Solid Waste Management

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