15521.07

PROCEDURES

for

FINAL COVER PLACEMENT

for

LANCASTER SANITARY LANDFILL, INC.

prepared by

WEHRAN ENGINEERING, P.C.
2880 Grand Island Boulevard
Grand Island, NY 14072

WE Proj. No. 01339035

May, 1984

WEHRAN ENGINEERING
Consulting Engineers

May 29, 1984

Mr. Robert Mitrey
New York State Department of
Environmental Conservation
600 Delaware Avenue
Buffalo, New York 14202

Re: Lancaster Sanitary Landfill, Inc.
Procedures for Final Cover
Placement
WE Proj. No. 01339035

Dear Mr. Mitrey:

The ensuing report has been prepared to address item number one of Schedule A (on page 4) of the Order on Consent which was executed by Lancaster Sanitary Landfill, Inc. and transmitted to Mr. Burke on May 22, 1984.

Should you have any questions or comments relevant to this matter after reading this report, please feel free to contact us. Thank you.

Yours very truly,

WEHRAN ENGINEERING, P.C.

James R. Woods

James R. Woods, P.E.
Branch Manager

Allan Scarpine

Allan Scarpine
Staff Engineer

JRW:AS:lc
enc.

Grand Island Office
2880 Grand Island Blvd.
Grand Island, New York 14072
(716) 773-1801

TABLE OF CONTENTS

I. INTRODUCTION:

This report has been prepared in response to item number one of the draft Order on Consent (April 20, 1984) between the New York State Department of Environmental Conservation and Lancaster Sanitary Landfill, Inc. The report will detail the proposed construction materials, construction methods, quality control techniques and confirmatory permeability testing program to be utilized and/or implemented during the placement of the eighteen (18") inches of compacted clay cover upon the remaining uncovered portions of the landfill. In accordance with New York State Part 360 Regulations, the compacted clay is to yield a maximum permeability of 1.0×10^{-5} cm/sec.

This report should be read in conjunction with a set of plans dated October 14, 1983 and revised February 17, 1984. This set of plans, which contained three (3) sheets and was previously submitted to the Department, illustrates the areas to be covered, the proposed final grades and a proposed closure schedule.

II. FINAL COVER SOILS:

As described in Wehran Engineering's report entitled "Summary Report, Lancaster Sanitary Landfill Closure Plan" (dated March, 1984 and previously submitted to the NYSDEC), the clay soil identified for use in the construction of the final cover for Lancaster Sanitary Landfill, was considered "marginal" with regard to attaining a permeability of 1.0×10^{-5} cm/sec or less. At that time, Wehran Engineering stated that either a new and less permeable soil source be located, or a strict quality control program be implemented to maximize the quality of the cover using the "marginal" soil.

An extensive visual inspection of numerous potential alternate sources of final cover material was conducted on properties within a five (5) mile radius of the landfill site. Based on this "tour," we have concluded that the present borrow area is the best available source of cover material within an economically viable hauling distance. Consequently, at this time, the material proposed for use in the remainder of the final cover is the soil material from the same borrow source used previously to cover the portion of the landfill that currently has final cover in place (refer to Sheet No. 1 of the plans referenced in the Introduction of this Report). As detailed in Section III of this Report, the use of this borrow source necessitates the implementation of specific contruction techniques to maximize the quality of the final cover placed over the remainder of the landfill facility.

III. PLACEMENT AND COMPACTION OF COVER SOILS:

To maximize the quality of the constructed final cover, construction techniques will be implemented to assure only the most select borrow material available from the identified source is utilized in the cover. These techniques will include the use of front-end loaders or backhoes to excavate the borrow material for hauling by dump trucks. The use of this type of excavation equipment provides maximum opportunity to segregate any encountered sand, silt or gravel lenses from the hauled material during the excavation process.

The eighteen (18") inch thick compacted clay cover will be constructed by spreading and compacting two (2) nine (9") inch thick lifts. Each of these lifts will be mechanically raked prior to compaction. The raking operation is intended to remove the majority of the coarse fraction from the material and thereby increase the percentage of fine grained material. As discussed in the next subsection of this report, the moisture content of each lift shall be adjusted as required prior to initiation of compaction operations. In conjunction with the quality control program outlined in the next subsection of this report, the construction techniques detailed above should maximize the quality of the final cover installed.

IV. QUALITY CONTROL PROGRAM:

The NYSDEC has recently indicated that the final cover of Lancaster Sanitary Landfill must be certified (by a Professional Engineer) relevant to achieving the required maximum permeability specified in the regulations (1.0×10^{-5} cm/sec). To provide the necessary control over the placement and compaction of the final cover and to assure a highest quality cover possible for the soils used, a stringent quality control program will be implemented that will include the following:

(1) Prior to any soil being placed on currently uncovered areas, a five (5) point modified compaction curve will be performed in the laboratory for the intended borrow material. The NYSDEC will be provided with a copy of this curve. In addition, laboratory compacted specimens will be tested for permeability at various combinations of moisture content and dry density to define acceptable field control limits for construction. Again, the NYSDEC will be provided copies of this data. This procedure will be repeated for each of the six (6) sub-areas to be covered (refer to subject plans).

(2) An on-site inspector will visually observe the delivered material as it is spread and raked for each lift. Material deemed not consistent with the soil tested (number 1 above) will be rejected.

One (1) point compaction tests may be performed, if necessary, to verify rejections. Rejected material will be considered for use only after repeating the program outlined in number 1 above for the rejected material and if adequate reliability with regard to achieving the maximum permeability is demonstrated.

(3) On a maximum spacing of fifty (50') feet in each planimetric direction for each lift, the soil shall be tested with a nuclear densometer for in-place density and moisture content. Should the combination of moisture and density not fall within acceptable limits based upon the laboratory results obtained in number 1 above, the lift will not be accepted until additional compaction or moisture adjustment is accomplished.

V. CONFIRMATORY PERMEABILITY TESTING

The quality control program outlined in the previous subsection should assure a completed final cover complying with the required maximum permeability of 1.0×10^{-5} cm/sec. However, during the installation of the final cover in each of the six (6) subsections (A through F), a minimum of two (2) "undisturbed" Shelby Tube Samples will be obtained and laboratory tested for permeability. The certification of the cover shall be based upon these results.

VI. EXISTING PARTIALLY COVERED AREA:

We note that the preceding subsections of this Report pertain to the estimated 58.8 acres of the landfill that do not have final cover soils existing over the waste at the present time. We also note that an approximate area of 31.2 acres has the compacted clay portion of the final cover in place, but has not been topsoiled or seeded. In this 31.2 acre area, we propose to implement the confirmatory permeability testing portion of our quality control program (as was outlined in Section V of this Report). We will obtain sufficient samples to permit certification of this area. Any portion of this area determined to have an effective average permeability greater than 1.0×10^{-5} cm/sec will be repaired as required to obtain compliance with the specifications.