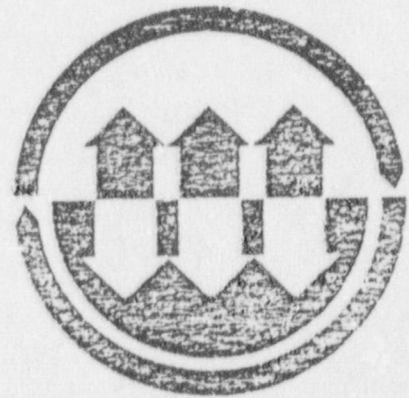


PRELIMINARY SITE EVALUATION

NUCLEAR WASTE DISPOSAL SITE  
FLEMING COUNTY, KENTUCKY

MAY 31, 1972



**EMCON**  
ASSOCIATES  
Consultants in Wastes  
Management and  
Environmental Control

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**EMCON**  
ASSOCIATES  
Consultants in Wastes  
Management and  
Environmental Control

May 31, 1972  
Project 108-5.1

Nuclear Engineering Company, Inc.  
P. O. Box 4308  
Walnut Creek, California 94596

Attention: Mr. James L. Harvey, President

Gentlemen:

Report  
Preliminary Site Evaluation  
Nuclear Waste Disposal Site  
Fleming County, Kentucky  
For Nuclear Engineering Company, Inc.

## 1. INTRODUCTION

This report presents the results of a preliminary evaluation of a nuclear waste disposal site, generally referred to as the Maxey Flats Site, located in Fleming County, Kentucky. Conclusions and recommendations presented herein are based on data gleaned from available geologic maps of the site, various reports furnished us by the Nuclear Engineering Company, and an inspection of the site made on April 16 and 18, 1972.

Maps and reports reviewed in connection with this site evaluation consisted of the following:

1. "Geologic and Hydrologic Evaluation of a Proposed Site for Burial of Solid and Radioactive Wastes - Northwest of Morehead, Fleming County, Kentucky", by Ian R. Walker, Consulting Geologist.
2. Administrative Confidential Report titled, "Burial of Radioactive Waste Near Morehead, Kentucky", by Joel G. Veater, EPA Radiation Consultant, State of Kentucky, dated April 13, 1972.
3. "Report of Soil Borings for Nuclear Engineering Company, Inc., at Kentucky Site (Maxey Flats)", by Pittsburg Testing Laboratories, Louisville, Kentucky, dated August 13, 1962.
4. Geologic Map, Plummers' Landing, 7½ Minute Quadrangle, U.S. Geological Survey.

The disposal site reconnaissance performed on April 16 and 18, 1972 included an examination of site topography, geology, hydrology, radioactive waste disposal operations and procedures, existing monitoring facilities and surveillance procedures.

## II. SCOPE OF WORK

In his report to Mr. Charles Weaver, Director of Surveillance and Inspection, EPA (see reference 2 above), Mr. Joel Veater concludes that "there are definitely problems with this site and additional exploration and study, where indicated, should be initiated as soon as practicable." Recognizing the need for both immediate remedial measures to correct present deficiencies in site operations, as well as long-range planning for and implementation of site improvements, we have been retained by the Nuclear Engineering Company to perform the following services:

1. Review available reports, maps and other pertinent data concerning radioactive waste disposal operations.
2. Inspect the site and evaluate existing physical conditions and radioactive waste disposal operations and procedures.
3. Develop recommendations for short-range remedial measures to correct the most serious deficiencies in existing facilities and operations.
4. Outline a program of additional study (Phase II) to develop a long-range plan for the improvement of disposal and monitoring facilities and the implementation of effective surveillance procedures.

The evaluation of problems related to health and safety in handling of radioactive materials and to radiological monitoring procedures are beyond the scope of this report.

## III. SUMMARY

Based on our review of available data and an examination of the site, it is our opinion that, from a geologic and hydrologic standpoint, the Maxey Flats site is highly suitable for the disposal of radioactive and other sensitive and hazardous waste materials. Existing problems noted during our inspection of the disposal site are primarily related to inadequate existing disposal facilities, poor waste management practices, and the lack of long-range planning for improvements to facilities and more efficient disposal procedures.

Recommendations for immediate remedial measures designed to correct the most serious existing problems, and an outline of further study to develop a long-range plan for the improvement of the disposal facility are presented in Section VI of this report.

In general, it is our opinion that, through a well planned program of surface drainage, trench design, trench closure procedures, earthwork, and the

installation of an effective monitoring system, the Maxey Flats site can continue to serve as a long-term, safe and efficient facility for the disposal of radioactive and other sensitive and hazardous waste materials.

#### IV. EXISTING SITE CONDITIONS AND DISPOSAL OPERATIONS

##### A. Site Description

The Maxey Flats disposal facility consists of 252 acres located northwest of Morehead, in Fleming County, Kentucky. The site is on a flat, winding ridge, approximately 380 feet above a wide valley containing Fox Creek and its tributaries, Crane Creek and Rock Lick Creek. Approximately 18 acres of the site along the ridge top have been fenced for security purposes. This enclosed area contains the facilities for handling, storage, and burial of the solid radioactive waste materials.

The upper, gently rolling portion of the Maxey Flats ridge is generally less than 2000 feet wide and is above 1000 feet in elevation. The surface of the existing and future burial sites slopes gently downward to the west, south, and east to about the 1000-foot contour line, where the natural slopes abruptly change to a ratio of approximately  $2\frac{1}{2}$  to 1 (horizontal to vertical).

The climate of Kentucky is generally humid, Continental in character, with rather wide extremes of temperature and precipitation. The Fall season is generally the driest, while Spring and early Summer are the wettest seasons. The average annual rainfall at Flemingsburg, located approximately 14 miles northwest of the proposed site, is 46 inches per year. Thunderstorms of high intensity are common during the Spring and Summer months, and rainfall during these severe storms may frequently exceed 2 to 3 inches during a 24-hour period.

The prevailing winds are from the southwest during the Spring and early Summer seasons, and from the south during the Fall. It is estimated that maximum wind velocities at the Maxey Flat site could be on the order of 50 to 60 miles per hour.

Further details on site conditions are presented in the report on geologic and hydrologic evaluation of the site by Ian R. Walker (see Reference 1, Section 1).

##### B. Geology

Our review of available geologic information indicates that the disposal site is located on the eastern flank of the Cincinnati Arch and is underlain by nearly flat-lying sedimentary rocks of Ordovician, Silurian, Devonian and Early Mississippian ages.

Early Mississippian rocks of the New Providence Formation directly underlie the upper slopes of the disposal site and reportedly extend to maximum depths of 78+ feet. Three distinct members of the New Providence Formation are present at the disposal site. These members consist of (1) a basal three-foot-thick yellow shale, (2) a 35± foot-thick, even-bedded, well-cemented siltstone with shale partings, and (3) an upper unit of massive shale with thin interbeds of hard, dense, fine-grained sandstone and gray claystone.

The New Providence Formation is underlain by an approximately 13-foot-thick shale formation known as the Sunbury Shale, also of early Mississippian age. This formation consists predominantly of black, highly-fissile shale. The Sunbury Formation is in turn underlain by the Bedford Shale, which has a thickness of approximately 32 feet. This formation consists of laminated, bluish-gray silty clayey shale with thin interbeds of greenish, fine-grained sandstone.

A section of Upper Devonian Ohio Shale, approximately 215 feet in thickness and consisting of thick, uniform beds of black, fissile shale, is exposed below the Sunbury Formation in the hollows immediately east and west of the site.

### C. Hydrology

The disposal site is generally well drained. Surface drainage during and immediately following storms is high and represents nearly all of the runoff from the site. Drip Springs Hollow and the unnamed hollow to the east, both of which drain into Rock Lick Creek, are perennial streams fed by surface drainage in the upland Maxey Flats region.

Water supply for the few residents in the Maxey Flats area is derived from shallow dug wells or cisterns. The dug wells reportedly yield between 25 to 50 gallons per day. The source of the water appears to be from secondary openings in the soil zone of the New Providence Formation, generally within 20 feet from ground surface. These dug wells reportedly are recharged by infiltration of rainwater which saturates the more deeply-weathered upper portions of the New Providence Formation.

The cisterns generally derive their water from the collection of rainwater from the roofs of structures through a downspout system.

The unweathered portion of the New Providence Formation and the underlying Mississippian and Upper Devonian rocks in the Maxey Flats area are described as non-water bearing. In other areas, the Upper Devonian Ohio Shale reportedly produces very limited quantities of water from sandy interbeds near the base of the formation. However, water derived from the Ohio Shale reportedly has a sulphurous odor and is relatively high in total dissolved solids. Detailed data establishing the quality of water from the Ohio Shale sources were not available to us for review during this site evaluation.

### D. Subsurface Investigations

We have reviewed subsurface data developed from a test boring program conducted by the Pittsburgh Testing Laboratories, as discussed in the introduction to this report. Their records indicate that eight test borings were drilled to depths ranging from 40 to 49 feet. These borings were located within the 18-acre portion of the site currently used for processing and disposal of radioactive wastes. Soil and rock types encountered in the exploratory borings were consistently similar and can be represented by the following typical log:

Silty CLAY, Brown (topsoil)

SANDSTONE Ledge (6" to 20" thick, at 2.5' to 5.5' depth)

Clay SHALE, massive, blue in color

SANDSTONE Ledge (1.5" to 8" thick at 26' to 32' depth)

Clay SHALE, massive, blue in color

Groundwater was not encountered in any of the borings.

Water injection pressure tests were performed in seven of the eight test borings using injection pressures of 10 psi and 25 psi. Six of the seven tests indicated negligible acceptance of water. Test Boring 8 accepted 0.7 gallons per minute under a pressure of 10 psi within the depth interval of 0 to 26 feet. This same test boring showed an intake of 0.44 gallons per minute under a pressure of 25 psi within the depth interval of 20 to 36 feet. The pressure tests were confined to specific depth intervals through the use of inflatable packers.

The Pittsburgh Testing Laboratories report describes the New Providence Shale as essentially impervious, with the exception of the presence of secondary openings in the shallow, deeply weathered zone and in a system of near-vertical fissures or joints. The report takes a pessimistic view of the loss of water to shale recorded in the injection tests at Boring No. 8. The results of this test were interpreted as being caused by loss of water through individual channels large enough and continuous enough to constitute a potential contamination hazard.

Our examination of a freshly excavated disposal pit indicated that at this particular location there were hairline fissures or fractures at approximately 10- to 20-foot spacing along the walls of the east-west trending disposal trench. These fractures were near vertical and generally trended in a north-south direction.

#### E. Disposal Operations

The Maxey Flats disposal site has been approved by the Atomic Energy Commission and by the State of Kentucky for the storage and disposal of solid, low-level radioactive wastes. The wastes accepted at this site generally originate from customers located along the eastern seaboard of the United States. These wastes are transported to the site by semi-trucks and, upon arrival, are buried in trenches using the cut-and-cover method.

The waste materials arrive in both liquid and solid form and are transported in approved, leakproof metallic containers. These containers are placed in the burial pits or trenches and covered with intermediate layers of earth to provide protective shielding from radioactive emissions. Liquid or water-borne radioactive wastes delivered to the site in bulk form are solidified in narrow-slit trenches through the use of either concrete or chemical grout mixtures.

Radioactive wastes with higher specific activity are disposed in specifically designed hot wells. These wells are generally designed for wastes of small volume, such as radium needles, cobalt wafers, and other sealed sources. These wells consist of pipes constructed of coated steel, concrete or tile. The pipe is placed vertically in the ground, with the lower end sealed. When a predetermined level of specific activity is reached, or the pipe is filled, its upper end is sealed with a concrete plug.

Hot pits are used for the burial of high specific activity wastes delivered in volumes larger than can be accommodated in the hot wells. Materials buried in such hot pits may consist, for example, of ion exchange resins obtained from nuclear reactors. These pits consist of a series of excavations approximately 10 feet wide by 10 feet deep and 30 feet long.

Further details concerning site history, public relations activities, regulations governing legal status and operational guidelines, waste material inventory, disposal operations, and surveillance procedures and schedules are presented in the report by Joel G. Veater, EPA Radiation Consultant, Kentucky, dated April 13, 1972.

## V. DISCUSSION AND CONCLUSIONS

Mr. Ian R. Walker, in his geologic and hydrologic evaluation of the site makes the following basic observations:

1. The geologic environment of the Maxey Flats site will not prevent the infiltration of surface waters into pits containing solid radioactive waste materials.
2. Due to the very low permeability of the New Providence Shale which surrounds the disposal pits, it is not likely that sufficient contact would occur between the water and the rock material which would utilize the high ion exchange capacity of the rock for the removal of radioactive ions.
3. Because the shale is essentially impervious, water will leave the burial pit area through either the near-vertical joints in the New Providence Formation, or following the filling of the pits, by lateral seepage through the upper soil zone.
4. Due to the irregular pattern of the generally vertically oriented rock joints or fractures along which subsurface water movement would occur, it would be extremely difficult, if not impossible, to monitor contamination of groundwater by means of wells located outside the disposal pit areas.

Mr. Walker further states in his report that, from a geologic and hydrologic standpoint, the Maxey Flats site can be acceptable for the disposal of radioactive wastes, provided the following three criteria are met:

1. That the infiltration and downward percolation of surface water is essentially eliminated.
2. That rock joints or fractures exposed in the excavation of pits are sealed to prevent the movement of contaminated water from the pit area.
3. That provisions are made for the sampling, removal and/or possible treatment of contaminated water which may accumulate in the burial pits. This could be accomplished by means of a gravel drain and sump placed in the lower portion of the pits.

Based on our review of pertinent data and examination of the Maxey Flat site, we generally concur with Mr. Walker's evaluation. It appears that the site is indeed underlain by a considerable thickness of essentially impervious, non-waterbearing rocks and that the movement of clean or contaminated water at or below the ground surface can be controlled through sound waste

management and site operation practices. As far as sensitive, hazardous or potentially hazardous waste materials are concerned, it is our opinion that, unless highly uniform and predictable geologic conditions exist, geologic features should not be totally relied upon to provide permanent containment of such wastes. There are a number of engineering techniques which can be used to provide such containment, thereby preventing the possibility of environmental pollution. These site development concepts and techniques are discussed in detail in Section VI of this report.

Based on our preliminary evaluation of the Maxey Flats site, we conclude that the most urgent problems needing immediate remedial action are related to waste management and operational procedures which do not adequately reflect the climatic and existing hydrologic conditions at the disposal site. Specifically, these problems can be attributed to: (1) surface and subsurface drainage control, (2) excavation and grading operations and (3) monitoring procedures and surveillance programs. The following is a brief discussion of these three major problem areas.

#### Surface and Subsurface Drainage Control

The infiltration of surface water into disposal trenches is one of the major problems observed at the Maxey Flats site. The control of such surface water infiltration should be the first step in the development of a comprehensive site drainage system. Surface ponding of rainwater or its flow into open disposal pits should be prevented through adequate surface drainage facilities. Direct precipitation into the open pits should be the only source of water entering the disposal excavations.

During our recent inspection of the site, we noted the following drainage-related problems which need immediate correction:

1. There is no master site drainage plan to provide for the removal of surface runoff from the disposal pit areas.
2. The access roadway into the active disposal pit area does not have a side drainage ditch.
3. Active disposal pits do not have perimeter berms to prevent the inflow into the open excavation of ponded surface water.
4. Spoil material removed from disposal pit excavations is randomly scattered about the site, often obstructing the flow of water from the disposal area and disrupting proper surface drainage.
5. As a result of poor surface sealing procedures and inadequate surface drainage, completed disposal trenches or pits are often filled with water percolating through the soil cover.
6. There is evidence that hydraulic continuity exists between trenches within the shallow subsurface zone. This continuity may occur through either the porous surface soils or possibly through fissures and joints in the upper rock materials.

## Excavation and Grading

In our opinion, existing excavation and grading operations at the site do not follow a well-planned sequence related to climatic conditions, nor are they performed in accordance with generally accepted earthwork procedures.

Since the highest rainfall at the site occurs during the Spring and early Summer seasons, the major excavation operations should be planned well in advance of the wet season.

There is no designated area on site for the stockpiling of excess spoil material. Such planned stockpiling would prevent disruption of site drainage or interference with trench operations, trench closure and erosion control.

Routine excavation and grading practices, which include the placement of intermediate cover over waste materials, the continued grading and maintenance of trench mounds, maintenance of surface drainage facilities, and the handling of spoil materials must be carried out throughout the year. However, these procedures seem to be regularly interrupted by the random placement of spoils, the lack of stockpiled fill materials where most needed, and the random placement of sandstone slabs removed from pit excavations. Additional problems arise from the lack of adequate compaction equipment, and proper supervision of excavation and grading personnel to assure compliance with accepted earthwork procedures. The lack of adequate master site development and drainage plans, of course, further complicates this problem. Similarly, the lack of specifications for the sealing of disposal trenches results in inadequate trench closure procedures.

The handling of sandstone slabs excavated from a depth of between 4 to 6 feet in disposal trench excavations, presents a particularly serious problem. The broken slabs of sandstone are scattered about the site in a manner which results in additional handling and consequent higher operational costs. In addition, these slabs are frequently mixed with potentially useable soil materials, rendering many of the soil stockpiles useless.

## Monitoring and Surveillance

Some of the test borings initially drilled at this site were apparently cased with perforated pipe, gravel packed and subsequently used as monitoring wells. These wells are randomly located throughout the operational 18-acre disposal area. An examination of these monitoring facilities during our site visit indicated that these wells were not provided with adequate surface seals to prevent infiltration of surface water. In a poorly drained area, such as the site is at present, the lack of adequate surface seals makes the use of the wells for the monitoring and detection of subsurface fluid movement highly unreliable.

A buffer zone has not been provided around the periphery of the disposal site. The purpose of such a buffer zone would be to provide sufficient space in which to install collection or monitoring facilities, as required. When there is an indication that contamination is occurring through subsurface migration, the buffer zone provides the necessary space and allows for sufficient time for the installation of effective containment facilities. Such containment facilities may include provisions for collection of migrating pollutants or the construction of barriers to prevent the movement of pollutants beyond the limits of the disposal site.

## VI. RECOMMENDATIONS

As previously discussed, certain conditions exist within the currently active 18-acre Maxey Flats disposal site which, in our opinion, will require immediate attention and remedial action. Further studies directed towards the formulation and implementation of long-range site development and operation plans are also outlined below.

### Interim Remedial Measures

We recommend that the following corrective action and modifications in disposal operations be undertaken as soon as possible:

1. Earth compaction equipment, such as a sheepsfoot or segmented steel wheel compactor capable of achieving relative compaction of not less than 90% as determined by the current ASTM Test Designation D-1557 should be provided.
2. Before fully activating the newly-excavated disposal trench No. 33, the water at the bottom of the trench should be removed. The source of this water is apparently from trench No. 32 and from the draining of ponded surface water into the trench. A temporary storage pond should be constructed on the median strip between trenches 32 and 33, and water should be pumped from the two trenches into this surface storage pond. A minimum freeboard of 18 inches should be maintained in this pond at all times. It is not likely that additional water would enter trench 33 before the onset of the wet season.
3. Trench No. 32 should be properly closed, sealed with compacted earth material and graded to drain in accordance with the attached Plate 3, Final Trench Cover and Sump Detail.
4. A soil berm not less than one foot high should be constructed around the active disposal trench No. 33 to divert all surface water (see Plate 3). This perimeter berm should completely surround the open disposal trench.
5. All spoil materials, such as soil and sandstone slabs, should be removed to a designated spoil disposal area located south of the active disposal facility.
6. A buffer zone, not less than 75 feet and preferably 100 feet in width, should be established around the periphery of the active 18-acre disposal area to provide space for the installation of all appropriate environmental monitoring and control facilities.
7. Completed disposal trenches should be stripped of all vegetation and organic topsoil. The remaining soil cover should be scarified and compacted to not less than 90% relative compaction. A seal of compacted clay should then be placed to form a mound over the trench, which would provide positive drainage of all surface water away from the trench area. The completed mound should be replanted for erosion control and aesthetic purposes. Conceptual plans for typical disposal trench construction are presented on the attached Plates 2 and 3.

8. Water contained in the remainder of the completed disposal trenches should be pumped out as time and availability of surface storage ponds permit.

Assuming trench dimensions of 250 feet by 70 feet by 20 feet, full trench saturation, randomly stacked 55-gallon drums and un-compacted, intermediate earth cover, our rough computations indicate that the 20 large completed trenches would each contain on the order of 600,000 gallons of water, or a total of approximately 12 million gallons. These are, of course, very crude estimates and it would not be reasonable to assume that the trenches could be totally dewatered. These figures do, however, indicate the magnitude of the water control problem.

Pumping of disposal trenches and surface ponding should be conducted primarily during the summer season so as to take full advantage of the dry weather and high temperatures. The final disposition of this water, such as by treatment, solidification, evaporation, etc., should be determined by the long-range study program and based on the volume, quality, and degree of contamination of the water removed from the disposal trenches.

9. In addition to the monitoring of existing wells, an expanded monitoring program should be implemented as soon as possible. Such a program should consist of the excavation of a backhoe trench across the northern perimeter, or downgradient of the active site. The trench should extend to a depth of two feet or more below the bottom of the disposal trenches. It should be left open for a period of time sufficient to detect whether any water is moving through the upper soil zone or fissure system. The trench could subsequently be converted into a subdrain-monitoring system through the placement of a perforated inert collector pipe, granular backfill, and riser pipes for draining, sample collection and monitoring purposes.

In addition to the monitoring trench, new monitoring wells should also be installed. Since the fractures or joints in the rocks underlying the site are generally vertical and trending in a north-south direction, we recommend that the new wells consist of both high-angle and low-angle borings, generally dipping to the east or west. Such orientation of the wells is most likely to intercept the largest number of fractures or joints and thus provide a more representative sampling and monitoring of groundwater flow through fissure systems.

10. Clearing and grubbing of all trees in the new disposal area, to be located east of the active portion of the disposal facility, should commence as soon as possible. The excavation of a new trench, construction of access roads and the preparation of spoil stockpile areas should then proceed during the summer months.

The above outlined program could, in our opinion, be implemented during the late Spring and Summer months, provided a rigid schedule is developed and closely followed. However, to accomplish the drainage control and other tasks outlined, continuous earthwork and grading operations, including the moving of large volumes of existing spoil materials, will be required. All available

excavation and earth moving equipment presently on site will have to be mobilized, and possibly some additional equipment would be required to accomplish the site improvements recommended above.

We suggest that earthwork procedures be outlined and all grading operations periodically inspected by a qualified soil engineer. The initial preparation of work schedules should be made in consultation with this office. Our staff is available to provide whatever level of assistance or inspection services you may require.

#### Long-Range Site Development and Operation Plan

In order to assure the continued operation of the Maxey Flats site as an environmentally sound, efficient and safe nuclear waste disposal facility, we recommend that further studies be undertaken directed towards the formulation and implementation of a long-range site development and operation plan. These studies should follow the following general guidelines:

1. A topographic survey of both the existing 18-acre disposal site and all other future disposal areas should be completed at the earliest possible date. The cleared portion of the site could be mapped using photogrammetric techniques, but ground surveys may be necessary in the more wooded portions of the property. A topographic plan of the site prepared to a scale of approximately 1 in. = 200 ft. would be essential to any further detailed planning for future site improvements.
2. Upon completion of the topographic survey, a detailed program of geologic reconnaissance and subsurface exploration should be outlined for the future disposal areas. The type, location and depth of exploratory borings should be established on the basis of geologic mapping of the area and topographic information to be developed from the survey discussed in the Item 1 above.
3. Following a detailed evaluation of all available information on the site, including subsurface data developed from the exploration program, a master site development and operation plan should be prepared. Such a plan should include the following elements:
  - a. A master site drainage plan, including criteria for surface and subsurface drainage control facilities around disposal pits, slit trenches, hot wells and hot pits.
  - b. A master site grading plan, including earthwork specifications.
  - c. A staging plan for proposed future site development showing the location and sequence of future improvements.
  - d. A detailed layout for future burial pits, slit trenches, hot wells and hot pits, taking into full consideration available space and existing geological and topographic conditions. Such layouts may provide, for example, for the re-orientation of future burial pits in a north-south direction to minimize the intersection of the pits with the north-south trending rock fracture pattern.

- e. Selection and design of permanent disposal areas and facilities.
- f. Conceptual layout of traffic patterns within the disposal areas.
- g. Plans for monitoring systems and surveillance programs to be implemented within the buffer zone established in accordance with the above-described interim remedial measures.
- h. Other special site improvements and operation procedures necessary to assure the protection of the environment and the efficient operation of the disposal facility.

A proposal for the above-outlined services describing in detail the tasks to be performed in the development of a long-range plan will be submitted to your office under separate cover.

Provided the recommendations presented above are fully implemented under the supervision of qualified staff and consultants, it is our opinion that the Maxey Flats site can continue to effectively fill the need for an efficient and environmentally safe radioactive waste disposal facility in the Kentucky region.

The following plates are attached and complete this report:

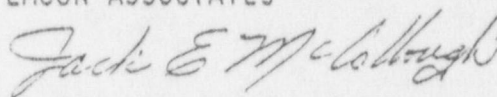
Plate 1 - Schematic Site Plan

Plate 2 - Conceptual Plan of Disposal Trench Construction

Plate 3 - Final French Cover and Sump Detail

Very truly yours,

EMCON ASSOCIATES



Jack E. McCollough  
RG 1559  
REG 905

JEM:PV:1q

6 copies submitted

Fence

Building

33L

1

Loading Dock

Equipment Storage Shed

Warehouse

5S

8L

4L

6L

10L

9L

7

3

15

10

15

11S

19S

33

34

Recently Excavated Open Trench

32

18

31

20

30

23

29

24

28

25

27

26

Proposed Surface Storage Pond

Fence

NOTE: Not to Scale

# SCHEMATIC SITE PLAN



Location Morchhead, KY.

Checked By \_\_\_\_\_

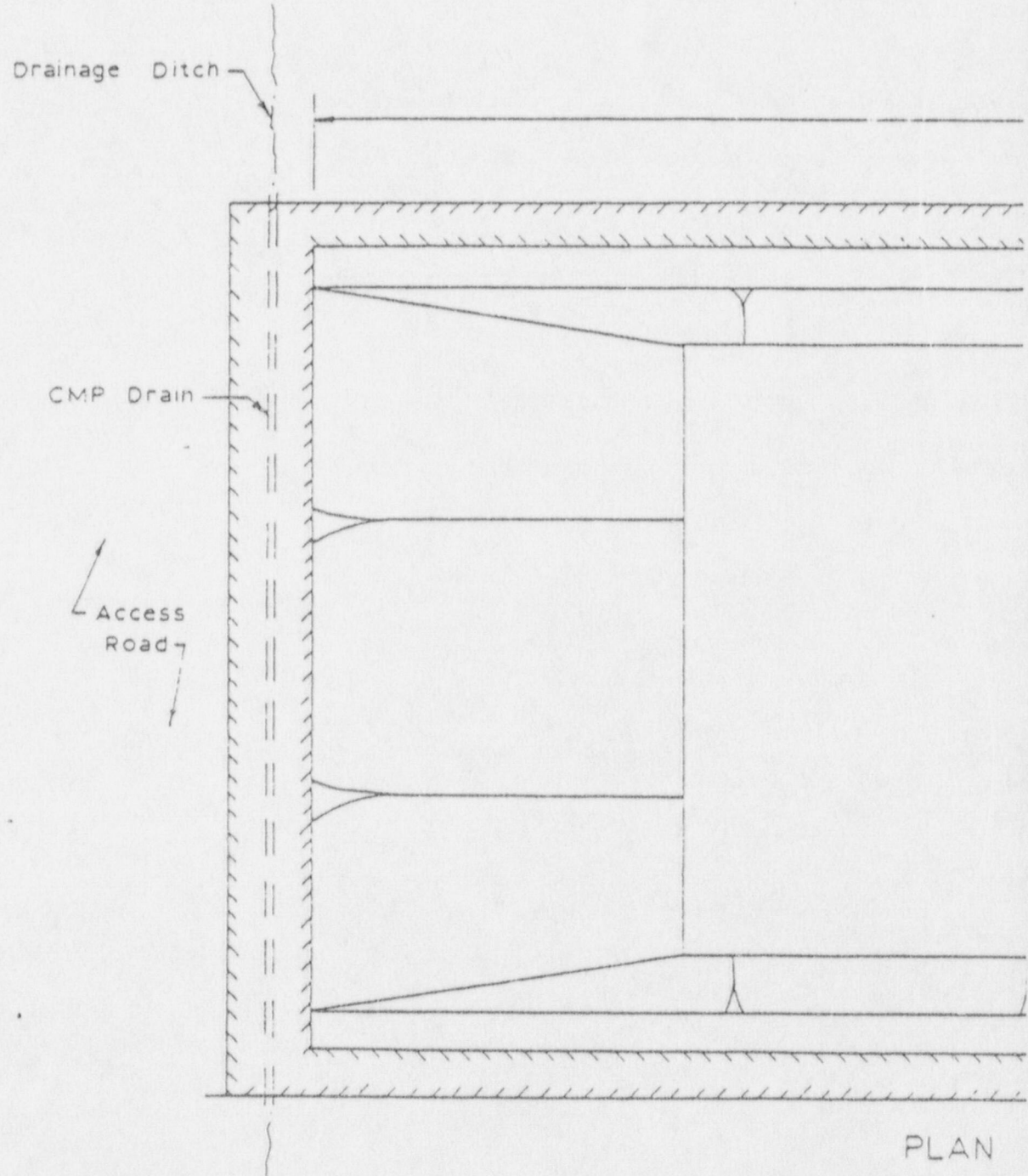
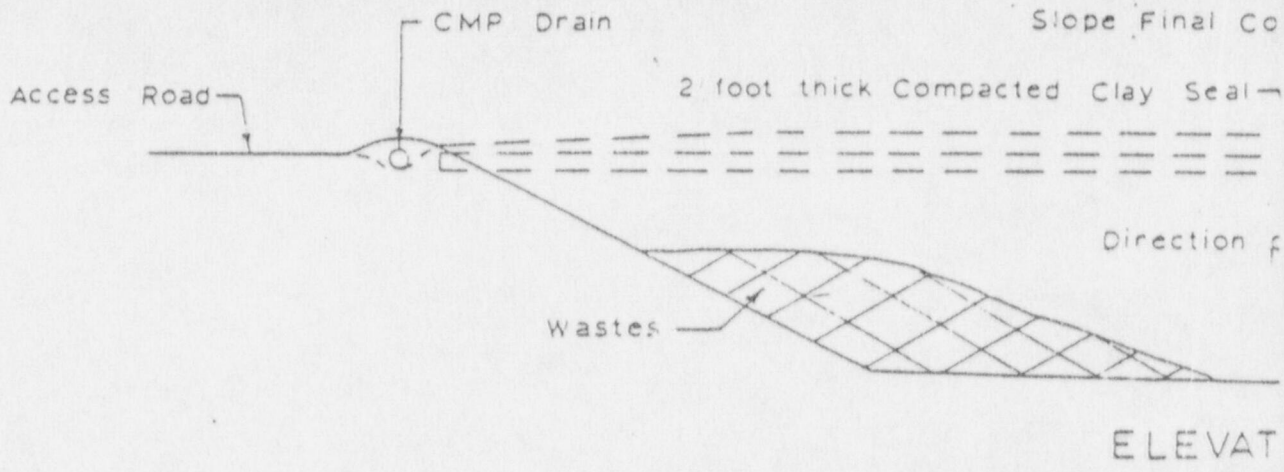
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Client NECO

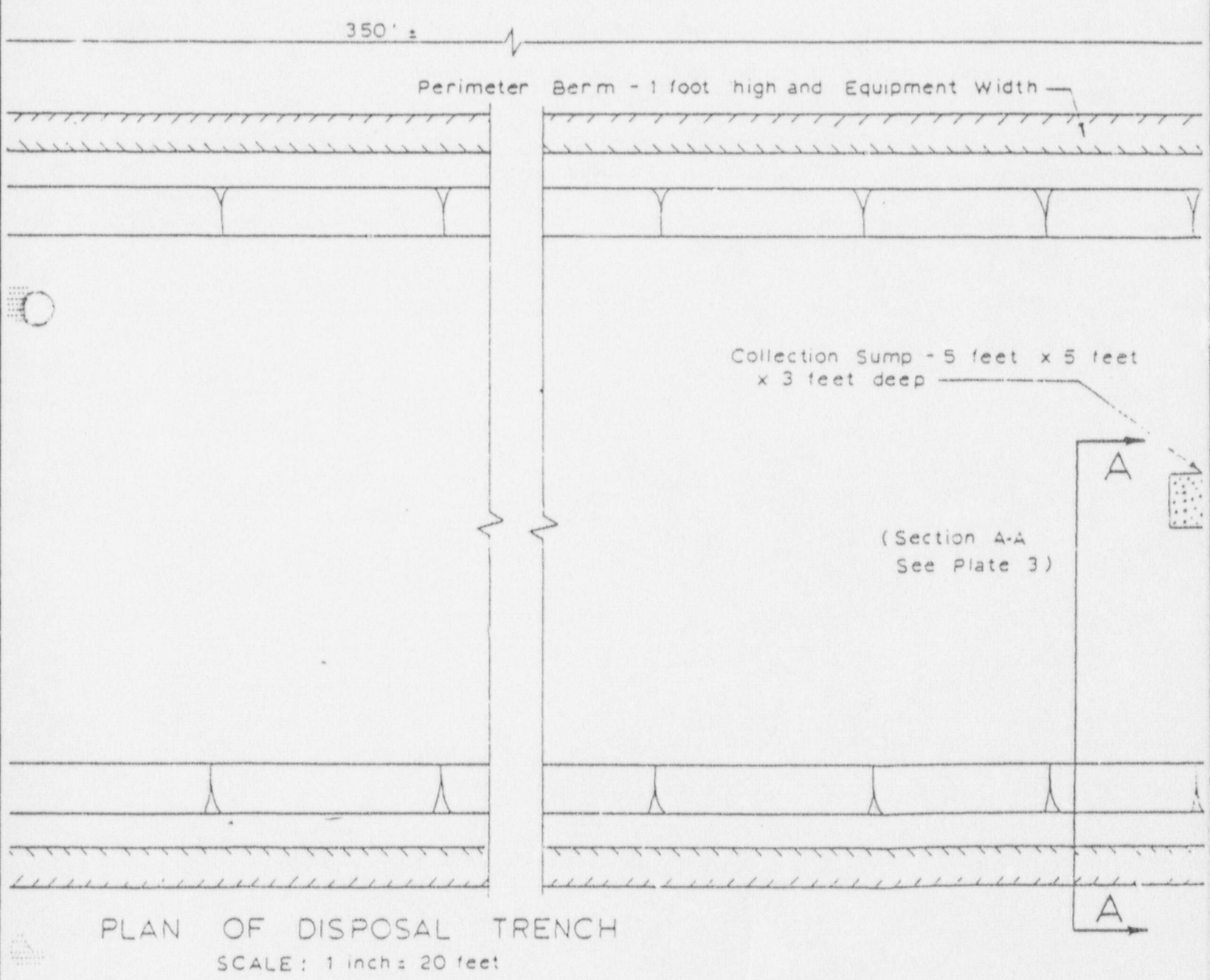
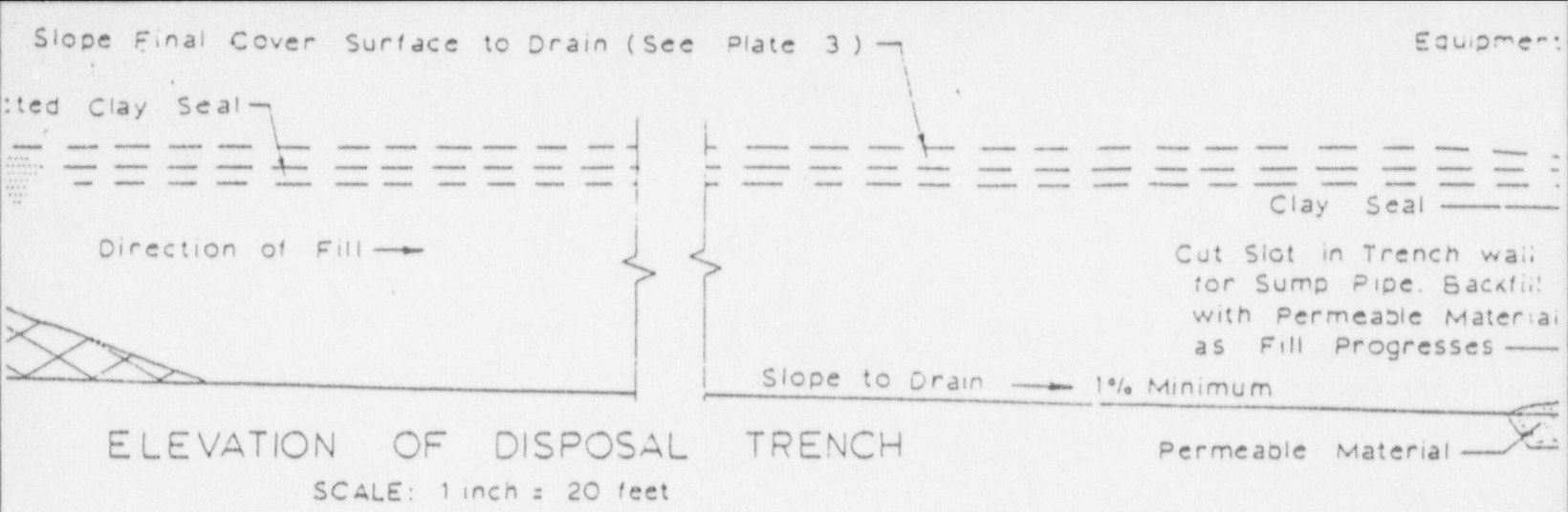
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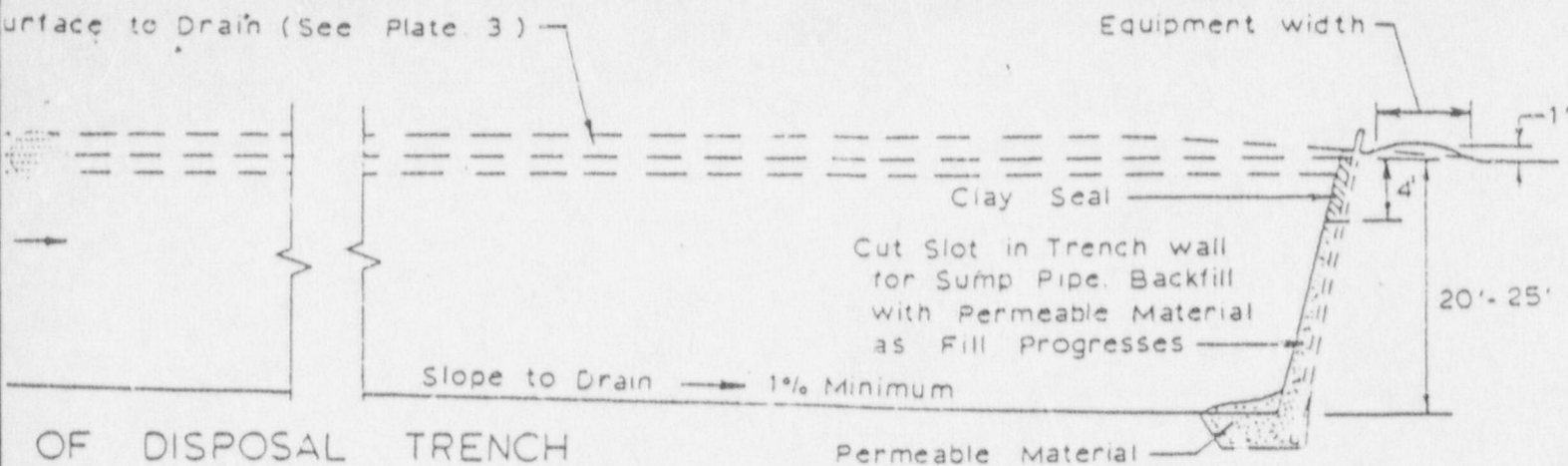
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Project Number 108-51 Client NECO Location Morehead, Ky



CONCEPTUAL

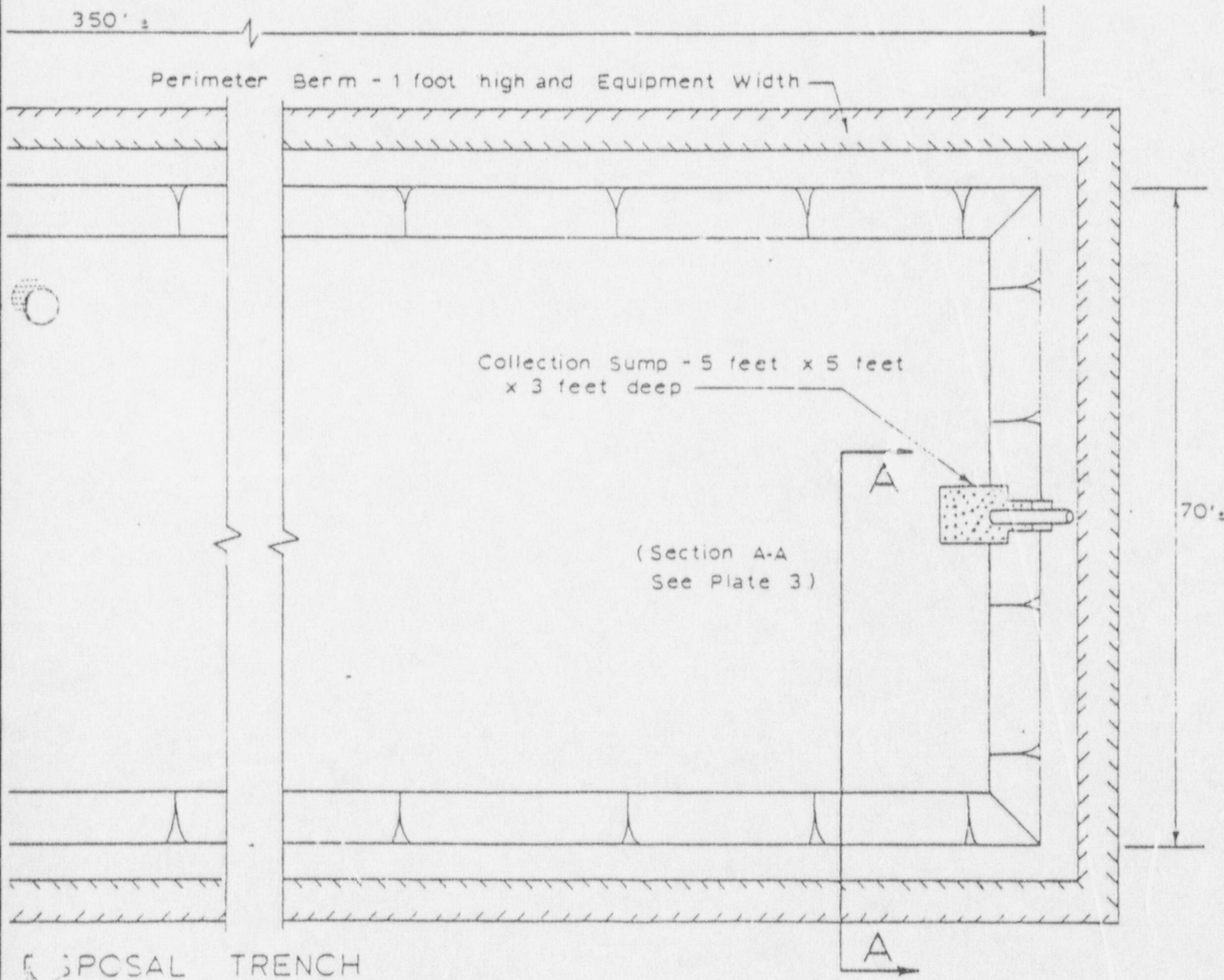


CONCEPTUAL PLAN OF DISPOSAL TRENCH CONSTRUCTION



OF DISPOSAL TRENCH

SCALE: 1 inch = 20 feet



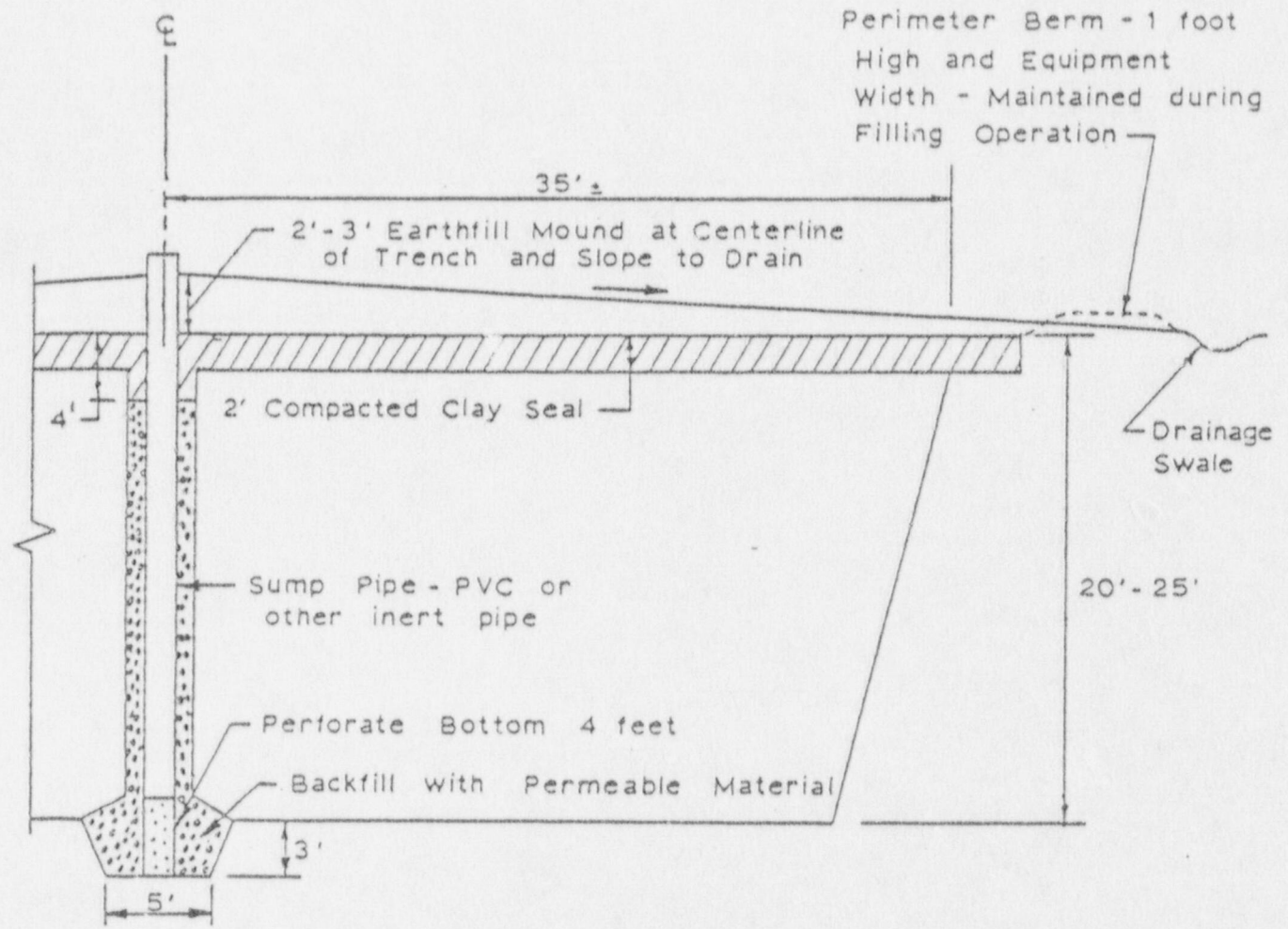
OF DISPOSAL TRENCH

SCALE: 1 inch = 20 feet

PLAN OF DISPOSAL TRENCH CONSTRUCTION



G.N.M. Date 5-72 Client NECO  
 Project Number 108-5.1 Checked By  
 Location Morehead, Ky.



SECTION A-A  
 SCALE: 1 inch = 10 feet

FINAL TRENCH COVER  
 AND SUMP DETAIL

