

MARTINSVILLE

LOW-LEVEL RADIOACTIVE WASTE DISPOSAL FACILITY

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MARTINSVILLE

LOW-LEVEL RADIOACTIVE WASTE DISPOSAL FACILITY

SITING

- Investigations as early as 1984
- March/June 1987 – Contacted 102 County Boards
 - Economic incentives
 - Up to 1 million dollars annually
 - Aid to:
 - Schools
 - Infrastructure
 - Health care
- 4 sq. miles (Will not go in if County Board says no)
- November 1987 Change in Management Act
 - X No low level radioactive waste disposal facility shall be located in or within 1 1/2 miles of the boundaries of any municipality unless approval is given by governing body of that municipality

- 15/21 counties left by end of 1987

- January 1988

January 11–12 Windshield Survey

January 14 4/21 counties left

January 21 Clark and Marshall County left

January 21 6:30 a.m. Meeting in Martinsville to approve Site
(even through Co. Board later said no)

- Politics not Science appeared to select Site (Both needed)
- Second Site, (Geff Site in Wayne County, Near Fairfield, Illinois) investigated, but dropped when Martinsville approved site.
- Low–Level Radioactive Waste Disposal Facility Siting Commission
 - Appointed June 1990
 - The Honorable Seymour Simon
 - Carolyn Raffensperger
 - William Hall
 - Funds for Concerned Citizens and PRO

Illinois Low-Level Radioactive Waste Management Act 1990 (Statutory Criteria)

Section 12 (b): The site shall meet all of the following criteria with respect to the facility of the proposed design:

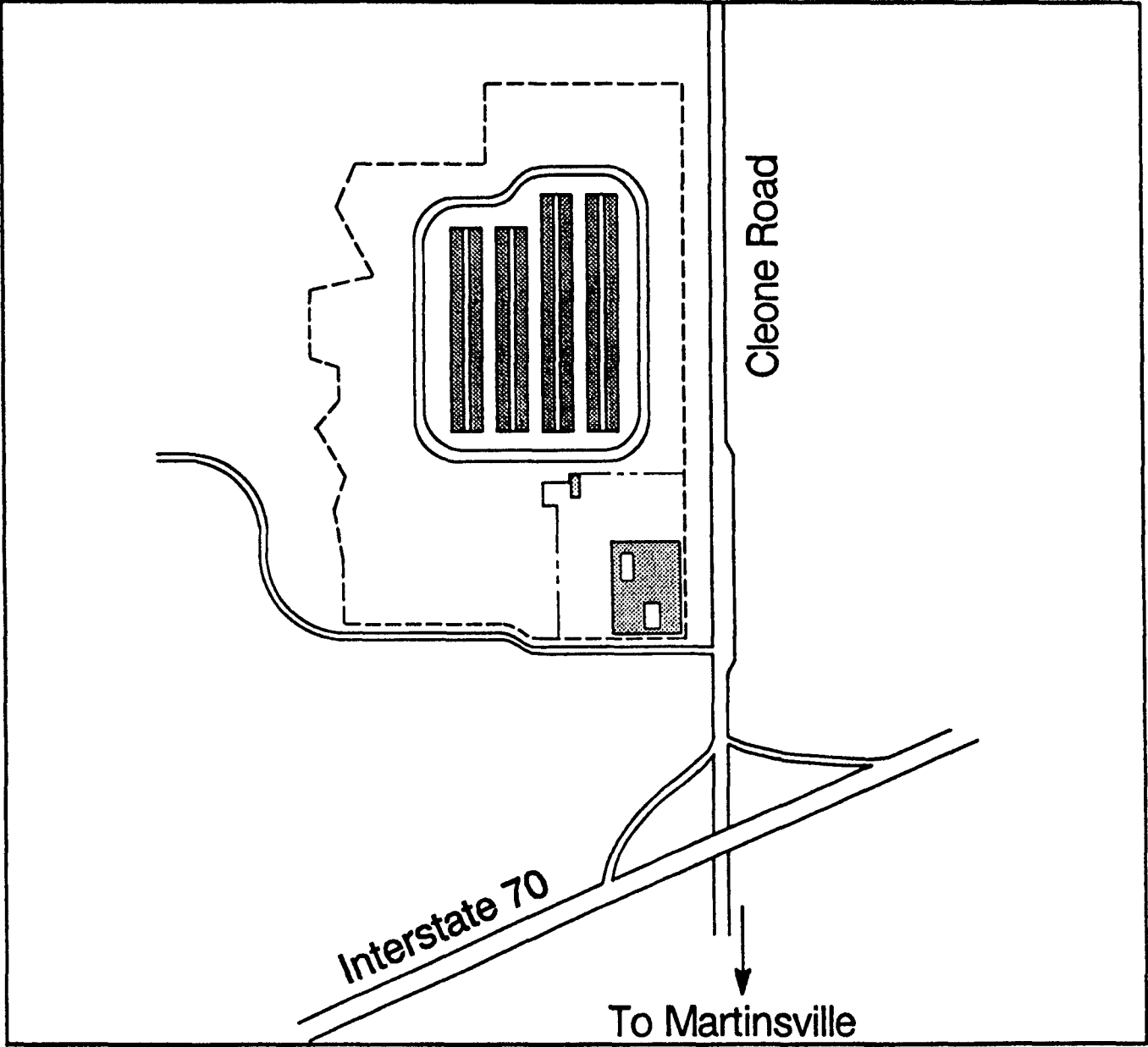
- (1) The site shall be located so that the public health, safety and welfare will be protected.
- (2) The site shall be located in a suitable geological and hydrological medium.
- (3) The site shall be located so as to minimize the possibility of radioactive releases into groundwaters utilized as public water supplies.
- (4) The site shall be located outside the boundary of the 100 year flood plain as determined by the Department of Transportation.
- (5) The site shall be located so as to consider the distance necessary for the transportation of low-level wastes and so that the impact on existing traffic flows is minimized.

(6) No low-level radioactive waste disposal facility shall be located in or within 1 1/2 miles of the boundaries of any municipality unless approval is given by the governing body of that municipality.

(7) No low-level radioactive waste disposal facility shall be located in an area of a county situated more than 1 1/2 miles beyond the boundaries of a municipality unless approval is given by the governing body of that county.

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- “Disposal” means the isolation of waste from the biosphere in a permanent facility designed for that purpose.

Martinsville Facility Site



GEOLOGY

Surficial Material 0–12' plus 0–9' upper sand

Vandalia Till, 0–35'

Fractured Vandalia Till, 5–130'

Sand Facies (Mulberry Grove), 0–35'

Smithboro Till (pre glaciation), 0–100'

Petersburg Silt, 0–45'

Basal Sand, 0–38'

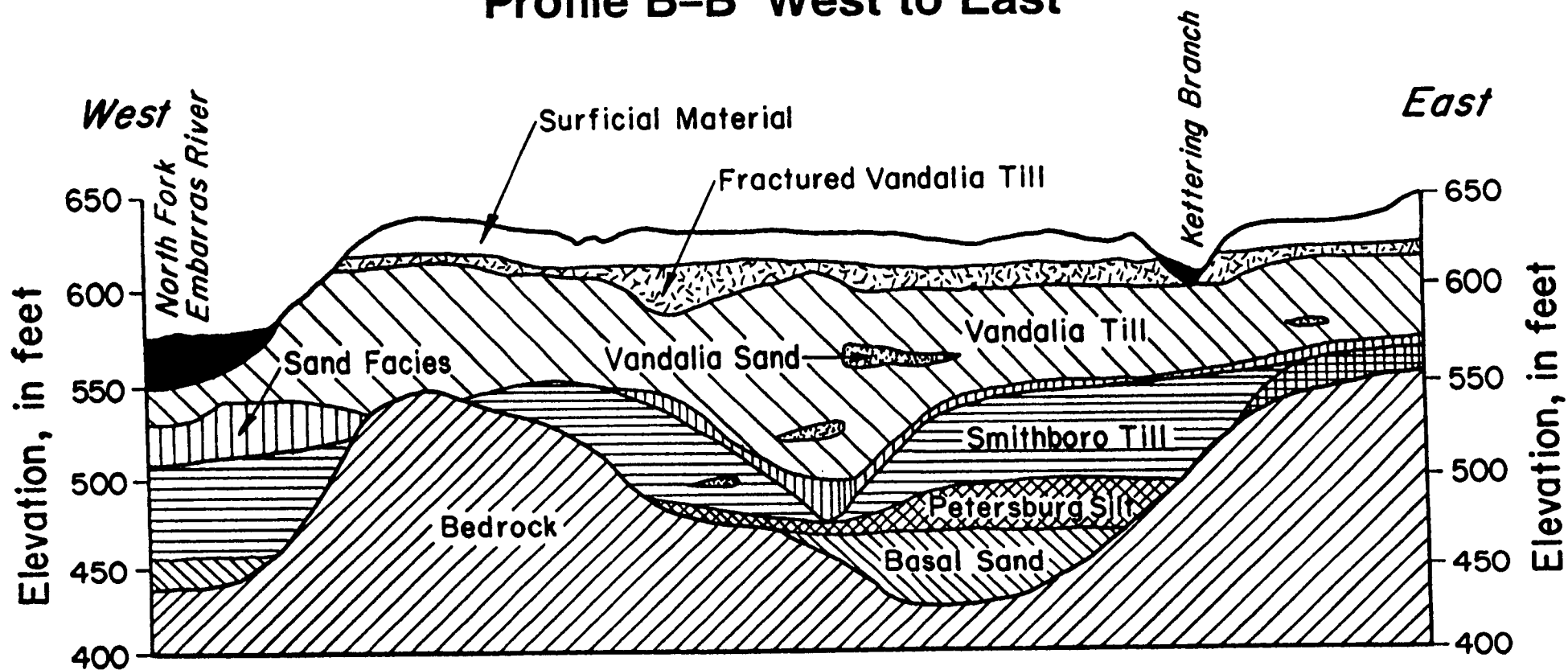
– (Discont. Clay, Silt, Sand)

Pre-Illinois Silt and Clay, 0–10'

Bedrock

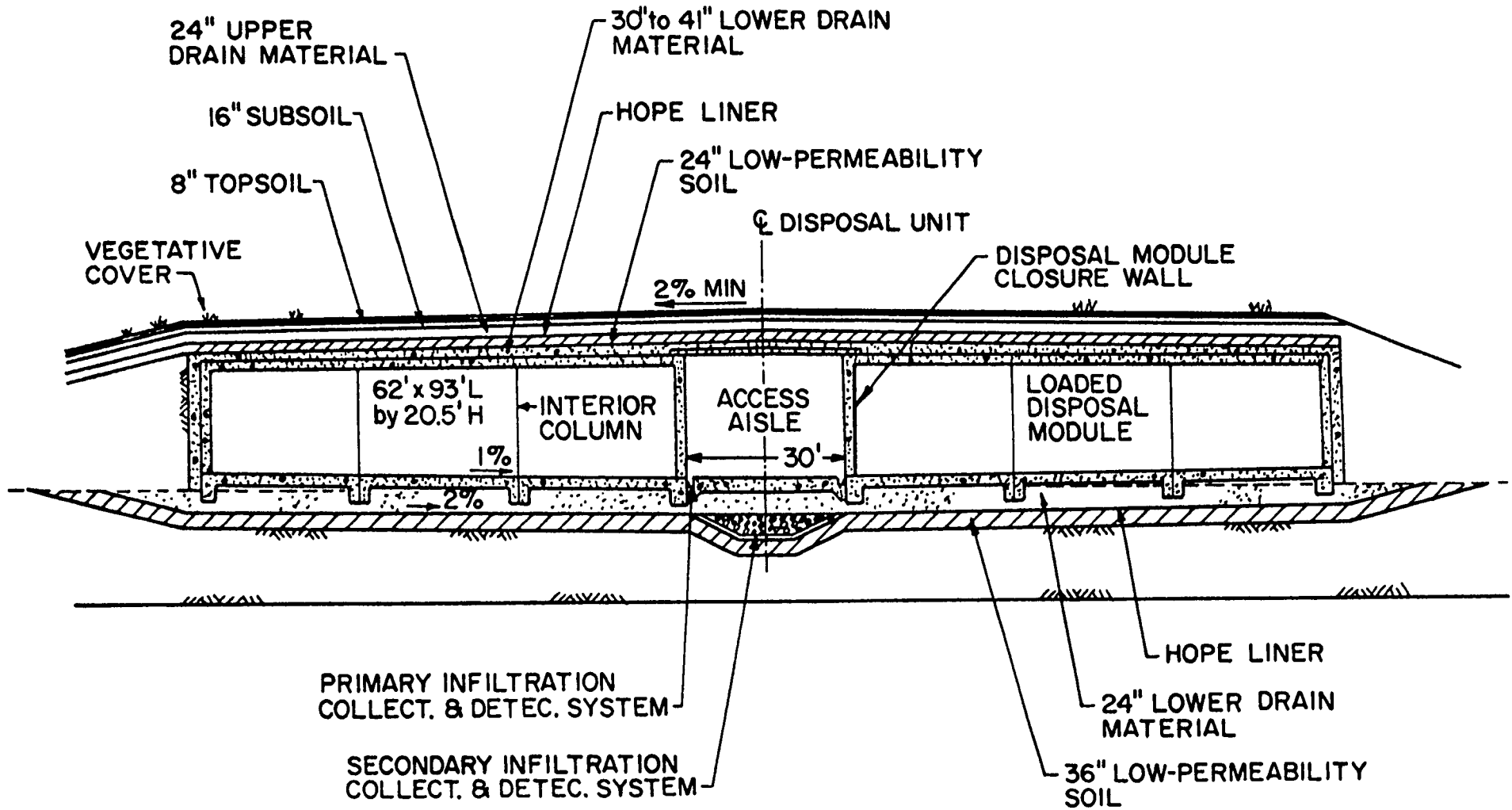
Geology

Profile B-B' West to East

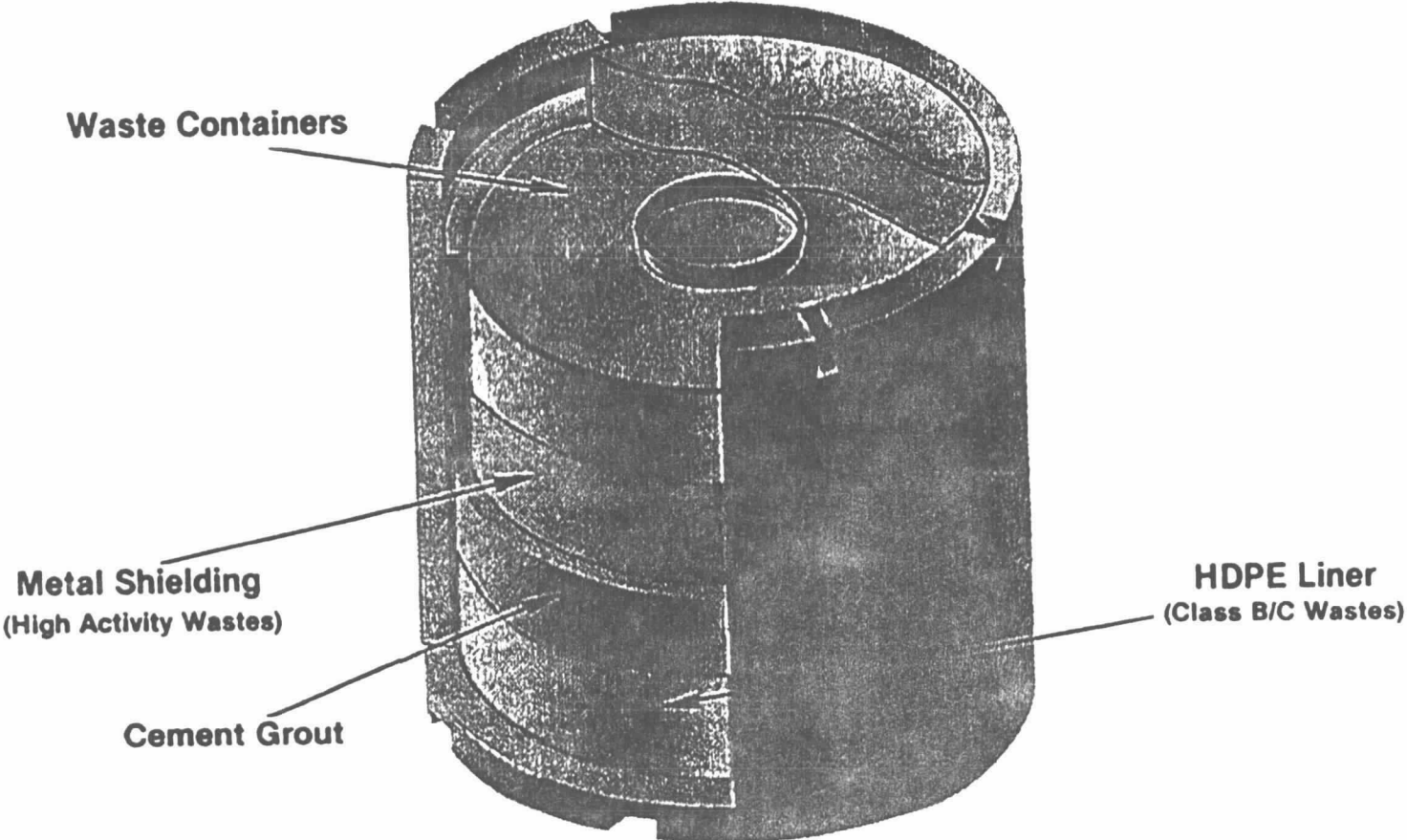


Horizontal Scale in Feet
Vert Exag = 20x

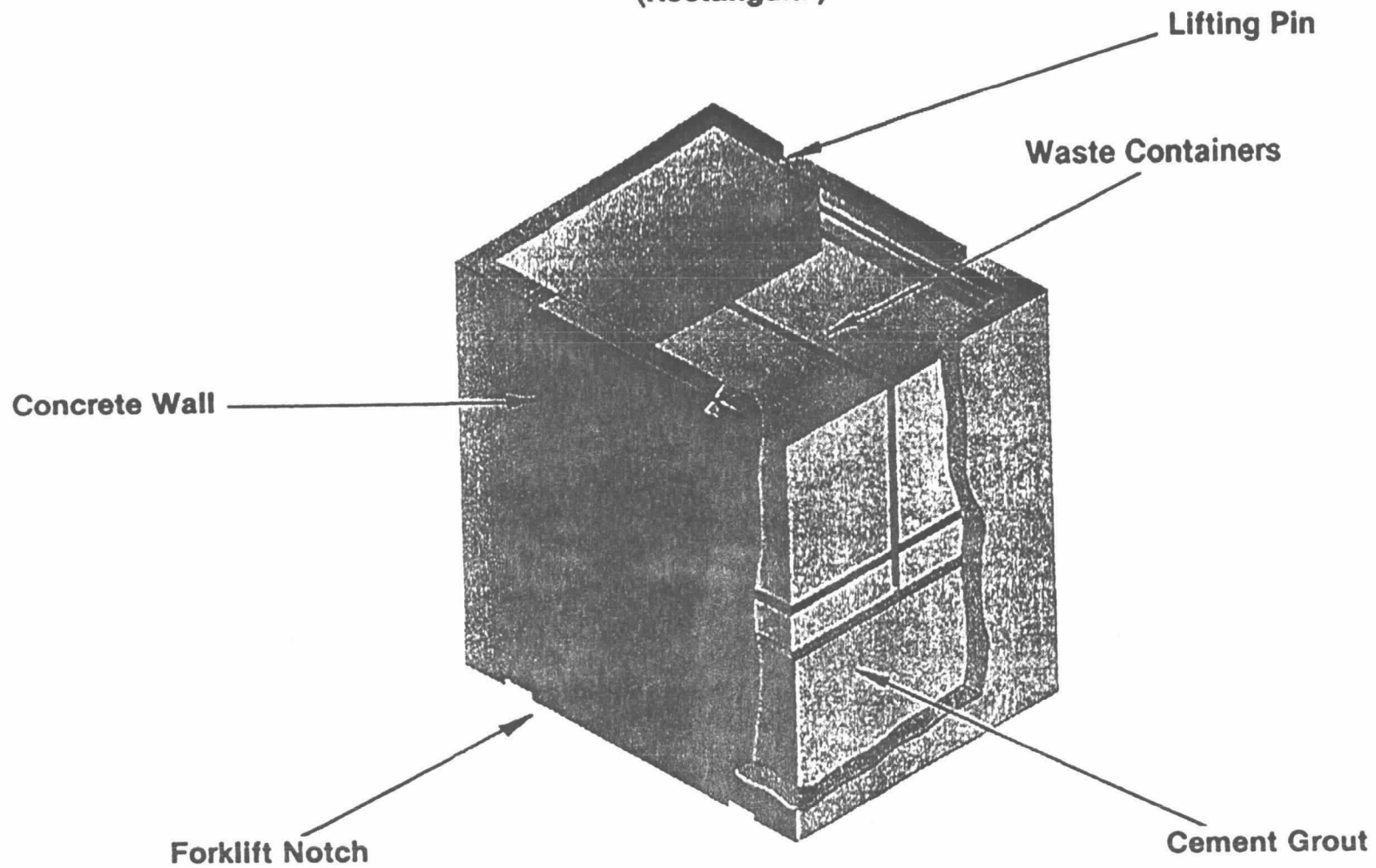
TYPICAL CROSS-SECTION OF DISPOSAL UNIT



**CONCRETE WASTE OVERPACK
(Cylindrical)**



**CONCRETE WASTE OVERPACK
(Rectangular)**



QUALITY CONTROL/QUALITY ASSURANCE

FLOOD PLAIN

GEOLOGY

SURFACE WATER

GROUNDWATER HYDROLOGY

SITE GEOCHEMISTRY

MODELING

EARTHQUAKES

- 500 year event MMI: VII-VIII 0.20 g
- MCE MMI: VIII 0.25 g

RADIOACTIVE WASTE

(0.48 to 2.4 million curies)

- Co – 60 (5.3 yr)
 - Cs – 137 (30.3 yr)
 - Ni – 63 (92 yr)
-
- Tc – 99 (2×10^5 yr)
 - I – 129 (1.7×10^7 yr)
 - C – 14 (5.7×10^3 yr)
 - Am – 241 (458 yr)

RADIOLOGICAL RISK ASSESSMENT

LONG-TERM HEALTH EFFECTS

OBSERVATIONS

- **Public Trust and Public Confidence**
- **Public Health, Welfare and Safety**
- **Perceived Risk (Public and Others)**
- **Political and Technical Issues**
- **Schedules (Realistic)**
- **Quality Assurance/Quality Control**
- **Minimize Uncertainties (Source Term, Site, Facility, Operation)**
- **Long-Term Health Issues**
- **Site Characteristics**
- **Facility Characteristics**
- **Management**
- **Monitoring**
- **Independent Review**