

Portsmouth Gaseous Diffusion Plant
Waste Disposition Evaluation Project
Discussion Regarding Sites for a
Potential On-Site Disposal Cell and
Waste Acceptance Criteria

SSAB Waste Disposition Subcommittee
January 11, 2011



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Siting and WAC Discussion

- SSAB Siting Criteria Recommendations
- Disposal Cell Design
- WAC Overview
- WAC development process
- Sites currently being evaluated
- Pros and Cons of current sites



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SSAB Recommendation

- Minimize footprint and impact on “greenfields” and areas of potential reuse
- Potential for smaller cells and use/reuse of existing landfills
- Consider cultural resources and blend with existing terrain thus seeking areas not suitable for other reuse applications
- No offsite material
- Remediation of areas in conjunction with a disposal cell
- Additional community education to local stakeholders
- Community benefit land waste management plan
- Site’s impact should be CERCLA regulated



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Onsite Disposal Objectives

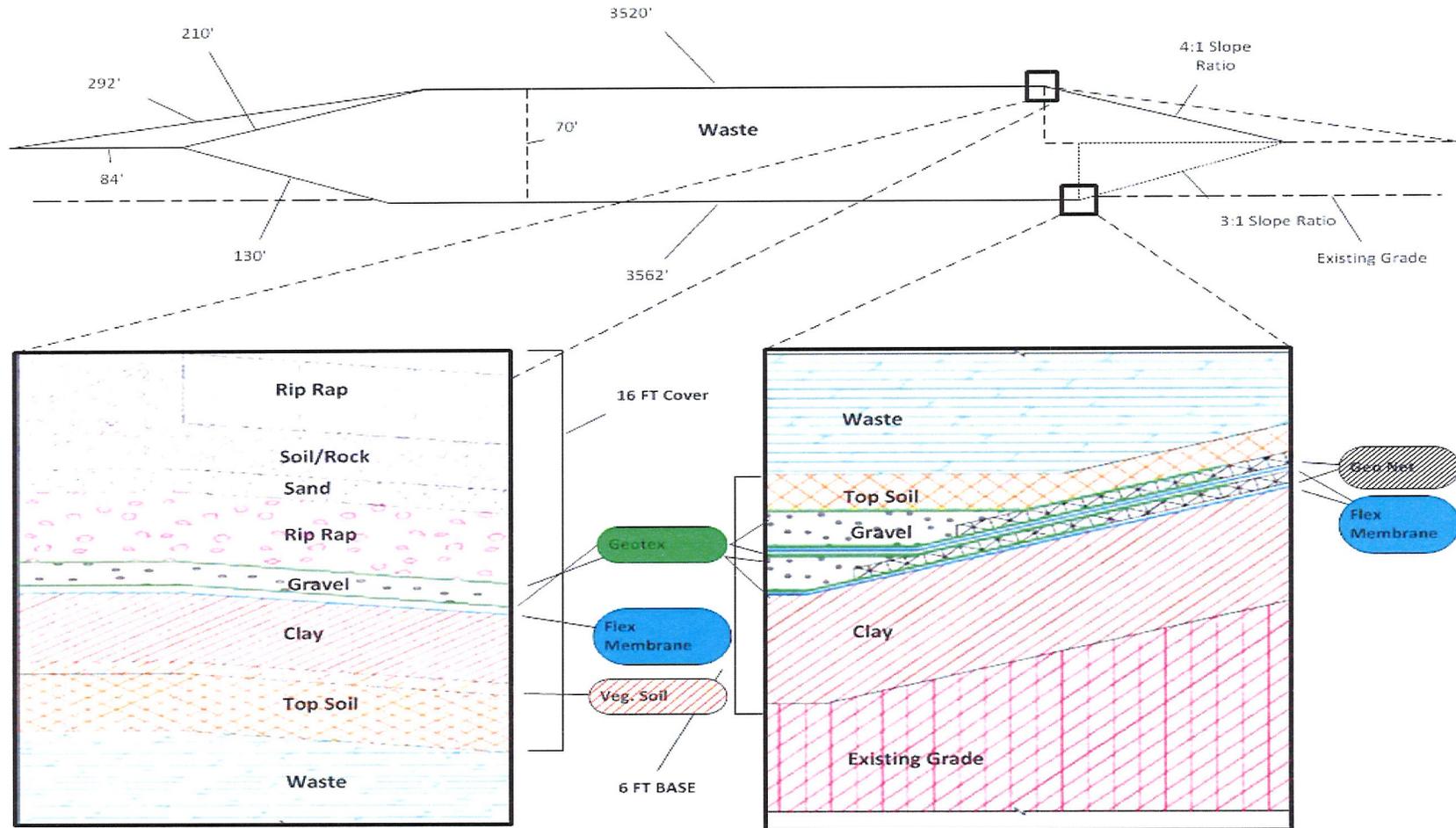
- Cost effective disposal of waste from D&D
- Safe
 - Workers
 - Public
- Compliant
 - Ohio/US EPA regulations
- Achieved through
 - Facility design
 - Waste Acceptance Criteria (WAC)



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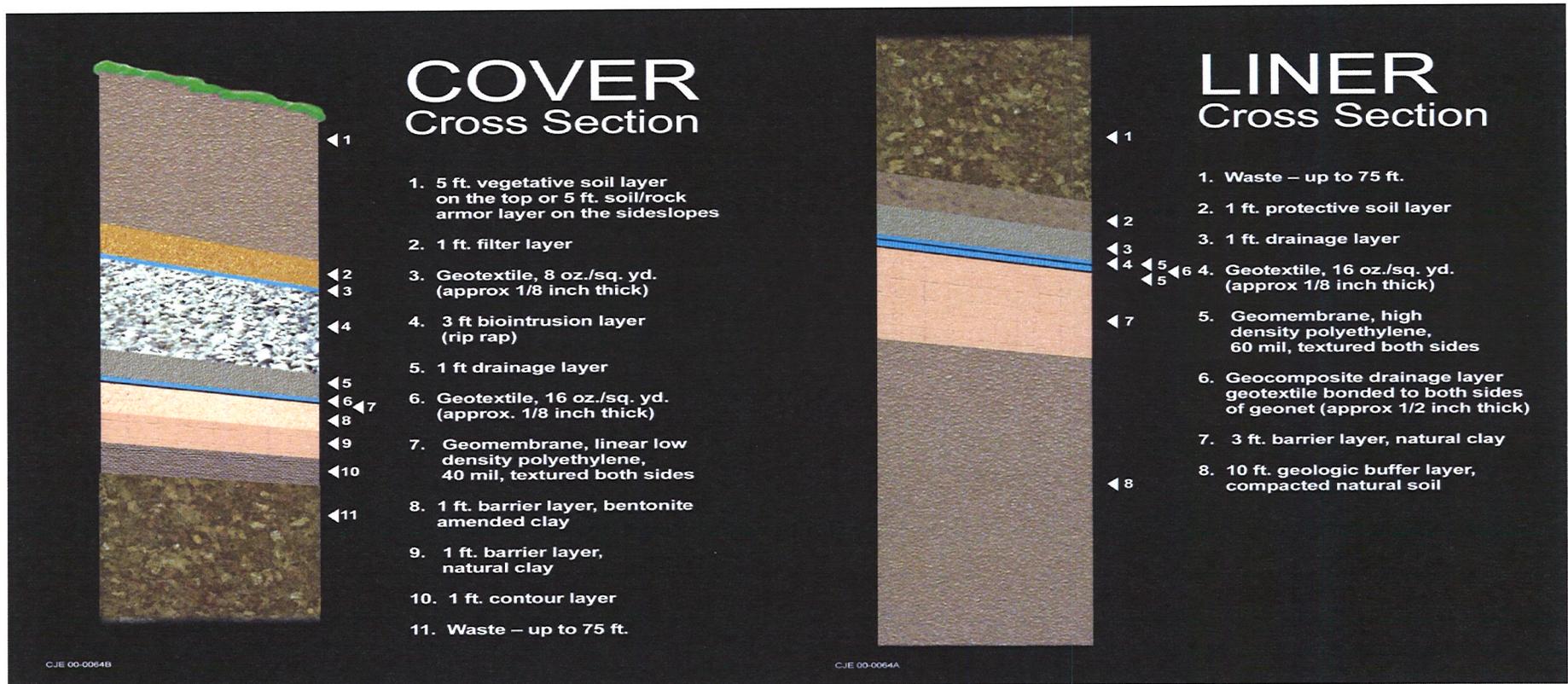
Typical Cell Design



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Disposal Cell Design



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Aspects Affecting Design

- Disposal cell requires:
 - Waste footprint
 - Support (i.e., infrastructure) footprint
- Volume of waste drives waste footprint and overall waste height
- Fill requirements (i.e., soil to dispose with debris) also affects area



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WAC Overview

- Disposal cell location, design and operation influence overall protectiveness
- Waste Acceptance Criteria (WAC) define what can be disposed and how
- WAC categories
 - Administrative (e.g, no non-PORTS waste)
 - Physical (e.g, maximum length of 12 feet)
 - Analytical (e.g., 2,000 pCi/g U-238)



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Analytical WAC

- Define maximum concentrations of constituents that can be disposed on site
- Based on
 - Conceptual Site Model (i.e., receptors, exposure pathways, etc.)
 - Migration of constituents from the waste mass to point of exposure associated with selected site
 - Fate and transport modeling (infiltration rate, release rates, hydrogeologic characteristics, etc.)



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Conceptual Site Model for Potential Portsmouth On-Site Disposal Cell

1. Source Estimate

2. Infiltration / leaching rate through waste

3. Leaching rate to Saturated Zone

4. Lateral migration rate through Saturated Zone

5. Leachate runoff to surface water

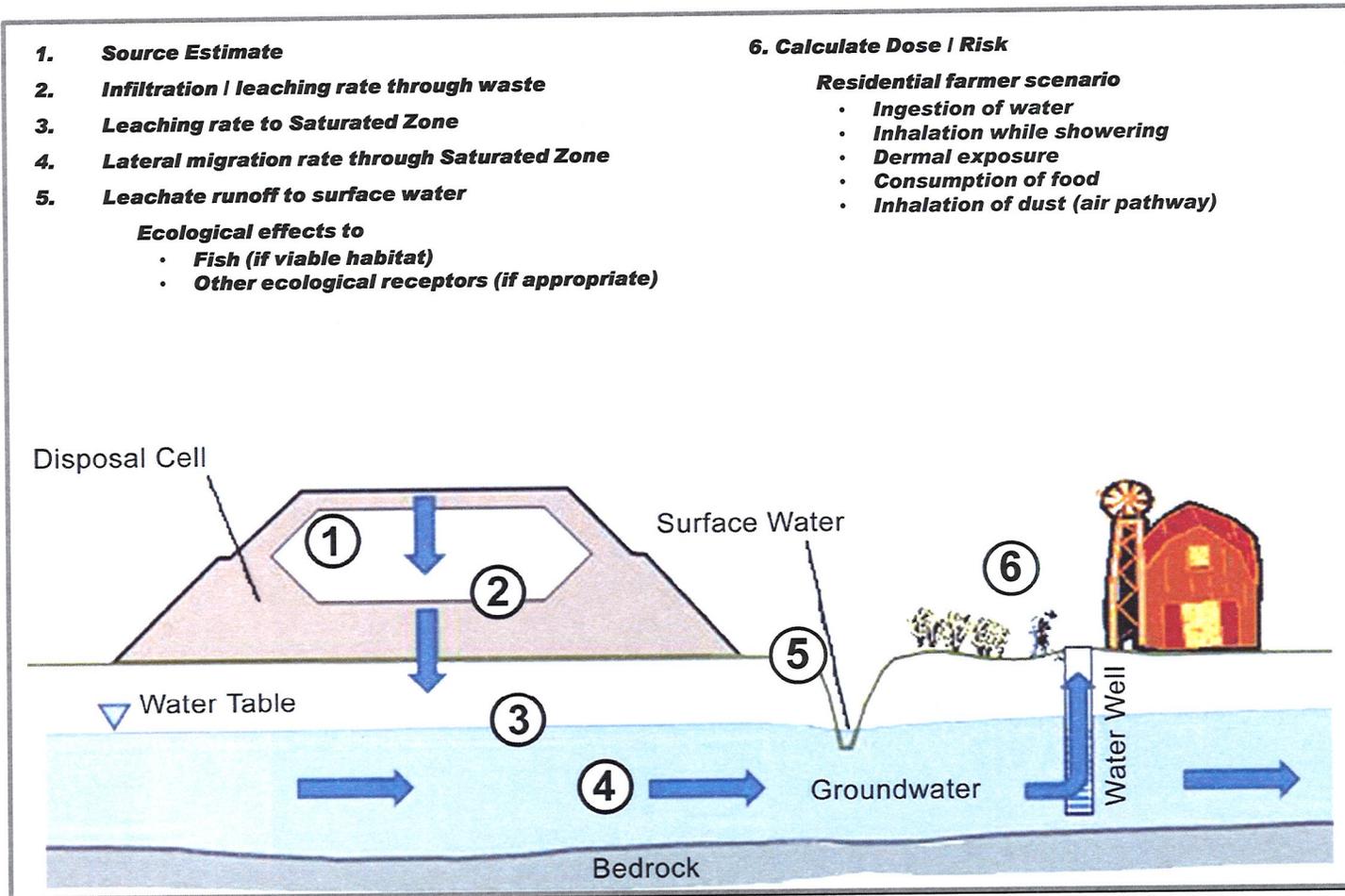
Ecological effects to

- **Fish (if viable habitat)**
- **Other ecological receptors (if appropriate)**

6. Calculate Dose / Risk

Residential farmer scenario

- **Ingestion of water**
- **Inhalation while showering**
- **Dermal exposure**
- **Consumption of food**
- **Inhalation of dust (air pathway)**



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WAC Development Process

- Step 1. Determine hypothetical receptor
- Step 2. Establish “acceptable risk” levels
- Step 3. Develop models
- Step 4. “Back-calculate” WAC



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Purpose of Preliminary WAC?

- Preliminary WAC is developed for initial evaluation in the RI/FS
 - Establishes process for modeling and calculating final WAC
 - Provides a basis for determination of approximate volume of waste acceptable for disposal
 - Allows evaluation of the cost breakpoint to determine if an on-site disposal facility is economically viable
 - Factors in the evaluation of different PORTS locations



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Preliminary WAC Conservatism Considerations

- Assumes resident farmer living on PORTS
- Assumes groundwater use from region not normally used for drinking water wells (low yield)
- Not taking credit for man-made cap and liner components (i.e., compacted clay only)



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Sites Currently Being Evaluated

- Map showing three areas being considered during preliminary WAC development
- Each have unique characteristics which affect analytical WAC



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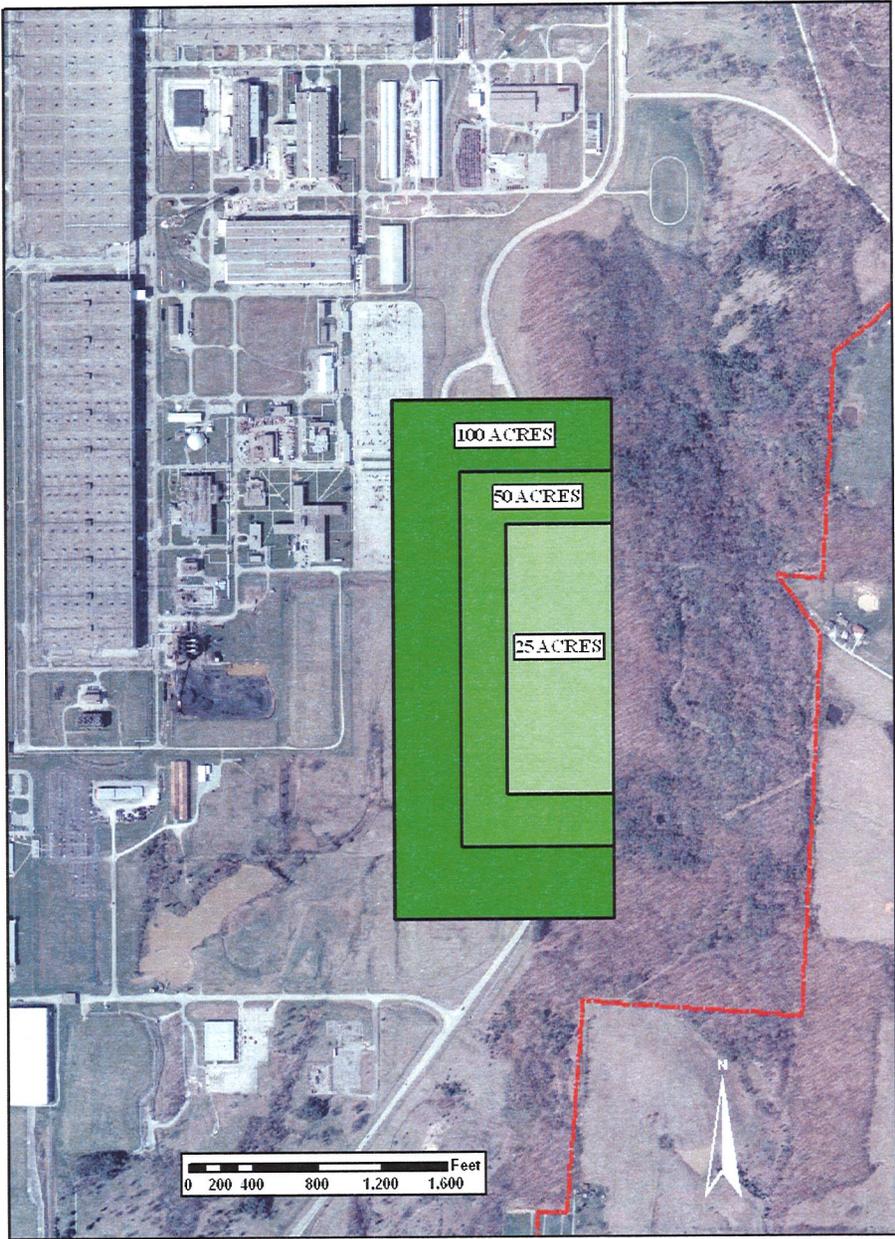
Northern Site



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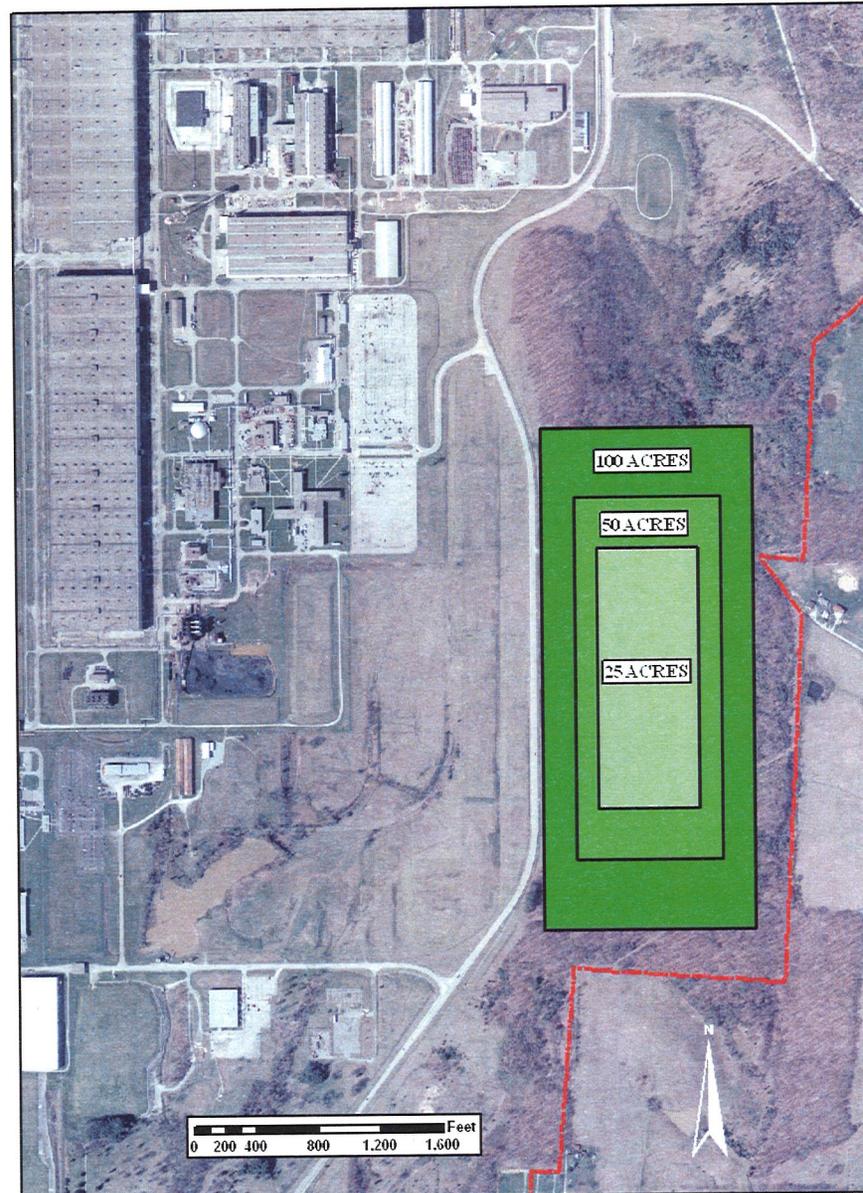
Landing Strip (southern site)



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Hilltop Site



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Site Comparison

- Northern Site

Pros: close to Process Bldgs (less transportation), in Brownfield area, flat area

Cons: nearby surface water, in center of site and potential redevelopment area, conflicts with SODI request for 1,300 acres, requires waiver of regulation (TSCA requirement)



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Site Comparison

- Landing Strip

Pros: least site preparation, blends into hillside, greater distance to surface water

Cons: in area of potential development, would require relocating road, in greenfield, requires waiver



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Site Comparison (continued)

- Hilltop

Pros: no TSCA waiver needed, most protective of groundwater, least impact to human health

Cons: most visible, requires most site preparation, heavily wooded, near site boundary



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SSAB Recommendation

- Have any potential sites been overlooked?
- Are there preferences for any particular site?



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