U.S. DEPARTMENT OF ENERGY
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

PRESENTATION TO THE NUCLEAR WASTE TECHNICAL REVIEW BOARD

SUBJECT: REPOSITORY DESIGN CONSIDERATIONS

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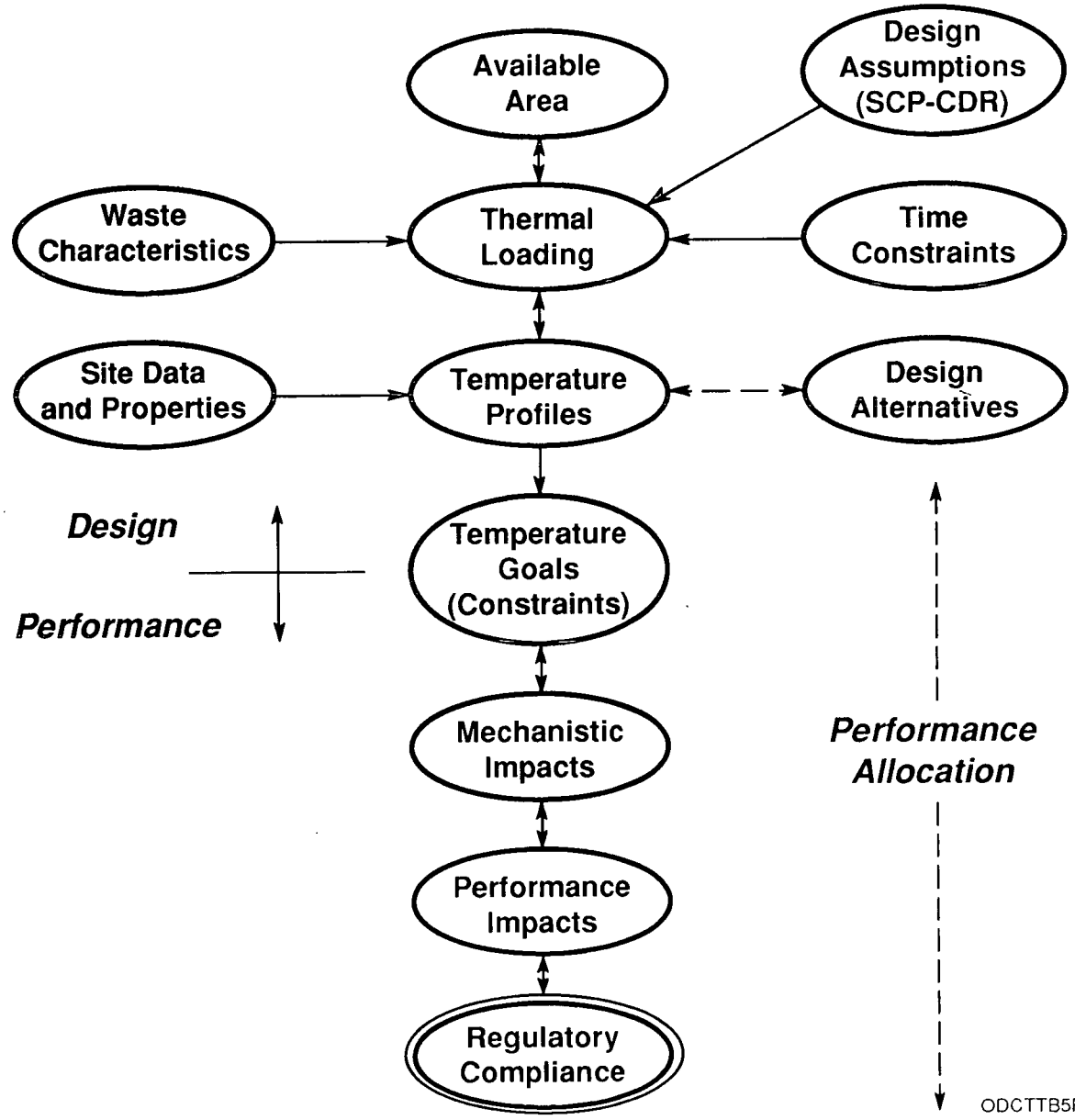
Outline

- SCP approach
- Possible changes
- Plans

SCP Approach



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SCP Temperature Goals

Goal	Possible Effect on Design
t < 200° C one meter from borehole wall	Vary package loading, borehole and drift spacing; limit APD
t < 275° C at borehole wall and t < 350° C at container centerline	Vary package loading, borehole and drift spacing; limit APD
Δ t < 6° C on surface and surface uplift < 0.5 cm/yr	Limit APD
No intact rock failure or continuous joint slip	Limit APD
Local saturation < 90%	Limit usable area
Borehole walls above boiling > 300 yrs	Raise package loading and APD
t < 115° C in TSw3, CHnz, and CHnv	Limit APD

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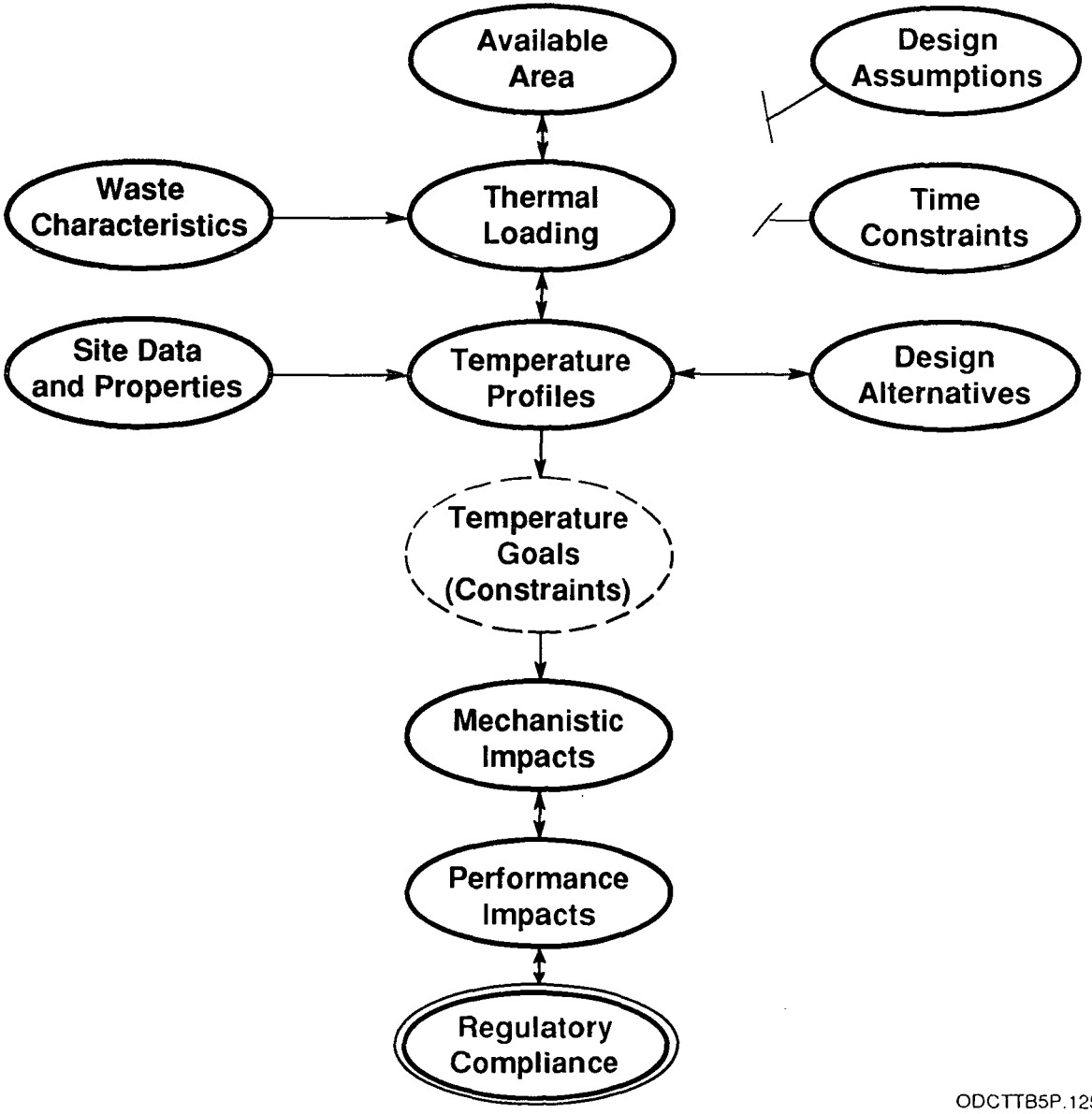
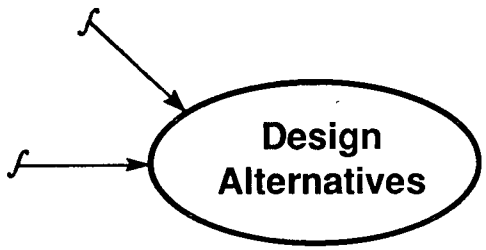
Alternative Approach



Design Alternatives



Alternative:

Ventilation Concepts

Layouts

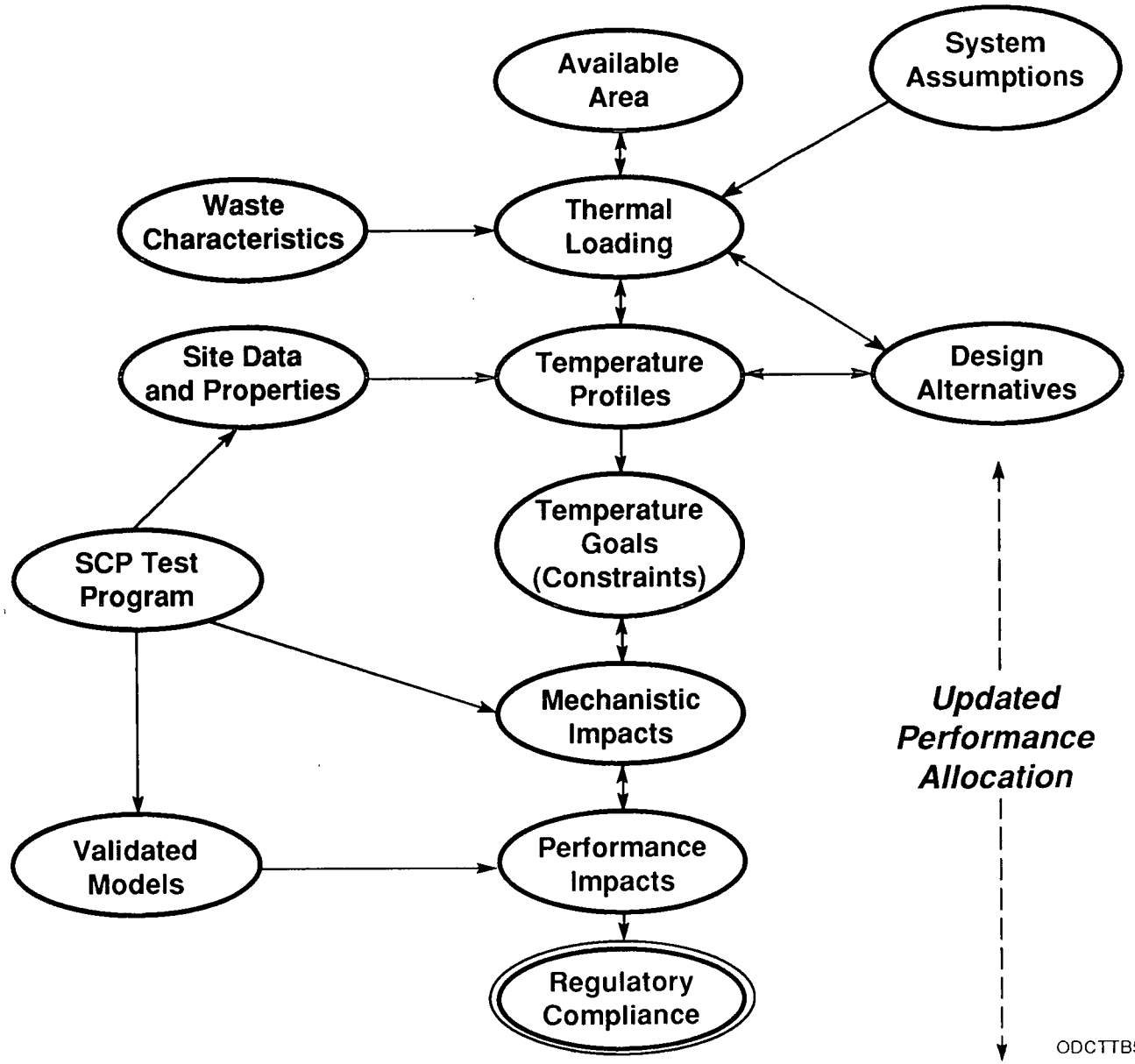
Emplacement Modes

Waste-Package Concepts

Backfill Concepts

Operational Approaches
- Emplacement Schedules
- Waste Treatment
- Comingling Strategies
- Consolidation Strategies

Planned Approach



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Proposed Plans Through ACD

Conduct mechanistic studies where appropriate

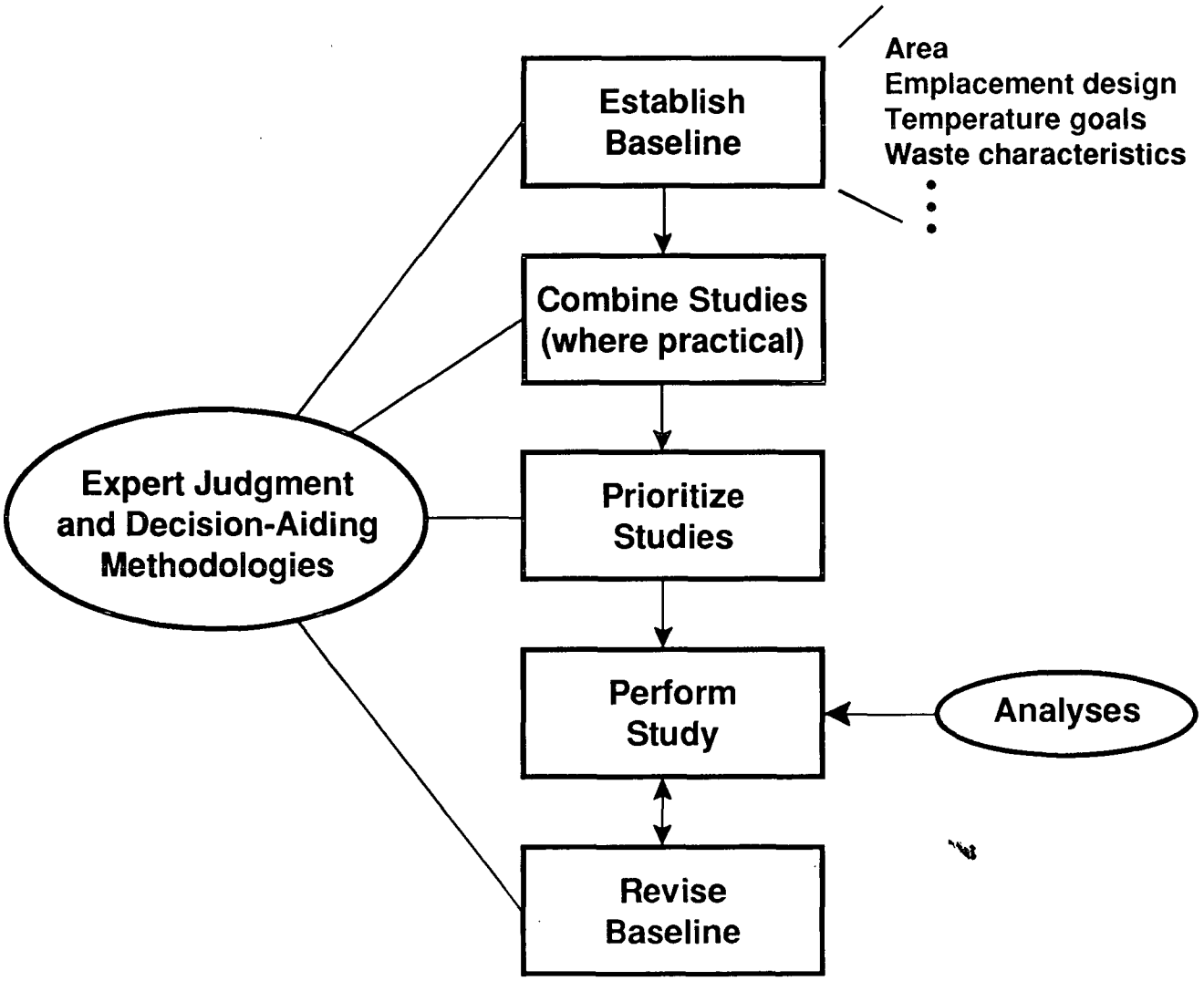
Update temperature goals recognizing:

- Uncertainties in impacts & benefits
- Prudence of early conservatism
- Improved understanding of mechanisms
- Improved performance models

Develop boundaries of design alternatives

Perform design studies

Design Studies



Design Studies

- Update temperature constraints/goals (input to ACD)
- Perform studies during advanced conceptual design that lead to detailed design during LAD