

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

**NUCLEAR WASTE TECHNICAL REVIEW BOARD
FULL BOARD MEETING**

**SUBJECT: SITE CHARACTERIZATION
FIELD ACTIVITIES IN PROGRESS**

PRESENTER: DENNIS R. WILLIAMS

**PRESENTER'S TITLE
AND ORGANIZATION: CHIEF, SITE INVESTIGATIONS BRANCH
DEPARTMENT OF ENERGY
YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT
LAS VEGAS, NEVADA**

**PRESENTER'S
TELEPHONE NUMBER: (702) 794-7968**

**LAS VEGAS, NEVADA
OCTOBER 19-20, 1993**

Site Characterization Field Activities in Progress

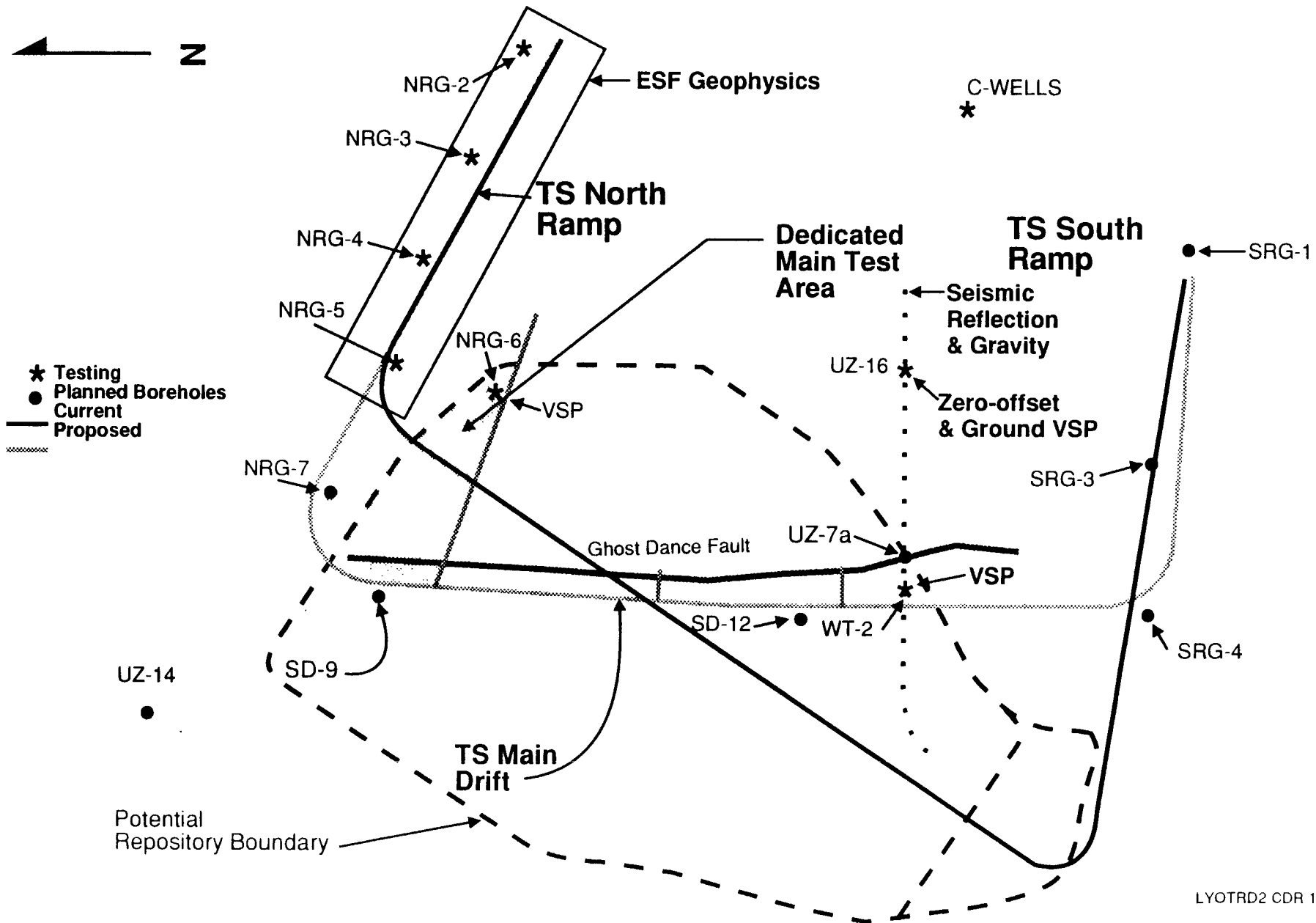
<u>SCP Study</u>	<u>Title</u>	<u>Activity</u>
8.3.1.3.2.1	Mineralogy, Petrology, and Rock Chemistry of Transport Pathways	ESF Sampling
8.3.1.3.2.2	Mineralogic and Geochemical Alteration	ESF Sampling
8.3.1.4.2.2	Structural Features within Site Area	Surface & ESF Mapping
8.3.1.8.5.1	Characterization of Volcanic Features	Test Pits, Trenching
8.3.1.14.2	Soil and Rock Properties of Potential Location of Surface Facilities	Text Pits, Trenching, Ramp Exploration Holes
8.3.1.17.4.2	Location and Recency of Faulting Near Prospective Surface Facilities	Trench Logging
8.3.1.17.4.3	Quaternary Faulting within 100 km of Yucca Mtn.	Surface Mapping
8.3.1.17.4.4	Quaternary Faulting in NE-Trending Fault Zones	Surface Mapping
8.3.1.17.4.6	Quaternary Faulting within Site Area	Trench Logging
8.3.1.2.1.1	Precipitation and Meteorological Monitoring for Regional Hydrology	Ongoing Measurements
8.3.1.2.1.2	Runoff and Streamflow	Ongoing Measurements

Site-Characterization Field Activities in Progress

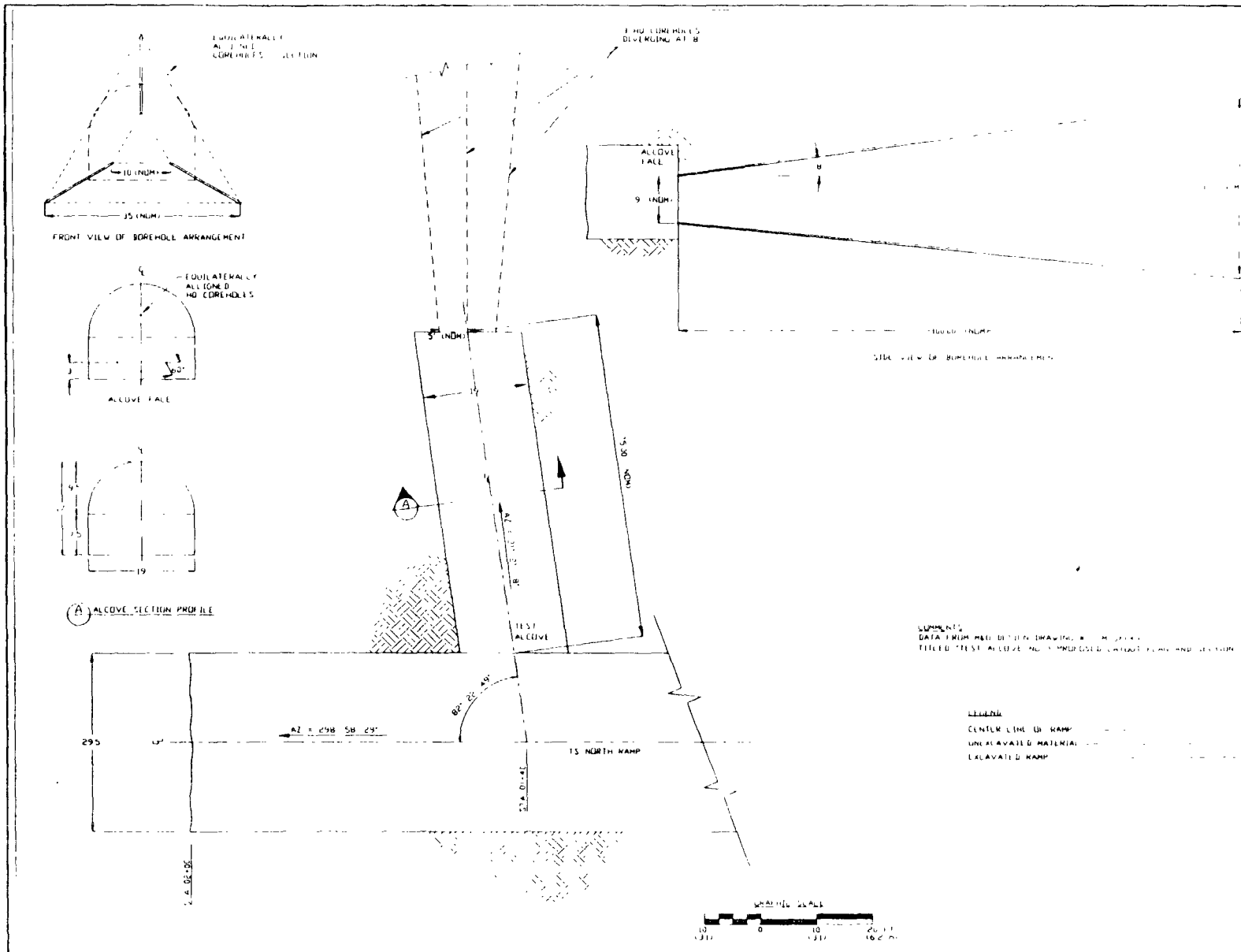
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<u>SCP Study</u>	<u>Title</u>	<u>Activity</u>
8.3.1.4.2.1	Characterization of Vertical/Lateral Distribution of Stratigraphic Units in Site Area	Core Logging Ongoing
8.3.1.2.1.3	Regional Ground-water Flow System	Ongoing Monitoring
8.3.1.2.2.1	Unsaturated Zone Infiltration	Drilling/Logging of Neutron-Access Holes; Ponding Tests
8.3.1.2.2.2	Water Movement Tracer Tests	CI-36 Measurements
8.3.1.2.2.3	Percolation in the Unsaturated Zone	UZ Drilling/Testing
8.3.1.2.2.4	Unsaturated Zone in the ESF	Test Alcove #1
8.3.1.2.2.6	Gaseous Phase Movement in the Unsaturated Zone	UZ Drilling/Testing
8.3.1.2.2.7	Unsaturated Zone Hydrochemistry	UZ Drilling/Testing
8.3.1.2.3.1	Site Saturated Zone Ground-water Flow System	Ongoing Monitoring
8.3.1.2.3.2	Saturated Zone Hydrochemistry	Ongoing Monitoring
8.3.1.15.1.8	<i>In Situ</i> Design Verification	Construction Monitoring/ Testing

Current and Proposed ESF Alignment and FY94 Proposed Drilling and Testing Programs



Test Alcove #1 Proposed Layout Plan and Section



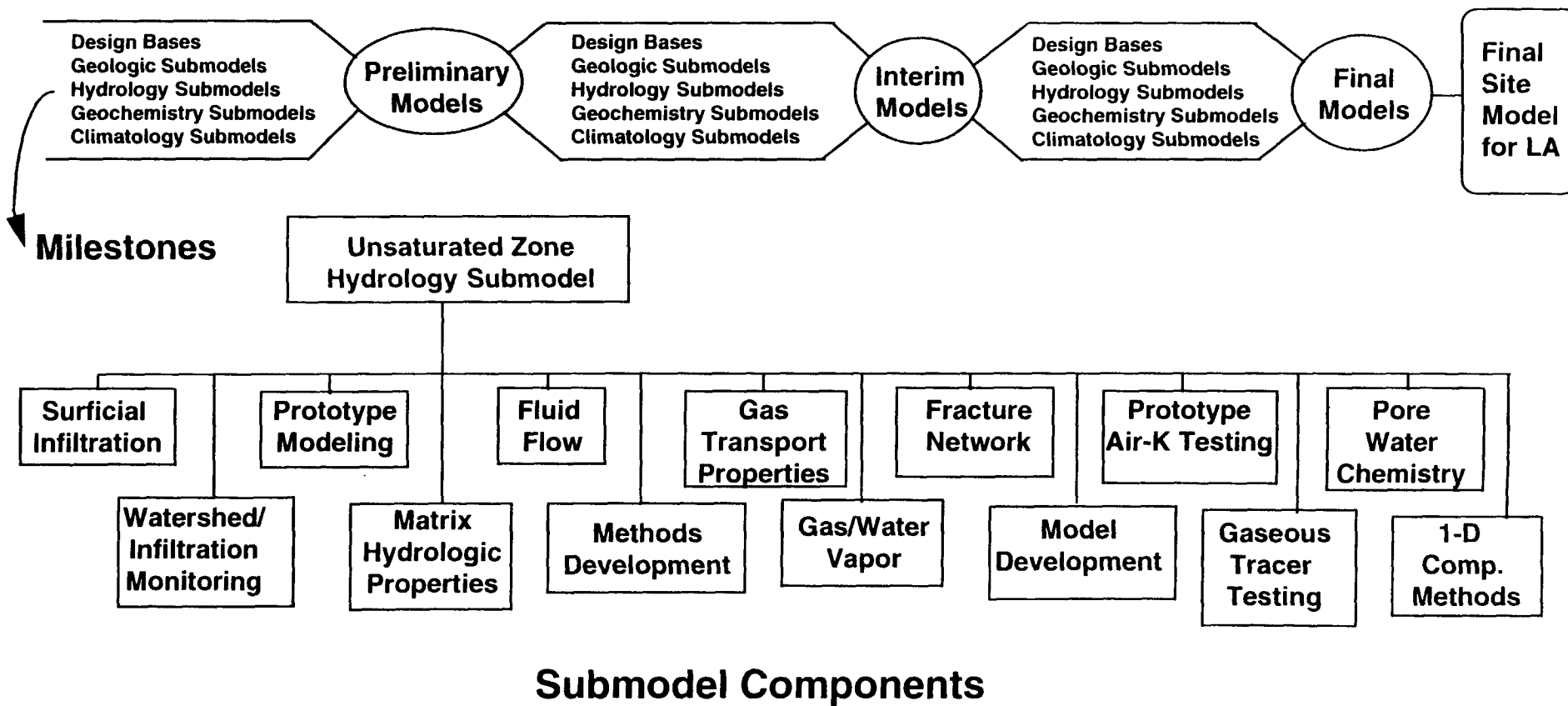
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- **Activities**
- **Studies**
- **Models**
- **Long-range Plan**

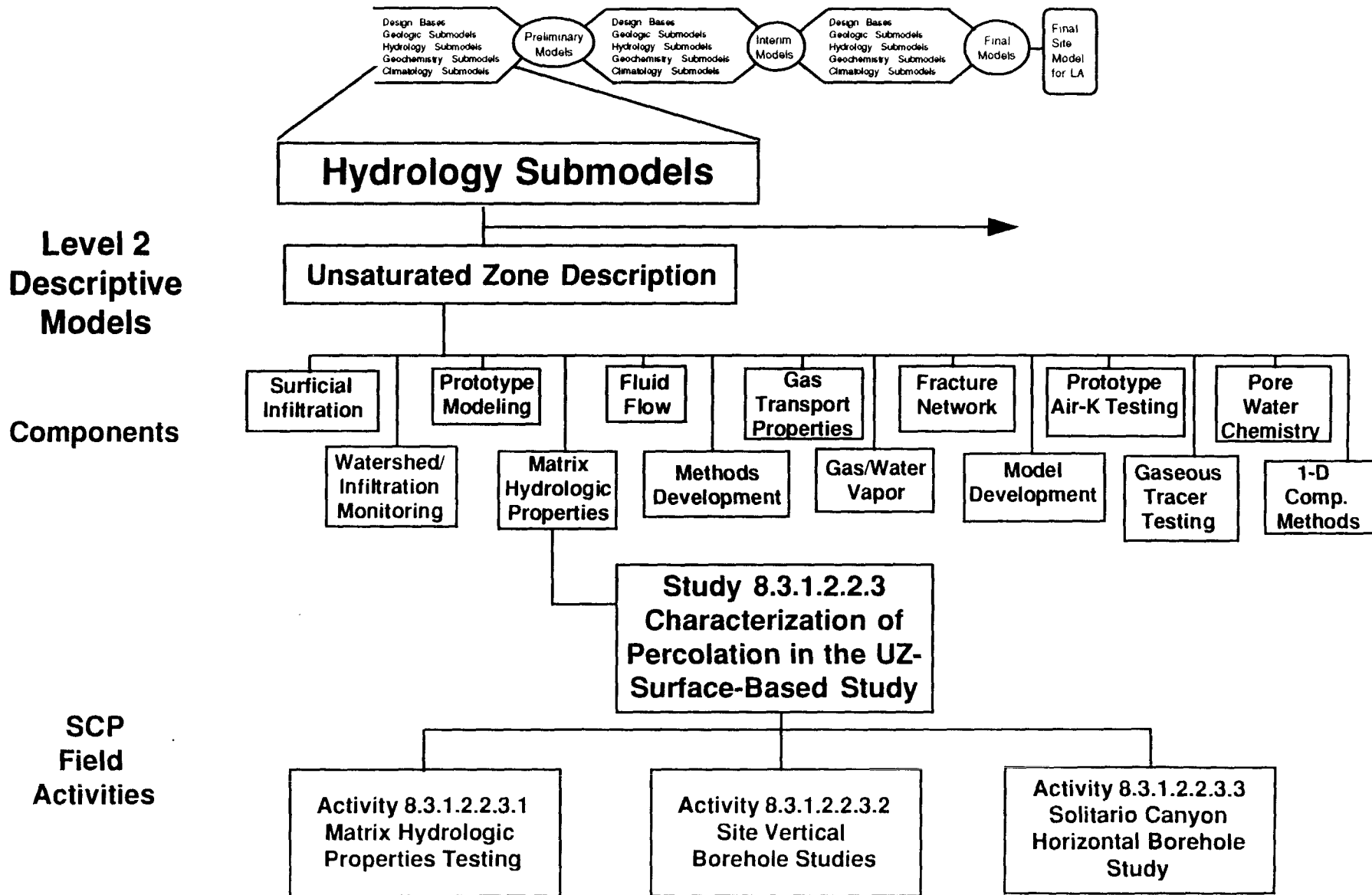
OCRWM Program Milestone Hierarchy

- **Level 0: Energy System Acquisition Advisory Board (ESAAB) Milestones**
- **Example: Issue Site Recommendation Report to the President**
 - **Level 1: Program milestones**
 - **Example: Interim site evaluation reports**
 - **Level 2: Project milestones**
 - **Example: Preliminary hydrology description**
 - * **Level 3: Participant milestones**
 - * **Example: Progress Report; perched water encountered**

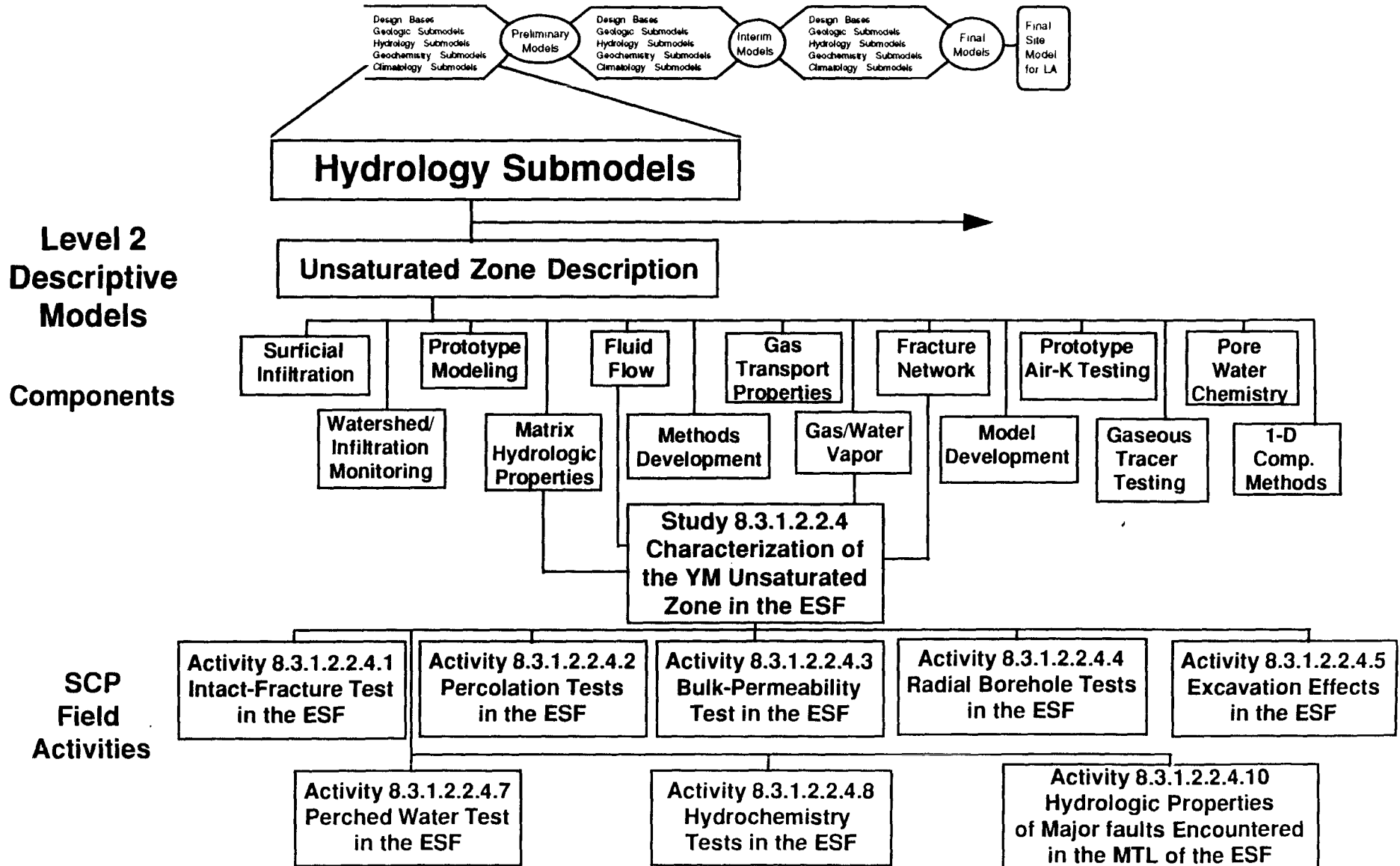
Site Investigations Long-Range Planning



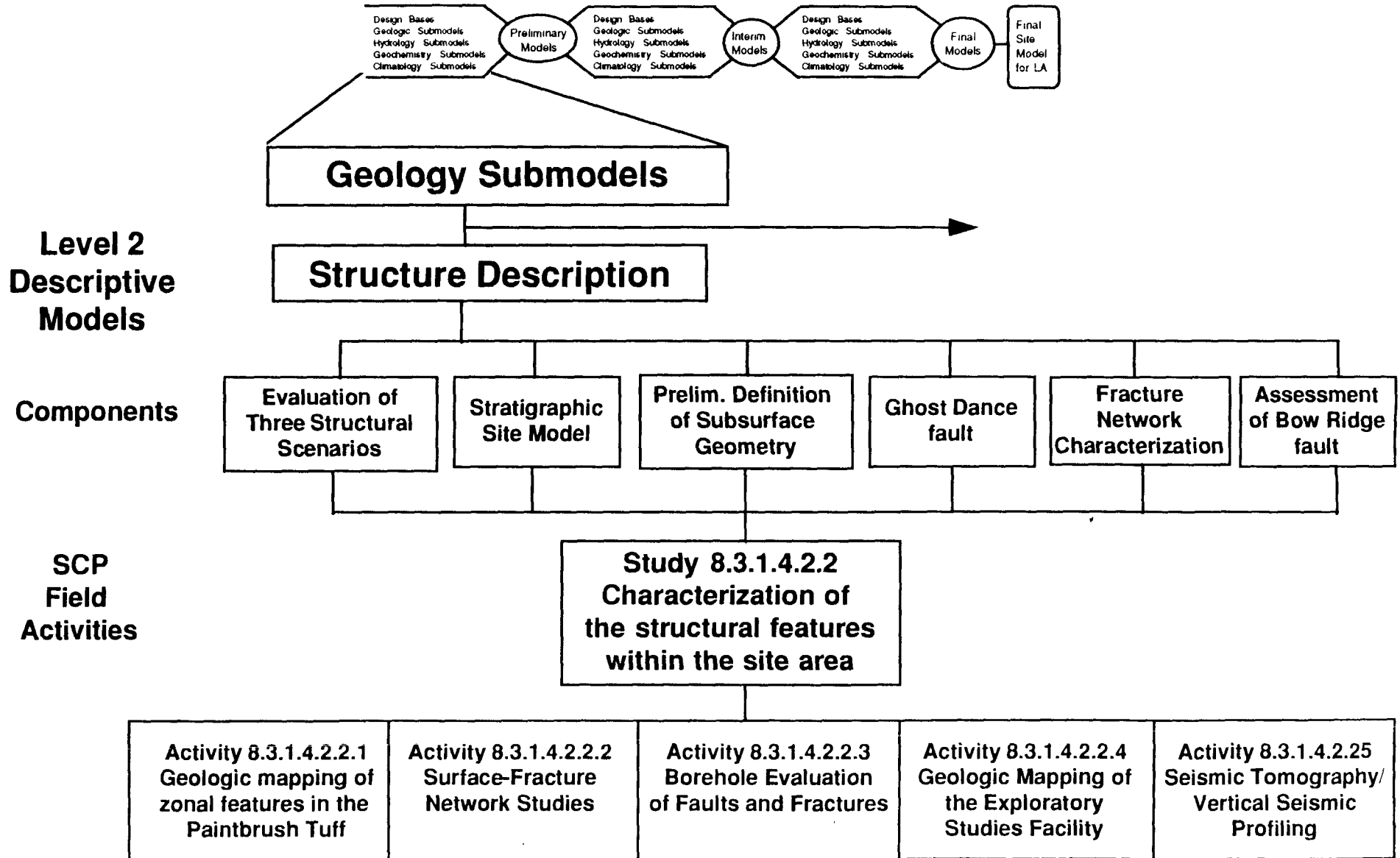
Flow of Data from Field Activities to Level 2 Milestones: Long-Range Plan



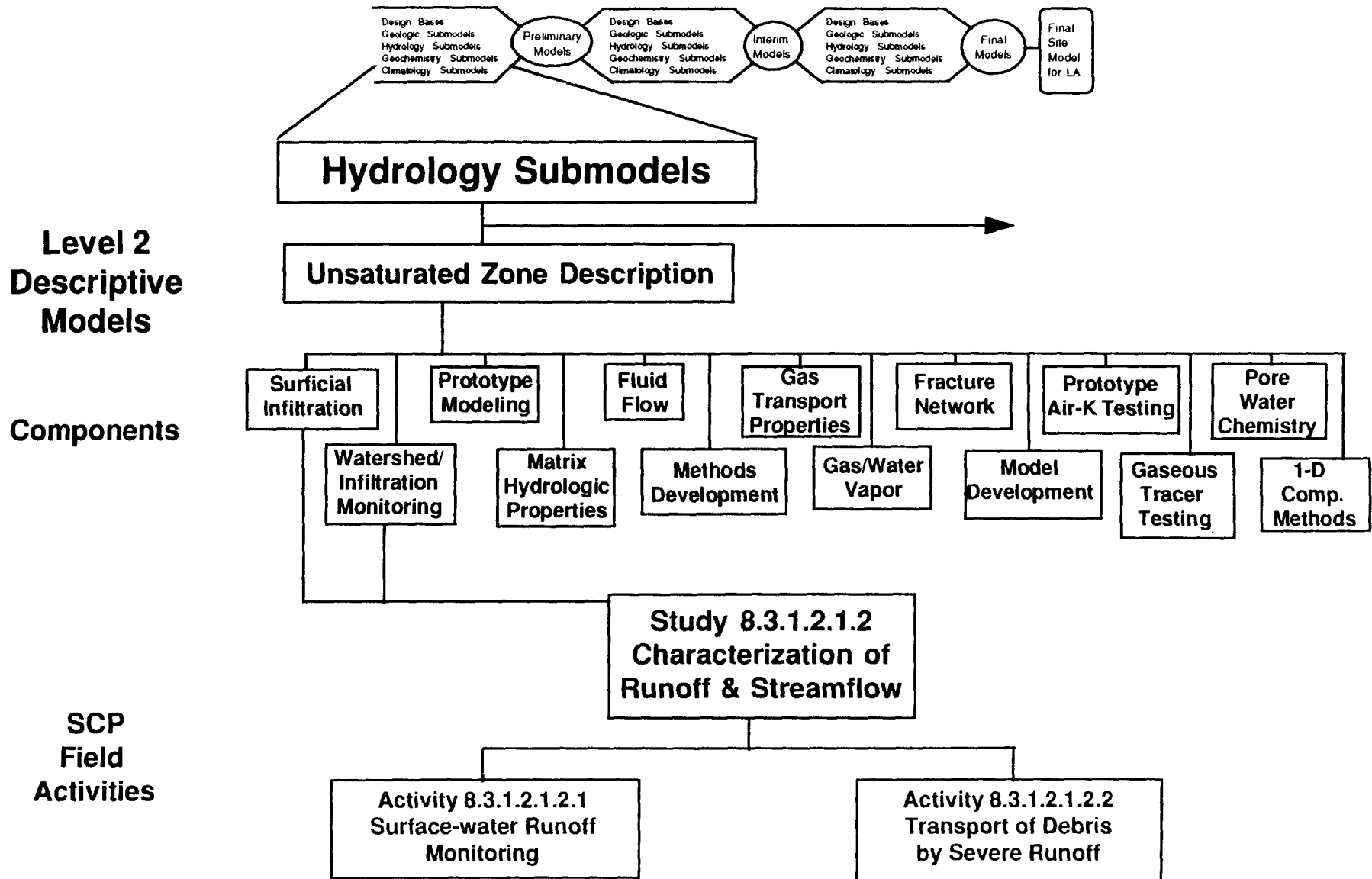
Flow of Data from Field Activities to Level 2 Milestones: Long-Range Plan



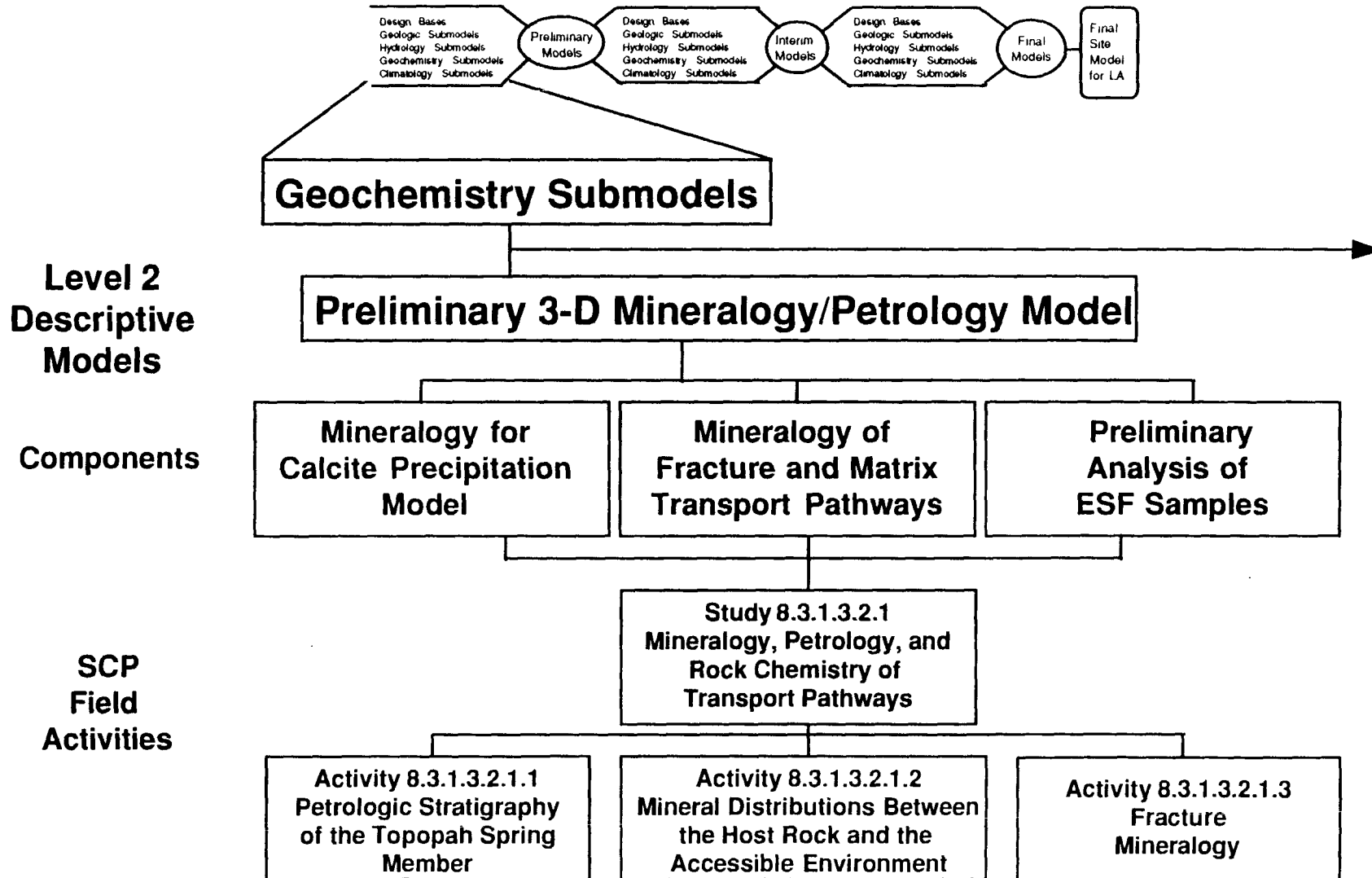
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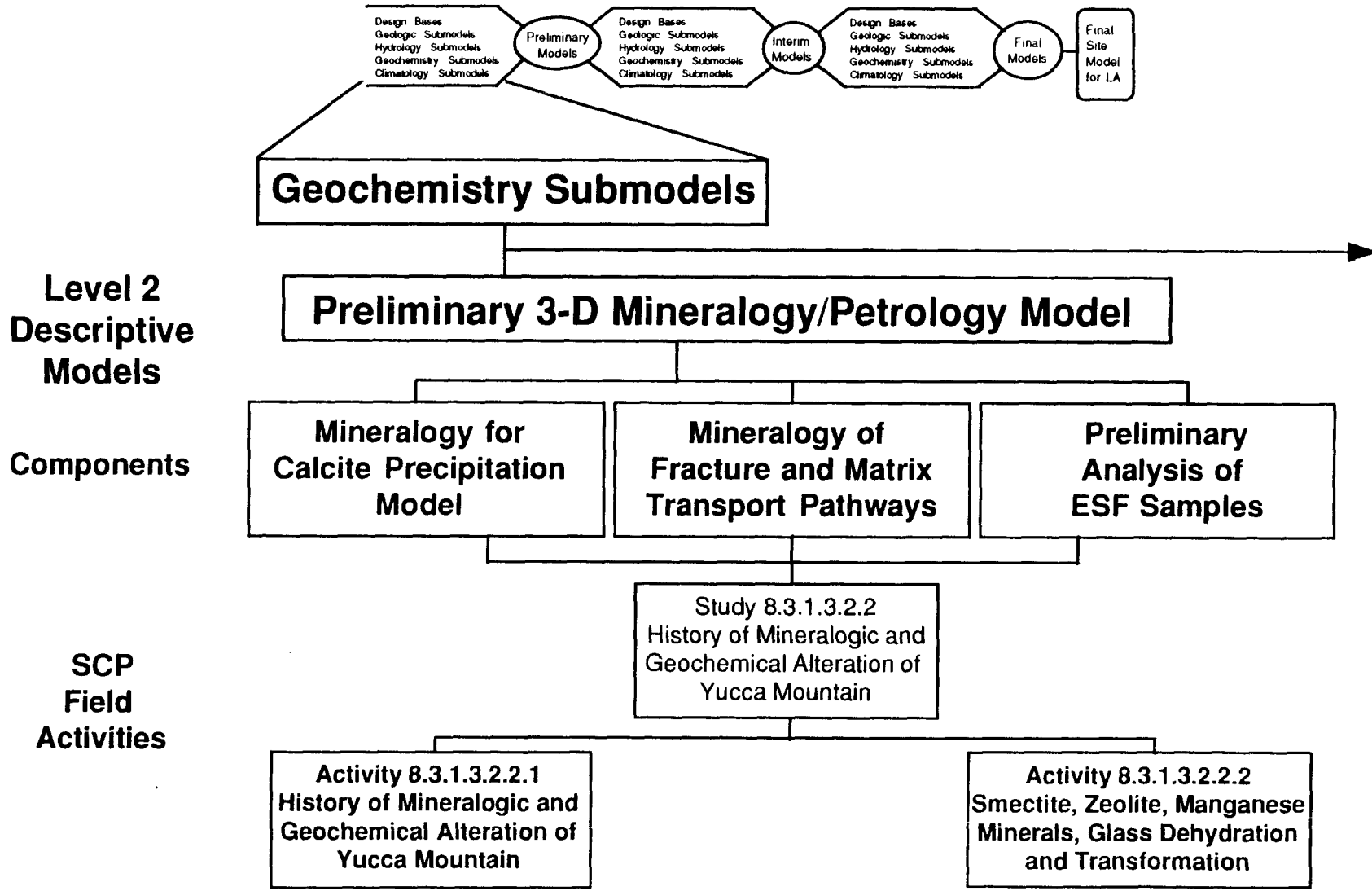
Flow of Data from Field Activities to Level 2 Milestones: Long Range Plan



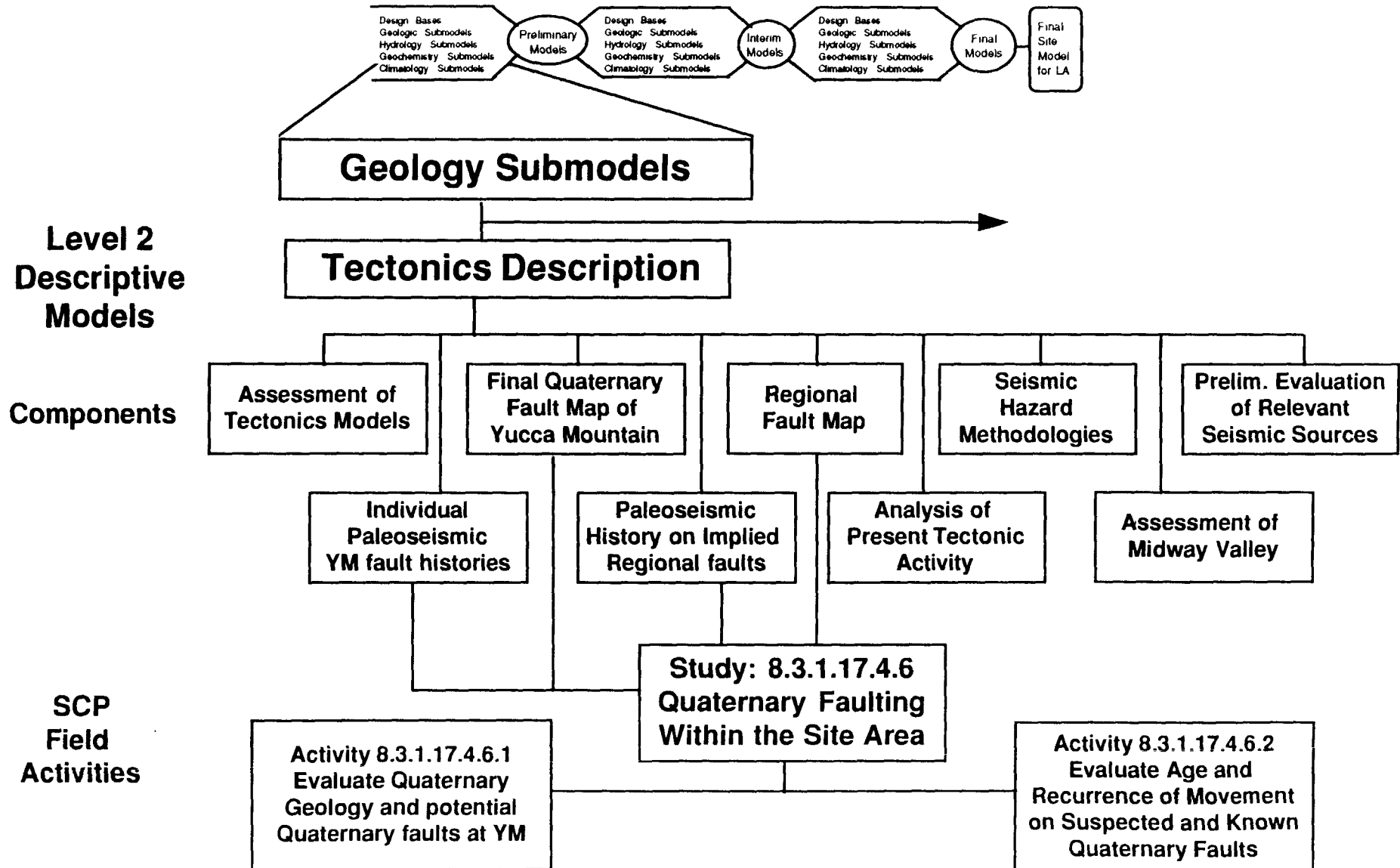
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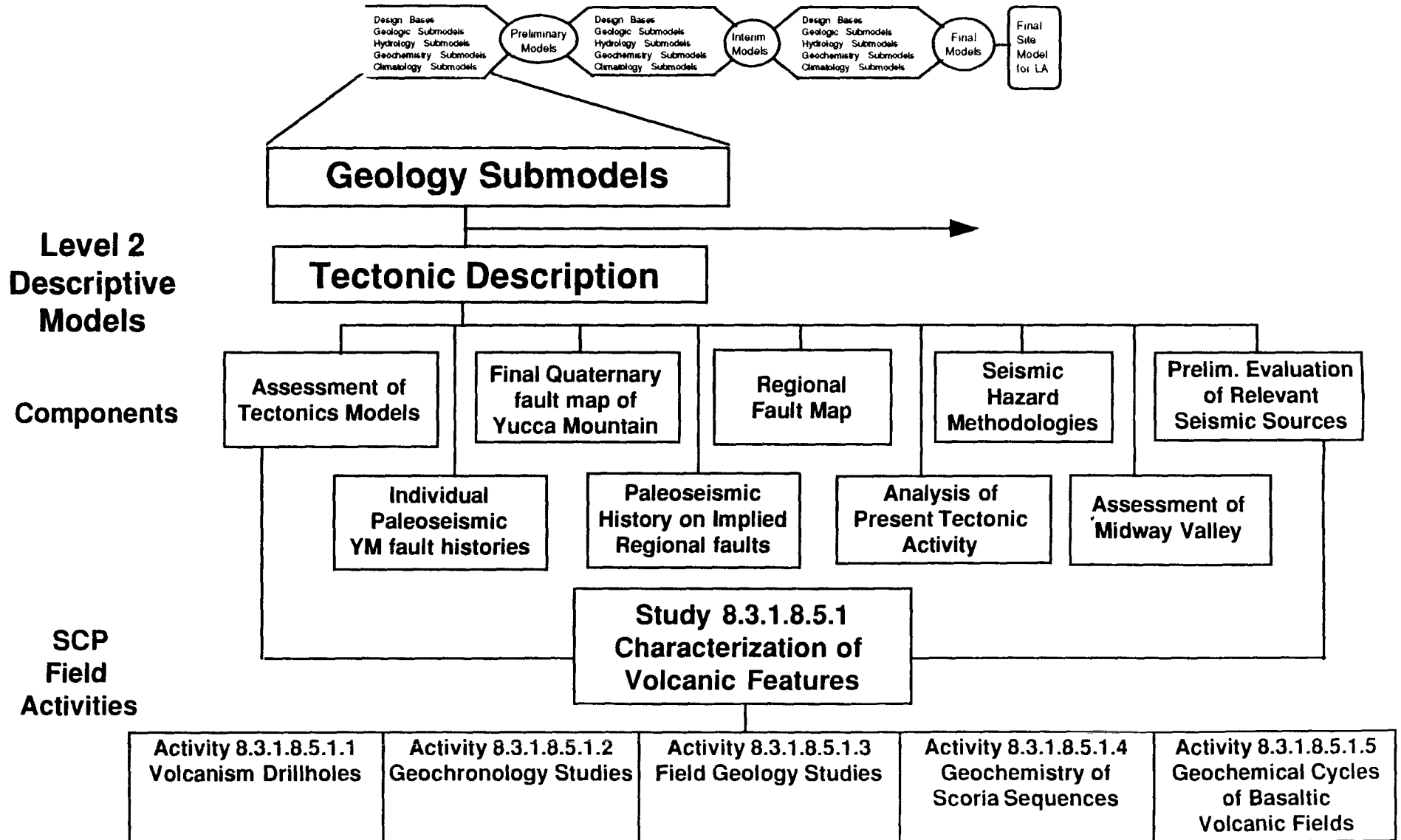
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Flow of Data from Field Activities to Level 2 Milestones - Long Range Plan

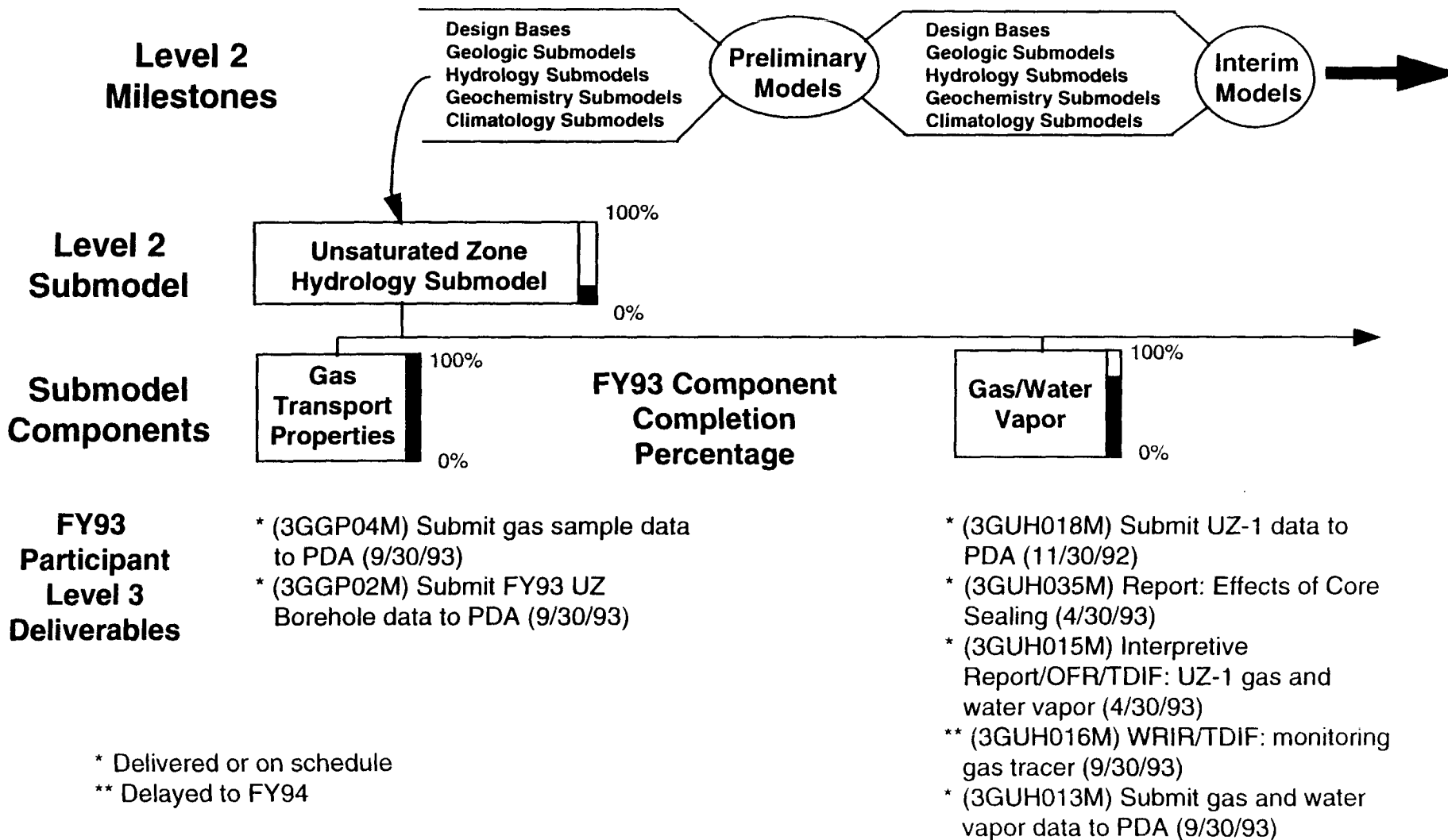


Flow of Data from Field Activities to Level 2 Milestones: Long-Range Plan



Site Investigations

Model, Submodel, Component, and Deliverable Hierarchy



* Delivered or on schedule

** Delayed to FY94

Major Points

- **While the field activities represent a major comprehensive effort of data collection for ESF design, tectonics studies, saturated zone and unsaturated zone methodology; a large part of the effort is directed to the unsaturated zone both from the surface and underground**
- **Consequently the unifying theme of the scientific portions of this two-day session will be unsaturated zone**
- **The UZ effort like all Yucca Mountain efforts is an integrated effort**
- **The success of the UZ effort is, in large part, dependent on the sampling and testing systems utilized in the field, which will be presented later in the program**