California NLC Sites

Seven Sites

- Western Margin – San Joaquin Valley
  - Site 90 South – Deep tunnel
  - Site 90 North – Deep tunnel with cut & cover
- Western Margin – Sacramento Valley
  - Site 120 - Bored tunnel and cut & cover
  - Site 150 - Bored tunnel and cut & cover
  - Site 135 - Cut & cover tunnel
  - Site 127 - Deep tunnel
  - Site 145 - Deep tunnel

This presentation concentrates on Sites 135, 127 and 145.
Stanford Linear Accelerator Center
GEOLOGIC INVESTIGATION
OF REPRESENTATIVE NLC SITE
Geologic Map and Cross Section of Site 150

Notes:
1. Topographic base map from U.S. Geological Survey 30 x 60 minute quadrangles.
3. See Figure 3 for explanation.
4. Vertical exaggeration 5X on all cross sections.
Legend

Kc  Cretaceous Sandstone - Strong hard sandstone mixed with siltstone and shales

Tc  Tertiary Sandstone - Fine grained sandstone, siltstone and shale beds. Generally weak.
PHOTO 7. Cretaceous sandstone (Ks) at a quarry on Stone Corral Creek at the north end of Site 135. The sandstone here is well cemented with carbonate, little fractured to massive, hard, strong, and little weathered. Sandstone beds are 1 to 5 ft thick with shale interbeds <1 ft thick. This would make ideal tunneling rock. This location is just downstream from DWR's proposed Sites damsite.

PHOTO 8. Cretaceous sandstone (Ks) in a cut for Oak Flat Road on Salado Creek in the northern part of Site 908. The rock here has concretions of similar physical condition to the sandstone pictured above but is mostly moderately to little fractured, low to moderate hardness, moderately strong, and with little to moderate weathering. The cut was apparently made with a bulldozer.
Creek Locations
FAIRVIEW ROAD CREEK UNDERDRAIN

NEXT LINEAR COLLIDER - U.S. COLLABORATION

Scales:
## Costs by Tasks

<table>
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<th>Facility</th>
<th>Task Breakdown ($ Millions)</th>
<th>Total Task Price ($ Millions)</th>
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<td>Positron Linac</td>
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<td>Positron Injector</td>
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<td>Beam Delivery</td>
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<td><strong>Total</strong></td>
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Photo 3.1 View of mountains to west of Route 16 at Stop 3. The lower lying hill in the foreground would house the Linac tunnel. They are shown by a line. These hills are all sandstone.

Photo 3.2 A second view of the mountains taken from Stop 3. Again the lower hills mark the tunnel alignment. It is reasonable to assume that the slopes on these lower hills follow the bedding as shown by the line drawn on the picture.
Photo 1.3  View of sandstone hillside above tunnel alignment. The line drawn on the picture shows the dip of the beds. The slope facing Rumsey valley tends to parallel the bedding.

Photo 2.1  View of sandstone outcrop above tunnel alignment for Stop 2 about one third of the distance northward from the south end of the tunnel. The eastward dip of the beds (about 15 degrees) is visible. Shale beds are minimal.
Photo 7.2 General view of area where tunnel would cross.

Photo 7.3 Picture of a the outcrop at the place where the tunnel crosses the road. Shale beds are visible in this photo as indicated by the arrows. The rest is soft sandstone.