

STUDIES IN-PROGRESS AND PLANNED  
UGMS, APPLIED GEOLOGY PROGRAM  
Gary E. Christenson, 7/10/89

EARTHQUAKE STUDIES

1. Hazards Evaluation
  - a. Quaternary tectonics map and data-base compilation
  - b. Prioritize high-risk faults and perform paleoseismicity studies (trenching, mapping)
  - c. Update probabilistic ground-shaking maps with new fault data
  - d. Excavation inspection program
  - e. Microzonation project (?)
2. Translation and dissemination
  - a. Wasatch Front Forum
  - b. Northern Utah Earthquake Handbook
  - c. Microzonation project (?)
  - d. Earthquake Hazards Map compilation
  - e. Work with seismic committee of SEAU
  - f. Co-sponsor annual earthquake conference
  - g. Approach potential users in addition to planners and structural engineers, such as realtors, lenders, teachers, and insurance companies (w/CEM)
3. Post-earthquake response and investigation
  - a. Reconnaissance for geologic effects for non-damaging earthquakes
  - b. Response as outlined in emergency response plan for damaging earthquakes
4. Instrumentation
  - a. Assist in development of strong-motion instrument program
5. Information
  - a. Earthquake bibliography
  - b. HAZBIB
  - c. Earthquake hazards brochures for general public (w/Information Program)
  - d. Talks and presentations
  - e. Computerized Quaternary fault data base

Project assignments

Suzanne Hecker

1. Quaternary tectonics map and data base
2. Survey Notes summary of (1) above (due 11/89)
3. Prioritization of faults for detailed paleoseismic studies
4. Hurricane fault study
5. Continuing program of paleoseismic study
6. On-going information dissemination
7. Megatrench w/WRL(?)

Susan Olig

1. Northern Utah earthquake handbook
2. Earthquake Hazards Map ground-shaking methodology
3. Survey Notes write-up of (1) above (due 11/89)
4. County/quadrangle ground-shaking methodology
5. Ground-shaking primer for structural engineers/architects
6. Microzonation project (?)
7. Strong-motion instrument program
8. On-going information dissemination
9. Update probabilistic ground-shaking (seismic risk) maps

Gary E. Christenson

1. Earthquake Hazards Map
2. Wasatch Front Forum Co-editor
3. On-going information dissemination

#### SLOPE FAILURE (DEBRIS FLOW, LANDSLIDE) STUDIES

1. Statewide inventory map(s) and data base
2. Identification and detailed study of high-risk areas
  - a. Landslides (mapping, instrumentation, strength of materials, dating)
  - b. Debris-flow fans (mapping, dating of deposits in alluvial fans)
3. Susceptibility mapping and hazard assessment
  - a. Statewide landslide and debris-flow (w/Brabb) hazard maps
  - b. Develop methodology for county/quadrangle maps
  - c. Davis County weather/soil moisture monitoring
  - d. Specific slope stability and hazards assessment (factor of safety calculations, geologic rates and times of movement) of high-risk areas
4. Post-event emergency response
5. Information
  - a. Computerized data base
  - b. HAZBIB

#### Project assignments

Kimm Harty

1. Inventory maps (1:100,000; 1:500,000) and data base
2. Statewide susceptibility (hazard) maps
3. Tooele County landslide/debris-flow inventory/susceptibility
4. Hurricane fault study
5. Identify "Top 10" high-risk landslides and debris-flow areas
6. Detailed studies in "Top 10" areas
7. Events of early 1980s (?)
8. Survey Notes article on (1) above (due 11/90)

## PROBLEM SOILS/SUBSIDENCE STUDIES

1. Statewide inventory map and data base
2. Susceptibility mapping and hazard assessment
  - a. Statewide susceptibility map(s)
  - b. Develop methodology for county/quadrangle maps
3. Identification and study of high-risk areas
  - a. Expansive soils
  - b. Collapsible soils
  - c. Piping, erosion
  - d. Karst
  - c. Mine/ground-water subsidence
4. Post-event response

### Project assignments

William Mulvey

1. Statewide problem soil/subsidence inventory/hazard map and data base
2. Engineering geology of the Mancos Shale w/WRL
3. Survey Notes article on (1) above (due 11/91)

## MULTIHAZARDS AND ENGINEERING GEOLOGY STUDIES

1. Site investigations for critical facilities
2. Community Impact Board reviews
3. Excavation inspection program
4. County and larger-scale multihazards and engineering geologic mapping
5. Project review
  - a. Damsites
  - b. Geotechnical reports (subdivisions, etc.)
  - c. Major engineering projects (e.g. Paradox, SSC)
6. Regional screening studies for solid/hazardous waste and wastewater disposal
7. HAZBIB

### Project assignments

All Staff

1. Site investigations
2. HAZBIB updates
3. Contributions to WRL Geology of Salt Lake City paper
4. Project reviews

Barry Solomon

1. Sevier County landfill study
2. Reviews of major engineering projects
3. Tooele Valley/County
4. Millard/Juab Counties (?)

Suzanne Hecker

1. Antelope Island (due 9/89)

William Mulvey

1. Duchesne County wastewater disposal
2. Excavation inspection program
3. Grand County (?)

New geologist II

1. Wasatch County
2. Sevier County (?)

Gary E. Christenson

1. Utah County (with RMR)
2. Weber/Davis Counties (with MVL)

#### GROUND-WATER STUDIES

1. Respond to requests for site investigations (principally for spring protection areas and shallow ground-water flooding)
2. Serve on Wellhead Protection Advisory Committee
3. Review hydrogeology reports as requested
4. Solid/hazardous waste, wastewater, and leaking UST screening studies/reviews
5. Co-operative projects with USGS WRD, Utah DWR's, and Utah Department of Health

#### Project assignments

New geologist II

1. Site investigations and reviews as requested
2. Wellhead Protection Advisory Committee (w/GEC)
3. Work in cooperation with USGS WRD and Health Department in wellhead protection area delineation

#### RADON STUDIES

1. Analyze indoor radon survey results
2. Define high-hazard areas
3. Design studies in hazard areas to define problem

### Project assignments

Barry Solomon

1. Maintain liaison with Utah Department of Health
2. Facilitate analysis of indoor radon survey w/DAS
3. Define and perform detailed studies in high-hazard areas