

GUIDELINES FOR REPORTS

General Remarks

These guidelines provide a framework for preparing a basic geologic report for the field geology classes at UCSC. A report must be complete, understandable and provide worthwhile and accurate information to the reader. Observations, descriptions and analyses must be accurate and precise. Interpretations must be well-supported by clearly stated factual evidence and logical reasoning.

This section is organized into two parts: 1) Matters of form and 2) Matters of style. "Form" refers to the format and organization of the report. "Style" refers to how the report is written.

MATTERS OF FORM

Organization

Major heading for geologic reports in EART 109 and 188 will generally be as follows:

1. Title page (1 page)
2. Abstract (½ page)
3. Table of contents (1 page)
4. List of illustrations (1 page)
5. Regional geologic setting (1-3 pages, including figure)
6. Rock Descriptions (4-5 pages)
7. Structure (4-5 pages)
8. Geomorphology (may be optional) (½ - 1 page)
9. Geologic history (2-3 pages)
10. References cited (1-2 pages)

Plates

Your report must include the following plates:

- Plate 1 - Stratigraphic column
- Plate 2 - Geologic map
- Plate 3 - Geologic cross sections

These must be folded, preferably to 8.5 x 11 inches or less; do not submit rolled plates.

Title page

The title should state briefly and clearly the subject of the report. It should also include the author's name, date of submittal and course name and institution for whom the report was prepared.

For example, it should look something like this:

GEOLOGIC REPORT ON THE DISTRIBUTION OF LANDSLIDES AT LOMERIAS MUERTAS,
SAN BENITO COUNTY, CALIFORNIA

Prepared by
Gerald E. Weber
for
ENGEO, Inc.
January 25, 1859

Abstract:

An abstract is **NOT** an introduction or a prosaic table of contents. The abstract should be a condensation and concentration of the essential information in the paper. Write the abstract after you have written the report.

Table of Contents:

This is a list of the major headings and subheadings of the report, and their page numbers.

List of Illustrations:

This is a list of short captions and page numbers for each figure and plate. It tells the reader where the maps and diagrams are.

NOTE: Figures and plates are different types of illustrations. Plates are large maps, cross-sections, etc. that are too large to bind into the report. They are generally folded and included in the back of the report. Figures are typically bound in the report and generally measure 8.5 x 11 inches.

Introduction:

At a minimum, the introduction states: 1) the purpose and scope of the report, and 2) the geographic location of the field area. A simple Index Map (generally Figure 1) is an effective technique for showing location and will prevent oral diarrhea.

If you so desire, you can also describe the accessibility, land use, physical features, climate vegetation, previous work, field procedures, and acknowledgments in the introduction.

Regional Geologic Setting:

Writing a good section of "regional geology" requires considerable review of the literature - generally beyond the scope of a course in field methods. For our purposes it will suffice to describe the major regional geologic features and the salient points of regional geologic history in the area. A neatly done sketch map that shows major structural features and geographic reference points may be useful in some instances.

Rock Units:

This section should begin with an introductory paragraph that includes general remarks on lithology, thickness, exposure, etc. of the stratigraphic section, and also discusses any stratigraphic problems. Next, describe each rock unit under its own subheading. **Always describe rock units in chronological order from oldest to youngest.**

Each rock description should include the following:

1. Name of the unit - (formal or informal).
2. Geographic distribution.
3. Age, and the method of determination of the age.
4. Thickness
5. Lithology. Please recall from previous discussions that this includes: color, mineralogy, textures, structures, fossils, secondary features, etc. Assign a Rock Name. Give a concise description of the rock unit as a whole - remember to describe variations in lithology. Do not make detailed descriptions of individual hand specimens. Always describe from the general to the specific. THINK - big picture to little picture.

6. Nature of the upper and lower contacts of the rock unit.
7. Characteristic topography, vegetation and soils.
8. A brief statement on how the rock was formed - the depositional environment. Please give the evidence you used to reach that conclusion.

Structure:

This section should also begin with an introductory paragraph in which you discuss the general structural features of the area. This is somewhat like the Regional Geologic Setting section, except that it refers only to structure and is restricted to the immediate geographic area.

Recommended subheadings:

1. **Folding:** Describe using proper names. Give the geographic distribution, including the trend and plunge of fold axes, types of folds, steepness of limbs, fold symmetry, and age of folding. Provide evidence for your interpretations.
2. **Faults:** Describe the general pattern of faulting. Discuss individual faults where appropriate, and classify faults according to relative movement. Discuss attitude of fault planes and the amount of displacement and slip. Discuss your interpretations for age of faulting and the origin of the faults.
3. **Structures formed in and around intrusive bodies:** Not relevant to the New Idria field area.
4. **Joint patterns:** if appropriate.
5. **Summation:** Discuss the nature and timing of deformation - give evidence for your conclusions.

In your text, refer as often as possible to cross-sections and other illustrations - good graphics can really make a difference. They can provide most of the descriptive work. Remember, it is not necessary to describe each individual fault and fold. Rather group them according to their structural relationships and describe and discuss them together.

Geomorphology:

Include a short discussion of landforms in the field area. A paragraph on the general aspects of the main geomorphic features, such as erosion surfaces, development of special landforms (karst, glacial, etc.). Again this is not a required element of the New Idria field area report.

Geologic History:

In this section all of your observations and interpretations are brought together into a coherent discussion of what happened in the field area. Your geologic history should be a concise summary of the major geologic events. Discuss in chronological order from oldest to youngest. Be sure to explicitly state **what** happened **when**. Give reasons for your conclusions and interpretations, but do not repeat the discussions and descriptions that occur elsewhere in the report. The geologic history should "fit into" a regional framework. Do not simply reiterate the Regional Geologic Setting for your report. Try to creatively meld the observations, interpretations and conclusions that you have made with the regional geologic information that you have gleaned elsewhere.

References Cited

In this section you must list the documents that you used during the preparation of your report, that are specifically mentioned in the report. Please refer to "Attachment A" for the correct format for the references cited section.

You **must reference** any unoriginal data or interpretations. When citing references in your text, **DO NOT USE THE FOOTNOTE STYLE OF REFERENCING**. Examples of the correct style are presented below. The **bold** letters represent the correct method of using the reference. Do not bold references in your report.

"The bedrock geology is composed of Mesozoic sedimentary rocks (**Dott, 1971**)."

"Leonard and Wehmiller (**1992**) cited similar evidence that platform reoccupation has occurred in northern Chile on at least one older terrace."

"Simple shear experiments performed by other workers (**for example, Tchalenko and Ambraseys, 1970; Wilcox and others, 1973**) replicated many of the structures in the Bay region."

"In subsequent work (**Anderson and Weber, 1990; Anderson and others, 1990; Schwartz and others, 1990**), we attempted..."

For other examples of proper form refer to Compton (1985), or any recent issue of Geology, GSA Bulletin, etc.

Miscellaneous Matters of Form

1. Type, word process or write on only one side of the paper. Double space.
2. Fasten the report together. **Use staples**. Place in a folder or binder with your name on the outside cover. **MAPS MUST BE FOLDED, AND ATTACHED TO THE REPORT**. Do not turn in rolled-up maps.
3. Number the pages.
4. Use headings and subheadings.
5. Use proper stratigraphic nomenclature.

MATTERS OF STYLE

Here are a few suggestions to help you present your observations and interpretations as clearly as possible.

1. Write for a reader who is a geologist, but who has never visited the area that you describe.
2. Eschew obfuscation. Be careful of sentence length. Avoid long, run-on, or incomplete sentences.
3. Use appropriate verb tenses. For example use; "the sandstones are red-brown", NOT "the sandstones were red-brown." After all, they haven't changed and are still red brown.
4. When you refer to a rock unit in your text, use the proper name, not the map symbol. Example: Yokut Formation, not Ty.
5. Avoid the passive voice. Try to be brief and direct. For example, say "basalt flows covered the area", not "the field area was covered over by basalts".

6. Allow yourself plenty of time to write the report. Write a minimum of one rough draft prior to writing the final product. **DO NOT PLAN ON WRITING THE REPORT THE NIGHT BEFORE IT'S DUE.** Use writing aids - i.e. a dictionary, thesaurus, or Strunk and White *Elements of Style*, etc.
7. Carefully proofread the final draft. Check for spelling errors.

ATTACHMENT "A"

REFERENCES CITED

- Allen, C. R., and Nordquist, J. M., 1972, Fore-shock, main shock, and larger aftershocks of the Borrego Mountain earthquake: U.S. Geol. Survey Prof. Paper 787, p. 16-23.
- Allen, C. R., St. Amand, P., Richter, C. F., and Nordquist, J. M., 1965, Relationship between seismicity and geologic structure in the Southern California region: *Seismol. Soc. America Bull.*, v. 55, p. 753-797.
- Atwater, T., and Molnar, P., 1973, Relative motion of the Pacific and North American plates deduced from sea-floor spreading in the Atlantic, Indian, and South Pacific oceans, in Kovach, R. L., and Nur, A., eds., *Proceedings of the Conference on Tectonic Problems of the San Andreas Fault*: Stanford Univ. Pubs. Geol. Sci., v. 13, p. 136-148.
- Shor, G. C., and Roberts, E., 1958, San Miguel, Baja California Norte, earthquakes of February, 1956: A field report: *Seismol. Soc. America Bull.*, v. 48, p. 101-116.
- Thatcher, W., 1972, Regional variations of seismic source parameters in the northern Baja California area: *Jour. Geophys. Research*, v. 77, p. 1549-1565.
- Thatcher, W., and Hamilton, R. M., 1973, Aftershocks and source characteristics of the 1969 Coyote Mountain earthquake, San Jacinto fault zone, California: *Seismol. Soc. America Bull.*, v. 63, p. 647-661.
- Thatcher, W., and Hanks, T. C., 1973, Source parameters of Southern California earthquakes: *Jour. Geophys. Research*, v. 78, p. 8547-8576.
- Thatcher, W., Hileman, J. A., and Hanks, T. C., 1975, Seismic slip distribution along the San Jacinto fault zone, Southern California, and its implications: *Geol. Soc. America Bull.*, v. 86, p. 1140-1146.
- Townley, S. D., and Allen, M. W., 1939, Descriptive catalog of earthquakes of the Pacific Coast of the United States, 1769 to 1928: *Seismol. Soc. America Bull.*, v. 29, p. 1-297.