Su.P.E.R., Inc.
Suppliers of Petroleum Energy Resources, Incorporated

April 9, 2007

TO: Trinity Consultants, Inc.

It has come to the attention of Su.P.E.R., Inc. that the area adjacent to the small community of Tigerville may contain a wealth of petroleum within access of drilling. If so, these resources will boost Tigertown's economy, enhance development opportunities, and will bring our company a tidy profit. However, the township is concerned that drilling activity might contaminate Tigertown's water supply and adversely affect the Wildlife Refuge. A detailed geologic map and cross section of the area created by previous consultants is attached, but unfortunately all data concerning rock identifications has been lost.

In order to determine the likely location of this petroleum wealth and select the best possible site for a $10 million test well, as well as assess the risk of water contamination and other environmental impacts associated with future petroleum recovery, we are asking Tiger Consultants, Inc. to produce a complete geologic history of the area, with particular attention paid to geologic processes that produced the rocks of the area and tectonic processes that may have subsequently disturbed them, and to select the best site for the test well. In addition, consultants must assess the environmental impact of drilling in this region and make a final recommendation to our company to either proceed with a test drill or abandon the project.

To this end, we hereby solicit the services of Trinity Consultants, Inc., to:

- Identify and describe all rock types in the area represented by the provided map and cross section and provide detailed information about the formation of individual rock types and the nature of the environment in which each formed;
- Note the nature of the contacts between different rock types and determine if contacts are depositional (conformable or unconformable), faulted, or intrusive;
- Determine the order of events and possible plate tectonic settings which resulted in the present geology, from oldest to youngest;
- Determine the best potential location for an oil drilling operation, based on access to petroleum and environmental impact; and
- Determine possible environmental impacts of a major oil recovery program in this region and make a final recommendation about proceeding with test drilling in the area.

Each Consultant must submit an ***independently*** prepared final report of the geologic history of the mapped area. This report should include:

- A **Stratigraphic Report**, including both identification and description of all rock types. On the stratigraphic worksheet, you should:
    - Put the oldest unit on the bottom and the youngest on the top;
    - Label each box with the number of the rock unit in that stratigraphic position;
    - Indicate all unconformities with the proper symbol;
    - Indicate the genetic rock type (e.g., sedimentary) as well as the specific type of rock (e.g., arkose); and
    - Describe the rock unit using the guidelines for that type of rock.
    - Use the included worksheet for your draft, and use the Excel spreadsheet for the file you will turn in with your report (this file will be e-mailed to you.).

- A concise **Techinical Report**, a geologic history of the area, which should include ***but is not limited to***:

    - Geologic processes that produced the rocks of the area and tectonic processes that may have subsequently disturbed them;
    - Uplift, erosion, and the creation of unconformities;
    - The deposition of sedimentary rocks;
    - Geologic map patterns;
    - Mountain building and the deformation and/or metamorphism of rocks;
    - Igneous events;
    - Plate tectonic dynamics; and
    - Petroleum formation.

    - Your geologic history should be chronological, beginning with the oldest events and ending at the present time. You will need to use both **Previously Acquired Age Data** (next page) and the attached geologic time scale to aid your discussion.
    - You should refer to your Stratigraphic Report throughout this geologic history.
    - The Technical Report should include statements that document the observations recorded in the Stratigraphic Report. Note that no extraneous data are provided, so ALL data contained on the map, cross section, and this handout should be addressed in the report.
    - The Technical Report should be **4-6 typed, double-spaced pages**, with standard margins.

- A **Recommendation**, which should include:
    - A discussion of potential location(s) of petroleum reserves in the region based on the geology discussed in your Technical Report; and
    - A brief discussion of the potential drill sites shown on the Tigerville quadrangle, based on the aforementioned potential location(s) of reserves as well as the environmental impacts associated with a major oil recovery program at these sites.
    - The report should provide a final recommendation to the city on whether Su.P.E.R., Inc. should be permitted to pursue oil exploration and where the test drilling operation should be located (if exploration is permitted).
    - The Recommendation should be **1-2 typed, double-spaced pages**.

PREVIOUSLY ACQUIRED AGE DATA

The following data are already available to you. The task of mapping the region was initially given to Longhorn Consultants, but they did not prove equal to the task. Their fossil identifications are given below. In addition, their team completed radiometric age analyses of several samples.

Fossil Identifications:
Sample 1a: Early Permian (Sakmarian Age) fossils
Sample 10a: Middle Devonian (Givetian Age) shell impressions
Sample 15a: Late Cretaceous (Cenomanian Age) fossils

Radiometric Age Data:
To use these data, make sure to think about what type of rock was analyzed. For each genetic rock type (igneous, sedimentary, or metamorphic), the data must be interpreted differently. We will discuss these techniques in class.

Sample #	Mineral Analyzed	$^{238}U/^{206}Pb$ Age	$^{235}U/^{207}Pb$ Age
12	Zircon #1	1140±23 Ma	1128±21 Ma
	Zircon #2	1129±20 Ma	1132±32 Ma
7	Zircon #3 core	1550±45 Ma	1566±39 Ma
	Zircon #3 rim	1131±27 Ma	1135±33 Ma
	Zircon #4 core	1560±45 Ma	1570±31 Ma
	Zircon #4 rim	1142±23 Ma	1139±40 Ma
	Zircon #5 core	1500±29 Ma	1510±90 Ma
	Zircon #5 rim	1127±21 Ma	1130±19 Ma
5	Zircon #1	441±7 Ma	446±8 Ma
	Zircon #2	660±11 Ma	665±13 Ma
	Zircon #3	834±18 Ma	841±19 Ma
	Zircon #4	1127±21 Ma	1141±27 Ma
	Zircon #5	1201±25 Ma	1213±21 Ma
Sample #	**Mineral Analyzed**	$^{40}K/^{40}Ar$	
11	Whole rock sample	12±0.5 Ma	
13	Hornblende amphibole	285±4 Ma	
2	Hornblende amphibole	262±3 Ma	

All reports in response to this request must be submitted in the original, confidential envelope, to Su.P.E.R., Inc., ***care of*** Dr. Surpless (mailbox in MMS 250), **before 5 pm on Friday, April 27, 2007**. **NO LATE REPORTS WILL BE ACCEPTED.**

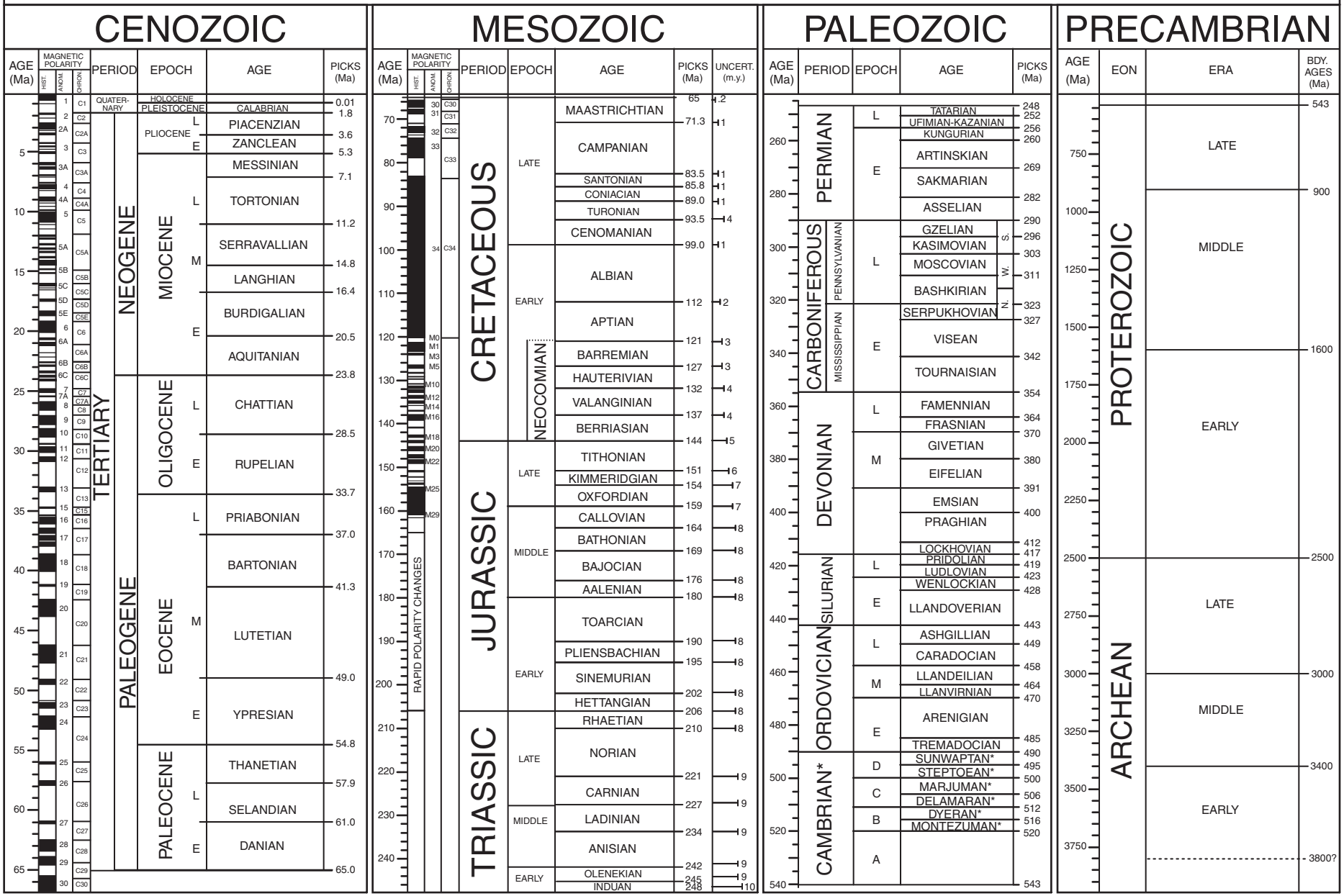
Your utmost secrecy is expected in the research and execution of this project. Please notify me if you have any questions.

Sincerely,

Victor Hugo

Victor Hugo
Senior Vice President of Research and Development
Suppliers of Petroleum Energy Resources, Incorporated

1999 GEOLOGIC TIME SCALE



*International ages have not been established. These are regional (Laurentian) only. Boundary Picks were based on dating techniques and fossil records as of 1999. Paleomagnetic attributions have errors, Please ignore the paleomagnetic scale.

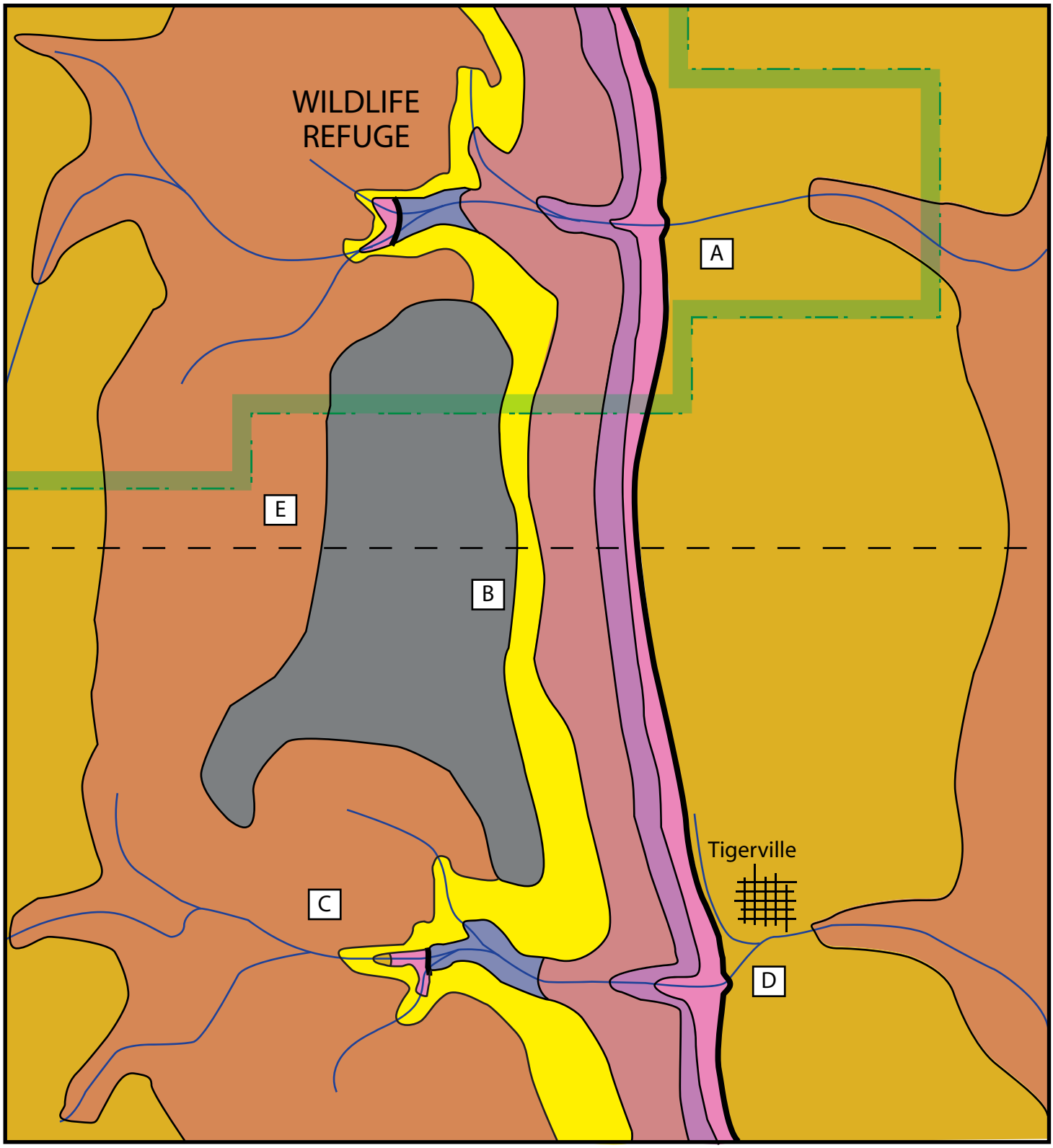
Sources for nomenclature and ages: Primarily from Gradstein, F., and Ogg, J., 1996, *Episodes*, v. 19, nos. 1 & 2; Gradstein, F., et al., 1995, SEPM Special Pub. 54, p. 95–128; Berggren, W. A., et al., 1995, SEPM Special Pub. 54, p. 129–212; Cambrian and basal Ordovician ages adapted from Landing, E., 1998, *Canadian Journal of Earth Sciences*, v. 35, p. 329–338; and Davidek, K., et al., 1998, *Geological Magazine*, v. 135, p. 305–309. Cambrian age names from Palmer, A. R., 1998, *Canadian Journal of Earth Sciences*, v. 35, p. 323–328.

GEOLOGICAL SOCIETY OF AMERICA

CONFIDENTIAL

Tigerville Quadrangle

Property of SU.P.E.R., Inc.



Kilometers

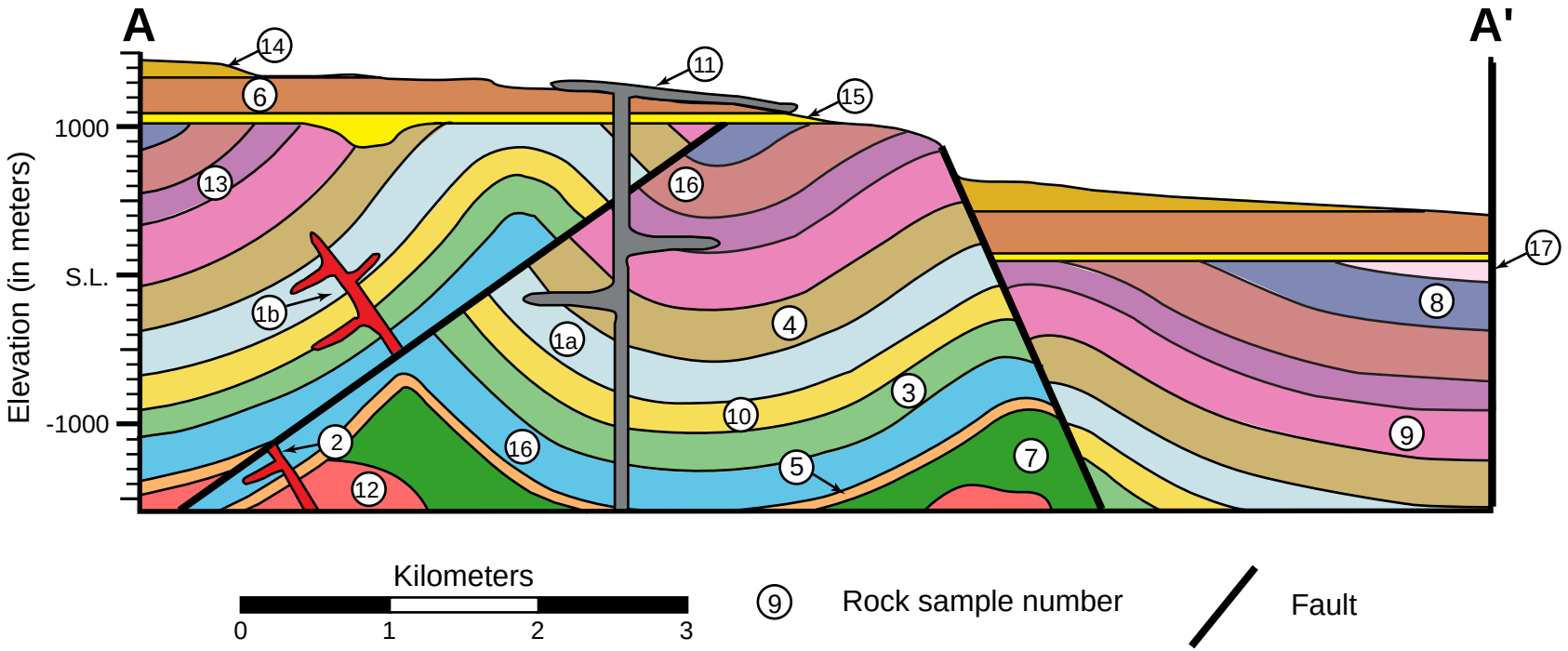
0 1 2 3

Fault

D Potential Drilling Site

Wildlife Refuge boundary

Tigerville Quadrangle Cross Section



Use this for your draft only!!

Tigerville Stratigraphic Column

Final draft: Use Excel file.

Unit #	Genetic Rock Type (S,M,I)	Rock name(s)	Description (texture, mineralogy, etc.) *[include both samples for a given unit]*

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