Potential Phase 1 Study Topics

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RECOMMENDED STUDY TOPICS

- Precipitation input to erosion model*
- Erosion model and calibration*
- Regional geologic structure (faults, etc.)
- Bedrock valley groundwater flow system
- Occupational injuries and fatalities
- Probabilistic risk assessment

*Initial tech. workshop may be useful, esp. for first two

PRECIPITATION INPUT TO EROSION MODEL

Conduct tech. workshop in the near future to review rainfall intensity-frequency relationships, incl. the relationship used in the EIS erosion model (this was changed between the DEIS and the FEIS)

PROPOSED WORKSHOP TOPICS

1) Clear description/mutual understanding of the rainfall intensity-frequency relationship used in EIS (not necessarily agreement).

2) Comparison to the *current* rainfall intensity-frequency relationship.

3) *Future* climate assumptions used for erosion modeling.

4) *Paleoclimate* assumptions used for model calibration.

If disagreement on any of these topics, try to define a process and/or studies to resolve disagreement.

EROSION MODEL AND CALIBRATION

Conduct tech. workshop in the near future to consider the idea that different erosion models and their calibration methods should agree with each other within some margin of error, and the error bounds of each method should be reasonably comprehensible, perhaps even predictable....

Different erosion models and calibration methods include the CHILD model used for EIS; WEPP and SWAT models; site-specific data of the type used to calibrate 1996 EIS model

PROPOSED WORKSHOP TOPICS

1) Brief review of the above idea to eliminate any simple misunderstanding that might be easily resolved.

If disagreement, try to define a process and/or studies (NAS?) by which disagreement can be resolved reasonably soon.
If agreement, then set up a process and/or studies for inter-model comparisons/calibrations.

EROSION MODEL AND CALIBRATION

PROPOSED WORKSHOP TOPICS (cont'd)

2) *Incision-and-fill history* of North and South Plateaus (not previously recognized until discovered last year at Franks Creek and Erdman Brook knickpoints), and the relevance of this history relative to model.

3) *Radiocarbon dating* as an alternative or supplement to optically stimulated luminescence (OSL) dating, and how dating is used in model.

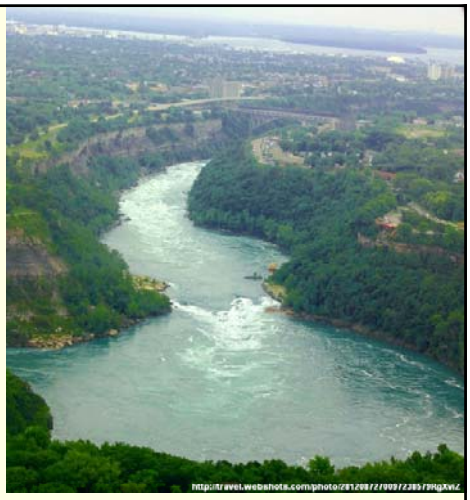
4) *Stream capture*, and how it may be associated with groundwater processes such as sapping, and whether/how it should be modeled.

5) *Base-level history of Buttermilk Creek watershed*, incl. Zoar Valley gorge incision, and its relevance to the model and its calibration.

If disagreement, try to define a process and/or studies by which disagreement can be resolved reasonably soon.
If agreement, then set up a process and/or studies to improve model.

Zoar Valley, main gorge (west of North Otto Rd.)

Length about 6 - 7 miles
Avg. width about 900 feet
Avg. depth about 400 feet
Volume about 10 billion cubic feet
Typical flow about 750 cfs (0.4%)
Peak flow about 30,000 cfs (15%)



Niagara gorge, escarpment to falls

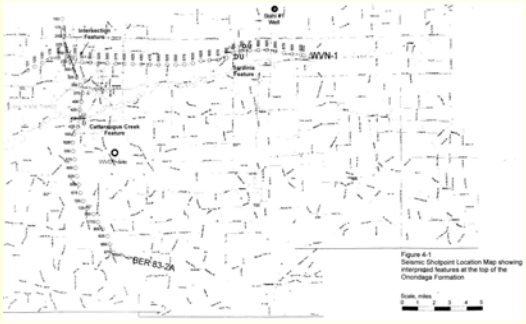
Length about 6 - 7 miles
Avg. width about 1000 feet
Avg. depth about 360 feet
Volume about 10 billion cubic feet
Undiverted flow about 200,000 cfs

REGIONAL GEOLOGIC STRUCTURE (faults, etc.)

RECOMMENDED STUDIES

1) Identify cause and orientation (strike) of closely spaced vertical fractures in bedrock under the North and South Plateaus, as seen in essentially all borings that go to bedrock; assess implications for long-term site integrity

2) Perform additional geophysical testing to determine strike, dip, and most recent reactivation of Sardinia and Cattaraugus Creek Features



BEDROCK VALLEY GROUNDWATER SYSTEM

RECOMMENDED STUDY

Characterization of the bedrock valley water budget and flow pathways (involve R. Yager of USGS, or use his Genesee Valley work as example?)

OCCUPATIONAL INJURIES AND FATALITIES

RECOMMENDED STUDY

Quantify occupational injuries and fatalities, based on NAICS codes, associated with long-term maintenance of erosion control structures

PROBABILISTIC RISK ASSESSMENT

Continue to study, or simply adopt, probabilistic risk assessment as the best available tool for inferring risk from complex sets of data