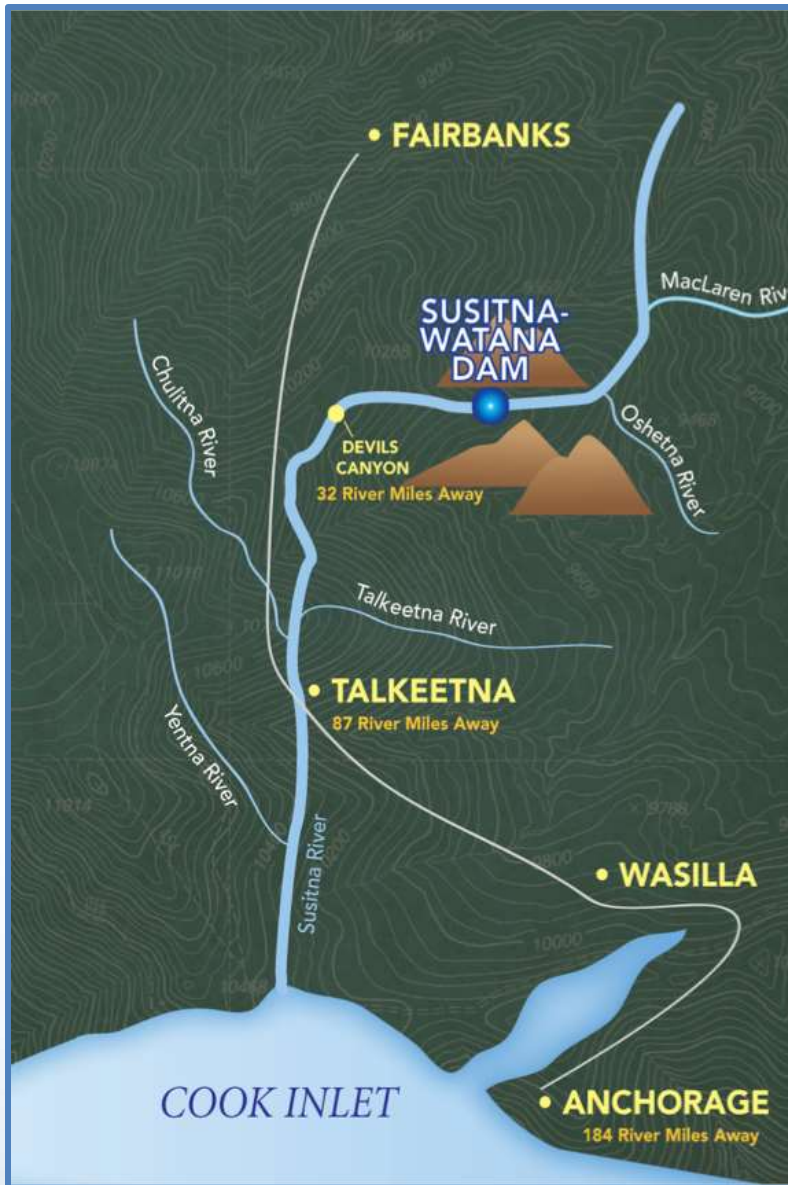


Technical WorkGroup Meeting

Physical Sciences

December 2, 2013

Prepared by MWH



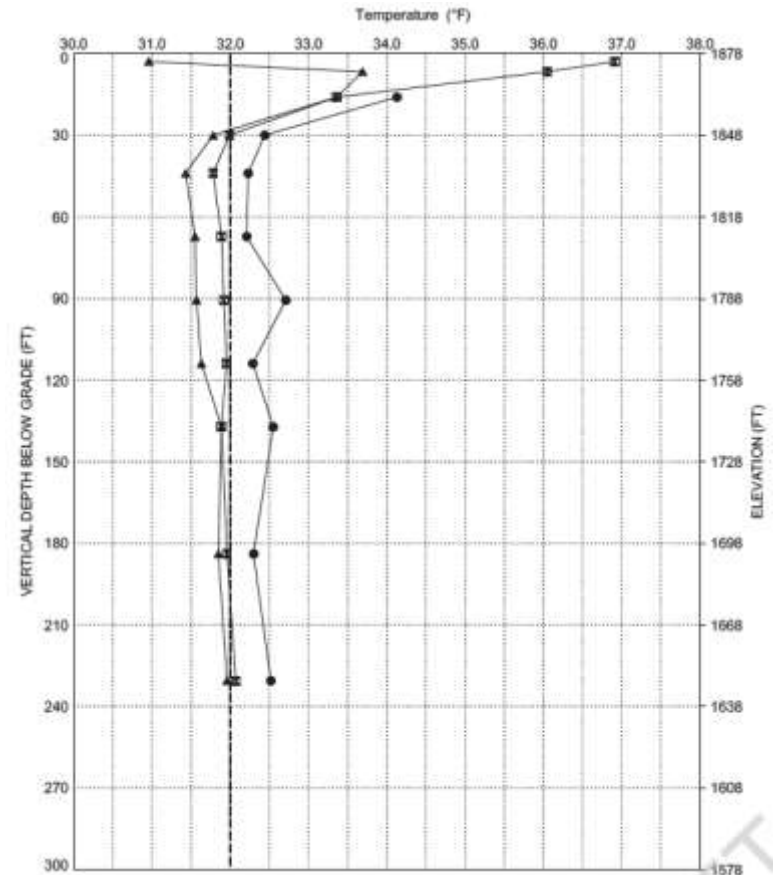
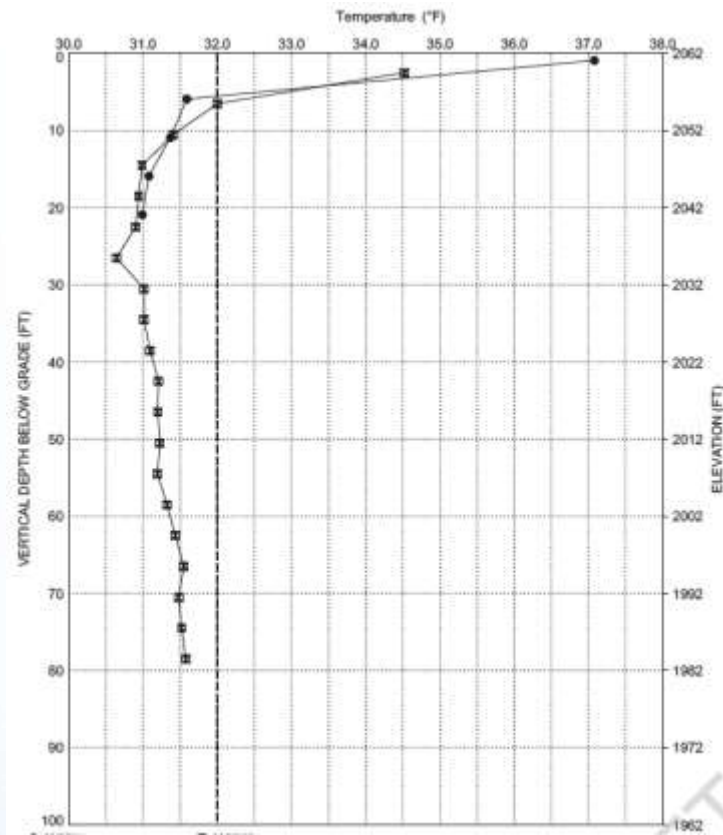
4.5 Geology & Soils

- *Studies being finalized or completed:*
 - *Mineral Resource Assessment; identify prospects/claims, field assessment and sampling*
 - *Regional geology - update Regional Geologic Map (work-in-progress)*
 - *Exploration and Testing Program 2013-15, draft finalized*
 - *Geologic and engineering analysis: Top of rock isopach and engineering properties of rock at dam site*
 - *Crustal Seismic Source Characterization (continuation of earlier Lineament Mapping and Analysis (see 16.6 Study Plan))*
- *Studies underway:*
 - *Data compilation – geotechnical instrumentation data for dam site instrumentation*
 - *Regional geology characterization*
 - *Geologic and engineering analysis in support of design - dam foundation, abutments stability, diversion tunnel*
 - *Planning for 2014 field investigations – dam site, reservoir, infrastructure (e.g., camp, airstrip, access corridors); methods – mapping, drilling, in situ testing, instrumentation, exploratory adit, lab testing*
 - *Preparation of sections of the feasibility report, work in progress*
- *Variations to Final Study Plan*
 - *Dam site area field investigations postponed till 2014*
 - *Geo instrumentation monitoring at dam site discontinued; November 1*
- *Reporting*
 - *Preparing ISR*



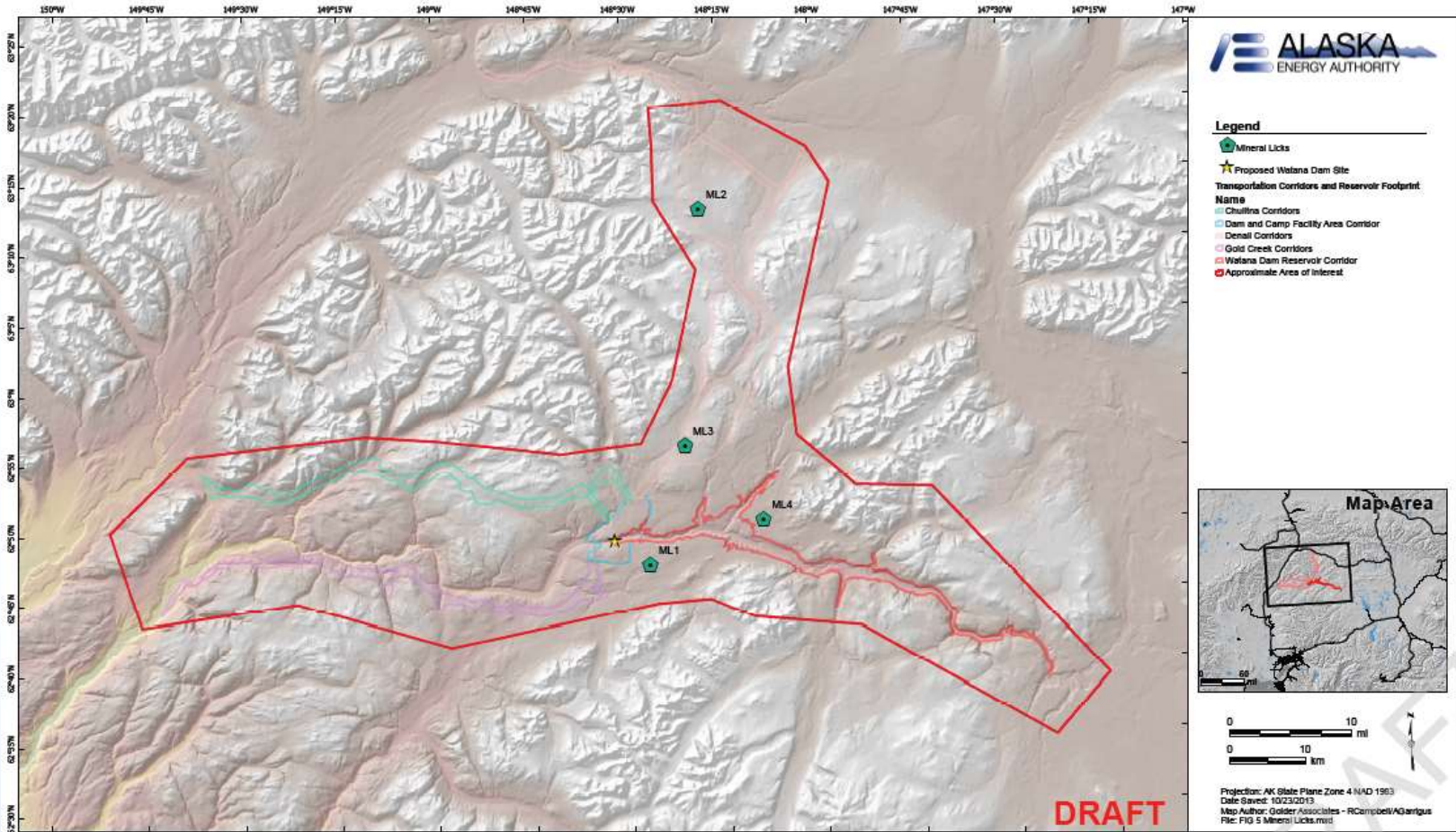
4.5 Geology and Soils

Geotechnical Instrumentation



4.5 Geology and Soils

Mineral Resources Study: Mineral Licks



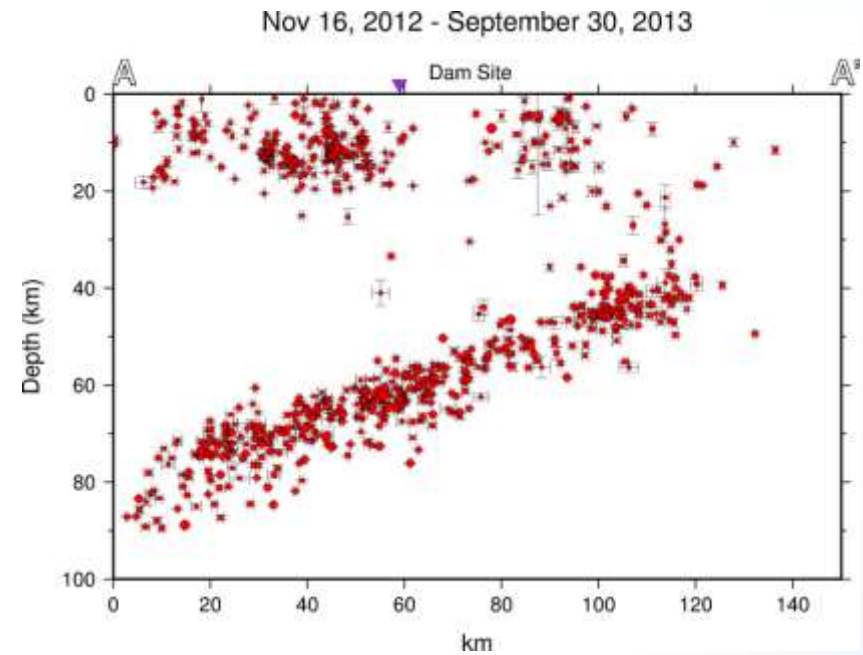
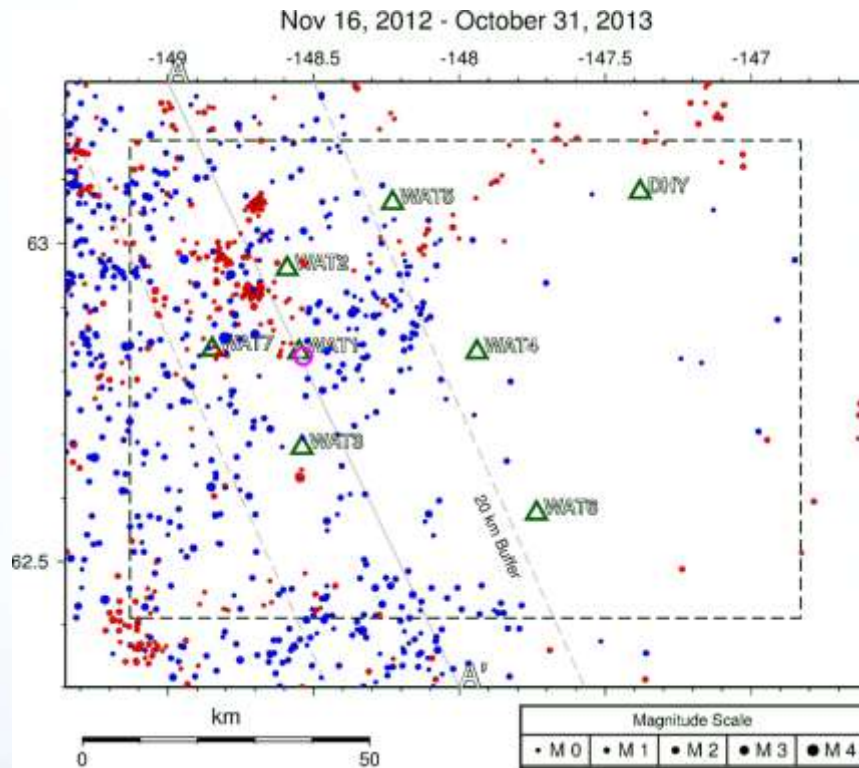
16.6 Site-Specific Seismic Hazard Study

- *Studies being finalized or completed:*
 - *Crustal Seismic Source Characterization Draft; continuation of Lineament Mapping and Analysis Study begun in 2012*
 - *Seismicity: Seven Seismograph Stations; one GPS Station currently*
- *Studies underway:*
 - *Continue crustal seismic source study, lineament/fault evaluation*
 - *Develop draft quaternary geology and update seismotectonic models for the Project area*
 - *Sensitivity study related to PSHA; update of specific elements of the preliminary PSHA (e.g., shear wave velocity, seismicity)*
 - *Seismic monitoring data – continuous record being collected and analyzed; 12 month record to date*
- *Variances from Final Study Plan*
 - *Crustal seismic source study in dam site area field task postponed to 2014*
- *Reporting*
 - *Prepare draft ISR*



16.6 Site-Specific Seismic Hazard Study

Earthquake Events Nov. 2012 – Sept. 2013



16.5 Probable Maximum Flood

- *Studies being finalized or completed:*
 - *Intermediate flood routing*
 - *Meteorological data for historic flood calibration*
 - *PMP/PMF Initial Study Report*
- *Studies underway:*
 - *All-season PMP development*
 - *Develop seasonality component to adjust the all-season PMP to other months*
 - *Runoff model calibration and verification for historic floods*
 - *Probable Maximum Flood combined events criteria*
 - *Freeboard analysis*
 - *PMP final analysis & Development of PMF report for FERC*
 - *Updated Study Report with FERC PMF report attached*

