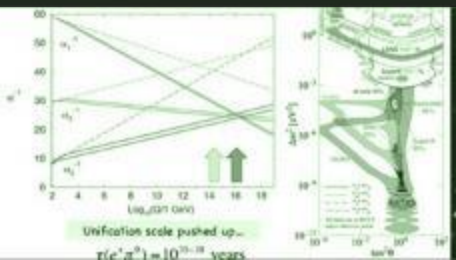
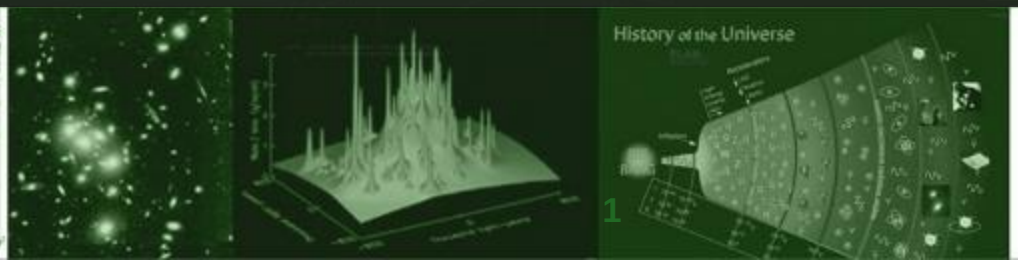
Development of an RFP Package for Deep Well Pump

Pre-Proposal Meeting and Site Visit

October 31, 2017 8:00 AM





Sanford Underground Research Facility

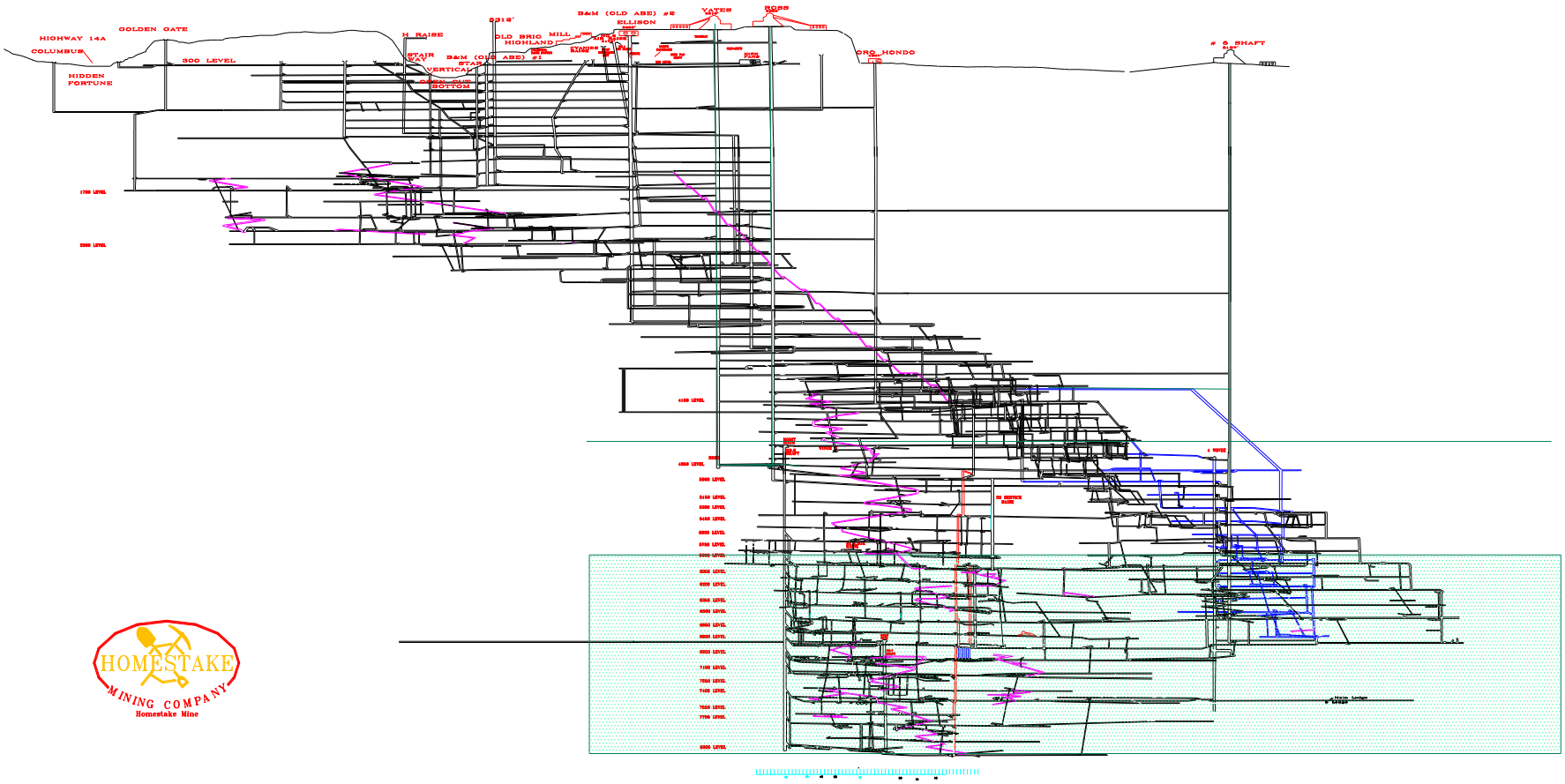
Agenda

Sign In	All
Welcome/Introductions	All
Project Description and Scope	Mike Johnson
ESH Considerations	Jason Rosdahl
Key RFP Guidelines and Timeline	Michele Baumann
Site Tour	Mike/Jason

Project Description and Scope

- The Homestake mine was closed in 2002 which included turning off the pumping systems located throughout the full expanse of the mine.
- In 2006 the mine was donated to the state of South Dakota. The state set up a quasi-governmental agency named the South Dakota Science and Technology Authority (SDSTA) for developing and establishing an underground science laboratory. The SDSTA is established to operate and manage the Sanford Underground Research Facility (SURF) at the former Homestake Gold mine in Lead, South Dakota.
- The SDSTA took control and pumping resumed in 2009. During those seven years, the water levels rose from the sump below the 8000 level up to the 4500 level in the underground.
- By late 2011, the water level had been pumped down to its current level, and is allowed to fluctuate between the 5650 level down to the 5900 level. The deepest level of the underground is the 8000 level, so there remains a significant “pool” of water in the old underground workings.

Homestake Long Section View



HOMESTAKE MINING COMPANY
LEAD, SOUTH DAKOTA

Project Description and Scope

- Estimates of 500 to 600 gpm infiltration water occurs continually along with an additional amount of water originating from rain runoff in the open cut part of the facility.
- These inflows must be removed to keep the pool water level stable.

- At the end of December 2017, the SDSTA is going to own leased equipment related to pumping water from the pool in the underground portion of the laboratory. This is due to an expiration of a lease with the leased equipment reverting to SDSTA ownership. The equipment list can be found in Appendix A.
- Continued pumping to keep the water at a manageable and safe operating level remains as a high priority for the SDSTA.

Project Description and Scope

Procurement and Installation of a new pump

This request is to provide a firm fixed-price proposal for the supply and installation of a submersible pump system.

- Immediately purchase two new pumps, motors, and seals, plus one set of electrical cable, one string of pipe 1500’ long, and pressure sensor.
- One set of this new equipment would need to be installed after January 2018 and prior to September 20, 2018, or immediately if the existing pump experienced a failure. This includes the removal of the existing pipe string and Centrilift pump and motor.
- While waiting to be installed, the Contractor shall maintain both sets of equipment as per manufacturer’s full recommendations.
- Existing electrical supply, switchgear, transformers, and VFD drive components will be expected to be reused.
- Includes all electrical disconnections and reconnections to the electrical supply.

Project Description and Scope

2.2 In the Shaft Derrick System at #6 Winze

4550L Equipment

- An “in the shaft derrick” system was built to install and remove the pump and pipe string.
- At the top of the “derrick”, is a winch and hydraulic drive system
- An 8 part sheave block assembly is anchored to the steel structure
- The sheave block is in the parked position however it still carries the 50 ton polyester endless sling.

#6 Winze 4550L Derrick System

Project Description and Scope

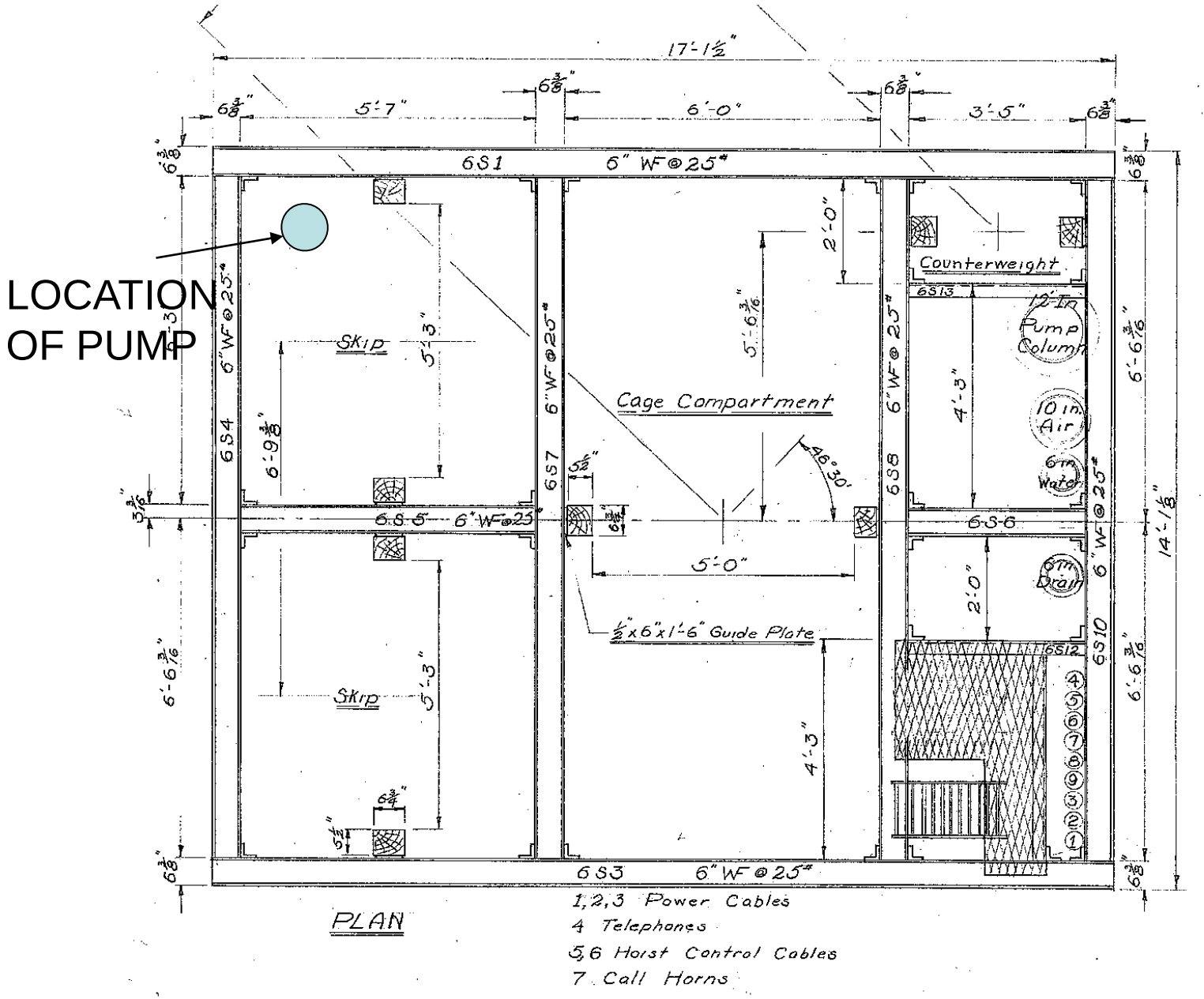
The new pipe delivered to the SDSTA shall be transferred to special underground transport cars (Zimmerman cars) by the contractor personnel and assisted by SDSTA personnel. These shall be transported down the shaft by the SDSTA crew members and delivered to the 4850L. There, SDSTA shall transport the car to the work site where contractor personnel shall unload the pipe.

The contractor shall advise the SDSTA when it nears the end of the job and setting of the well head on its permanent landing is close at hand. An SDSTA crew will then mobilize to the 5000L to align the nozzle to its proper position, the pipe string shall be landed and the SDSTA crew shall couple the existing discharge pipe to the nozzle. Then, final electrical connections can be installed.

Zimmerman Car With Load Of 8” Pipe

Zimmerman Car With 8” Pipe at Yates

Plan View Of The #6 Winze



Project Description and Scope

2.3 Operating History

Operating history has shown that there exists an anaerobic system in the underground pool of water that encourages the growth of iron eating bacteria. The bacteria have contributed to stress corrosion cracking in steel containing alloys. The bacteria rob the iron from the crystalline structure leaving behind a weak matrix that is prone to cracks that open fresh iron to be decayed by the bacteria. Although fresh water continually flows into the upper sections of the winze, the lab is expecting the bacteria to always be a major factor. A bronze fitted pump that does not contain iron is required, however other non-iron containing alloys can be considered.

2.4 Capacity and Head Requirements

Flows from the deep well pump must match an existing split case dewatering pump maintained by the SDSTA. These can range from 1550 gpm to as low as 1300 gpm, and is fully dependent upon wear within the split case pump. A variable speed drive has worked adequately with the existing pump and motor combination. Typical run times can vary between 8 hours per day to 24 hours per day.

Project Description and Scope

2.5 Notification of Equipment Failure

If the pump or motor equipment were to fail prior to the installation of the first pump, the Contractor will be notified by the SDSTA that the equipment is failing or has failed and the Contractor will be given no later than 5 weeks after the notification of equipment troubles to mobilize at the SDSTA site.

The SDSTA recognizes that there is a period of time where the pump is waiting for delivery. During that period, the contractor may not be able to meet the notification time period outlined in the preceding paragraph. In this case, the contractor shall meet with the pump supplier to obtain a firm delivery schedule and determine if the equipment can be expedited and at what cost. The SDSTA shall provide guidance if this were to occur.

6 Access For Work

All work is located in the underground portion of the Sanford Lab. Transportation down the Yates shaft and to the work site is provided by the Sanford Lab crews. When the Contractor is on site for maintenance or pump string removal, they will have at least one SDSTA person acting as a guide. A second guide will be supplied when access to the 4550L is necessary.

ESH Considerations

- The ES&H considerations for this project are complex as the crews will be working underground and within an unused winze, specialized rigging is employed, a remote controlled hydraulic winch is utilized, and submersible medium voltage electrical cable splicing is necessary.
- This site visit should be minimal, lasting 2 ½ hours. Everyone is required to wear the proper PPE - hard toed shoes, hard hat, safety glasses, fall arrest, battery lamp, self rescuer, and reflective vest.
- We will conduct a brief site-specific training today before our tour.

Key RFQ Guidelines

Questions not asked today must be emailed to mbaumann@sanfordlab.org by the posted deadline. Questions and written responses will be published on the project webpage: https://www.sanfordlab.org/contract/request-proposal-deep-well-pump.

No other communication with SDSTA staff regarding this RFQ is allowed prior to the selection process.

Today's presentation will be posted on the project webpage noted above, along with any addenda, updates, notices, changes, etc.

Please note any issues with or exceptions to the draft contract (or any other RFQ language) in your proposal.

Submit proposals by email to mbaumann@sanfordlab.org.

Proposals will be evaluated according to the criteria outlined in Section 4. SDSTA may select one contractor, or invite a short list of candidates to respond to prepared questions during a scheduled on-site presentation.

Proposal Timeline

- RFQ Posted: October 9, 2017
- Mandatory Site Visit: October 31, 2017
- Questions Due: November 7, 2017 2:00 p.m. MT
- Questions/Answers Posted: November 10, 2017 2:00 p.m. MT
- Proposal Due Date: November 16, 2017 2:00 p.m. MT

Questions before the site tour?