Request for Qualifications for Judge and Spiro Tunnels Mining-Influenced Water Treatment Engineering Services

Pre-proposal Conference

December 17, 2014

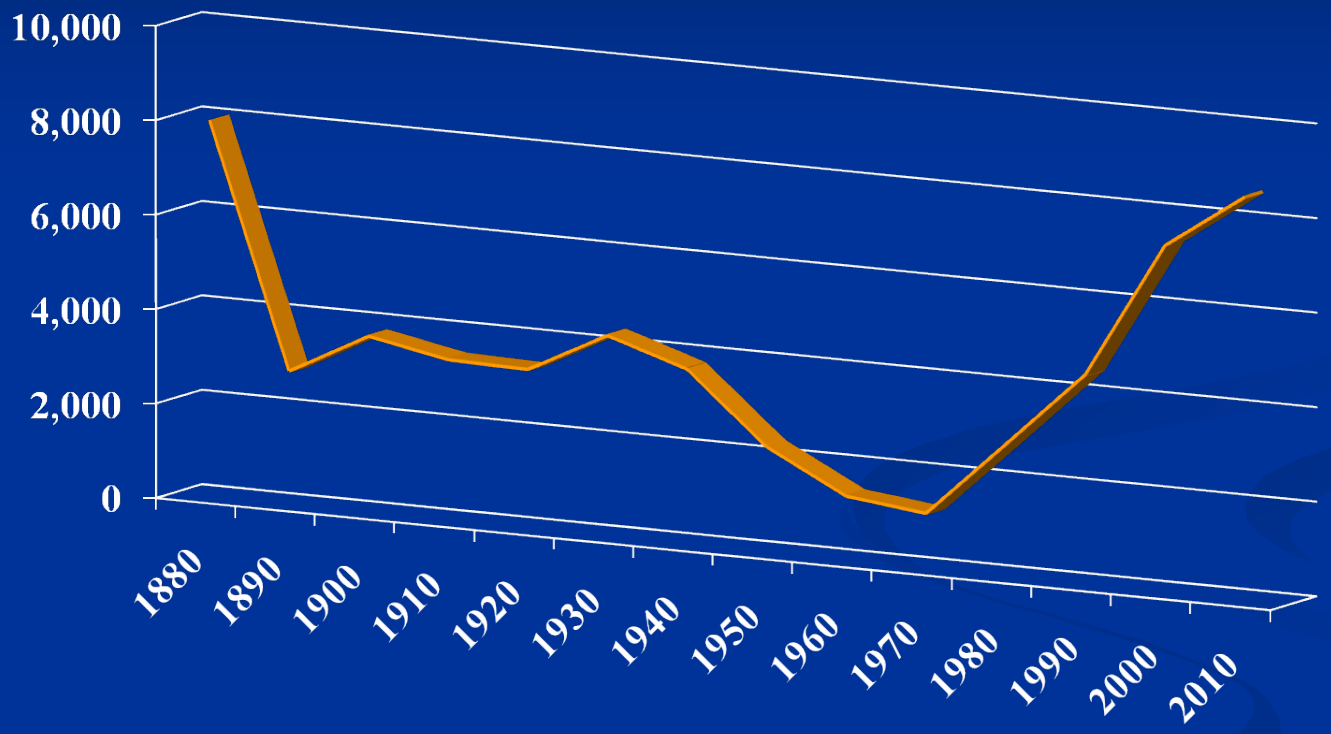
Agenda

- Park City team introductions
- Park City water background
- Tunnel SCO/Permit background
- Tunnel permits
- Project scope
- Questions

Park City Team Introductions

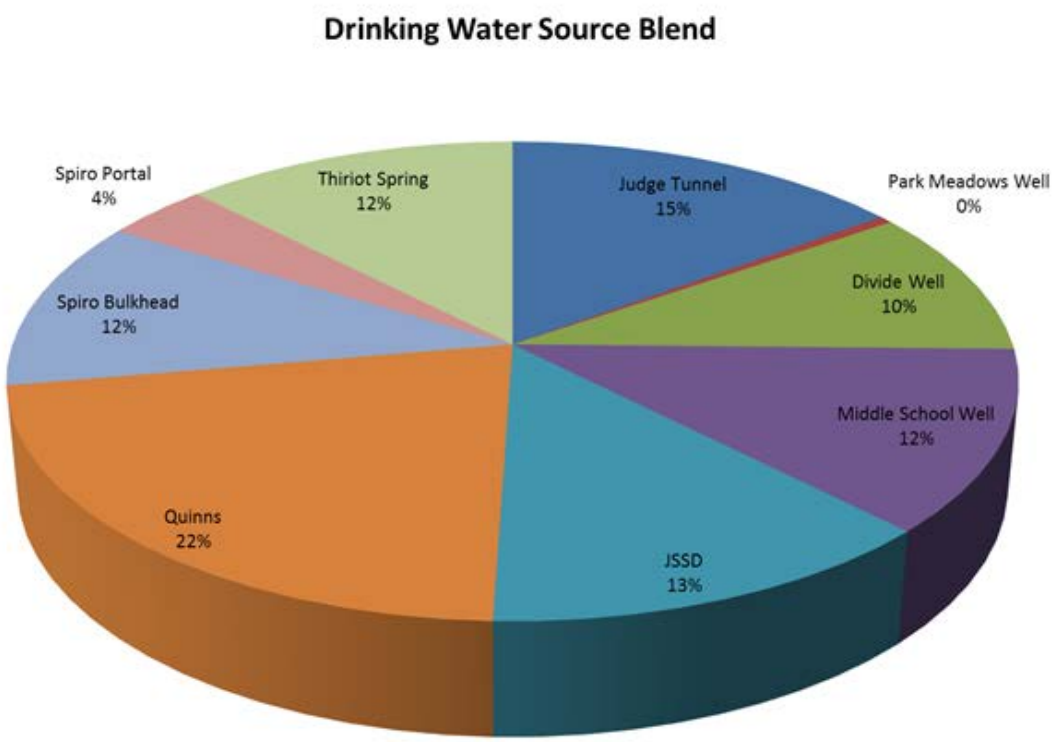
Park City
Water Background

Historical Population of Park City



The Beginning – Park City Booms in the late 1800s to Mine Silver; Zinc By-Product

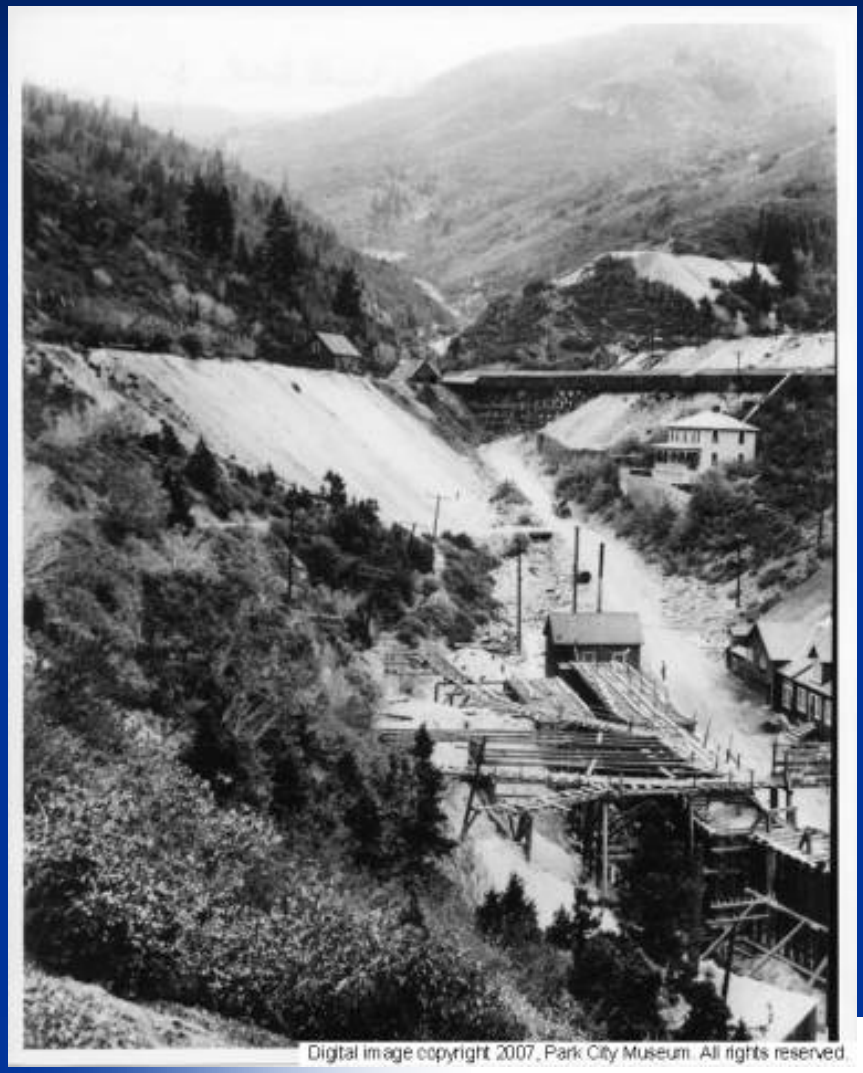
Today: One of Most Complex Water Systems in the West



Example at 4.5 MGD; Ranges from 2-9 MGD

- 8,500 base population
- 45,000 people during Sundance
- Shoulder season demand swings
- Elevation range = 6,500’ – 10,000’
- Potable system - treatment, supply, distribution system with 54 pressure zones
- Surface and raw water conveyance systems
- Tunnels major supply sources

Judge Tunnel Electrolytic Zinc Mining



Judge Tunnel

- Developed as drainage water from mine operations
  - Portal: flows along tunnel floor where collected and piped
  - Easement from United Park City Mines Company to collect and convey water; operate and maintain tunnel to 9,000 ft. from portal
- Municipal drinking water source with chlorination and storage at Empire tank until June 2013
- Discharging into Empire Creek, tributary to Silver Creek

Judge Tunnel Characterization & Flow

- Water quality
  - Typically meets drinking water MCLs, except antimony; pH: 7-8
  - Other heavy metals below MCLs and SMCLs
    - Fe, Mn, Pb, Cd, As, Zn and potentially Hg
  - Intermittent upset conditions result in lesser water quality
- Flows
  - Annual average day: 925 gpm
  - Seasonal peak: 2,500 gpm

Spiro Tunnel

Spiro Tunnel

- Developed as drainage water from mine operations
  - Portal: flows along tunnel floor where collected and piped
  - Bulkhead: flows diverted into pipe at bulkhead, 13,000 ft back from portal, to Spiro WTP wetwell
  - Easement from UPCMC to collect and convey water; operate and maintain tunnel to bulkhead
- Municipal, snowmaking and agricultural source
- Discharges into Spiro WTP, East Canyon Creek or Silver Creek via Park City golf course and McCloud Creek

Spiro Tunnel Characterization & Flow

- Water quality
  - Untreated: heavy metals
    - Fe, Mn, Sb, Tl, As, Zn; pH: 7-8
  - Intermittent upset conditions result in lesser water quality
- Flows
  - Annual average day: 4,500 gpm
  - Seasonal peak: 9,800 gpm

Spiro WTP

- Coagulation/Filtration WTP, for arsenic, thallium, iron and manganese reduction
  - Higher Cl_2 dosed for Tl reduction
  - Ferric chloride coagulation
  - Bisulfate added to reduce Cl_2
  - Solids handling facilities
- Blends with Thiriot Springs for antimony compliance

Quinns Junction WTP

- Coagulation/MF with ACH, GAC contactor and chlorination, plate settlers for solids
  - Treats imported Weber River water from Rockport intake
  - 3 MGD expandable to 9 MGD

Judge Tunnel Conveyance

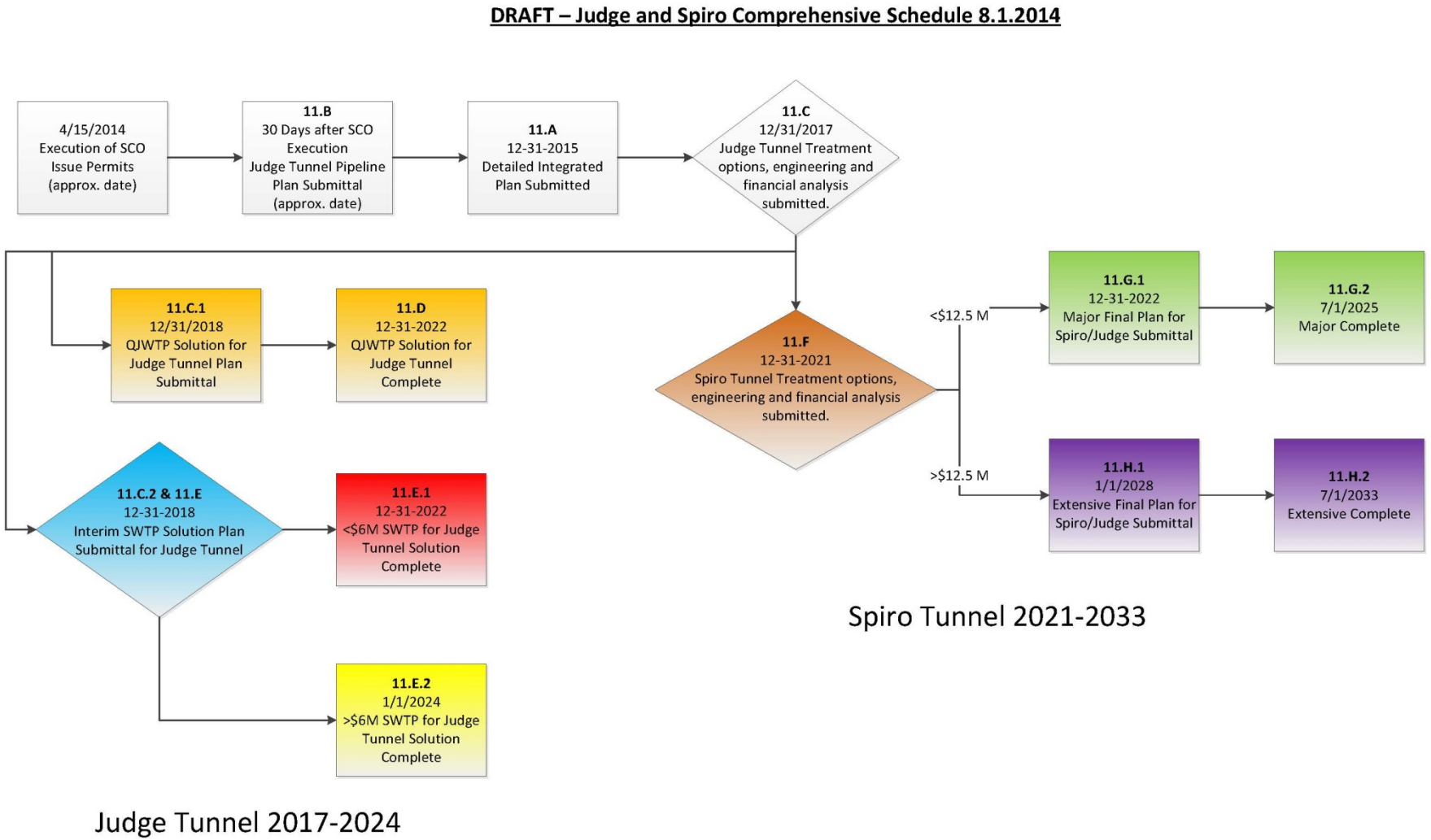
- Portal water to Empire Tank
- Pipeline to treatment location

Tunnel SCO/Permit History

Stipulated Compliance Order (SCO)

- DWQ required permits for Spiro and Judge tunnel discharges
- SCO dictates compliance schedules to gain compliance with permit limits, based on many factors including financial burden
- SCO and tunnel permits online

SCO Schedule



DWQ Permits

Monitor only; future permit limits

Judge Tunnel Future Permit Limits

Parameter	Maximum Monthly Avg.	Daily Min	Daily Max
Antimony (µg/L)	5.6	NA	NA
Cadmium (µg/L)	0.42	NA	3.9
Lead (µg/L)	6.8	NA	15.0
Mercury (µg/L)	0.012	NA	2.0
Zinc (µg/L)	198	NA	2.0
TSS (mg/L)	25	NA	35
Phosphorous	NA	NA	NA
pH	NA	6.5	9.0
DO (mg/L)	NA	5	NA
Chronic Biomonitoring	NA	NA	Pass/Fail

Spiro Tunnel Future Permit Limits

Parameter	Maximum Monthly Avg.	Daily Min	Daily Max
Antimony (µg/L)	5.6	NA	NA
Arsenic (µg/L)	NA	NA	10
Cadmium (µg/L)	0.75	NA	8.7
Selenium (µg/L)	4.6	NA	18.4
Thallium (µg/L)	0.24	NA	NA
Zinc (µg/L)	388	NA	388
TSS (mg/L)	25	NA	35
pH	NA	6.5	9.0
DO (mg/L)	NA	5	NA
Chronic Biomonitoring	NA	NA	Pass/Fail

Project Scope

RFQ centers on Phase I objectives of a multi-phase project.

Phase I consists of:

- Phase IA - Desktop Evaluation
- Phase IB - Bench/Pilot Testing of Alternatives
- Phase IC - Treatment Facility Concept Study

Treatment process(es) to address both stream water and drinking water requirements

Proposal Requirements

RFQ centers on firm/team qualifications and experience specific to Phase I

Project Approach – To understand firm/team's approach and methodologies specific to Phase I, integrating qualifications and experience

Questions?