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The findings, determinations, and assertions contained in this document are not final and subject to change following the public comment period.

FACT SHEET/STATEMENT OF BASIS
PARK CITY MUNICIPAL CORPORATION
UPDES PERMIT NO. UT0025461
SPIRO TUNNEL
NEW PERMIT
MAJOR INDUSTRIAL

FACILITY CONTACT

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DESCRIPTION AND PAST HISTORY OF THE FACILITY

The Spiro Tunnel was built in the early 1900s to drain the mine workings on the west side of Park City.[1] Park City Municipal Corporation or "Park City" holds an easement for the installation, operation and maintenance of a municipal water system within a portion of Spiro Tunnel. Park City currently operates the portion of the Spiro Drain Tunnel as a source for potable water for the city. The current drinking water treatment facility is located at 1884 Three Kings Drive, in Park City, Summit County, Utah.

The Spiro Drain Tunnel water originates from two sources within the tunnel, "portal water" and "bulkhead water". The water referred to as "portal water" flows freely over a bulkhead, located 13,000 feet back in the tunnel, onto the tunnel floor where it converges with other seeps and flows along the length of the tunnel and is collected in a pipeline about 300 feet from the tunnel portal. 'Bulkhead water' is collected in a pipeline at the bulkhead and then flows through a closed pipeline separated from the portal water. The combined portal and bulkhead water flow averages roughly 4,400 gallons per minute, or approximately 6.3 million gallons a day. The water is piped into splitter boxes where the water is split to the Spiro Water Treatment Plant (Spiro WTP) and into either the East Canyon Creek or Silver Creek drainages via the golf course ditch system and McLeod Creek.

Water discharged from a mine is considered a "point source" as defined by the "Clean Water Act." The operator of the point source is required to get a National Pollutant Discharge Elimination System permit, (known in Utah as Utah Pollutant Discharge Elimination System permit or "UPDES" permit). *Utah Administrative Code R317-8-3.1 (3)*. Park City submitted its application for an UPDES permit in July 2011 and updated the application in February 2012.

BACKGROUND AND PURPOSE OF THE PERMIT

.[1] D. Hampshire, M. Bradley, A. Roberts, A History of Summit County(1998, Utah State Historical Society, Summit County Commission, IBSN: 0-913738-46-8, http://utahhistory.sdlhost.com/#/item/000000011019560/view) at page 321.

To bring the Spiro Tunnel discharge into compliance with *Utah Administrative Code R317-2-14* will take significant time and money due to the scope and extent of the challenges facing Park City, both from a UPDES and Drinking Water program perspective. Along with the complex issues associated with the Spiro Tunnel discharge, the challenges are compounded due to similar issues associated with the Judge Tunnel mine drain discharge. The Spiro Tunnel is approximately 2.3 miles from the Judge Tunnel portal. Park City will likely have to change its present management of the discharge, through movement of the outfalls and/or implementation of treatment of the discharge. As such, outfall configurations and monitoring requirements may change in future permits. All of this will involve complex decisions with regard to treatment, management, and funding issues to come into compliance with the proposed final permit effluent limits contained herein.

Park City has elected to achieve UPDES compliance for the Spiro Tunnel in accordance with an "Integrated Plan" consistent with EPA's May 2012 *Integrated Municipal Stormwater and Wastewater Planning Approach Framework ("Integrated Framework),"* which would allow an extended period of time to come into compliance with final effluent limits. The Division of Water Quality has concurred that the use of an Integrated Framework would be appropriate to achieve compliance.

Compliance with final effluent limits will be achieved in the future for Outfalls 001 and 002 on a schedule as detailed in the companion Stipulated Compliance Order, Docket No. M14-01. The compliance schedule was placed in this separate document in order to facilitate coordination of compliance of multiple schedules in multiple UPDES permits for Park City.

In accordance *with the May 10, 2007 EPA Memorandum: "Compliance Schedules for Water Quality Based Effluent Limitations in NPDES Permits",* effluent limits must be put into permits where the compliance schedule may extend beyond the permit term. As such, the anticipated future final limits for the Spiro Tunnel discharges are included in this permit. Inclusion of the limits in this permit will also serve the purpose of designating discharge water quality levels for future treatment design considerations.

The function of this permit, during its term, is to monitor the quantity and quality of the "Portal" and "Bulkhead" discharges from the Spiro Tunnel separately, to better characterize the qualities of each for future treatment process design considerations. As such, the frequency of required monitoring for these discharges is appropriate for such characterization. The frequency of monitoring in a future permit, when effluent limits become effective, would likely increase, to ensure compliance.

During the duration of this permit the Judge Tunnel Pipeline (JTPL) will be completed, which will convey Judge Tunnel water to the vicinity of the Spiro Water Treatment Plant or "SWTP". It is Park City's goal to utilize Judge Tunnel water as soon and as much as possible, although realizing this goal is dependent on many factors not within Park City's control, including future drinking water quality standards, the water chemistry in the area, and changes inside the mining tunnels. If Park City determines the existing treatment process at SWTP to be suitable to meet Park City's drinking water goals with minor modifications, and drinking water standards, water characteristics and operational conditions remain favorable, Park City may elect to treat a portion of Judge water for drinking water use at the existing SWTP at any time. During this permit term

and until completion of final treatment facilities at the SWTP, only de-minimus flows of Judge water may be discharged from the SWTP site and area. Such occasional discharges would be for treatment modeling and pilot testing purposes only.

A Total Maximum Daily Load or "TMDL" study on cadmium and zinc for Silver Creek was approved by EPA on August 4, 2004. The primary source areas for these pollutants are mining-related tailings within and along the stream channel. The TMDL identified specific source areas located in four stream reaches. Reach 1 (Above Park City) includes the Judge and Spiro mine tunnels and mine-related tailings. The TMDL estimated the contribution of zinc from the Spiro Tunnel to be less than 300 pounds per year, while the total zinc load from all reaches was calculated to be 37,146 pounds per year. Because Spiro was determined to be a minor contributor of zinc and cadmium, the TMDL did not calculate a specific load allocation for this source. Rather, the TMDL recommended the use of best management practices (BMPs) and a recalculation of the load limits once a 75% load reduction from the legacy mine tailings was achieved. Significant reductions from the non-point sources have been achieved and remedial activities are currently ongoing in the Silver Creek watershed. The timing of the permit and compliance schedule is in alignment with the goals of the TMDL.

Silver Creek was listed in Utah's 2008 303(d) list for arsenic and total dissolved solids. A TMDL has not yet been completed for these constituents. A quantitative reasonable potential analysis conducted for these constituents in the Spiro Tunnel discharge found reasonable potential to exceed water quality standards for arsenic, but not for total dissolved solids. As such, only arsenic will be added to the permit.

DESCRIPTION OF OUTFALLS 001 and 002

Outfall 001 is a sample point for the Spiro Tunnel "Bulkhead" flow discharge water. This sample point is located at the discharge of the feed line of the "Bulkhead" flow from the Spiro Tunnel as it enters the Spiro Water Treatment Plant. Outfall 002 is a sample point for the Spiro Tunnel "Portal" flow discharge water. This sample point is located at the discharge of the feed line of the "Portal" flow as it enters the Spiro Water Treatment Plant.

These outfalls are located at a latitude of 40° 39' 39.14 " N and a longitude of 111° 30' 58.22" W. Samples collected at and/or near this location will be representative of flows between the tunnel and inside the Spiro Water Treatment Plant.

These outfall configurations are not consistent with those specified in the Park City UPDES application of February 7, 2012, but were subsequently agreed upon during permit development.

The outfalls identified in this permit will need to be modified in accordance with the construction of treatment processes associated with the Spiro Tunnel waters in a future permit version. These new outfalls will reflect the treated waters discharged from the Spiro water treatment plant to the identified receiving waters of McLeod and Silver Creeks.

RECEIVING WATERS AND STREAM CLASSIFICATION

The receiving streams are McLeod Creek and Silver Creek, thence the Weber River. Under *Utah Administrative Code R317-2-6*, the beneficial use designations for McLeod Creek and Silver Creek and the Weber River are *1C, 2B, 3A and 4*.

Class 1C - Protected for domestic use purposes, with prior treatment by processes as required by the Utah Division of Drinking Water.

Class 2B - Protected for secondary contact recreation such as boating, wading, or similar uses.

Class 3A - Protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain.

Class 4 - Protected for agricultural uses including irrigation of crops and stock watering.

BASIS FOR EFFLUENT LIMITATIONS, OUTFALLS 001 AND 002

The discharge from the Spiro Tunnel and Thiriot Springs are the dominant flows in the headwaters of McLeod Creek. Therefore, even with dilution of Thiriot Springs, the stream standards for certain heavy metals and other parameters are not being met under *Utah Administrative Code R317-2-14, Numeric Criteria for Aquatic Wildlife, Numeric Criteria for Human Health Standards, and Numeric Criteria Irrigation Standards.*

Reasonable Potential Analysis

Park City has collected a number of water quality samples from the Spiro Tunnel discharge. Samples were analyzed for a full suite of metals (total and dissolved) hardness, total suspended solids, total dissolved solids, calcium, magnesium, turbidity, phosphorous, nitrate, radionuclides, and BOD. A hardness of 400 mg/l was used to determine the applicable hardness-dependent water quality standards, as measured values exceeded the 400 mg/l maximum as outlined in R317-2-14, Utah Water Quality Standards.

The flow at the discharge point consists entirely of the Spiro Tunnel flow. As a result, no dilution/mixing zone was used in developing water quality standards for proposed effluent limits and reasonable potential analysis. End of pipe standards were applied.

A quantitative reasonable potential analysis (RP) was performed on each constituent to determine if there was reasonable potential for the discharge to exceed the applicable water quality standards. Based on the RP analysis, the following parameters exceeded the most stringent chronic water quality standard or were determined to have a reasonable potential to exceed the standard: antimony, arsenic, cadmium, selenium, thallium, and zinc.

The basis for the final effluent limitations for the following parameters for Outfalls 001 and 002: antimony, arsenic, cadmium, selenium, dissolved oxygen, thallium and zinc are the Utah Water Quality Standards for the receiving waters. All the above limitations were subject to the EPA Region 8 model "reasonable potential analysis" which determined that these pollutants in the discharge have a reasonable potential to violate water quality. The limitations on pH and total

suspended solids in all outfalls are based on *Utah Secondary Treatment Standards, Utah Administrative Code R317-1-3.2.*

The monitoring requirements for Outfalls 001 and 002 are based on the permit writer's best professional judgment as to the optimum frequency for long-term characterization of the quality of the discharge water.

EFFLUENT LIMITATION AND MONITORING REQUIREMENTS

In accordance with the May 10, 2007 EPA Memorandum: "Compliance Schedules for Water Quality Based Effluent Limitations in NPDES Permits", which requires that effluent limits must be put into permits where the compliance schedule may extend beyond the permit term, final limits are included in this permit. **These limits will come into effect in the future, as required in the companion document, Stipulated Consent Order (SCO) Docket No. M14-01, as explained below. The schedule for compliance with these limits is contained in the separate SCO to facilitate coordination of the compliance schedules for multiple UPDES permits. During the duration of this permit term and future permit terms within the compliance periods outlined in the SCO, monitoring only will be required at the frequencies shown in Table 2.**

The limits included in this permit represent water quality targets to enable future treatment process design. These limits may be subject to revision in the future, should new information become available, or site conditions change.

Table 1, Future Effluent Limitations for Outfalls 001[a/b/] and 002[a/b/]

Parameter	Maximum Monthly Average	Daily Minimum	Daily Maximum
Total Recoverable Antimony, ug/l Based on human health criteria	5.6	NA	NA
Total Recoverable Arsenic, ug/l Monthly average based on human health criteria, daily max based on 1C	NA	NA	10
Total Recoverable Cadmium, ug/l Based on 3A	.75	NA	8.7
Total Recoverable Selenium, ug/l Based on 3A	4.6	NA	18.4
Total Recoverable Thallium, ug/l Based on human health criteria	0.24	NA	NA
Total Recoverable Zinc, ug/l Based on 3A	388	NA	388
TSS, mg/l Based on Based on BPJ and secondary treatment standards	25	NA	35
pH, Standard Units Based on secondary treatment standards	NA	6.5	9.0

Dissolved Oxygen, mg/l Based on 3A	NA	5	NA
Chronic Biomonitoring	NA	NA	Pass/Fail

NA – Not Applicable.
a/ Final effluent limitations for Outfalls 001 and 002 will become effective in a future permit in accordance with the Stipulated Compliance Order, Docket #M14-01.
b/ During the duration of this permit the Judge Tunnel Pipeline (JTPL) will be completed, which will allow conveyance of Judge Tunnel water to the vicinity of the Spiro Treatment Plant. During this permit term and until completion of final treatment facilities at Spiro WTP, only deminimus flows of Judge water may be discharged from the Spiro Treatment plant site and area. Such occasional discharges would be for treatment modeling and pilot testing purposes only.

Starting immediately and lasting throughout the permit term, Outfalls 001 and 002 are subject to the Self-Monitoring and Reporting Requirements in Table 2 below:

Table 2, Self-Monitoring and Reporting Requirements for Outfalls 001 and 002			
Parameter	Frequency	Sample Type	Units
Flow a/	Continuous	Recorder	MGD
Total Recoverable Antimony	Quarterly	Composite	ug/L
Total Recoverable Arsenic	Quarterly	Composite	ug/L
Total Recoverable Cadmium	Quarterly	Composite	ug/L
Total Recoverable Selenium	Quarterly	Composite	ug/L
Total Recoverable Thallium	Quarterly	Composite	mg/l
Total Recoverable Zinc	Quarterly	Composite	ug/L
TSS	Quarterly	Composite	mg/L
Dissolved Oxygen	Quarterly	Grab	mg/l
pH	Quarterly	Grab	Standard Units
Chronic Biomonitoring	2 tests in permit term[b/]	Grab	IC25 > 100% effluent Pass/Fail

a/ An estimated daily average flow over the reporting period shall be reported for each outfall.
b/ Two chronic WET tests will be performed during the permit term on effluent from a pilot scale treatment plant of representative effluent from the blended Judge and Spiro feedwaters. The blended feeds will be representative of actual ratios of feedwaters from the two tunnels that will result from the management configuration of the finished treatment project for both tunnel effluent streams. One WET test will be performed during the high flow Spring period and the other separated by approximately six months during the low flow Fall period. The chronic test will be run on the two species, Ceriodaphnia dubia (water flea) and Pimephales promelas (fathead minnow). The chronic WET tests will be done in accordance with Section I. 3. B). If toxicity is detected no further investigation or testing will be required during this permit period.

ANTI-DEGRADATION REVIEW

Under *Utah Administrative Code R317-2-3.5.8.d., an Anti-degradation Level II Review will be required by the Director of the Division of Water Quality for discharges to waters with a Class*

1C drinking water use assigned. Since Park City is discharging into a *Class 1C* drinking water source, Park City must conduct an Anti-degradation Level II Review. Park City has submitted a Level II ADR with a partial alternatives analysis for the purposes of this permit. This review will help Park City decide what the City needs to do to come into compliance with the effluent limitations, and is part of the 'Stipulated Compliance Order'. More complete alternatives' analyses and updated ADRs, if needed, will be submitted by Park City at a future time as specified in the Stipulated Compliance Order.

REPORTING

The permit will require reports to be submitted quarterly on Discharge Monitoring Report forms or by NetDMR electronically for each quarterly reporting period, all due by the 28th day of the month following the reporting period. Lab sheets for biomonitoring must be attached to the biomonitoring Discharge Monitoring Report forms.

STORM WATER

According to *Utah Administrative Code R317-8-3.9* this facility will not be required to maintain coverage under the UPDES multi-sector general permit for discharges associated with industrial activity, permit number *UTR000000, sector G (Mineral Industry, SIC Major Group 10).* This is because the storm water will not likely come in contact with, or be contaminated by any overburden, raw material, intermediate product, finished product, by product, or waste product located on the site of the operation.

BIOMONITORING REQUIREMENTS

A nationwide effort to control toxic discharges where effluent toxicity is an existing or potential concern is regulated in accordance with the State of Utah Permitting and Enforcement Guidance Document for Whole Effluent Toxicity (WET) Control (biomonitoring). Authority to require effluent biomonitoring is provided in Permit Conditions, *Utah Administrative Code R317-8-4.2*, Permit Provisions, *Utah Administrative Code R317-8-5.3* and Water Quality Standards, *Utah Administrative Code R317-2-5* and *R317-2-7.2.*

Since the Spiro Tunnel discharges are to drinking water source *(Class 1C),* and a cold water fishery *(Class 3A) waters*, and the current effluent concentration of a few parameters appear unable to meet the effluent limitations for Table 1, there is reasonable potential for toxicity to exist in the discharge of Outfalls 001 and 002. However, the expected chemistry of the effluent is expected to change in the future as this discharge may be combined with another water source (Judge Tunnel) and/or treatment may be provided. Data collected on chronic WET testing, which would be a report only requirement during this permit term based on the SCO, will be conducted during pilot testing of Spiro and/or a combination of Judge and Spiro waters. This testing will be for two species, Ceriodaphnia dubia (water flea) and Pimephales promelas (fathead minnow) conducted for each test as detailed in the permit. No additional follow—up testing process will be required during this permit term.

Although they won't go into effect during this permit term, the requirements for a full chronic WET testing process are also included in this permit to conform to the EPA requirement that all

future permit limits must be included in permits where the compliance schedules will extend beyond the permit term. At this time acute WET testing is not considered to be necessary in future permits, however, use of acute WET testing may be considered in future permits if the need for such testing is identified.

As this project will likely include a long term compliance schedule, it is recommended that such similar abbreviated WET testing be conducted at the beginning of each five-year permit cycle to track long term trends in toxicity, until more rigorous testing may be required when the full effluent limits become effective.

PERMIT DURATION
It is recommended this permit be effective for the duration of five (5) years from the effective date of issuance.

Drafted by:
John Kennington, Engineering Manager
Utah Division of Water Quality,
August 26, 2014

PUBLIC NOTICE
Began:
Ended:

Public Noticed in The Park Record

Signed this XXXX day of XXXXX.

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John Kennington, Eng. Mgr.