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## **STATEMENT OF BASIS**

### **Salt Lake City Department of Airports Ground Water Discharge Permit Modification Permit No. UGW350005**

**March 2016**

#### Introduction

Ground Water Discharge Permit UGW350005 for the Salt Lake City Department of Airports deicing operations storm water detention ponds and land application operation is being modified to incorporate land application expansion. The expansion consists of one additional 400 foot pivot in addition to the three pivots already in place. Total volume may increase to 9 million gallons annually from the previously permitted 7 million gallons. The detention pond facility is located 2175 North 4325 West, Salt Lake City, Utah. The land application site is located at the northwest end of the airport property.

Permit No. UGW350005 was originally issued in 1993. The original Permit covered evaporation ponds 1.4 acres in size that were discontinued and closed in 1998. Since 1998, this permit covers the recycling facility and current land application as described above. The permit was most recently modified in June of 2014. During the period from the last Permit issuance the facility has been in compliance with both the technological and water quality aspects of the permit.

#### Facility Description

The detention pond facility is comprised of three cells with a holding capacity of 10 million gallons and is part of the glycol recycling plant. The ponds have a composite liner consisting of a clay subliner overlain by an ethylene interpolymers alloy flexible membrane liner. Runoff from airplane deicing areas is captured and diverted into the detention ponds where it is contained and recycled. Runoff may contain high concentrations of the deicing chemical propylene glycol. The use of ethylene glycol was discontinued in October 2006. Propylene glycol is rapidly degraded in all environmental media, and biodegradation is the most important transformation process in water and soil. The half-life of propylene glycol in water is expected to be one to four days under aerobic conditions, and three to five days under anaerobic conditions and the half-life in soil is expected to be equal to or less than that for water (ATSDR, 2008). This was confirmed by a land application pilot project that was conducted during the 2001-2002 season in which glycol was degraded to non-detect concentrations in soil at a depth of three feet after one week.

The Salt Lake City Department of Airports recently completed construction on the fourth end of runway deicing pad. This increases the amount of storm water collected. This Permit Modification is for expanding the 34 acre land application site located northwest of the ponds to 46-acres. The modification includes the addition of one 400 foot-radius pivot to the three 400 foot-radius pivots already in place. Applications are conveyed through piping stemming from one of three ponds used for recycling glycol for spray irrigation. The application concentration will remain below 1% glycol and applied at a rate no greater than 1.6 inches as measured by a rainfall gauge. No surface runoff from the site is permitted. The land application program will cease if it is determined to produce an unacceptable nuisance condition. The source pond will contain the

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early stream flows that consist primarily of storm water run-off. As the monitored storm water concentration approaches 1% glycol, the flow will be diverted to the other two ponds. Fluids with concentrations greater than 1% will be recycled through the plant. The resulting volume change will go from 7 million gallons, seasonally, to 7-9 million gallons seasonally.

#### Ground Water Quality

Ground water at the site is classified as Class IV Saline Ground Water based on total dissolved solids concentrations in excess of 10,000 mg/l. Depth to ground water varies seasonally from four (4) to 10 feet below ground surface. Based on the naturally high concentration of total dissolved solids, the shallow water table aquifer is not generally suited for domestic or industrial purposes without extensive treatment. No degradation of ground water is likely to occur, as confirmed by ground water and soil sample analytical results collected during and after each application season.

#### References

Agency for Toxic Substances and Disease Registry (ATSDR), Division of Toxicology and Environmental Medicine, 2008. Addendum to the Toxicological Profile for Propylene Glycol, December 18, 2008, Atlanta, GA.

U.S. Department of Health and Human Services, 1997. Toxicological Profile for Propylene Glycol, prepared in accordance with guidelines developed by the Agency for Toxic Substances and Disease Registry and the Environmental Protection Agency, September 1997, Atlanta, GA.

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### Monitoring Requirements

Ground water quality at the detention pond site is monitored semi-annually using four ground water monitoring wells (MW-1 through MW-4) and ground water quality at the land application site is monitored after each season using two ground water monitoring wells (PZ-1 and PZ-2). In addition, soil samples are collected at the three land application areas to monitor the impact of land application on subsurface soils. Ground water samples are analyzed for pH, conductivity, total dissolved solids, propylene glycol, and total petroleum hydrocarbons. Soil samples are analyzed for propylene glycol.

### References

Agency for Toxic Substances and Disease Registry (ATSDR), Division of Toxicology and Environmental Medicine, 2008. Addendum to the Toxicological Profile for Propylene Glycol, December 18, 2008, Atlanta, GA.

U.S. Department of Health and Human Services, 1997. Toxicological Profile for Propylene Glycol, prepared in accordance with guidelines developed by the Agency for Toxic Substances and Disease Registry and the Environmental Protection Agency, September 1997, Atlanta, GA.

DWQ-2012-005702