

STATEMENT OF BASIS

Ground Water Discharge Permit Renewal No. UGW210002

American Pacific Corporation (AMPAC)
10622 West 6400 North
Cedar City, Utah 84721

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Introduction

The Division of Water Quality (DWQ) under the authority of the Utah Ground Water Quality Protection Rules¹ (Ground Water Rules) issues ground water discharge permits to facilities which have a potential to discharge contaminants to ground water². As defined by the Ground Water Rules, such facilities include ponds and lagoons.³ The Ground Water Rules are based on an anti-degradation strategy for ground water protection as opposed to non-degradation; therefore, discharge of contaminants to ground water may be allowed provided that current and future beneficial uses of the ground water are not impaired and the other requirements of Rule 317-6-6.4.A are met.⁴ Following this strategy, ground water is divided into classes based on its quality⁵; and higher-quality ground water is given greater protection⁶ due to the greater potential for beneficial uses. DWQ has developed permit conditions consistent with R317-6 and appropriate to the nature of the mined materials, facility operations, maintenance, best available technology⁷ (BAT) and the hydrogeologic and climatic conditions of the site, to ensure that the operation would not contaminate ground water.

Basis for Permit Issuance

Under Rule 317-6-6.4A, DWQ may issue a ground water discharge permit if:

- 1) The applicant demonstrates that the applicable class TDS limits, ground water quality standards protection levels and permit limits established under R317-6-6.4E will be met;
- 2) The monitoring plan, sampling and reporting requirements are adequate to determine compliance with applicable requirements;
- 3) The applicant is using best available technology to minimize the discharge of any pollutant; and
- 4) There is no impairment of present and future beneficial uses of ground water.

¹ Utah Admin. Code Rule 317-6

² https://deq.utah.gov/ProgramsServices/programs/water/groundwater/docs/2008/08Aug/GWQP_PermitInfo.pdf

³ Utah Admin Code Rule 317-6-6.1A

⁴ Preamble to the Ground Water Quality Protection Regulations of the State of Utah, sec. 2.1, August, 1989

⁵ Utah Admin. Code Rule 317-6-3

⁶ Utah Admin. Code Rule 317-6-4

⁷ Utah Admin. Code Rule 317-6-1(1.3)

Overview

AMPAC's groundwater discharge permit, No. UGW210002 is being renewed. UGW21002 was originally issued on July 20, 1992. The original permit contained language describing the process used to destroy the azide ion in wastewater before it is discharged to the lined evaporation pond. Since then, azide destruction has evolved through actual operation of the process. The permit was modified in 2010 to reflect the azide destruction process as currently practiced, and to account for discharge of wastewater from deionization resin regeneration at both the WECCO plant and the azide plant.

Description of Facility

Permit No. UGW210002 covers the operation of a wastewater lagoon at AMPAC's sodium azide manufacturing plant 12 miles northwest of Cedar City, Utah. The lagoon contains contact process wastewater from the sodium azide manufacturing process. This wastewater contains sodium ions, nitrate and nitrite ions, impurities from the commercial grade sodium supply, and iron hydroxides from the corrosion of piping. At present, much less wastewater is being discharged to the lagoon than its design capacity, due to decreased demand for sodium azide for automobile air bags. Wastewater from deionization resin regeneration from the nearby WECCO oxidizer plant and also from the azide plant will be discharged into the azide plant's lagoon. These waste streams contain the natural dissolved solids from the plant's water supply. Deionization wastewater from the azide plant will be tested for the presence of azide ions, and treated if necessary. Other unanticipated constituents may also be present in the wastewater at *de minimis* concentrations.

Operation of Facility

The wastewater lagoon is operated as a no discharge impoundment for process wastewater. After the manufacturing process, the wastewater will contain sodium azide. Sodium azide, when disposed of in its commercially pure form, is a listed hazardous waste. Although the sodium azide in the wastewater stream will not be commercially pure, American Azide prevents discharge of sodium azide to the lagoon by treating the wastewater from the azide plant in batches until no sodium azide is detected. Records are kept of the test results for each batch of wastewater treated. If any untreated wastewater containing azide is discharged to the lagoon, AMPAC will report the incident to DWQ and to DSHW. Salts and sediments, which accumulate in the lagoon, will be removed upon closure.

Site Hydrogeology

The site is located in an alluvial fan area draining toward the Escalante Desert. As such, it is probably a potential recharge zone for alluvial aquifers to the north and west. Ground water also flows into the Escalante Desert from Cedar City Valley through Iron Springs Gap, about three miles southwest of the site. Regional water level data suggests that the hydraulic gradient slopes to the west-northwest at the plant site. AMPAC has constructed an upgradient monitor well, MW-1, approximately 600 feet east of the east boundary of the sodium azide plant site. Materials encountered during drilling of this well were predominantly clays and silts with minor sand and gravel lenses. Moist soil was first encountered at 170-190 feet during drilling, and the static water

level measured after well completion was about 140 feet below land surface. This indicates that the uppermost ground water under the site is underneath confining layers and under artesian pressure. Under these conditions, ground water monitoring would probably be an ineffective means to demonstrate compliance with the BAT containment technology standard of this permit.

Background Ground Water Quality

Water quality data from the upgradient monitor well indicates that groundwater at the site has an average dissolved solids content of 543 mg/l. Mean concentrations of other constituents derived from monitoring this well over one year are contained in Table 1 of the permit. Because AMPAC has chosen source monitoring rather than ground water monitoring as a mechanism to insure compliance with the terms of the permit, downgradient monitoring to demonstrate that protection levels are being met will not be required for this permit. Permit compliance is demonstrated by compliance with Best Available Treatment Technology.

Ground Water Classification

Based on monitoring results from well MW-1, ground water at the site is classified as Class II.

Best Available Technology

AMPAC is using best available technology to achieve a no discharge situation. The liner technology used in the wastewater lagoon is described below (top to bottom):

- 80-mil HDPE liner
- Drainage net
- 40-mil HDPE liner
- Drainage net
- 40-mil VLDPE liner
- 12 inches of clay with hydraulic conductivity 1×10^{-7} or less

Drainage nets between the flexible membrane liners shall slope to sumps, which can be monitored for leaks.

Monitoring Procedures for Leak Detection

AMPAC is to monitor any flows entering the sumps on a daily basis for the upper leak collection and removal layer (head break system) and the lower leak detection layer. Flow information for the head break layer is informational only. The lower leak detection system will be the compliance monitoring mechanism for the permit. The presence of wastewater in the leak detection sump will constitute failure of BAT and the permittee will be considered out-of-compliance with the permit unless affirmative defense is established in accordance with Part I E 1 (b). AMPAC will be required to take the steps outlined in I E 1 (b) of the permit if wastewater is detected in the leak detection sump.

Corrective Action Plan

If seepage of wastewater is confirmed in the lower leak detection sumps pursuant to the procedure outlined in Part I E 1 (b) of this permit, AMPAC is required to evaluate whether contaminants have been released to the environment. If releases from the pond or any other source on the site are confirmed, the company shall develop a plan to fully evaluate the extent of the contamination and identify the measures that will be taken to protect existing ground water quality. The plan will be submitted within 30 days of the date that release of contaminants is confirmed and implemented upon approval by the Executive Secretary.

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