Memorandum

ARUP

To	Lorenzo Brooks	Date	May 10, 2021
Copies	Sheba Hafiz Jacob Wood Alexander Murray	Reference number	
From	Mathew Bamm	File reference	
Subject	On-Site Wastewater Treatment Chemical Hazards		

The development and operation of the proposed On-Site Wastewater Treatment Plant will require on-site delivery and use of chemicals to achieve treatment, operation, and maintenance requirements of the facility. The project will include storage and dosing facilities with a control and monitoring system that will control the balance of chemicals in the treatment plant 24 hours a day.

The following chemicals will be stored and used at the plant:

- Calcium Carbonate,
- Ammonium Chloride,
- Magnesium Hydroxide,
- Sodium Hypochlorite,
- Sodium Hydroxide,
- Sodium Dodecyl Sulfate, and
- Citric Acid.

Calcium carbonate will be used while the treatment plant is operating. The chemical will be stored within the treatment plant in a sealed filtration vessel. The calcium carbonate is a dry chemical that will be used in a fine gravel form. Approximately 300lb of the dry chemical will be in use during normal operation. Replacement chemical will be brought to the site as needed.

Ammonium Chloride will be stored on-site. The chemical will be stored in a 50lb sealed container to be used to create a 20% solution as needed. The stored chemical will be in a dry, salt form.

Magnesium Hydroxide will be stored on-site. The chemical will be stored in a 55gal drum and used to create a slurry at 60% concentration.

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A Sodium Hypochlorite solution will be stored on-site. The solution will be stored in a 55gal drum at a 30% concentration. When needed for use, the solution will be diluted to a 12% concentration.

A Sodium Hydroxide solution will be stored on-site. The solution will be stored in a 25gal drum at a 30% concentration. When needed for use, the solution will be diluted to a 10-20% concentration.

Sodium Dodecyl Sulfate and Citric Acid will be used for cleaning. These chemicals will not be stored on-site but will be periodically brought in as needed. The Sodium Dodecyl Sulfate used is a dry salt and the Citric Acid will be in a 2% solution.

Table 1 Chemical Descriptions

Chemical	Form	Concentration	Amount Stored
Calcium Carbonate	Dry, Fine Gravel	100%	~300lb
Ammonium Chloride	Dry Salt	100% (Used to create a 20% solution)	50lb
Magnesium Hydroxide	Solid	100% (Used to create a 60% slurry)	55gal
Sodium Hypochlorite	Solution	30% (Used to create a 12% solution)	55gal
Sodium Hydroxide	Solution	30% (Used to create a 10-20% solution)	25gal
Sodium Dodecyl Sulfate	Dry Salt	100%	Periodically brought in as needed for cleaning
Citric Acid	Solution	2%	Periodically brought in as needed for cleaning

Additionally, waste solids from the plant will be stored on-site until hauled away. The estimated solids production is around 50lb (approximately 5gal) per day. These solids will be stored in a sealed container. The storage amount will be determined at the detailed design stage and is dictated by the preferred frequency of solids being hauled off-site.

The development and operation of the proposed Wastewater Treatment Plant will require the storage, use and transportation of chemicals on the project site. The use, storage and transportation of these materials will be conducted in accordance with local, State, and Federal laws and regulations. Implementation of the proposed project in accordance with local, State, and Federal laws and regulations will ensure that the on-site use of chemicals results in a less than significant hazardous materials impact. Precautionary mitigations include installing an emergency shower and eyewash in the equipment room and using double containment vessels to prevent spillage.