

Direct Potable Water Reuse Standard Operating Procedure

Wichita Falls, Texas

Monochloramine Residual and LAS DPR SOP WW-017

This SOP supersedes any previous SOP on this topic. Effective on the date signed approved below

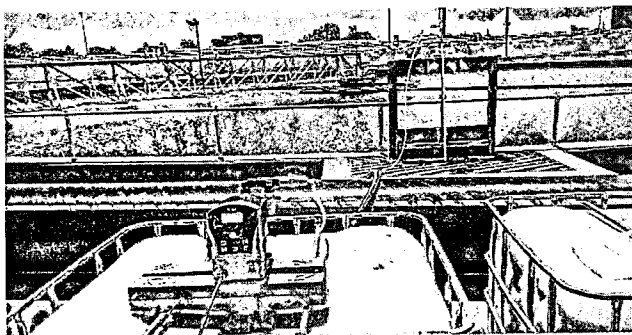
INTRODUCTION

This is the Standard Operating Procedures for the use of Liquid Ammonia Sulfate (LAS).

OBJECTIVE

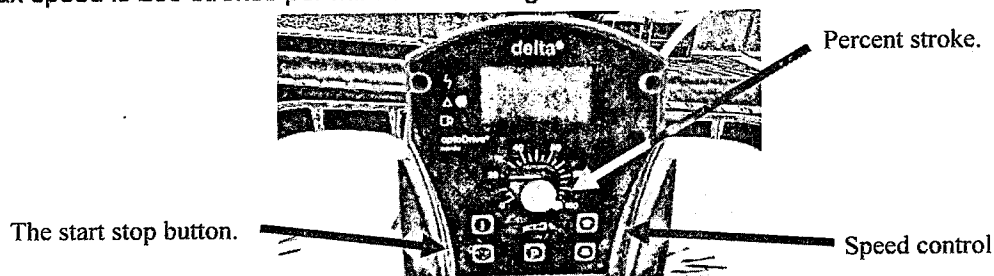
The objective of this document is to maintain Monochloramine levels in the effluent water transmitted to Cypress DPR.

In the event that there is a loss of Ammonia entering 1J as determined by an Ammonia grab at 1J of <1.0 mg/l NH_3 the use of LAS will be started.



The LAS is stored in two totes at 1J. There is a dosing pump on top of the totes with the discharge from the pump running into the effluent of #3 secondary clarifier. From the #3 secondary effluent the water with the LAS flows 15 feet under the road into site 1J for a complete mix.

The pump currently in use is rated for 5 gph. The large knob controls the stroke length of the pump and is to remain at 100%. The up and down arrows on the right control the speed. The max speed is 200 strokes per minute. See image below.



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Actions to be taken;

1. Determine the Ammonia in 1J.
2. LAS at a feed rate of 1.2 gph at a flow of 7.5 MGD will produce a monochloramine residual of 2.0 mg/l according to calculations.
3. Since the plant flow has been equalized to 7.5 MGD this will be your starting point.
4. To achieve this feed rate the percent stroke will remain at all times at 100% and the speed will start at 44 strokes per minute.
5. A change of 40 strokes per minute will change the LAS feed by 1 gph. Utilize the following chart for pump settings.

Desired NH_2Cl	Strokes	GPH
2 Mg/l	44	1.2
3 Mg/l	66	1.8
4 Mg/l	88	2.4

6. Once you have turned on the LAS and set the pump speed it will take several minutes for it to get through the system to the analyzer and to register.
7. You will watch the Monochloramine analyzer to see if you have made an impact on the residual. The Monochloramine analyzer may take up to another 30 minutes to stabilize.
8. From this point consecutive adjustments and observation will have to be made to dial in the correct feed rate for the particular flow and water conditions you are experiencing.

When to stop using LAS.

A sample will be caught every two hours from each of the Secondary effluents. Each sample will be composited in equal parts and tested for Ammonia. When the combined Secondary samples show an Ammonia residual approaching the necessary level of Ammonia needed in 1J (1 Mg/l) the LAS feed will be turned down accordingly till no longer needed.

Related SOP: RIVER ROAD SHUTDOWN COMMUNICATION PROTOCOL and Chlorine species titration and Standardize Chlorine Titration, Monochloramine residual below 1.0 mg at 2J-B DPR and QAQC Graphing DPR SOP.

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Prepared Date: 6-16-14

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Approved Date: 6/16/14

Reviewed by: _____

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Reviewed Date: _____

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*SOP's are to be reviewed and/or updated annually or any time this process has changed.

Sign below and date that you have received, read, and understand this SOP.

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