



STATE OF
WASHINGTON

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DEPARTMENT OF ECOLOGY

Olympia, Washington 98504

206/753-2800

M E M O R A N D U M

WA-CR-1010

June 19, 1978

To: Fred Fenske

From: Mike Morhous

Re: Alcoa (Vancouver) Class II
Inspection

Findings and Conclusions:

The above referenced inspection was conducted by Greg Cloud and myself on August 30 and 31, 1978. We met with Hal Firestone, Construction Engineer and Louis Haisch, Laboratory Supervisor.

The following observations were made during the course of this inspection.

A. Flow Measuring Devices

Alcoa's domestic waste treatment facility incorporates a 90° v-notch weir to measure total flow in the chlorinated effluent channel. A comparison of a calculated instantaneous flow with the simultaneous totalizer/recorder reading showed the totalizer/recorder was recording 151 percent of the calculated instantaneous flow. This discrepancy indicated the flow measuring system was in need of calibration.

The industrial effluent flow is measured with double 4 foot wide (8 ft. total length) sharp crested contracted weirs located at each of the two lagoon discharges. The results of the accuracy checks conducted on the two weir boxes are provided in the following table.

Calculated Instan. Flow	North Lagoon Recorder Reading	August 30, 1978 Recorder Accuracy (% of inst. flow)
2.38 MGD	3.12 MGD	131%
	South Lagoon	August 30, 1978
1.64 MGD	1.24 MGD	75%

Totalizer digital readings for each lagoon discharge flow were recorded at the beginning and end of the 24 hour composite sampling period. It was observed that the numerical reading for each totalizer decreased in value during the 24 hour period. This is the opposite of normal totalizer

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operation where the numerical reading increases in value. Further, the 24 hour total flow obtained from the totalizer readings was .215 MGD compared with the 4.02 MGD instantaneous flow calculated during the previously mentioned accuracy check.

In view of these observations, it appeared the weirs and respective totalizer systems were in need of calibration at the time of this operation.

MM:ee

cc: Dick Cunningham
Bill Yake
Central Files through Skip Harlan

Review of Laboratory Procedures and Techniques

Chlorine Residual

The lab uses both the orthotolidine colormetric and iodometric methods for measuring chlorine residual. Lou Haisch indicated they were reporting free available residual chlorine values as their interpretation of the chlorine residual monitoring parameter required in the NPDES permit (002 line).

The orthotolidine colormetric method is no longer accepted by Standard Methods 14th Edition. If a colormetric method is preferred, the orthotolidine method should be replaced with a DPD colormetric kit. The NPDES permit should also be revised to require the reporting of total residual chlorine as opposed to the present terminology. This would eliminate any misunderstanding as to what parameter is to be reported.

BOD₅

The lab uses a Hach monometer to analyze five day BODs. This procedure is not recognized by Standard Methods, 14 Edition, as an acceptable method of analysis.

Total Oils and Grease

The NPDES permit indicates this parameter is to be analyzed from a 24 hour composite sample. The permit should be revised to state that this parameter is to be analyzed from a single grab sample.

Fluorides

The lab runs a blank analyzing for fluorides which exist in their water supply. In reporting fluorides, the lab then subtracts the blank fluoride value from the fluoride value obtained from the 24 hour composite. This procedure may be responsible for the rather poor correlation between DOE's fluoride result and Alcoa's fluoride result. However, these corrected fluoride values could be questioned as to their true representation of the fluorides present in the final effluent.

