

of TNT and RDX formulations. Treatment of the condensed steam and washdown water consisted of sawdust filters, settling and cooling by detention ponds before discharge to streams on the installation.

There are seven steam plants on the installation, only one of which is presently operational. All seven plants utilize deionizers which are regenerated with sulfuric acid. The backwash and rinsewaters from the deionizers are discharged to the various surface streams throughout the installation. All fuel oil storage areas are diked.

Laundry wastes at RVAAP pass through filters and are discharged to the sewer system for treatment at the George Road Sewage Treatment Plant. Presently, the laundry is not operating.

Wastes from the motor pool and maintenance shops go to oil separators in floor drains. The wastewater from washing operations flows to the sewer system for treatment at the sewage treatment plants. Waste oils are filtered and recycled by burning with fuel oil at the steam plants. Excessive flows to the oil separators are the cause of the occasional high levels of oil and grease found in the sewage treatment plant effluent (appendix C).

All storm water runoff is carried by open ditches and creeks to points off the installation.

Records of effluent analyses during production years were not available.

Table XII lists the various contaminants produced on some of the load lines during production based on 63 shifts per month.¹⁹⁻²⁴

In August, 1949, the ammonium nitrate fertilizer graining and bagging operations (Load Line 12) were investigated to determine whether any health hazard existed due to waste disposal procedures.²⁵ At that time the city of Warren, Ohio (40 kilometers downstream from the ammonium nitrate plant) was using the Mahoning River as the source of its water supply. In November and December, 1948, the nitrate level of the raw water at Warren was found to average 4.1 ppm expressed as nitrogen, with a low of 1.2 and a high of 15 ppm. Improvements in the operations and housekeeping at RVAAP during early 1949 reduced nitrate to an acceptable level (<10 ppm) to an average of 0.8 ppm, with a low of 0.3 and a high of 1.5 ppm. These improvements also resulted in a reduction of the ammonia levels at Warren.

C. Migration Potential

During the past operations at RVAAP, especially in times of peak production, large quantities of contaminated waste were generated and every effort was made to retard its migration off post by surface routes. The procedures used to stop or retard the migration (sawdust filters, settling/