REFERENCE 13

INEL Groundwater Monitoring Plan
(selected pages)

7. The boilers are blown down only when test results indicate that it is necessary.

In addition to the above, all suspect wastewater (suspect in that a possibility for contamination exis[illegible] is analyzed for the suspected constituents. If the possibility exists for the wastewater to be radioactively contaminated, the suspect wastewater is monitored for gross alpha, gross beta, tritium, gamma-emitting isotopes, and pH. If wastewater is suspected to contain other hazardous substances (e.g. heavy metals), the wastewater is sampled for the suspected hazardous substance [for example see iii(2) and iv(2) above].

In addition to sampling done by the facilities, the ANL-W Environment and Waste Management (EWM) section collects monthly samples of IWP water during the ice-free months of April through October. The samples are analyzed for alpha, beta, and gamma contamination, tritium, cadmium, silver, zinc, sodium, phosphate, sulfate, chloride, chromium, and chrome +6 content and pH. These samples are not required for compliance purposes, they serve merely as indicators of IWP status. EWM also collects biannual samples which are analyzed for gamma and low-level plutonium content. Under direction of DOE-CH, EWM collects an annual IWP water sample which is analyzed for the TCLP constituents. Procedures for the sampling and handling of these EWM IWP samples can be found in Chapter 24, Section IX of the ANL-W ESH Manual.

b) Main Cooling Tower Blowdown Ditch

When routine water analyses of the main cooling tower indicate that the conductivity of the cooling water is 4.5 times the conductivity of the makeup water (4.5 cycles of concentration), system blowdown is started. The cycles of concentration are normally maintained between 4.5 and [illegible] which reduces the blowdown rate and the required amount of chemical additions to the system. Var[illegible] chemicals are used in the cooling tower systems to prevent build up of unwanted contaminants. These chemicals are derived from the processes describe above. The blowdown from the system drains to the industrial waste pond through a series of unlined ditches (Figure 2-1). These ditches continually have water in them, with flows increasing during EBR-II reactor runs, which utilize the main cooling tower.

c) EBR-II Leach Pit

The leach pit, located southwest of EBRII (Figure 2-1) , is an unlined, underground basin, covered with reinforced concrete. An inlet pipe, located below ground level, discharged radioactive and mixed hazardous waste into the pit. The leach pit was used between 1959 and 1973, and once in 1975.

d) TREAT Industrial Ditch

The TREAT industrial ditch is a natural swale, approximately 190 feet long, running east from the facility, outside the security fence. Water discharged to this ditch comes from various heat exchanger cooling coils and water system drains. Although discharges to this ditch are not large they are continuous.

e) Sanitary Lagoons

The two sanitary lagoons in operation at ANL-W are sampled on a monthly basis, during the ice-free months April through October. The samples collected are analyzed for the following:

(i) Primary Sanitary Lagoon - alpha, beta, and gamma contamination, tritium and cadmium content and pH.

(ii) Secondary Sanitary Lagoon - BOD, DO, Total Suspended Solids, and pH. The results from these samples are compared with the results obtained from identical samples taken in the sewage lift station to evaluate the efficiency of the sewage lagoon's operation.

Biannual samples are also collected in the secondary lagoon and are analyzed for gamma and low-level plutonium content. Procedures for sanitary lagoon sample collection and handling can be found in Chapter 25, Section IX of the ANL-W ESH Manual.