Appendix E. National Pollutant Discharge Elimination System Noncompliance Summaries for 2007

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E.1 Y-12 Complex

The only National Pollutant Discharge Elimination System (NPDES) permit excursion in 2007 at the Y-12 National Security Complex occurred on February 12, 2007, when a computer software program being used to run analysis of an oil and grease sample failed to save the data result. The sample, which was taken from outfall 200, was consumed in the analysis (hexane extractable material), and no data could be reported for the required weekly sample. Analytical laboratory personnel evaluated the situation, and corrective actions were put into place to avoid recurrence.

E.2 East Tennessee Technology Park

In 2007, there were five Clean Water Act/NPDES noncompliances at the East Tennessee Technology Park. Details are provided in Chap. 3, Sect. 3.5.1.3.2, of this document.

On February 15, 2007, a dye test was conducted on the Toxic Substances Control Act (TSCA) Incinerator purge basin discharge line. The purge basins are used to contain untreated incinerator wastewater. The dye test indicated that water from the basins was leaking into Mitchell Branch via a leaking transfer line. The release of wastewater to outfall 140 is believed to have begun on or about January 23, 2007. Transfer operations were suspended on January 26, 2007, due to the discovery of the leak. The incinerator had been in a low-temperature non-waste-treatment operational mode since the time period during which the leak was thought to have started. A nonroutine report was submitted under the Hazardous and Solid Waste Amendment Permit No. TNHW-121. A reportable quantity indicated that no Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) reportable quantities for radioactive constituents were exceeded. The final decision regarding cleanup of the affected area was coordinated with the Tennessee Department of Environment and Conservation (TDEC) Division of Solid Waste/Knoxville Office. Because the affected area is also designated as a solid waste management unit, the area where the transfer line break occurred was also evaluated for any required CERCLA remediation activities under the Zone 2 Record of Decision. Based on the levels of contamination in the TSCA Incinerator purge basin discharge line, no significant impact on the environment was caused by the event. No dead fish or other aquatic organisms were observed during surveys of Mitchell Branch conducted subsequent to the leak.

On March 5, 2007, a pH reading of 10.8 standard units was obtained at storm water outfall 170. This value exceeds the upper limit for pH (9 standard units) at outfall 170. It was determined that the elevated pH was caused by water that was being pumped from the basement of the K-1501 building. It is believed that concrete rubble and other debris fell into water that had accumulated in the K-1501 basement. It is believed that the contact between the water and the building debris caused the pH of the water to become elevated. Environmental Compliance and Protection personnel inspected Mitchell Branch to determine whether any environmental impact had occurred as a result of this discharge. No dead fish were noted and no impact to other biota in the pond was observable. No threat to human health or the environment is believed to have occurred as a result of this discharge.

Storm Water outfall 992 is monitored at a location downstream of a point where discharges from several sources come together. The sources include a remediated coal fly ash pile. On August 30, 2007, a pH reading of 3.3 standard units was obtained. The pH reading was outside the NPDES permitted range for outfall 992 (4.0 to 9.0 standard units). During most years, the compliance sampling point for outfall 992 is under water for at least 6 months during the spring and summer due to the seasonal rise in the Clinch River water levels caused by Tennessee Valley Authority power generation and flood control operations. However, during the August 30 sampling event, the water levels in the Clinch River and

Poplar Creek were uncharacteristically low due to continuing drought conditions. The storm drain flows in the ditch were also extremely low and were completely attributable to groundwater seeps into the discharge ditch; there were no surface water runoff contributions. This combination of abnormal seasonal conditions resulted in an unusual sampling event at the compliance point for outfall 992. Investigations into the source (or sources) of the low pH reading are still ongoing. Additional pH readings have been collected at various locations upstream of the compliance sampling point in an attempt to identify any potential discharge sources that might be contributing to the low pH. Also, additional monitoring has been conducted during wet and dry weather conditions to determine the effects of storm water runoff on the pH at the outfall. In addition, bench-scale testing has been performed in an attempt to determine the effects of the sediments, soil, and gravel in the outfall 992 area on the pH of the discharge from the outfall. Corrective actions are currently being considered in an attempt to control or eliminate the low-pH discharge from outfall 992. No threat to human health or the environment occurred as a result of the event. No fish kills or other adverse impacts to the biota in the area of outfall 992 were observed.

On December 11, 2007, the Central Neutralization Facility (CNF) discharged 36,000 gal of treated effluent to outfall 001 in the Clinch River. On the morning of December 12, 2007, sampling subcontractor personnel discovered that the pH of the discharged water did not meet the discharge criteria for pH that is stated in the CNF NPDES permit (No. TN0074225). As stated in the NPDES permit, the pH of the CNF effluent is not to exceed 9.0 standard units for more than 60 min in a single excursion. The duration of the excursion that occurred on December 11 was up to 75 min, and the highest pH recorded was 9.2 standard units. It has been determined that the CNF control room pH strip chart recorded a lower pH level than was recorded at the K-1407-Q monitoring station compliance point. The CNF control room strip chart did not indicate a pH level that would trigger CNF operator actions during the discharge conducted on December 11. Waste Operations personnel suspended the planned release of the remainder of the contents of the east basin until further investigation of the pH excursion was conducted. In response to the incident, the level at which the high-pH alarm in the CNF control room sounds has been lowered. CNF operators have been instructed to check the pH reading in the K-1407-Q sampling station if a control room alarm occurs. Appropriate actions (e.g. stopping the discharge pumps) are to be taken based on the pH reading in the K-1407-Q station. The water released on December 11 had been in the east basin since October 2007. It is believed that pH stratification of the water occurred during that time. The pH of the water remaining in the east basin will be lowered prior to discharge through outfall 001. The K-1407-Q sampling station and CNF control room pH strip charts have been compared, and corrective actions have been taken to ensure proper correlation between them. The interlock that is designed to shut off discharge pumps when pH readings approach NPDES permit limits has been checked to ensure that it is operating properly. Notification of the pH excursion was made to DOE and TDEC on December 12.

E.3 Oak Ridge National Laboratory

E.3.1 Limit Excursion at a Treatment Facility

Description and Cause

On January 11, 2007, and again on January 31, 2007, the measurement for iron at Outfall X02 exceeded the permit limit of 1 mg/L. Outfall X02 is the effluent from the Steam Plant Wastewater Treatment Facility (SPWTF), formerly known as the Coal Yard Runoff Treatment Facility. On January 11, the iron measured 1.31 mg/L. The value for January 31 was 1.07 mg/L. A review of operational logbooks from the SPWTF indicated normal operating conditions during this batch processing period. There is speculation that metals may be contained in the sediments within the clay-lined holding ponds that are used as part of the SPWTF process. The metals would have accumulated via runoff from the time when the Steam Plant used coal as its primary fuel. Coal use was eliminated in 2004, but the SPWTF still receives regenerant wastewater and boiler blowdown from steam plant operations and still uses the clay-lined ponds as part of the treatment process. Investigation into the cause of the elevated iron is continuing, and plans for dredging the ponds are being evaluated.