

5.9 Environmental Occurrences



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Releases of radioactive and regulated materials to the environment are reported to DOE and other federal and state agencies as required by law. The specific agencies notified depend on the type, amount, and location of each event. All occurrences at the Hanford Site are reported to the Occurrence Notification Center. The following sections summarize the occurrences that took place during 2004 that could have had an impact on the Hanford environment. The occurrences are arranged according to significance category. Significance categories are assigned based on the nature and severity of the occurrence. The categories include operational emergency, recurring, category 1 (significant impact), category 2 (moderate impact), category 3 (minor impact), and category 4 (some impact). In 2004, there were no occurrences ranked as level operational emergency, recurring, or category 1 on the Hanford Site.

5.9.1 Category 2 – Moderate Impact

Category 2 occurrences are defined as having a moderate impact on safe facility operations, worker or public safety and health, regulatory compliance, or public and business interests. One Category 2 occurrence with potential environmental implications occurred on the Hanford Site in 2004.

Small Contaminated Paint Chips Discovered Near the 233-S Facility Radiological Control Boundary (RL-PHMC-CENTPLAT-2004-0003). On Friday, January 29, 2004, demolition work at the 233-S facility was secured because of wind conditions exceeding 5.4 meters per second (12 miles per hour). High winds were expected to persist through the weekend, so actions were taken to secure the demolition site, including application of soil cement and removal of waste. On Saturday, January 30, winds exceeded 26.8 meters per second (60 miles per

hour). On the following Monday, three contaminated paint chips were discovered by radiological control personnel during a precautionary survey outside of the Radiological Control Boundary and downwind of the 233-S facility. Surveys of the chips showed alpha contamination levels of 63,000 dpm/100 cm². The chips were collected, bagged, and disposed of. The paint chips were assumed to have originated in the High Contamination Area where other contaminated paint chips were discovered. The high winds blew the High Contamination Area doors open, allowing the contaminated paint chips to be blown out of the area.

5.9.2 Category 3 – Minor Impact

Category 3 occurrences are defined as having a minor impact on safe facility operations, worker or public safety and health, regulatory compliance, or public and business interests. One Category 3 occurrence with potential environmental implications occurred on the Hanford Site in 2004.

Exposure to Airborne Radiation at the 300 Area Remediation Project (RL-BHI-REMACT-2004-0018). On Monday, December 13, 2004, a subcontractor employee's personal lapel air monitor showed a result of 27 derived air concentration hours, or 2.7 derived air concentration hours corrected for uranium. The employee was working in the 618-2 burial ground of the 300 Area, which was being excavated as part of a remediation effort. Because of the elevated result, two radiological control technicians attempted to identify the exposure source. Smear samples were collected at locations identified by portable survey instrumentation. The lapel air samplers worn by the radiological control technicians during the investigative sampling showed 3,400 and 1,400 derived air concentration hours, respectively. In response to the high



concentrations on the lapel air sample filters, soil fixative was applied to the area, and the area was posted as an airborne radioactivity area. The radiological control technicians underwent in vivo chest counts and bioassays. The chest counts revealed no detectable intake. The bioassay results were not yet available at the time of this report. The radiological control technicians were restricted from entering radiological areas until the results of the bioassay were in.

5.9.3 Category 4 – Some Impact

Category 4 occurrences are defined as having some impact on safe facility operations, worker or public safety and health, regulatory compliance, or public and business interests. Four Category 4 occurrences with potential environmental implications occurred on the Hanford Site in 2004. They are separated here according to the general type of occurrence.

- **Spread of Contamination by Mud Daubers (RL-BHI-DND-2004-0010 and RL-BHI-DND-2004-0011).** Cleanup activities in the 100-N Area involved the demolition of a number of abandoned buildings. In two of these buildings (1712-N and 13-N), contaminated mud dauber nests were found during demolition activities. At 1712-N, a nest with 140,000 dpm beta/gamma direct reading (no removable contamination) was found attached to demolished sheetrock. At building 13-N, a nest with 167,000 dpm beta/gamma direct reading and 7,000 dpm beta/gamma smearable was found under the sub-floor of the building. Neither of the nests had any detectable alpha contamination. In both cases, the areas were controlled and the nests were removed and disposed of.
- **Spread of Contamination by Ants (RL-PHMC-CENTPLAT-2004-0011).** During a survey of the 218-E-2 burial ground, located in the 200-East Area, health physics technicians discovered two red ant mounds. The mounds were in an area approximately 3 by 3 meters (10 by 10 feet) square. The area is posted as a soil contamination area. Maximum contamination levels found were 150,000 dpm/100 cm² beta/gamma, with no removable contamination. There was no alpha contamination detected. Biological control personnel applied a pesticide to the affected area.
- **Grass Fires in the 600 Area (RL-PHMC-FSS-2004-0003, RL-PHMC-FSS-2004-0005, and RL-PHMC-FSS-2004-0007).** During 2004, there were five grass fires that burned in the 600 Area of the Hanford Site. The 600 Area is the portion of the Hanford Site not included in the operational areas and consists of essentially natural vegetation. While the fires were not on contaminated sites, any grass fire on the Hanford Site has the potential to spread out of control and onto contamination areas. One of the fires occurred east of the 100-N Area and was determined to have been caused by an electrical fault that resulted in a spark at a weak point in the grounding system. The spark ignited nearby ground cover. This fire was extinguished in 5 hours and burned 6 hectares (15 acres). The other four fires were all caused by lightning strikes. One lightning storm in June resulted in two fires. These fires were located at the base of Rattlesnake Mountain and north of the 200-West Area. In total, these two fires burned approximately 32.4 hectares (80 acres). Both were controlled and extinguished within 2 hours of being reported. Another lightning storm in August ignited two separate fires near the Hanford town site. The fires were declared contained within 7 hours of being reported. These two fires combined to burn approximately 253 hectares (625 acres). There was no damage to any facilities or government equipment as a result of these fires.
- **Contaminated Tumbleweeds (Reports RL-PHMC-SOLIDWASTE-2004-0002, -0010, -0012, -0012, -0014, -0015, and RL-PHMC-CENTPLAT-2004-0007, -0008, -0010, -0014, -0015, -0016, -0017, -0018, -0019, -0020, -0021, -0022).** During 2004, many contaminated tumbleweeds were discovered during surveys of contamination areas. The deep tap root of the tumbleweed allows uptake of contamination into the plant matrix. This is well known, and consequently tumbleweeds are checked by radiological control personnel during surveys of contamination areas. The maximum levels of contamination found in tumbleweeds in 2004 varied from 72,000 to 540,000 dpm/100 cm² beta/gamma. None of the contaminated tumbleweeds had any removable contamination or alpha contamination. In most cases, the contaminated tumbleweeds were removed for appropriate disposal. In some instances, the contamination area boundary was extended to encompass the area of contaminated tumbleweed growth.

