

APPENDIX O

Ecological Site Visits, October 2003 and July 2007

A site visit was conducted at the DuPont Chambers Works facility in Deepwater, New Jersey on July 24, 2007 to complete an Ecological Exclusion Screening in accordance with Appendix E of the USEPA Region 6 Corrective Action Strategy (CAS). As a part of this site visit, Cabrera has complete the Ecological Exclusion Criteria Worksheet and Ecological Assessment Checklist from Appendix E for all Operable Units. Observations from visits to AOC 3 (OU 2) Central Drainage Ditch (CDD) and AOC 4 (OU 3) Historical Lagoon A are provided in this report. nt
Chambers Works

The open portion of the CDD is approximately 1,600-ft long, and flows eastward from a point west of Kinetic Road and ultimately discharges into a lift station which transfers the water to Basin B. Water from Basin B is treated in the on site Wastewater Treatment Plant and thence discharged to the Delaware River. In the shallower, upper portion of the CDD, numerous small fish were observed that appeared to be mummichog (*Fundulus heteroclitus*), a killifish that is common and abundant in the mid-Atlantic region. No other animals were observed in the upper portion of the CDD, although bird and mammal tracks were noted on the bank of the ditch in one location. It should be noted that the upper approximately 700-ft of the open CDD has no riparian vegetation or other habitat features that would attract mammals or birds, other than occasional incidental visits. In their 2003 draft RI report for OU-1, Weston reported observations of frogs in the CDD as well as fish.

The lower approximately 900-ft of the CDD presents considerably different habitat. There is considerable streamside vegetation throughout this reach, including wetland vegetation. The CDD in this reach is narrow and relatively deep, and no aquatic organisms could be observed. However, a number of birds have been observed by various environmental professionals in and near the lower reach. European starlings and mourning doves are common. A belted kingfisher, a northern mockingbird, and an Eastern phoebe were each observed in the riparian vegetation in the lowermost portion of the CDD. Outside of the immediate CDD, but in proximity, one, and possibly two, kestrels were observed. Also, approximately 50 Canada geese and ducks were observed swimming in Basin B.

Fish were observed in the CDD, and although not observed during this visit, macroinvertebrates undoubtedly exist there also. These animals would be exposed to ionizing radiation and gill or skin absorption of contaminants. They also would be vectors of contaminants when fed upon by higher trophic organisms, e.g., fish-eating birds. The lower portion of the CDD is heavily vegetated along the shore, and consequently, root uptake of contaminants is a viable pathway. A dietary exposure pathway for higher animals was evidenced on site by the presence of a belted kingfisher. This receptor could be exposed by eating fish or drinking water from the CDD.

The lower portion of the CDD presents essentially natural riparian habitat features. There are undoubtedly fish in this area (as they were observed upstream), the banks are well vegetated, and a number of birds were observed in this area, including the fish-eating belted kingfisher. The ecological structure of this area could be vulnerable to the presence of radiological contaminants.

AOC 4

Historical Lagoon A was located in the northern portion of the site, bounded by the Delaware River to the north, Plant No. 1 Road to the south, Kinetic Road to the west, and Boundary Road to the east. Lagoon A was later separated into three settling basins; Settling Basins “A”, “B”, and “C”. The number and size of these basins varied significantly over time during the operation of the plant. Historically, Lagoon A received wastewater from Chambers Works manufacturing areas, including that generated by MED operations. The Central Drainage Ditch (CDD) provided the conduit for this wastewater discharged from the MED operational areas to the lagoon.

In the early 1920s, a lagoon was formed by the installation of a sluiced dam at the mouth of Whopping John Creek to form a 50-acre impoundment basin on the swampy ground between Chambers Works and Carneys Point Works. The lagoon was used as a settling basin for process wastewater. DuPont added quick lime and lime waste runoff to reduce the acidity of the wastewater before discharging it to the Delaware River. Extensive landfilling activities occurred around the lagoon in the 1930s and 1940s. Air photos from 1940 and 1942 show fill areas on all sides of the lagoon (EA, 2003). As the lagoon was filled in over time it is reported that building debris and contaminated soil from MED operational buildings were disposed of in AOC 4 (CABRERA, HSA2006). This included the area of DuPont’s Solid Waste Management Unit 5 (SWMU5).

A review of historical aerial photographs of AOC 4 indicates that the lagoon complex was gradually filled in from all sides using wastes and building debris after MED activities ceased at Chambers Works. At the northern end of the lagoon, the location of the outlet channel leading to the Delaware River was changed over the course of time. The area along the river’s edge, which had been marshland in the 1940s, began to be used as a landfill area for waste and debris. This area is now known as Solid Waste Management (SWMU) 5 and is known to have received laboratory waste from former Building J-16 during MED operations.

During Neoprene operations, the lagoon was used as a settling basin for process wastewater. DuPont added quick lime and lime waste runoff to reduce the acidity of the wastewater before discharging it to the Delaware River. A 78-inch wood stave line was added in 1958 to pump treated wastewater directly into the river. The continual addition of lime to the effluent waste eventually filled the basin with unreacted lime and reaction products. In September 1951, it became necessary to dredge the basin for the first time. The solids were removed from the basin by a hydraulic dredge and deposited in two prepared soil areas along the northern boundary of Chambers Works (see Power Division History, p.64 in DuPont, 1984).

No census has been conducted for animal populations in both the lagoon area and SWMU5 area. However, the areas would provide habitat for animals tolerant of disturbed environments. Some of the following common mammals are: short-tailed shrew (*Blarina brevicauda*), the Eastern Cotton-tailed Rabbit (*Sylvilagus floridanus*), white-footed mouse (*Peromyscus leucopus*) and white-tailed deer (*Odocoileus virginianus*), and some of the following common birds are: American robin (*Turdus migratorius*), european starling (*Turnus vulgaris*), Canada goose (*Branta canadensis*), mallard duck (*Anas platyrhynchos*), and great blue heron (*Ardea herodias*) are

found in AOC4. In addition, numerous arthropod species (insects, spiders, etc.) are likely present.