

Southern Crop Services
8778 West Atlantic Avenue
Delray Beach, Florida
County: Palm Beach
District: Southeast
Site Lead: Waste Cleanup Program
Approved for Cleanup: April 28, 1987
HWC # 053
ERIC ID # 3826

Site Description and History

The Southern Crop Services (SCS) site consists of a small inactive airport occupying approximately 20 acres on County Road 806 in Delray Beach, Palm Beach County, Florida in Township 46S, Range 42E, Section 20 at 26° 27' 11.7300" N, 80° 11' 04.0200" W. The site area is covered by grass and other vegetation with an asphalt runway and drainage ditch that traverses the north-south length of the property. Several small trailers were located at the north end of the property.

The SCS site was the base of operations for the aerial application of agricultural chemicals from the late 1940's until 1992. Southern Crop Services, Inc. operated from 1969 until the mid-1980s when the corporate entity, King's Aerial Service, Inc., was formed. King's Aerial Service operated until 1992. Contamination at the site is primarily from the discharges of chemical rinsates from formulation mixing vats and aircraft spraying systems into a disposal lagoon and onto the ground. Other sources of contamination include onsite storage and disposal of pesticide containers and drums.

In 1977, an 8,400 cubic foot unlined disposal lagoon that contained tank rinsates and discarded chemicals was excavated. The disposal lagoon reportedly overflowed several times onto adjacent property, and in August 1983, SCS was ordered by the Palm Beach County Health Department to stop using it. In March 1984, SCS retained an engineering firm to conduct a Contamination Assessment (CA) of the site. The results of this investigation showed that pesticides and metals were found in the soils and shallow groundwater (0 – 10 feet below land surface) in the immediate area of the lagoon. Contaminants identified included toxaphene, DDT, DDD, parathion, arsenic, zinc, and copper. As a result of these findings, SCS excavated the lagoon sludges and piled the waste onsite.

In July 1985, SCS signed a Consent Order with the Florida Department of Environmental Regulation (FDER, now DEP) agreeing to sell the property and reimburse FDER for investigation and clean-up costs. The former facility property is currently jointly owned by Landco and US Landvest who acquired the property in December 1996.

Threat

Elevated levels of pesticides in onsite soils pose a threat to public health and to site groundwater. Pesticides in onsite soils are present in concentrations above both commercial and residential land use criteria. Offsite soil and sediment contamination at concentrations above State cleanup target levels for unrestricted use and sediment quality guidelines have been removed from properties

west of the former facility property. Groundwater monitoring from 1991 to 2005 has detected sporadic, low levels of arsenic and pesticides in the surficial aquifer but indicate that no definable plume exists. Sampling and analysis of potable water wells in a residential development directly adjacent and east of the site indicate no contamination. Groundwater monitoring of the surficial aquifer resumed in 2013 with the installation of additional onsite monitoring wells.

Response Strategy and Status (December 2016)

The site was accepted for State-funded cleanup in August 1985. In October 1985, the FDER contracted with Ecology and Environment (E&E) to conduct a Contamination Assessment (CA) of the SCS site. Phase I fieldwork was conducted in December 1985. The March 1986 report identified several contamination “hot-spots” in soils and shallow groundwater, both onsite and west of the SCS property. An October 1986 field geophysical investigation identified areas of possible groundwater contamination at depth. Phase II CA included installation of deeper monitoring wells, a water table elevation survey, additional soil sampling, and soil engineering tests. The July 1987 Phase II CA report estimated that approximately 3,000 cubic yards of soil were contaminated with greater than 50 ppm toxaphene. Chlorine and phosphorous-based pesticides were also observed in high concentrations. Toxaphene contamination was confirmed in an onsite, non-potable supply well. The Palm Beach County Health Department sampled nearby private drinking water wells in June 1987 and January 1988. No identifiable contaminants were found in these wells.

In August 1987, FDER and HRS toxicologists established cleanup criteria for the SCS site at 50 ppm toxaphene for surface soil and 100 ppm toxaphene for subsurface soil for the protection of public health and prevention of source to groundwater. At the request of FDER, the EPA agreed to take action to address contaminated soil, sediment, and lagoon water. From February through March 1988, the EPA excavated and stockpiled approximately 4,800 tons of soil and sediment exceeding the toxaphene cleanup standard. The contaminated soil was treated onsite by a rotary kiln incinerator operated by Kimmins Inc., and then redeposited in the excavation area. Approximately 310,000 gallons of contaminated lagoon water were treated and discharged onsite. Operations were completed in November 1988.

Existing onsite groundwater monitoring wells and two off site water wells were sampled in 1989 by E&E under contract with FDER. Data provided in the resulting August 1989 monitoring report indicated low levels of contamination by arsenic; low to elevated contamination by copper and zinc; and elevated levels of cyanide, DDT, and DDE. Detectable levels of ethion, parathion, DDE, endrin and endosulfan were also found. However, the data was questionable because many of the wells were observed to have been tampered with or otherwise damaged.

E&E completed the installation of new monitoring wells and performed additional assessment work in December 1989. The April 1990 CA report revealed that groundwater at several monitoring wells was contaminated with low levels of DDT, DDD, and heptachlor. Onsite lagoon sediments were also contaminated with low to moderate levels of DDT, DDD, lindane, parathion, endosulfan, and ethion.

A removal action was initiated by FDER in May 1990. Approximately 540 tons of contaminated sediment were excavated from the onsite lagoon and shipped to a hazardous waste landfill in North Carolina. Approximately 250,000 gallons of lagoon water were also treated by carbon absorption to below detection limits (<1 ppb DDT) and then discharged onsite. Post-removal groundwater sampling and analysis in July 1990 demonstrated that no contamination existed in the shallow surficial aquifer. Trace amounts of organochloride contaminants were detected in one intermediate well and one deep well.

With the removal of contaminant sources, FDER anticipated that groundwater quality would continue to improve through natural attenuation processes. In January 1991, a decision memo was issued documenting that no further soil remediation was necessary and that groundwater monitoring would continue until the isolated occurrences of groundwater contamination attenuated to meet State groundwater standards. One year of quarterly sampling of site surface water and groundwater was completed in September 1992. The monitoring data indicated that trace levels of pesticides continued to be found sporadically in groundwater and surface water at the site. However, a distinct groundwater contaminant plume did not exist.

The EPA sampled groundwater, surface water, soil, and sediment at the site in May 1997, including private wells east of the site, to evaluate the site for inclusion on the National Priorities List (NPL). As documented in the EPA's February 1998 Expanded Site Inspection Report, compounds detected in private wells did not exceed EPA's National Primary Drinking Water Regulations or any other health based criteria. The EPA concluded that the site did not qualify for the NPL.

Following another round of groundwater, surface water, and sediment sampling in September 1997 by the DEP contractor, all existing site data was compared to the current State soil, surface water, and groundwater criteria. A review of the data suggested that soils still remained onsite with contaminant concentrations above levels recommended for unrestricted land use. Additional soil sampling was conducted by DEP between February 1999 and March 2000 to determine the extent of onsite and offsite soil contamination and support the evaluation of possible remedial alternatives for final cleanup actions at the site. The final Supplemental Assessment and Technologies Evaluation Report was completed in June 2000. The results confirmed that soils onsite and immediately west of the site were contaminated with pesticides including toxaphene, DDT and its metabolites along with copper and arsenic at concentrations that exceed criteria considered by the DEP to be protective for unrestricted land use as well as for commercial/industrial use.

DEP amended the site remedy in May 2002, selecting excavation and offsite disposal of an estimated 35,000 tons of contaminated soils, including site-related soil contamination identified on adjacent properties located west of the former SCS property, as the soil remedy. Natural attenuation monitoring was retained as the groundwater remedy for the site. It is anticipated that the intermittent detections of arsenic and pesticides historically observed in groundwater will continue to attenuate to meet groundwater cleanup target levels, particularly following completion of the source (soil) remedy.

In June 2007, DEP tasked its contractor to conduct removal of offsite soils contaminated by site-related pesticides and arsenic. Due to heavy rains resulting in a high water table, the removal

action was not initiated until January 2008. Approximately 17,000 tons of contaminated soil were excavated from offsite properties east and west of the former Southern Crop facility property and disposed of offsite at a permitted landfill facility. A draft construction completion report documenting the removal was submitted in June 2008. Additional backfill and seeding was conducted in December 2008 to address a low-lying area inadequately backfilled. The final construction completion report documenting the offsite soil removal was submitted in April 2010.

The Department of Transportation (DOT) has completed plans for the widening of Atlantic Avenue and relocation of the adjacent canal onto the Southern Crop property. Results of DOT's soil sampling and draft soil removal plan were provided to DEP in October 2008, to ensure that any contaminated soils excavated during the road widening project, along with any groundwater recovered to facilitate soil excavation, are managed appropriately, consistent with State regulations. DOT's soil removal plan was finalized in June 2010 in response to DEP review comments. DOT widening of Atlantic Boulevard and relocation of the adjacent canal along the Southern Crop site property began in February 2012, following removal of contaminated soils in the right-of-way on the Southern Crop Services site by the DOT contractor.

The final design for the removal of contaminated sediments in the offsite wetland area was approved by DEP in December 2010. In June 2011, DEP tasked its hazardous waste contractor to complete the removal. Preconstruction activities including clearing and surveying of the wetland area were completed in December 2011. Excavation of contaminated sediment and adjacent soils began in February 2012 and was completed in early April. When necessary, dewatering was conducted to allow excavation of contaminated sediment residing below the water table. Recovered groundwater was treated and discharged onsite through a spray irrigation system. Backfilling of excavated areas with clean fill was performed concurrently. Re-seeding of the construction area as well as re-vegetation of the wetland was completed in April, followed by a pre-final inspection by DEP to confirm that the removal was conducted consistent with the design and to identify any outstanding issues. A final inspection was conducted by DEP in August 2012 to confirm that re-vegetation met permit requirements and that wetland remediation was complete. A Construction Completion Report documenting the remedial action was approved by DEP in November 2012, following incorporation of DEP review comments.

Additional onsite soil sampling was authorized by DEP in May 2013, based on review of existing soil data, to support design and implementation of the onsite (former SCS facility property) soil remedy. Field work was completed in August and included installation of thirteen new onsite monitoring wells and groundwater sampling as well as extensive soil sampling. A Site Assessment Addendum was provided to DEP in October 2013. Results indicate widespread soil contamination above both residential and commercial/industrial soil cleanup target levels (SCTL), primarily by the pesticide toxaphene. Other pesticides including dieldrin, DDT and DDT daughter products and heptachlor epoxide were detected in soils to a much lesser degree. Copper exceeded the SCTL of 150 mg/kg for unrestricted use. Arsenic was not observed in onsite samples above the unrestricted use SCTL of 2.1 mg/kg. Groundwater contamination continued to appear limited, with the pesticide hexachlorocyclohexane (BHC), observed in 4 of 14 monitoring wells above the groundwater cleanup target level (GCTL).

Additional soil sampling was conducted in April 2014 to delineate the extent of onsite soil contamination and support design of the final onsite soil remedy. Groundwater monitoring was also conducted at that time. Results were documented in the May 2014 draft Supplemental Site Assessment report and indicated that additional soil sampling was necessary to delineate onsite pesticide soil contamination. Further soil sampling was conducted as documented in the September 2015 Supplemental Soil Assessment Report. A revised report was submitted in December 2015 in response to DEP review comments. Based on the results of the supplemental assessment, an estimated 11,500 cubic yards of soils on the former Southern Crop facility property contain pesticides (primarily toxaphene) at concentrations above soil cleanup target levels (SCTLs) for commercial land use. Copper is also present in soils above the SCTL for unrestricted residential use.

Annual groundwater monitoring was conducted in April 2015 and included sampling of 13 monitoring wells for analysis of pesticides and copper. No exceedances of the GCTLs were observed in any of the monitoring wells. Groundwater monitoring in June 2016 identified one monitoring well with beta – BHC above the GCTL. No other exceedances were observed.

Schedule

Annual groundwater monitoring is ongoing.

Supplemental soil assessment reports were submitted to DEP in July 2016 and November 2016 documenting the results of additional soil sampling performed to delineate the extent of the remaining soil contamination at the site. DEP anticipates completion of delineation of onsite soil contamination in 2017.

Remediation of onsite contaminated soils will be accomplished in a phased approach and when funding is available. A Remedial Action Plan is anticipated in April 2017 for removal of contaminated soils from the south 10 acres of the former facility property.