# ANNE ARUNDEL COUNTY ILLICIT DISCHARGE DETECTION AND ELIMINATION

# 2020 ANNUAL REPORT

## PERMIT NUMBER MD0068306



# Prepared for:

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#### 1 INTRODUCTION

Under its National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit #MD0068306, Part IV.E.3., Anne Arundel County is required to implement an inspection and enforcement program to ensure that all discharges to and from the municipal separate storm sewer system that are not composed entirely of stormwater are either permitted by the Maryland Department of the Environment (MDE) or eliminated. The requirements for the permit encompass five main components: field screening of a minimum of 150 storm drain outfalls annually, conducting routine surveys of commercial and industrial drainage catchments to find and eliminate pollutant sources, maintaining a program to address illegal dumping and spills, maintaining appropriate enforcement procedures for investigating and eliminating non-permitted discharges, and reporting of all discharge detection and elimination activities.

The County's program uses outfall field screening to locate illegal storm drain connections or other non-permitted dry-weather discharges through the municipal storm sewer systems. Versar, Inc. (Versar) has a contract with the County to perform the field screening. Where dry-weather effluent from municipal storm sewers is found, it is field-tested for certain indicator analytes. If test results indicate a potential illicit discharge, the program requires that the dry weather discharge be eliminated or permitted.

Within each area where field crews conduct dry-weather screening of outfalls, Versar teams also perform routine visual surveys of commercial and industrial drainage areas. Inspectors drive through each commercial and industrial area, looking for signs of pollution. If pollutant sources are present, the field team notifies the County of the possible infraction at the site; the County then reviews the conditions and considers possible enforcement actions.

The Anne Arundel County Department of Inspections and Permits (I&P) maintains an inspection and enforcement program for identifying, reporting, and eliminating non-stormwater discharges into the County storm drain system, which includes illicit dumping and spills. This program is complaint-based; complaints may be filed by the public, other County inspectors or departments, and the Versar team.

In the event of dumping, a spill, or an illegal connection, I&P corrects the situation or refers the matter to MDE for correction. If inspections identify food-waste-related concerns (e.g., overflowing or leaking dumpsters or grease collection facilities), the Anne Arundel County Department of Health corrects the situation. Both County agencies and MDE maintain appropriate enforcement procedures to ensure correction of these activities. On March 18, 2020, due to the COVID-19 pandemic, the County's Department of Health (Health Department) began responding only to emergency and COVID-19 related complaints. From this date throughout the remainder of the reporting period, I&P investigated complaints typically handled by the Health Department.

This fiscal year (FY) 2020 IDDE report summarizes the outfall and commercial and industrial drainage catchment screening activities conducted by Versar field teams during the



reporting period of July 2019 through June 2020. The report includes the County's compliance or enforcement updates from identified illicit discharges, upland pollutant sources, or structural issues reported during the 2020 reporting period. A summary of the final resolution of complaints documented as unresolved during the previous reporting periods is also presented in this year's report.



#### 2 METHODOLOGY

#### 2.1 FIELD INVESTIGATION – OUTFALL INSPECTIONS

Dry-weather discharges from illegal sources have a higher likelihood of originating from commercial and industrial land uses (MDE 1997). Each year, the Anne Arundel County NPDES MS4 Permit Coordinator, or a delegated staff member, coordinates with Versar to identify priority assessment areas in the County that should be investigated for possible illicit discharges to the stormwater system. The target areas frequently encompass unincorporated towns (e.g., Hanover, Odenton, Ferndale) and are bounded by major roadways or defining geographical features. Versar uses available digital data provided by the County and other sources and applies Geographic Information System (GIS) tools to examine the areas of concern and identify at least 150 specific outfalls to screen in the applicable survey period. The County typically targets a majority of the outfalls in commercial or industrial land use areas and the remainder in residential land use areas. The County may also request that field efforts include visits to outfalls to address complaints filed during the reporting period or revisits to outfalls that had exhibited illicit discharge during previous years' assessments to confirm illicit discharge elimination or document unresolved or recurring concerns. By assessing a different area of the county each year, and returning to sites that exhibited possible illicit discharge conditions in previous survey periods, the County achieves an area-wide review of likely sources of dry-weather discharge throughout the permit period.

In 2014, the first year of the County's current NPDES MS4 permit, the County screened outfalls in the Hanover, Linthicum Heights, and Glen Burnie areas. In 2015, screening continued in these same geographic areas. In 2016, the County conducted outfall screening in the Maryland City, Odenton, Hanover, Severn, and Crofton areas. During 2017, the County screened outfalls in the north part of Route 2, north of Arnold, up to Route 100/Mountain Road (including Glen Burnie and part of Severna Park); Veterans Highway in the Millersville area; the County portion of Parole and Annapolis Town Center; and Bestgate Road. In 2018, the County conducted screenings in the areas near I-97 just south of I-695, near the intersection of Route 100 with I-97, along Route 3 south of Route 32, and south of U.S. Route 50. In 2019, the County returned to the area east of Route 2, generally between I-695 and U.S. Route 50. For 2020, the County screened outfalls in the southern portion of the county (south of the intersection of I-97 and Route 3) and areas within the Upper Patuxent River watershed along the southwestern edge of the county. In addition, the County revisited all locations that had shown documented evidence of illicit discharge dating back to the 2013 screening year. In 2021, the County's outfall screening efforts will be returning to the Route 2 corridor from Arnold north to Route 100/Mountain Road (including Severna Park, Pasadena, and parts of Glen Burnie), and the Route 97/Veterans Highway corridor in the Millersville area. In addition, the County plans to conduct outfall and upland screenings on 30 previously unscreened County-owned properties located throughout the county.

During the 2020 screening effort, Versar staff used GIS desktop analysis to identify target outfalls with primarily commercial, industrial, and residential land uses in their catchments. For the 2020 reporting period, the County requested that qualifying outfalls have at least a 12-inch pipe opening for all contributing land use types. To prepare for the field inspections, technicians used the



Anne Arundel County's GIS data sets of storm drains and point features (e.g., outfalls, inlets, and manholes) to create maps for the target areas and specific sites. Field crews used these maps and relevant data in a differential Global Positioning System (GPS) unit to identify the extents of the local networks; the locations of outfalls and access points along each network; and the businesses, facilities, or neighborhoods within the drainage areas.

Field crews developed a coordinated plan to successfully screen at least 150 outfalls during the reporting period. The crews recorded water chemistry for flowing outfall discharges and physical conditions of every screened outfall and its surrounding area on paper field forms. Crews documented additional details pertaining to each outfall in the "notes" section of the field sheets. Physical parameters documented for each outfall included structural condition, deposits, algae growth, vegetative condition, odor, and erosion; conditions documented at flowing outfalls also included floatables, color, and clarity associated with the discharge. Crews took photographs of each outfall to document conditions. The inspection methodologies for these physical parameters are presented below.

The field teams' assessments of the structural condition of each outfall involved inspecting the outfall pipe and outfall structure for cracking, spalling, stability issues, and pipe separations. Often, outfall pipes or structures can be damaged or impaired by large scour holes at the outfall or severe downstream channel erosion that undermines the storm drain outfall. Other conditions such as excessive debris or pipe corrosion can affect the structural integrity of an outfall. When field teams identified damaged outfalls or situations that could threaten the stability of the storm drain system, they documented the significant factors that were affecting the structural integrity of the storm drain pipe or outfall structure on the field data sheet for the most affected outfalls. Staff also reported structural issues to the Anne Arundel County MS4 Program Manager; the manager then notified the Infrastructure Management Division (IMD).

Deposits and stains present in an outfall may indicate the past discharge of a contaminant. If field crews observed significant deposits or staining at an outfall, they then investigated areas upstream in the network to determine the source.

Field crews documented whether algal growth was present at each outfall. The presence of algal growth may indicate the influence of nutrients or sewage in the discharge. If the crews found significant algal growth within the storm drain pipe or in the receiving channel, they attempted to identify the source or the contributing factors.

Vegetative condition is a physical parameter that may indicate the possibility of excessive nutrients that produce exaggerated growth patterns or chemicals and compounds in a discharge that harm or inhibit growth. If field crews found unusual vegetative conditions at a site, they attempted to determine the cause.

The field crews recorded whether they detected any odor at each screened outfall. If the crews perceived a rancid-sour, sewage, gas, or other strong odor at a site, they recorded its qualities on the field sheets. These odors may indicate an illicit connection or spill. If the crews detected these odors, they attempted to locate the source.



At each outfall, field crews inspected the banks of the channel leading away from the outfall for signs of erosion. Crews documented any significant erosion within 25 feet of an outfall.

If the field crews observed flowing water during a dry-weather screening, they inspected the discharge to determine the presence of floatables. The presence of floatables such as trash, sewage, or oil sheen may be evidence of an ongoing illicit connection, poor housekeeping, or a recent spill. If the crews found significant floatables in the discharge, they attempted to identify the source.

The color and clarity of the discharge may indicate contaminants in the discharge. A cloudy or opaque discharge typically means that solids are suspended in the effluent. The color of a discharge can be a clue to help assess the composition of the discharge, including the presence of chemicals or sewage. If the field team found abnormal color or clarity, team members attempted to identify the source of a potential contaminant.

In some cases, outfalls were either completely or partially submerged as a result of changing deposition patterns at the outfall or in the downstream channel, or its position in a tidal area. When dry weather flow is observed in these situations, field crews attempted to collect flowing discharge samples from a storm drain structure in the network leading to the outfall, as close to the outfall structure as possible. Submerged conditions do not necessarily indicate a storm drain structural problem.

Field crews chemically tested dry-weather discharge from outfalls using Chemetrics color comparator test kits (for detergents, phenols, copper, chlorine, and ammonia), a Hanna Instruments single analyte tester (for fluoride), and a YSI or In-situ multi-parameter sonde (for water temperature and pH). All field screening took place following a minimum of 72 hours of dry weather (i.e., less than 0.03 inches of rainfall). Crews compared the results of the screening tests to "action" criteria, as presented in Table 2-1, to determine which results should be considered abnormal and warrant further investigation (action) for possible illicit connections.

If the field teams determined that chemical conditions at an outfall resulted in any tested concentrations above the action thresholds, they revisited the site within 24 hours, but at least four hours after the first test, if feasible (e.g., rain events may delay the return visit). Field crews followed this protocol to account for any discharge anomalies, and to confirm the results of the chemical test conducted on the first visit.

Field crews indicated a possible illicit connection for any outfall with dry-weather flow that was found to have at least one parameter concentration above its corresponding action criterion (Table 2-1) during both inspections. Test results that only indicated a low pH reading, with all other parameters testing within acceptable limits, represented a unique, non-illicit condition. Conditions that could indicate possible illicit connections could also include situations where an observable pollutant had been discharged through a storm drain system, even if the system does not exhibit flowing effluent, or the discharge does not contain the pollutant at the time of the inspection.



To locate the source of potential illicit discharges that field crews identified from outfall screening, the crews traced the discharge through the storm drain network upstream. The tracking procedure included testing flows through manholes and inlets as necessary and practical until the source was identified, or the discharge could not reasonably be tracked further. Field teams documented evidence of illicit discharges, including the probable cause(s), with photographs.

Table 2-1. Analytes, testing ranges, and action criteria for dry-weather discharge screening in Anne Arundel County

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Analyte	Effluent Type Indicated	Action Criterion	Minimum Detection Limit	Instrument Range	Kit or Probe
Chlorine (Cl)	industrial, tap water, sewage	$\geq 0.40 \; mg/l^{(a)}$	0.05 mg/l	0 to 5 mg/L	Chemetrics color comparator
Copper (Cu)	industrial	$\geq 0.21 \text{ mg/l}^{(a)}$	0.05 mg/l	0 to 10 mg/L	Chemetrics color comparator
Phenols	dry cleaning	$\geq 0.17~\text{mg/l}^{(a)}$	0.05 mg/l	0 to 12 mg/L	Chemetrics color comparator
Detergents*	sewage, washwater	$\geq 0.5 \text{ mg/l}$ (residential) <sup>(a)</sup>	0.15 mg/l	0.15 to 3 mg/L	Chemetrics color comparator
Ammonia	sewage	$\geq 1.0 \text{ mg/l}^{(b)}$	N/A	0 to 300 mg/L	Chemetrics color comparator
Fluoride	sewage, tap water	$\geq 0.75 \text{ mg/l}^{(c)}$	N/A	0 to 20 mg/L	Hanna fluoride meter
pН	industrial washwater	$\leq$ 6.5 or $\geq$ 8.5	N/A	0 to 14	YSI sonde
Water Temperature	sewage	N/A	N/A	N/A	YSI sonde

<sup>(</sup>a) MDE 1997

Versar staff prepared site-specific reports for each identified major storm drain structural issue found in the field and submitted them to the Anne Arundel County MS4 Program Manager. The Program Manager typically then shared the reports with the IMD to facilitate corrections for the damages. On occasion, structural issues have been identified for non-County owned infrastructure (e.g., State-owned). In those instances, the information was shared with the appropriate agency to facilitate further investigation.

Versar staff prepared and submitted reports of possible illicit connections identified in the field surveys to the Anne Arundel County MS4 Program Manager. The Program Manager then sent copies of the reports to I&P to initiate plans for additional site visits and inspections for these reported problems, and enforcement action as appropriate. In addition, the Versar staff called the Anne Arundel County Environmental Hotline (410-222-7171) to report the illicit discharge.

During the illicit discharge outfall investigations, the field teams may find storm drain outfalls that are not identified in the County's latest digital version of its infrastructure network. In such cases, field teams record the outfall's location as documented by a GPS unit. The digital data set developed and submitted for each annual reporting period would include the locations of previously unmapped outfalls identified during the field investigations and confirmed and accepted by the County staff. The unmapped outfalls may be privately owned infrastructure not recorded by the County, State-owned infrastructure located immediately adjacent to a County outfall, or a

<sup>(</sup>b) CWP 2004, and Pitt 2004

<sup>(</sup>c) Anne Arundel County 2011

<sup>\*</sup> Field test results may fall below instrument range when using color comparators



pipe outfall that is part of a multi-barrel endwall, where the endwall would have an outfall number instead of the individual pipes. Versar provides the locations of any undocumented outfalls so identified to the County for review. If any new structure is approved by County staff, the feature is assigned a valid identification number and added to the County's digital version of the infrastructure network.

# 2.2 FIELD INVESTIGATION – ROUTINE SURVEY OF COMMERCIAL AND INDUSTRIAL DRAINAGE CATCHMENTS

During the 2020 survey period, field teams conducted routine visual surveys of the drainage areas of commercial and industrial facilities in the general areas noted above to search for signs of polluting activities. These efforts were intended to help the County discover and eliminate any upland pollutant sources. Versar staff used GIS tools (e.g., digital land cover data sets and aerial photography) to identify areas depicting commercial and industrial land uses to facilitate the surveys of these properties. Field crews inspected commercial or industrial properties in the designated areas to document upland pollutant sources and polluting activities. Upland pollutant source identification includes evidence of spills or dumping, poor housekeeping, poor maintenance of drainage systems, or other polluting activity not approved by a valid MDE permit. If field teams identified any upland pollutant source, they recorded the evidence on field data sheets and documented the conditions with photographs.

Versar teams reported evidence of upland pollutant sources to the Anne Arundel County MS4 Program Manager. The Program Manager then typically sent copies of the reports to I&P or the Health Department, as appropriate, to initiate plans for correction. Versar prepared and submitted site-specific reports for any conditions that the field teams determined required further investigation or correction, based on observations documented during the surveys.

As part of the County's program to address spills and illegal dumping, the County provides a means to receive complaints from residents to assist in identifying possible problems during regular field activities. The Department of Inspections & Permits maintains a 24-Hour Environmental Hotline for citizens to report environmentally related complaints including spills and illegal dumping into the County storm drain system. The Hotline has been available since 1988 and has been advertised in numerous ways including on the County webpage: <a href="https://www.aacounty.org/departments/inspections-and-permits/environmental-programs">www.aacounty.org/departments/inspections-and-permits/environmental-programs</a>. In addition, the County webpage provides a link for citizens to submit on-line requests for investigation of environmental concerns or any other observation or issue of concern: <a href="www.aacounty.org/services-and-programs/report-a-concern">www.aacounty.org/services-and-programs/report-a-concern</a>. This on-line reporting interface is in addition to the options for reporting concerns and issues through the mobile app <a href="mailto:seeClickFix.com">SeeClickFix.com</a>© and by dialing 311.

#### 2.3 DATA ENTRY

Versar staff performed a quality review of the outfall inspection field sheets and transferred applicable information from the sheets that correlated with successfully screened outfalls to a data



table that has records, fields, and values that conform to the format required by MDE. Appendix E of this report contains a digital version of this table; a duplicate copy of the table (as *IDDE*) is included with the 2020 MS4 Geodatabase, which accompanies the 2020 MS4 Annual Report to which this IDDE report is appended. The data table includes the data recorded during the first and second visits to each site during the reporting period as separate records, where applicable.



#### 3 RESULTS

#### 3.1 PHYSICAL FINDINGS

Versar field teams identified locations where physical issues significantly affected stormwater infrastructure within the targeted areas of Anne Arundel County during the 2020 reporting period; Versar staff reported seven of these conditions to the County (Table 3-1). Appendix A contains site-specific reports relevant to these seven findings. A map in Appendix D shows the locations of the reported infrastructure concerns.

Table 3-1. Structural issues identified in field inspections and reported to Anne Arundel County during the 2020 reporting period							
Location Town Outfall ID Date Issue							
2567 Golfers Ridge Road	Parole	O20O010	09/16/2019	collapsed infrastructure			
145 Cardamon Drive	Edgewater	Q21O003	09/20/2019	collapsed infrastructure			
2650 Quiet Water Cove	Edgewater	N20O020	09/26/2019	collapsed infrastructure			
6664 Old Solomons Island Road	Friendship	N/A	10/11/2019	unsupported infrastructure			
1099 Winterson Road	Linthicum Heights	J04O004	01/23/2020	collapsed infrastructure			
1043 Sugar Maple Drive	Davidsonville	L23O001	06/02/2020	unsupported infrastructure			

M23O004

06/02/2020

collapsed infrastructure

Davidsonville

#### 3.2 CHEMICAL FINDINGS

703 Gettysburg Court

Of the 155 outfalls successfully screened by Versar crews, 45 had dry-weather flow during the initial site visit. Of the screened outfalls exhibiting dry-weather flow during the initial screening, seven yielded a result above the action criteria limit for one or more of the tested contaminants (this summary does not include those test results where pH was the only parameter with levels outside of the acceptable range). At one of the sites (Outfall O20O027), the field team determined that high turbidity in the sample interfered with the accuracy of the visual interpretations to the extent that the values were likely not correct; the field team surmised that the sample's cloudy conditions may have been due, in part, to particulate matter associated with high levels of iron flocculant in the water, and possibly fine sediment transported from a nearby golf course if the maintenance crews had been irrigating the course in the drought conditions of September 2019. The team decided that the questionability of the results effectively removed the need to return to the site for a revisit. Field crews returned to screen the six remaining outfalls and, of those, four had concentrations that were above at least one action level when re-tested (Table 3-2). Two of the re-screened sites did not have readings that exceeded the criteria on the second visit, although investigations at one of the sites (Outfall T16O006) found levels of chlorine that exceeded the program limit at access points up-network from the outfall (this is treated as an illicit discharge for reporting purposes, despite the fact that levels exceeding Program criteria were not recorded at the outfall during the second visit). Appendix B contains site-specific reports for the four re-tested outfalls that staff identified as



having potential illicit discharges, as validated by two consecutive qualifying chemical test results above the action levels. Appendix B also contains three reports in addition to these four. One additional site report presents the findings of the site visit to Outfall T16O006, where the field team tracked high levels of chlorine in the network, although the levels near the outfall did not exceed the criterion. The source of elevated chlorine is likely a leak from a private potable water line. A second additional report provides details of a field investigation of a residential pool discharge (on September 25, 2019) that was not directly associated with an outfall intended for screening. The third additional report provides information about a special investigation of documented washing activity that contributed washwater to the MS4 network

In July 2019, the County initiated a special investigation of a source of bacteria to a county waterway after receiving a citizen complaint of sewage entering tidal waters. The focus of the investigation was an area near the intersection of Deale Place and Park Place in the southern portion of the county. As part of the investigation, the County requested a screening of the nearest outfall, Q34O002. The outfall was not part of the identified IDDE outfall screening cohort for the 2020 reporting period, but the results of the requested screening are included as a record in the MS4 Geodatabase-compliant table in Appendix E. At the time of the screening, the outfall did not exhibit dry weather flow; thus, the field team could not collect a water sample to test for indicators of illicit discharge. The County continued to investigate the area for other indications of a possible source of bacteria. The resulting investigation became an upland pollution investigation that ultimately identified resident waterfowl as the contributors of bacteria and nutrients to receiving tidal waters. The lack of a sanitary sewage overflow was confirmed by staff with the County's Bureau of Utilities who conducted a smoke test on the sewer lines and found no evidence of sanitary sewer discontinuity or contribution to the storm drain system.

For the protocol, the County has determined that pH results below the action criteria of 6.5 but greater than 5.0 are often associated with natural conditions in the county (e.g., groundwater) and, if no other criteria are violated, the source need not be further investigated. As such, the Appendix does not include site-specific reports for the four sites for which pH readings were the only tested values out of range. A map in Appendix D shows the locations of the five outfalls (including T16O006) that exhibited potential illicit discharges, according to the protocol, during the reporting period. The applicable map in Appendix D also shows the location of the field investigation of a residential pool discharge from a lot on Berkshire Drive, although this was not directly associated with a screened outfall.



Table 3-2. Potential illicit discharges identified in field inspections during the 2020 reporting period, based on results from re-tests, and one potential illicit discharge to the network of T16O006 that was likely caused by a leak from a private water source

Outfall	Date of Test	Test Order	Chlorine (mg/l)	Copper (mg/l)	Phenols (mg/l)	Detergents (mg/l)	Ammonia (mg/l)	Fluoride (mg/l)	pН
O22O014	09/27/2019	Initial	0	0.05	0	0.1	1.75	0	6.75
0220014	09/27/2019	Re-test	0	0	0	0	1.5	0	6.75
1040004	01/23/2020	Initial	0	0	0	3	0	0.59	7.97
J04O004	01/24/2020	Re-test	0	0	0	3	0	0	7.67
T16O006	05/12/2020	Initial	0.35	0	0	0.5	0	0	7.84
D200002	05/13/2020	Initial	0.6	0	0	0.1	0	0	7.59
P20O003	05/14/2020	Re-test	0.4	0	0.05	0.25	0	0	7.49
E000005	05/27/2020	Initial	0	0	0	1.9	0	0	7.45
F09O005	05/27/2020	Re-test	0	0	0	2	0	0	7.72
<b>Bold</b> = exceeds action	n criterion thre	shold							

In late June 2019, a County field team observed washdown activity while conducting a site investigation in response to notice of a possible illicit discharge. A Versar field team was conducting a scheduled outfall inspection of facility R20O017 (as part of the long-term Church Creek monitoring program) on June 26 and observed a grey, cloudy discharge concurrent with an increase in flow from the outfall. The field team tested the discharge for levels of contaminants; the results indicated the presence of detergents and fluoride, but at levels below the County's program criteria. The field team alerted the County to a possible illicit source in the catchment contributing to the outfall. A County field team investigated the site on June 27 and observed a grey discharge at the outfall coursing through the pipe with a very high flow rate. The County team investigated the area up-network of the outfall and found a maintenance crew actively powerwashing the interior floors of a nearby parking garage. The team documented that washwater was entering some of the floor drains in the garage. The team instructed the maintenance crews to stop the washing activity immediately, and explained to the property manager that, in the future, washwater would need to be captured to prevent it from entering the storm drain system. The documented washing activity occurred in the last week of June 2019, but the case was unresolved by the end of the 2019 reporting period. A site-specific report about the event (Appendix B) and some details on the case (Section 5) are included with this report. The case is also documented in Table 5-2. The applicable map in Appendix D includes a marker for this location.

Appendix E contains an MS4 Geodatabase-compliant data table (see Section 2.3) which includes records from successful outfall screenings during the 2019 reporting period. The data set structure includes a separate record for each visit to each outfall that was successfully screened.

#### 3.3 UPLAND POLLUTANT SOURCE FINDINGS

There were 17 documented upland pollution sources investigated during the 2020 reporting period and identified in this report. Versar field crews identified 16 upland pollutant sources during the routine survey of primarily commercial and industrial sites within the targeted areas of Anne Arundel County during the period; in a separate effort, County personnel investigated a



source of bacteria to a county waterway after receiving a citizen complaint of sewage entering tidal waters. The Versar crews documented concerns with solid and liquid waste management associated with business activities and one residential dump site. Versar field crews evaluated approximately 370 specific commercial or industrial sites within the County for upland pollutant inspections during the reporting year; of those, 35 sites were subject to more thorough evaluation due to site conditions that were more likely to produce subjectively qualifying amounts or types of pollution. Table 3-3 provides a summary of the results of the routine upland pollutant source investigations conducted by Versar staff and the record indicating the County's special investigation of the source of bacteria to a county waterway near Deale Place. Appendix C contains site-specific reports on the site conditions that Versar field crews documented through routine screening and the County's special report on the investigation at Deale Place. A map in Appendix D shows the locations of the 17 upland pollutant sources identified during the 2020 reporting period.

In early July (FY2020) Anne Arundel County requested a specific site visit to the intersection of Deale Place and Park Place, in Deale, MD, to investigate a potential upland pollutant source to an area of Rockhold Creek. The site visit did not reveal any dry weather flow to County infrastructure that would constitute an illicit discharge. A visual survey of the area identified the heavy presence of waterfowl (approximately 45 geese) and waterfowl droppings at the edge of a cove to Rockhold Creek, and the investigative team surmised that these waterfowl were the source of the reported pollution (bacteria). The County subsequently deployed a wildlife camera to this area and, over the period of a week, documented numerous geese and ducks as well as other wildlife nesting in and frequenting this riparian area. This information, combined with water quality monitoring of Rockhold Creek, resulted in the conclusion that the resident wildlife was the pollutant source. A site-specific report about the event (Appendix C) and some details on the case (Section 5) are included with this report. The case is also documented in Table 5-1. Additional information regarding the water quality monitoring for this effort can be found in the County's FY2019 Bacteria TMDL Annual Implementation Assessment Report submitted to MDE as an appendix to the FY2019 NPDES MS4 Annual Report.



Table 3-3. Summary of upland pollutant source findings identified during the 2020 reporting period, and a special investigation of the source of bacteria to a county waterway

Address	Town	Business Name	Inspection Date	Poor House- keeping (solid waste)	Poor House- keeping (liquid waste)
Deale Place and Park Place*	Deale	N/A (residential)	07/10/2019		
Forest Plaza	Annapolis	N/A (multiple businesses)	09/27/2019	X	X
Forest Plaza	Annapolis	Restaurante Jalapeños	11/01/2019		X
1591 West Nursery Road	Linthicum Heights	Hoyt's Cinema	01/23/2020	X	X
2633 Annapolis Road	Hanover	N/A (multiple businesses)	03/18/2020	X	X
2647-A, 2653 Annapolis Road (Ridgeview Plaza)	Hanover	Mai Dragon and Dollar Tree	03/18/2020	X	X
2323 Forest Drive (Festival at Riva)	Annapolis	N/A (rear parking lot)	04/09/2020	X	
2311 Forest Drive, Unit E (Festival at Riva)	Annapolis	House of Hunan	04/09/2020		X
110 Hillsmere Drive (Hillsmere Center)	Annapolis	N/A (multiple businesses)	04/09/2020	X	
2068 Somerville Road	Annapolis	Giolitti Fine Italian Market	04/09/2020	X	X
302 Harry S. Truman Parkway	Annapolis	N/A (rear parking lot)	04/09/2020	X	
3059-G Solomons Island Road (South River Crossing)	Edgewater	Five Guys	04/09/2020		X
1 North Zona Street (Parkway Village)	Laurel	N/A (residential)	05/12/2020	X	
1153 Route 3 North (Crofton Station)	Gambrills	N/A (multiple businesses)	05/12/2020	X	X
2504 Solomons Island Road	Annapolis	The Fresh Market	06/08/2020		X
Forest Plaza	Annapolis	Restaurante Jalapeños	06/08/2020		X
3106 Solomons Island Road	Edgewater	Walgreens	06/08/2020	X	



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#### 4 SUMMARY AND CONCLUSIONS

In support of Anne Arundel County's NPDES permit requirements (Condition IV.D.3.a, Illicit Discharge Detection and Elimination, NPDES municipal stormwater permit #MD0068306), Versar field crews successfully screened 155 outfalls for the 2020 reporting period. Appendix E contains the MS4 Geodatabase-compliant data table that presents the results of these visits. Table 4-1 contains a summary of the physical and chemical parameters evaluated in the initial outfall screenings during the period (flowing and not flowing conditions). Note that the table includes the presence of constituents where noted, not just those samples in which the concentrations exceeded criteria.

Table 4-1. Summary of conditions evaluated during initial outfall inspections performed during the 2020 reporting period							
Condition	Number of Outfalls						
Observable Flow	45						
Chlorine present	5						
Detergents present	40						
Ammonia present	14						
Fluoride present	2						
Excessive vegetation	6						
Algae growth	26						

Detergents present	40
Ammonia present	14
Fluoride present	2
Excessive vegetation	6
Algae growth	26
Cloudy water	7
Opaque water	0
Outfall damaged or buried (incl. cracking and spalling)	53
Concrete cracking	4
Concrete spalling	12
Sediment deposits	45
Submerged outfall (incl. partially submerged)	42
Moderate erosion	5
Severe erosion	5
Oil sheen	2
Trash present	3
Oil/Gas/Sulfur/Sewage odor	0
Rancid/sour odor	1
Other than clear color	12

Note: Some sites had multiple findings; this may result in an overall total greater than 155.



Versar field crews reported seven stormwater structures exhibiting major structural or erosion problems within the targeted areas of Anne Arundel County during the 2020 reporting period. Appendix A contains details of these findings.

Of the outfalls containing dry-weather flow which were screened by Versar within the targeted areas of Anne Arundel County, four yielded results above the action criteria for tested contaminants in two successive screenings during the 2020 reporting period. Appendix B contains details of these findings. Appendix B also contains a site report that presents the findings of an investigation in which the field team tracked high levels of chlorine in the network leading toward the outfall, although the levels near the outfall did not exceed the criterion; a report of a field investigation of a residential pool discharge not directly associated with a screened outfall; and a report of documented washing activity that contributed washwater to the MS4 network. Samples which only exhibited pH levels below the action criterion, and no other contaminants at action levels, are not included in the set of conditions reported to the County, as the County has clarified that low pH likely reflects a naturally occurring state.

As required in Condition IV.D.3.b, the field program included investigations of commercial and industrial sites in the target areas to determine if any upland pollutant sources were present. Field teams identified 16 upland pollutant sources during these routine surveys for the 2020 reporting period. Appendix C contains details of these findings; the appendix also contains a special report of an investigation of the source of bacteria to a county waterway near Deale Place (the resulting conclusion was that the bacteria source was droppings from waterfowl and other wildlife).

As required by Conditions IV.D.3.c and d, Anne Arundel County used appropriate enforcement procedures to correct any illicit discharge, upland pollutant source, spill, or illegal dumping activities identified within the County. The Corrections and Enforcement Actions section of this report describes follow-up actions in further detail for the problems identified during the illicit discharge inspections and routine survey of commercial and industrial drainage catchments. See Tables 5-1 and 5-2, and Appendix F, for these details.

The County's illicit discharge detection and elimination program has been successful in the identification and removal of a wide variety of sources of pollutants, including illicit connections, upland pollutant sources, dumping, and spills. At this time, no recommendations are being made for improvements to the program.



#### 5 CORRECTIONS AND ENFORCEMENT ACTIONS

Table 5-1 details all illicit discharge, upland pollution, and infrastructure concerns arising from the permit-required dry-weather screening of outfalls and routine visual surveys of commercial and industrial drainage areas during the reporting year. In addition, Table 5-1 may include cases referred to the County from other government agencies (e.g., MDE, EPA), or concerns that are discovered internally by WPRP staff. For FY2020, one illicit discharge concern discovered during routine maintenance of a stormwater monitoring station and one illicit discharge concern reported by a citizen are also included in Table 5-1. Table 5-2 contains details of FY2020 enforcement actions taken on previously unresolved IDDE program cases. Documentation of additional FY2020 complaints received by I&P, related to potential illicit discharges, dumping, and/or spills, are found in Appendix F.

As is presented in Table 5-1, significant findings from field investigations were sent to the responsible authorities for action. Site specific reports of potential illicit connections and upland pollutant sources (e.g., leaking or overflowing dumpsters) identified during the investigations for the FY 2020 reporting period went to either I&P or to the County Health Department. As noted in Section 1, the Health Department focus was redirected to the COVID-19 pandemic response in March 2020. At that time, I&P began follow-up investigation and enforcement action for those findings that would usually be addressed by the Health Department. Structural issues were forwarded to IMD to determine ownership of the infrastructure; then, either IMD or I&P would respond, depending on their areas of responsibility. The IMD or I&P Departments then addressed the problems based on whether the infrastructure was publicly or privately owned, respectively. Occasionally, complex cases were not resolved in time for a particular year's report; such cases are typically reported as unresolved. Table 5-2 provides details regarding the resolution of cases described in previous reporting years.

The Anne Arundel County Department of Inspections and Permits applies a phased approach to eliminating and enforcing illicit storm drain discharges. Phase 1 Enforcement consists of a Violation Notice sent by first class and certified mail to the property owner. The Phase 1 Violation Notice includes an explanation of the violation and requests a written commitment to immediately cease the illicit discharge. Upon written receipt of the commitment to comply, the Department monitors the site for up to 60 days. If compliance is maintained, the violation is considered abated. Should the Department fail to receive written commitment to comply, or if further violations are observed, the Department proceeds to Phase 2 Enforcement. At the Phase 2 Enforcement level, the Department posts a Stop Work Order on the property and issues a \$1000 civil citation to the property owners. The civil citation must be paid and the violation abated or the civil citations are litigated in court.

In response to the NPDES MS4 permit-required outfall screenings and visual watershed surveys, as well as WPRP staff findings, the County opened 30 compliance cases related to IDDE concerns in FY2020, 18 of which were resolved by the end of the fiscal year. Two illicit discharge case, five upland pollution cases, and five infrastructure concern cases remained unresolved at the end of FY2020. Table 5-1 details the enforcement actions and resolutions



associated with these compliance cases. One structural condition case opened during the previous reporting years remained unresolved at the end of FY2020 (Table 5-2).

Of note, the FY2019 illicit discharge case concerning outfall R20O017 at the Parole Plaza MS4 stormwater monitoring station remained unresolved at the end of the reporting period. This investigation was initiated near the end of the 2019 fiscal year and, thus, was not resolved before July 1, 2019. A complete investigation report and correction/resolution are documented in Table 5-2 of this FY2020 Illicit Discharge Detection and Elimination Program Annual Report. Additionally, the upland pollution source investigation in Deale (Rockhold Creek) was initiated at the beginning of FY2020. The investigation was settled within the month and is included in Table 5-1; the site report is provided in Appendix C.

The County determined that the origin of the potential illicit discharge in one case was indeterminate. The case with the indeterminate source is marked "Investigation Inconclusive" in Table 5-1. The County will prioritize re-inspection of these outfalls and complete follow up investigations and eliminations as warranted.

During FY2020 the County responded to an additional 20 environment section complaints. Details of these complaints and County staff actions are provided in Appendix F, which contains inspection compliance database reports from the I&P Case Manager Complaint Tracking System for illicit connections, upland pollutant sources, or environmental hotline complaints relevant to this report. These reports detail County efforts in determining if remediation is necessary and what subsequent action was taken.



Table 5-1. FY2020 Illicit Discharge Detection and Elimination Program: Investigative activities and follow up actions.

	ILLICIT DISCHARGES								
Survey Date	I&P Compliance Database ID	Outfall/Site Address	Issue	Response	Status				
September 25, 2019	E-2019-679	376 Berkshire Rd Riva, MD	While investigating target outfalls for the County's Illicit Discharge Detection and Elimination (IDDE) program, a Versar team observed a large volume of water cascading over a retaining wall in a residential neighborhood. The field team investigated the conditions at 1:45 p.m. on Wednesday, September 25, 2019. The land at the base of the retaining wall was steeply sloped toward the headwaters of a small tributary to nearby Beards Creek. The team heard voices from the backyard area and observed a commercial truck in the driveway from a pool and spa company. The team surmised that there was a crew in the backyard performing maintenance on the swimming pool. This maintenance may have involved draining the pool for the fall conversion to winter storage; if so, the flowing water may have been pool water discharge. The team could not observe activities within the fenced backyard and could not confirm these suppositions.  The team collected a sample of the flowing water to test for contaminants. The test results indicated a detergent level of 2.5 mg/L and a chorine level of greater than 1.0 mg/L. Both of these readings were above the program's relevant criteria; other parameter results did not exceed criteria.	September 25, 2019: Versar staff reported the potential illicit discharge to the Anne Arundel County pollution hotline.  September 26, 2019: Report received from Versar by WPRP.  September 26, 2019: Referred to I&P.  September 26, 2019: Investigated by I&P.  Inspector did not observe any discharge. Inspector left educational pamphlets in the door of the residence, and contacted the pool company to educate them proper pool discharge procedures.	RESOLVED				



ILLICIT DISCHARGES I&P Survey **Outfall/Site** Compliance Issue Response Status Date Address **Database ID** On September 27, 2019, a Versar field team inspected outfall September 27, 2019: Versar reported findings to O22O014 at the end of Hoot Owl Road, in Riva, MD, as requested County's environmental hotline. October 2, 2019: Report received by WPRP. by Anne Arundel County staff (as a revisit from screenings in 2018) and spring 2019). At 10:15 a.m., the Versar crew found flowing October 2, 2019: Referred to I&P. October 7, 2019: Investigated by I&P. Test discharge at the 72-inch-wide oval-shaped reinforced concrete pipe outfall. The crew noted that the effluent was brown, cloudy, and indicated no presence of ammonia. Will continue to investigate over the course of the next few days. odorless. There were signs of an extensive population of ironoxidizing bacteria (a sheen on the water and copious clumps of October 8, 2019: I&P contacted Utilities orange deposits in the pipe and the discharge pool). The crew emergency department to have them conduct a obtained a sample of the discharge at the mouth of the outfall, to sample to test for ammonia. There is a sewage test for illicit discharge indicators. The result for ammonia was pumping station next to outfall. above the program threshold, at 1.75 mg/L; other parameter results October 8, 2019: Utilities conducted field and lab did not exceed criteria. The preceding dry time for this test was test. Test showed no indication of ammonia. approximately two weeks. Inspector will monitor site once a month to check ammonia levels. May 13, 2020: Versar returned to site to conduct a The team returned to the site at 2:15 p.m. on September 27 and obtained a sample of the discharge water to test for program second investigation. Results of investigation can 0220014 parameters. The test results indicated that the concentration of be seen in "Issue" column to the left. September ammonia exceeded the program criteria, at 1.5 mg/L; the team did June 2, 2020: Versar returned to site to continue E-2019-688 510 Hoot Owl RESOLVED 27, 2019 not conduct tests for the full suite of parameters on the second investigation that began on May 13, 2020. Results Rd/516 Forest Rd sample. The team also collected a sample of the water flowing at of investigation can be seen in "Issue" column to Riva, MD the nearest inlet; the test result indicated an ammonia level of 1.25 the left. mg/L. The team observed that the next inlet up-network was dry; June 23, 2020: Case referred to Utilities and IMD thus, the source of flowing water entered the stormwater network at for further investigation. one or more gaps in the pipe between the two inlets. The team did July 2, 2020: Utilities crews dispatched to not identify a likely source for ammonia during the trackdown after investigate the sewer system for possible cross the second test. Staff reported the potential illicit discharge to the connections. Crews found no issues with the Anne Arundel County pollution hotline on September 27. gravity sewer system. Possible source of ammonia is lawn fertilizer carried into storm drain during Field staff confirmed that there were manholes that indicated the rain event. presence of sanitary sewer lines in the ground along Hoot Owl Road and a sewage pumping station immediately adjacent to the INVESTIGATION INCONCLUSIVE outfall. Based on the observed manholes, the team concluded that one of the sewer lines crossed the stormwater line between the two inlets on Hoot Owl Road. The relative locations of the two pipe networks suggested that there was a potential for leaks from the sanitary sewer to enter the stormwater system if there were gaps in both lines. An infiltration of wastewater may affect the conditions CASE CLOSED



ILLICIT DISCHARGES I&P Survey **Outfall/Site** Compliance Issue Response Status Date Address **Database ID** of the discharge at the outfall and be indicated in water quality test results. Indicators of sewer infiltration may include elevated detergents and ammonia. A field team returned to the outfall O22O014 on May 13, 2020, to conduct a thorough investigation of the possible sources of the illicit conditions repeatedly observed at the outfall. During the trackdown, the team did not find some of the manholes that were depicted in the County's spatial data sets; the team attempted to open manholes found along the pipe route, but could not remove some of the manhole covers. The team collected discharge samples from two of the access points, to test for levels of ammonia: the first inlet up-network from the outfall (ID: O22I122) and the manhole in front of 514 Fern Road (ID: O22M061). A field team returned to the area on June 2 to continue the investigation of the pipe network and to attempt to clarify where the E-2019-688 source of ammonia may be entering the stormwater system. The team tested the discharge found in an inlet and two manholes; other (cont.) structures found and investigated during the trackdown were dry or could not be opened. The result of the test of the sample from the manhole O22M102, which was a splitter, exceeded the range of the field kit (4.9 mg/L). The team documented that the water in the manhole was stagnant and that it exhibited an odor of sewage. The team deduced, from the pattern of ammonia levels and the available access points, that discharge from a sewer line may be infiltrating the stormwater pipe network and backing up into the system. The team surmised that the most likely location for this incursion would be the sections of pipe between manholes O22M102 and O22M062. As noted, outfall O22O014 has been the subject of repeated screenings in recent reporting years. In May 2018, samples collected from this outfall had levels of copper and ammonia that exceeded the corresponding criteria; detergents were also detected. In March 2019, test results on a sample from this outfall indicated detectable levels of detergents, copper, and ammonia, at concentrations approximately half the levels needed to exceed program criteria. While investigating conditions at the site, the team found a hose discharging liquid from a residential lot (the



ILLICIT DISCHARGES I&P Survey **Outfall/Site** Compliance Issue Response Status Date Address **Database ID** homeowner later reported that the source was water that had accumulated on the swimming pool cover); tests of the hose discharge indicated exceeding levels of both detergents and E-2019-688 (cont.) ammonia. In both years, the County closed the cases. In 2018, County inspectors did not observe flowing conditions at the outfall. In 2019, County inspectors reported that the issues related to the resident pumping water from the lot had been adequately resolved. A Versar field team inspected outfall J04O004, located behind 1099 January 24, 2020: Versar reported findings to Winterson Road, as part of annual outfall screening efforts. At 1:00 County's environmental hotline and to WPRP. p.m., the Versar crew found flowing discharge at the 54-inch January 24, 2020: WPRP referred incident to reinforced concrete pipe outfall. The crew noted that the effluent was green and had a fragrant odor. The crew obtained a sample of January 24, 2020: Investigated by I&P. Inspector the discharge at the mouth of the outfall, to test for illicit discharge observed green-tinted water at outfall and followed indicators. The result for surfactants (detergents) was above the trail of discharge back to the car wash located at program threshold, at 3 mg/L; other parameters did not have 1595 W. Nursery Rd. Inspector observed water measurable levels. The team members conducted a brief search of flowing from curb and gutter around car wash. the stormwater network to track the source of the unusual Inspector spoke with car wash personnel about the leak and was told that the car wash is in the process discharge. They backtracked the flow to a car wash behind the 7-11 store at 1595 West Nursery Road and noted obvious green of hiring a plumber to fix the leak. Will re-inspect flowing water at the inlet that received the pooled effluent from the southeast edge of the driveway for Hoyt's West Nursery Road January 27, 2020: Re-inspected by I&P. J04O004 Cinema 14. Inspector confirmed that plumbing repairs were E-2020-48 made. Inspector observed no water coming from January 23, RESOLVED 1099 Winterson Rd. 2020 The team returned to the site at 10:30 a.m. on January 24 and found curb/gutter around car wash, and noted that the Linthicum Heights, dry conditions at the outfall. Extrapolating on the evidence paved area leading to the inlets was dry as well. MD gathered on the previous day's visit, the team obtained a sample of No observed discoloration to water at outfall. the discharge water at the same inlet investigated on January 23 and tested the sample for program parameters. The sample had a green color and a fragrant odor. The test results indicated that the concentration of surfactants exceeded the program criteria and the upper range of the color comparator test kit, at more than 3 mg/L. While the team was conducting the tests, the inlet received more discharge from the direction of the car wash. Staff reported the potential illicit discharge to the Anne Arundel County pollution hotline on January 24. The field team conducted a thorough investigation of the source of the discharge. The discharge accumulated along the south side of the driveway before entering the inlet. The team backtracked the



	ILLICIT DISCHARGES									
Survey Date	I&P Compliance Database ID	Outfall/Site Address	Issue	Response	Status					
	E-2020-48 (cont.)		flow to a curb on the north side of the car wash building. Discharge water was obviously flowing through seams in the curb. From the fragrant odor and green color of the sample collected from the inlet further down-gradient, the team surmised that the discharge leaking from the curb was directly related to car wash operations. The intermittent flow in the discharge also likely correlated with wash water use or pumps in the car wash facility.							
				CASE CLOSED						



ILLICIT DISCHARGES I&P Survey **Outfall/Site** Compliance Issue Response Status Date Address **Database ID** On May 12, 2020, a Versar field team inspected outfall T16O006, May 18, 2020: Report received by WPRP which is located behind 1429 Baltimore Annapolis Boulevard, as May 29, 2020: WPRP staff contacted Utilities part of annual outfall screening efforts. At 10:40 a.m., the Versar Water Line Maintenance Division via phone to crew found backed up, but flowing discharge at the 24-inch discuss this incident. Left voicemail. reinforced concrete pipe outfall. The crew obtained a sample of the June 2, 2020: WPRP staff sent email to Utilities discharge at the mouth of the outfall, to test for illicit discharge Water Line Maintenance Division personnel indicators. The result for detergents was above the program detailing recurrence of issue over multiple years. threshold, at 0.5 mg/L; chlorine was also detected at 0.35 mg/L, but June 8, 2020: WPRP staff spoke with Utilities Water Line Maintenance Division personnel over was not above the action level. The team tested the water at the next upstream manhole to obtain a freely flowing sample, whose the telephone, who explained that there is a results were 0.15 mg/L and 0.10 mg/L for chlorine and detergents. suspected potable water leak underground on private property. Numerous attempts have been respectively. made to locate the source of the leak without The team returned to the site at 4:20 p.m. on May 12 and found success, with the most recent attempt in 2019. similar conditions at the outfall. The team obtained a sample of the There are no County water lines in the vicinity of freely flowing discharge water from the next structure up-network the suspected source of the leak, however there are from the outfall and tested the sample for program parameters. The private water lines which the County has no test results indicated that the concentration of chlorine was 0.15 and iurisdiction over. T16O006 the concentration of detergents was 0.10, both of which were below program action levels. 1429 Baltimore RESOLVED May 12, 2020 Annapolis Blvd, Because the results at the outfall were assumed to be similar to the Arnold, MD first visit and the outfall was a reinspection of a previously identified potential illicit discharge problem, staff treated the outfall as a potential illicit discharge and initiated the trackdown procedure. The team tested flowing water in the curb inlet on the east side of the intersection of Arnold Road and Baltimore Annapolis Boulevard and found concentrations of 0.40 mg/L for chlorine and 0.10 mg/L for detergents. At the curb inlet on the opposite side of Baltimore Annapolis Boulevard, staff noted standing water and detected an odor of chlorine. At the inlet on the north side of Arnold Road, the team found flowing water which tested at 0.60 mg/L for chlorine and 0.20 mg/L for detergents. Other contributing infrastructure was found to be dry. Staff could not ascertain the source of elevated chlorine in the flowing water in the infrastructure along Arnold Road, but suspect the problem to be related to the proximity of a public drinking water supply line as has been reported previously. Staff reported the potential illicit discharge to the Anne Arundel County pollution hotline on or about CASE CLOSED May 12.



**ILLICIT DISCHARGES** I&P Survey **Outfall/Site** Compliance Issue Response Status Date Address **Database ID** May 13, 2020: Complaint reported to County's On May 13, 2020, a Versar field team inspected outfall P20O003, Environmental Hotline by Versar. which is located behind 104 Marquise Lane, as part of annual May 21, 2020: Report received from Versar by outfall screening efforts. At 2:30 p.m., the Versar crew found flowing discharge at the 48-inch reinforced concrete pipe outfall. May 21, 2020: Report forwarded to I&P for The crew obtained a sample of the discharge at the mouth of the further investigation. outfall, to test for illicit discharge indicators. The result for May 21, 2020: Investigated by I&P. Inspector chlorine was above the program threshold, at 0.6 mg/L; detergents observed still, not flowing, water at the outfall were also detected at 0.1 mg/L, but was not above the action level. pipe. Samples tested at the outfall did not show any levels of chlorine or detergents. Inspector will The team returned to the site at 1:00 a.m. on May 14 and found continue to monitor and collect samples from the continued flowing conditions at the outfall. The team obtained a sample of the discharge water at the outfall and tested the sample July 2, 2020: Follow up inspection by I&P. for program parameters. The test results indicated that the Samples taken from the site showed no detergents concentration of chlorine was 0.4, which was equal to the program or chlorine. Will continue to monitor, with next site P20O003 action level. Detergents were also detected, but at 0.25 mg/L was visit scheduled for week of 7/20/20. below the program threshold. Staff reported the potential illicit UNRESOLVED May 13, 2020 E-2020-328 104 Marquise Ln discharge to the Anne Arundel County pollution hotline on or about Annapolis, MD May 14. The field team initiated the trackdown procedure after the 2<sup>nd</sup> positive result for chlorine. The team did not open the four-way junction manhole immediately up-network from the outfall due to its position in the middle of the driving lanes of Riva Road. Investigation of inlets on Riva Road that feed to the four-way junction revealed them to be dry. The team tracked flowing water to a large parking lot in front of Annapolis High School and across Fred Stauffer Lane from Arundel Olympic Swim Center (2690 Riva Road). Test results from water samples drawn from access points along Fred Stauffer Lane and within the parking lot were below action levels for chlorine (0.05 to 0.15 mg/L) and detergents (0.25 to 0.40 mg/L). Staff could not ascertain the source of elevated chlorine at the outfall. **CASE OPEN** 



**ILLICIT DISCHARGES** I&P Survey **Outfall/Site** Compliance Issue Response Status Date Address **Database ID** May 29, 2020: Report received by WPRP from On May 27, 2020, a Versar field team inspected outfall F09O005, Versar. which is located southwest of the Shell gas station and car wash **June 1. 2020:** Referred to I&P for investigation. facility at 2631 Annapolis Road and Car Doc at 2633 Annapolis June 15, 2020: Inspected by I&P. Confirmed Road, in Hanover, MD, as requested by Anne Arundel County staff detergent discharge from car wash. Inspector (as a revisit from several screenings in recent years). At 5:00 p.m., spoke with store manager and instructed manager the Versar crew found flowing discharge at the 36-inch-wide to cease car washing activity until illicit discharge reinforced concrete pipe outfall. The crew noted that the effluent is resolved. was green and odorless. The crew obtained a sample of the June 16, 2020: Correction notice sent to property discharge at the mouth of the outfall, to test for illicit discharge owner to shut down car wash for potential indicators. The result for surfactants (detergents) indicated a maintenance issues. concentration above the program threshold, at 1.9 mg/L; other parameter results did not exceed criteria. F09O005 The team returned to the site at 9:00 p.m. on May 27 and obtained a sample of the discharge water to test for program parameters. The 2631 Annapolis test results indicated that the concentration of surfactants exceeded **UNRESOLVED** May 27, 2020 E-2020-361 Road (MD Rt 175) the program criteria, at 2 mg/L. The team conducted a trackdown Hanover, MD of the stormwater network, as well as could be determined from previous surveys in the area and features evident at the site. Note that the County's digital data depicting the stormwater infrastructure in this area does not reflect the current conditions. The team surmised that the parcel occupied by the Shell gas station was the likely source of the illicit discharge. It is possible that water collected from the car wash, which would contain surfactants, is entering the stormwater system. One member of the team had conducted surveys at this outfall in previous years and noted that the outfall structure had been modified since 2016. In 2016, there was severe erosion at the outfall; in 2020, the team noted that the erosion in the area immediately adjacent to the outfall area had been repaired, but that there was evidence of severe erosion approximately 20 feet downstream of the outfall. **CASE OPEN** 



	UPLAND POLLUTANT SOURCES									
Survey Date	I&P Compliance Database ID	Outfall/Site Address	Issue	Response	Status					
July 10, 2019		Q34O002 Deale Pl. & Park Pl. Deale, MD	Anne Arundel County staff requested a site visit to outfall Q340002, at the intersection of Deale Place and Park Place, to gather information that may be used to identify a source of elevated bacteria levels in a nearby tidewater area of Rockhold Creek. The field team investigated the site at 12:43 p.m. on Wednesday, July 10, 2019. The most recent rainfall prior to the site visit had occurred on July 8, and the antecedent dry time was approximately 52 hours. The air temperature at the time of the site visit was 84 °F. On July 10, the team observed that the outfall was dry. The team investigated the inlets leading to the outfall and found standing water, which had a green tint, at inlet Q34C8100003. The inlet drained a narrow ditch at the west edge of a residential lot. As the outfall did not exhibit flowing water, the team collected a sample of the standing water at the inlet to test for a suite of water quality parameters. Although the test results indicated measurable levels of some of the parameters, none of the concentrations were at or above the corresponding action level, as specified by Anne Arundel County's Illicit Discharge Detection and Elimination Standard Operating Procedures.  The relatively high temperature of the sample likely reflected the exposure of the stagnant water to direct sunlight, and thus could not reliably be used as an indicator. The sample did not exhibit a detectable odor or color. The test results indicated measurable levels of the three analytes (chlorine, detergents, and ammonia), but none of the readings exceeded the program criteria. Thus, the field team did not document conclusive evidence to support an inference that the stormwater runoff through the network connected to outfall Q34O002 had been conveying sewage with its discharge.  The team investigated the conditions in the vicinity of the outfall and along the drainage path from the outfall to the waterway, Rockhold Creek. The team did not observe signs of solid waste or damage to the sanitary sewer network near the outfa	July 8, 2019: WPRP staff are made aware of high bacteria levels in Rockhold Creek near the intersection of Park Pl and Deale Pl. in Deale, MD. A citizen had contacted DPW with concerns that the elevated bacteria levels could be the result of a sewage leak from the nearby sewer line.  July 8, 2020: WPRP contacted Versar to request water quality samples be taken along the storm drain system in the area (Versar does not test for bacteria under the IDDE program, but other analytes can indicate the presence of sewage in the storm drain system).  July 10, 2020: Investigation by Versar. Results of investigation can be seen in "Issue" column to the left.  July 10, 2020: AA County Utilities staff conducted a search for leaks in the sewer system in the area.  July 12, 2020: WPRP staff investigated the area. Staff observed trickling flow in the drop structure portion of inlet Q34C8I00003 and possibly a little bit of pooling at the inlet. No observed evidence of car washing along the street or in a driveway near the inlet.  July 19, 2020: Follow-up investigation by WPRP staff. Staff observed evidence of waterfowl in the riparian area around the cove, including large amounts of goose feces, feathers, and hatched eggs. Staff deployed a wildlife camera to this area and, over the period of a week, documented numerous geese and ducks, as well as other wildlife, nesting in and frequenting this riparian area and the nearshore waters. This information, combined with results from water quality monitoring of Rockhold Creek, resulted in the conclusion that the resident wildlife was the pollutant source. Additional information regarding the water quality monitoring for this effort						



			UPLAND POLLUTANT SOURCES		
Survey Date	I&P Compliance Database ID	Outfall/Site Address	Issue	Response	Status
		Q34O002  Deale Pl. & Park Pl. Deale, MD  cont.	intersection of Deale Place and Park Place. The team documented that the discharge extent broadens when it reaches a larger and flatter floodplain downstream of the south end of the ditch. The team documented the presence of approximately 45 geese and the tracks of many geese in the mud associated with the discharge path. The team surmised that if the geese frequent this area, goose droppings may be concentrated near the cove of the creek which abuts the western boundary of the open lot. If so, stormwater discharge may transport bulk material and leachate from the droppings into the cove at this location. The accumulated feces may be contributing to the growth in the populations of bacteria in the creek.	can be found in the County's FY2019 Bacteria TMDL Annual Implementation Assessment Report submitted to MDE as an appendix to the FY2019 NPDES MS4 Annual Report.  CASE CLOSED	RESOLVED
September 27, 2019		85 Forest Plaza Annapolis, MD	While investigating target outfalls for the County's National Pollutant Discharge and Elimination System (NPDES) screening effort, a Versar team found signs of improper waste management associated with the businesses at the Forest Plaza shopping center in Annapolis, MD. The team investigated conditions at the site at 1:30 p.m. on Friday, September 27. At the rear lot of the northwest portions of the shopping center, near the Dollar Tree establishment, the team found an area with obvious staining that led to an inlet. In several areas, the team documented accumulated debris on the pavement alongside dumpsters. In an alcove along the north exterior wall of the Dollar Tree store, the team found two open and overflowing dumpsters and scattered debris.	October 2, 2019: Report received by WPRP from Versar.  October 2, 2019: Referred to Health Department.  November 12, 2019: Inspected by HD. The facility was made aware of the violations regarding the debris around their dumpster area and grease barrels.  November 18, 2019: Re-inspected by HD.  Inspector noted that the facility has cleaned the area around the dumpster, with no debris observed. The grease barrel was also cleaned and no active leaking was observed. In addition, the lid was closed on all of the dumpsters except for one.  Dollar Tree has already ordered a lid for this dumpster, which is expected to arrive by December 2nd.  December 6, 2019: Reinspected by HD. Area around dumpsters has remained clean. Missing dumpster lid has been replaced.  CLOSED	RESOLVED



UPLAND POLLUTANT SOURCES									
Survey Date	I&P Compliance Database ID	Outfall/Site Address	Issue	Response	Status				
September 27, 2019		85 Forest Plaza Annapolis, MD	While investigating target outfalls for the County's National Pollutant Discharge and Elimination System (NPDES) screening effort, a Versar team found signs of improper cooking oil storage associated with the business, Restaurante Jalapeños, at the Forest Plaza shopping center in Annapolis, MD. The team investigated conditions at the site at 1:15 p.m. on Friday, September 27. At the rear lot of the northwest portions of the shopping center, behind the restaurant, the team found a kitchen grease bin with an open lid. On the pavement near the dumpster closest to and down-gradient of the kitchen grease bin, the team documented three puddles; one was cloudy, beige liquid with a white sheen, and the other two appeared to be solidified grease. There were several stain paths evident in the photographs taken during the survey and in aerial photography of the parking lot. The most obvious stain paths appeared to be associated with the paths of grease and trash from the restaurant: one path began at an outside rear door (presumably, of the restaurant, based on its location) and diverged into two tracks — to either the grease bin and the nearest dumpster; the second path connected the stains from the grease bin with the stains at the dumpster. All stain paths led to the nearby stormwater inlet at the edge of the parking lot.	October 2, 2019: Report received from Versar by WPRP. October 2, 2019: Referred to Health Department. November 12, 2019: Inspected by HD. The facility was made aware of the violations regarding the debris around their dumpster area and grease barrels. November 18, 2019: Re-inspected by HD. Inspector noted that the facility has cleaned the area around the dumpster, with no debris observed. The grease barrel was also cleaned and no active leaking was observed. December 6, 2019: Re-inspected by HD. Area around dumpsters has remained clean. Missing dumpster lid has been replaced.  CASE CLOSED	RESOLVED				
January 23, 2020		1591 West Nursery Rd Linthicum Heights, MD	While investigating target outfalls for the County's National Pollutant Discharge and Elimination System (NPDES) screening effort, a Versar team found signs of improper waste management associated with the business operations at the Hoyt's West Nursery Cinema 14 in Linthicum Heights, MD. The team investigated conditions at the site at 1:30 p.m. on Thursday, January 23. The team documented debris strewn about the lot, particularly at the edge of the woods near the building. The trash material included common public-use debris: paper and plastic food containers, glass and plastic bottles, plastic film, aluminum cans, and metal. The team also found a large, discarded television set during the investigation. At the rear of the lot, the team found a contiguous stain of cooking oil from a rear entrance to a curb inlet of the stormwater network. The field crew noted that the area had a distinct odor of cooking oil, which confirmed the source and suggested that some of the waste had been recently deposited. The nature of the dark stain suggested that the oil had been dumped or spilled along this trail repeatedly. The team noted that there was a receptacle in the rear lot for waste cooking oil, although the stain pattern on the pavement (leading in the opposite direction from the rear door) indicated that the bin was not used consistently for the disposal of waste oil.	January 27, 2020: Report received by WPRP January 27, 2020: WPRP referred incident to Health Department. June 9, 2020: Tickler sent. June 9, 2020: HD responded to inquiry from WPRP that the site was investigated in January. Inspector noted that majority of trash was not from the facility noted in the report. Area directly around facility was free of trash. Older grease spots were observed but no evidence of grease entering the storm drain. Inspector spoke with manager on-site who said that trash is an on-going problem. Note: with the office shut down due to COVID-19, HD is unable to access this file to provide a full update, including date of inspection.  CASE CLOSED	RESOLVED				



UPLAND POLLUTANT SOURCES									
Survey Date	I&P Compliance Database ID	Outfall/Site Address	Issue	Response	Status				
March 18, 2020	E-2020-180	2663 Annapolis Rd Hanover, MD	While investigating target outfalls for the County's National Pollutant Discharge and Elimination System (NPDES) screening effort, a Versar team found signs of improper waste management, blocked infrastructure, and erosion near the Ridgeview Plaza Shopping Center. The conditions were evident near the outfall behind the Car Doc business (which was not involved in causing the conditions) at 2633 Annapolis Rd in Hanover, MD (outfall ID: F090003) and on the SW end of a culvert that conveys stream flow under the Car Doc lot. The team observed stagnant green water in the outfall immediately to the SE of the car wash of the Shell gas station at 2631 Annapolis Rd; discharge from this outfall has demonstrated illicit conditions in the past, but the water in the outfall was not flowing on the day of the hotspot investigation. The team also documented excessive debris near the stream immediately downhill from the Shell station. The trash material included common public-use debris: paperboard, food containers, plastic film, and metal. The stream is a headwater tributary of Midway Branch, which drains part of the Little Patuxent River watershed. Where the stream entered the culvert, to pass under the Car Doc lot and an access road, the team documented that excessive vegetation had partially blocked the entrance; the team also documented debris accumulated at the culvert entrance. The team investigated conditions at the culvert exit and found signs of severe erosion in the stream. The team surmised that it is likely that stream flows through the culvert have high volume and velocity during storms. According to the digital infrastructure depicting the County's stormwater system, there a second outfall that discharges to the stream upstream of the culvert; the outfall (ID: F09O011) drains portions of several major roadways (Annapolis, Ridge, and Rockenbach Roads).	March 19, 2020: Report received by WPRP from Versar.  April 22, 2020: Referred to I&P April 26, 2020: Investigated by I&P. Inspector sent correction notice to Shell gas station to clean storm drain connected to infiltration trench. Also contacted MDOT for the trash in their outfall area.  May 21, 2020: Follow-up investigation by I&P. Inspector observed Shell gas station cleaned drains and did maintenance to Storm Water facilities.	RESOLVED				



	UPLAND POLLUTANT SOURCES							
Survey Date	I&P Compliance Database ID	Outfall/Site Address	Issue	Response	Status			
March 18, 2020	E-2020-182	2647-A and 2653 Annapolis Road, Hanover, MD	While investigating target outfalls for the County's National Pollutant Discharge and Elimination System (NPDES) screening effort, a Versar team found signs of improper waste management and improper cooking oil storage associated with businesses operating in the Ridgeview Plaza Shopping Center. The team investigated conditions at the site at 1:30 p.m. on Thursday, March 18. At the rear lot of the eastern portions of the main building, the team found an open, overflowing dumpster near the Dollar Tree establishment. The team observed an open kitchen grease bin behind the Mai Dragon restaurant. Near and to the east of the grease bin (and in the direction of the nearest inlet), the team documented a pool of murky grey water in the parking lot; this may be evidence that spilled grease is accumulating on the pavement in this area and combining with standing water to create this color in the pools. There were also gas canisters stored outside behind the restaurant. According to the County's digital stormwater infrastructure data, there are no inlets directly behind the building in this area.	March 19, 2020: Report received by WPRP from Versar.  March 20, 2020: Report referred to Health Department for investigation.  March 20, 2020: HD replied that, due to COVID-19 priorities, investigation would likely not occur for many weeks. Will check back on 5/1.  April 22, 2020: Case referred to I&P.  April 26, 2020: Investigated by I&P. Inspector observed that dumpster had been emptied and grease bin was closed. Was raining at the time of inspection and no murky water was observed. No violation for CO2 bottles.	RESOLVED			
April 9, 2020	E-2020-219	2311 Forest Dr. Unit E Annapolis, MD	While investigating target outfalls for the County's National Pollutant Discharge and Elimination System (NPDES) screening effort, a Versar team found signs of improper cooking oil storage associated with the business operations at the House of Hunan restaurant in Annapolis, MD. The team investigated conditions at the site at 12:50 p.m. on Thursday, April 9. The team documented excessive kitchen grease and food debris on and around the disposal bin; dark stains on the pavement near the bin provided evidence of grease spills near the bin.	April 14, 2020: Complaint received by WPRP from Versar.  April 15, 2020: Case referred to I&P.  April 15, 2020: I&P contacted the property manager and informed them that clean-up must occur and that plan must be put in place to prevent future occurrences. Property manager stated that they have had similar violations in the past with other businesses in the shopping center and that they will clean up as they were directed to do so in the past.  April 28, 2020: Follow up inspection by I&P. Inspector found that the spilled grease had been cleaned up and only staining remained.  CASE CLOSED	RESOLVED			



	UPLAND POLLUTANT SOURCES							
Survey Date	I&P Compliance Database ID	Outfall/Site Address	Issue	Response	Status			
April 9, 2020		110 Hillsmere Dr Annapolis, MD	While investigating target outfalls for the County's National Pollutant Discharge and Elimination System (NPDES) screening effort, a Versar team found signs of improper waste management associated with the business operations (numerous businesses) at Hillsmere Center in Annapolis, MD. The team investigated conditions at the site at 11:25 a.m. on Thursday, April 9. The team documented an overflowing dumpster and numerous full trash bags and debris accumulated on the pavement near the adjacent dumpster enclosure.	April 14, 2020: Complaint received by WPRP from Versar.  April 15, 2020: Complaint referred to I&P.  April 15, 2020: I&P found that property is located in City of Annapolis. Complaint referred to City or Annapolis DPW.  April 16, 2020: City of Annapolis DPW reported that the trash has been removed.  CASE CLOSED	RESOLVED			
April 9, 2020	E-2020-220	302 Harry S. Truman Parkway Annapolis, MD	While investigating target outfalls for the County's National Pollutant Discharge and Elimination System (NPDES) screening effort, a Versar team found signs of improper bulk solid waste management on the lot at 302 Harry S. Truman Parkway in Annapolis, MD. The team investigated conditions at the site at 1:25 p.m. on Thursday, April 9. The team documented an uncovered pile of road salt, with a base extent of approximately 15 feet by 12 feet, at the south end of the parking lot. The pile was located approximately 100 feet up-gradient from an inlet in the parking lot, with no protections from unintentional drainage into the inlet.	April 14, 2020: Complaint received by WPRP from Versar.  April 15, 2020: Complaint referred to I&P.  April 15, 2020: I&P emailed the property manager and informed them that the salt pile needed to be covered or removed.  April 28, 2020: Follow up inspection with I&P. Inspector found that the stockpile had been removed.  CASE CLOSED	RESOLVED			



	UPLAND POLLUTANT SOURCES						
Survey Date	I&P Compliance Database ID	Outfall/Site Address	Issue	Response	Status		
April 9, 2020	E-2020-216	2323 Forest Dr. Annapolis, MD	While investigating target outfalls for the County's National Pollutant Discharge and Elimination System (NPDES) screening effort, a Versar team found signs of improper bulk solid waste management on the lot at 2323 Forest Drive, in a rear lot (behind the Giant Food store) for the Festival at Riva shopping center in Annapolis, MD. The team investigated conditions at the site at 1:00 p.m. on Thursday, April 9. The team documented an uncovered pile of mulch, with a base extent of approximately 50 feet by 12 feet, on the parking lot. The pile was located approximately 15 feet up-gradient from an inlet in the parking lot, with no protections from unintentional drainage into the inlet.	April 14, 2020: Complaint received by WPRP from Versar.  April 15, 2020: Complaint referred to I&P.  April 15, 2020: I&P contacted the property manager via e-mail. Property manager stated that she will have the tenants cover the mulch pile. Property manager also stated that a filter sock is being installed at the nearby stormwater inlet.  April 28, 2020: Follow up inspection by I&P.  Upon arrival Inspector found that the mulch pile had been removed and it appeared that plywood had been used to cover the inlet while the mulch pile was present. Some mulch was still present and a visible path was present where the rain along with wood chips was flowing into the storm drain. Inspector requested that the property management company clean up the remaining mulch.  May 14, 2020: Follow up inspection by I&P. Upon arrival Inspector observed no mulch on the site.	RESOLVED		
April 9, 2020	E-2020-221	2068 Somerville Rd. Annapolis, MD	While investigating target outfalls for the County's National Pollutant Discharge and Elimination System (NPDES) screening effort, a Versar team found signs of improper cooking oil storage and waste management associated with the business operations at the Giolitti Fine Italian Market in Annapolis, MD. The team investigated conditions at the site at 2:10 p.m. on Thursday, April 9. The team documented excessive kitchen grease and food debris on and around the disposal bin at the rear of the establishment; dark stains on the pavement near the bin provided evidence of grease spills near the bin. The team also noted that the dumpster lid was open and there were dark stains at the base of the dumpster. The uncovered dumpster storage area included a small, grated drain that would receive drainage from the dumpsters and the kitchen grease bin. The team did not ascertain whether the drain connected to the County's stormwater infrastructure. The area around the dumpster generally looked unkempt.	April 14, 2020: Complaint received by WPRP from Versar.  April 15, 2020: Complaint referred to I&P.  April 28, 2020: Investigated by I&P. Upon arrival Inspector observed an open grease bin, 2 dumpsters with liquid around the bottom, trash on the ground, and a grease bin with staining. The following must be done in order to bring the site into compliance:  1. Remove all trash from the ground and place in the dumpsters.  2. Close all grease bins when they are not in use.  3. Close all dumpsters when they are not in use.  4. Replace leaking dumpster(s).  5. Clean up any spilled grease with kitty litter and dispose of in the dumpster.	UNRESOLVEI		



	UPLAND POLLUTANT SOURCES						
Survey Date	I&P Compliance Database ID	Outfall/Site Address	Issue	Response	Status		
April 9, 2020	E-2020-242	3059 Solomons Island Rd. Unit G Edgewater, MD	While investigating target outfalls for the County's National Pollutant Discharge and Elimination System (NPDES) screening effort, a Versar team found signs of improper cooking oil storage associated with the business operations at the Five Guys restaurant, at the South River Crossing shopping center, in Edgewater, MD. The team investigated conditions at the site at 3:25 p.m. on Thursday, April 9. The team documented excessive kitchen grease stains around and leading from the disposal bin used by restaurant staff. The rear lot did not drain to the County stormwater system (there was an on-site BMP that was designed to receive runoff from the lot).	April 14, 2020: Complaint received by WPRP from Versar.  April 15, 2020: Complaint referred to I&P.  April 23, 2020: Investigated by I&P. Inspector observed significant oil overspill and stains in the area of the disposal bin and surrounding area. A correction notice has been sent to property owners.  May 8, 2020: Inspector spoke with Property Manager who stated work would be completed.  Follow up inspection scheduled for May 20, 2020.  May 20, 2020: Follow up inspection by I&P.  Inspector found that the site is still not in compliance. A second correction notice will be sent to property owner.  June 15, 2020: Follow up inspection by I&P.  Inspector spoke with property management and observed that site had been cleaned up.	RESOLVED		
May 12, 2020	E-2020-317 E-2020-375	1153 Route 3 North Gambrills, MD	While investigating target outfalls for the County's National Pollutant Discharge and Elimination System (NPDES) screening effort, a Versar team found signs of improper waste management associated with some of the business operations at Crofton Station in Gambrills, MD. The team investigated conditions at the site at 9:50 a.m. on Tuesday, May 12. Restaurants operating in the shopping center, which were clustered in the northern portion of the strip, included Frank and Luke's New York Pizza Kitchen, Bonchon, Hunan Express, Otani Japanese Cuisine, Philly Pretzel Factory, and Subway. The team documented overflowing dumpsters and bagged and loose debris in the dumpster storage area. The arrangement of stacks of debris seen in the photographs suggests that employees had stacked some of the recyclable material, perhaps awaiting an empty dumpster (the dumpster for recycling materials was also overflowing). The debris included cardboard, boxes of empty cans, bags of trash and grass clippings (some of the bags were torn), and food. The team also documented stains around the kitchen grease bins, which were stored on the pavement adjacent to the enclosure; the stains suggest that employees spill grease or oil while they are transferring the material from the restaurants to the bins.	May 18, 2020: Complaint received by WPRP from Versar.  May 19, 2020: Complaint referred to I&P for investigation.  May 19, 2020: Investigated by I&P. Inspector noted that trashed had been picked up, but some trash was located around the area. The oil disposal bins had stains on the ground around them. A correction notice will be sent to the property owner to clean oil stains and any trash in the area.  June 9, 2020: Re-inspected by I&P. Trash and debris were observed to be removed.	RESOLVED		



	UPLAND POLLUTANT SOURCES							
Survey Date	I&P Compliance Database ID	Outfall/Site Address	Issue	Response	Status			
May 12, 2020		1 North Zona Street Laurel, MD	While investigating target outfalls for the County's National Pollutant Discharge and Elimination System (NPDES) screening effort, a Versar team found signs of improper waste management associated with the Parkway Village neighborhood in Laurel, MD. The team investigated conditions at the site at 3:30 p.m. on Tuesday, May 12. The field team found evidence of dumping in an area of the woods to the west of North Zona Street, which is immediately adjacent to the Patuxent River. The dumped debris included material that derived from likely residential and possibly commercial uses. Residential materials include furniture, gardening materials, a tire, and a stroller. Material with possible commercial sources included five-gallon buckets, large wheeled bins, and kitchen cabinets.	May 18, 2020: Complaint received by WPRP from Versar.  May 19, 2020: Complaint referred to I&P for investigation.  May 19, 2020: Investigated by I&P. Inspector spoke with property management company about the area of concern. Supervisor for management company said they will remove debris. Correction notice to property owner.  July 2, 2020: Inspector has not yet received response from property owner. Case will remain open until response is received.	UNRESOLVED			
June 8, 2020	E-2020-381	3106 Solomons Island Rd Edgewater, MD	While investigating commercial parcels in the county for the County's National Pollutant Discharge and Elimination System (NPDES) screening program, a Versar team found signs of improper waste management associated with the business operations at the Walgreens store in Edgewater, MD. The team investigated conditions at the site at 3:10 p.m. on Monday, June 8. The team documented accumulated debris on the ground alongside the trash compactor.	June 8, 2020: Complaint received by WPRP from Versar.  June 9, 2020: Complaint referred to I&P for investigation.  June 11, 2020: Investigated by I&P. Inspector observed trash and debris next to the trash compactor. Inspector spoke to the store manager who stated that she would have the trash and debris cleaned up.  June 30, 2020: Tickler sent.  CASE OPEN	UNRESOLVED			
June 8, 2020	E-2020-382	2504 Solomons Island Rd Edgewater, MD	While investigating commercial parcels in the county for the County's National Pollutant Discharge and Elimination System (NPDES) screening program, a Versar team found signs of improper cooking oil disposal associated with the business operations at the grocery store The Fresh Market in Annapolis, MD. The team investigated conditions at the site at 2:40 p.m. on Monday, June 8. The team documented evidence of spilled cooking oil on the ground alongside the disposal bin for used kitchen grease near a rear door for the store.	June 8, 2020: Complaint received by WPRP from Versar. June 9, 2020: Complaint referred to I&P for investigation. June 11, 2020: Investigated by I&P. June 30, 2020: Tickler sent.  CASE OPEN	UNRESOLVED			



	UPLAND POLLUTANT SOURCES								
Survey Date	I&P Compliance Database ID	Outfall/Site Address	Issue	Response	Status				
June 8, 2020	E-2020-383	85 Forest Plaza Annapolis, MD	While investigating commercial parcels in the county for the County's National Pollutant Discharge and Elimination System (NPDES) screening program, a Versar team found signs of improper cooking oil disposal associated with the business operations at the Jalapeños Restaurant in Annapolis, MD. The team investigated conditions at the site at 2:15 p.m. on Monday, June 8. The team documented evidence of spilled cooking oil on top of and on the pavement near the disposal bin for used kitchen grease in a rear alcove near the restaurant.	June 8, 2020: Complaint received by WPRP from Versar.  June 9, 2020: Complaint referred to I&P for investigation.  June 11, 2020: Investigated by I&P.  June 30, 2020: Tickler sent.	UNRESOLVED				



	EROSION AND STRUCTURAL ISSUES							
Survey Date	I&P Compliance Database ID	Outfall/Site Address	Issue	Response	Status			
September 16, 2019		O20O010 2567 Golfers Ridge Rd Parole, MD	While investigating target outfalls for the County's Illicit Discharge Detection and Elimination (IDDE) program, a Versar team found signs of collapsed infrastructure at outfall O200010. The team gained access to the outfall via a golf cart path near Golfers Ridge Road (the path was a feature with the Heritage Harbour Golf Course). The team investigated the site at 10:45 a.m. on Monday, September 16. At the site, there was evidence of ground subsidence or headcutting approximately 12 feet up-network from the outfall (Figure 1). The end section at the outfall appeared to be displaced in a lower and slightly rotated position relative to the adjacent pipe (Figure 2). The team surmised that the two conditions were related, and that the subsidence had facilitated erosion that led to undercutting and loss of support at the outfall.	September 18, 2019: Report received from Versar by WPRP. September 26, 2019: Referred to IMD. October 3, 2019: Investigated by IMD. Repairs placed in IMD's project list. Repair estimated to be completed within 6-12 months. June 22, 2020: Update on project status by IMD states infrastructure is programmed tentatively for repair within next 10-16 months.  CASE OPEN	UNRESOLVED			
September 20, 2019		Q21O003 Q21O003a 145 Cardamom Dr Edgewater, MD	While investigating target outfalls for the County's Illicit Discharge Detection and Elimination (IDDE) program, a Versar team found signs of collapsed infrastructure at outfalls Q210003 and Q210003a. The team investigated the site at 2:50 p.m. on Friday, September 20. At the site, there was evidence of collapsed concrete decking below both outfalls. The team observed the effects of erosion that had undermined the pipe for outfall Q210003 behind the headwall. The team also documented severe erosion downstream of the outfall, which contributes to the evidence of strong forces acting on the infrastructure at the site.	September 24, 2019: Report received from Versar by WPRP. September 26, 2019: Referred to IMD. October 3, 2019: Investigated by IMD. Repairs placed in IMD's project list. Repair estimated to be completed within 10-16 months. May 14, 2020: Repairs completed by IMD.  CASE CLOSED	RESOLVED			
September 26, 2019		N20O020 2650 Quiet Water Cove Edgewater, MD	While investigating target outfalls for the County's Illicit Discharge Detection and Elimination (IDDE) program, a Versar team found signs of collapsed infrastructure at outfall N200020. The team investigated the site at 11:00 p.m. on Thursday, September 26. At the site, there was evidence that the pipe and headwall had completely detached from the adjacent inlet, N20I004. The team documented that erosion had removed supporting soil from the sides and base of the original configuration. The team investigated the contributing pipe network and found that a pipe entering the network from the northeast (outfall N020009) was oriented to discharge directly on top of a concrete cap of an inlet, N20I083. The team surmised that the flows from this disconnected outfall may have contributed to the erosion that had occurred approximately 140 feet down-gradient, in addition to overland flows.	October 1, 2019: Report received from Versar by WPRP. October 1, 2019: Referred to IMD. July 2, 2020: As of the end of FY2020, IMD is currently reviewing repair options for this outfall.  CASE OPEN	UNRESOLVED			



	EROSION AND STRUCTURAL ISSUES							
Survey Date	I&P Compliance Database ID	Outfall/Site Address	Issue	Response	Status			
October 11, 2019		O37O002 6664 Old Solomons Island Road, Friendship, MD	While investigating target outfalls for the County's Illicit Discharge Detection and Elimination (IDDE) program, a Versar team found signs of an undermined pipe at a driveway culvert near outfall O370002. The team investigated the site at 2:50 p.m. on Friday, October 11. At the site, there was evidence of erosion undermining the pipe that formed the driveway culvert for the residence at 6664 Old Solomons Island Road. The team documented that the ground around the pipe opening appeared to be actively eroding; signs of the extent of the erosion included exposed roots and loss of soil support under the pipe. During the site visit, a resident informed the team that the County had been notified of the issue and the conditions at the site had not yet been resolved.	October 18, 2019: Report received by WPRP from Versar. October 18, 2019: WPRP contacted IMD to inquire if the County could make these repairs or if repairs would be the responsibility of the homeowner. October 25, 2019: IMD stated to WPRP staff via email that the project has been on the books for a while but other higher priority projects have taken precedence. IMD stated that they will try to get this funded by the end of the year, for completion in early 2020. March 31, 2020: IMD reported that the repairs have been completed.  CASE CLOSED	RESOLVED			
January 23, 2020		J04O004  1099 Winterson Rd. Linthicum Heights, MD	While investigating target outfalls for the County's Illicit Discharge Detection and Elimination (IDDE) program, a Versar team found signs of collapsed infrastructure at outfall J04O004. The team investigated the site at 1:00 p.m. on Thursday, January 23. At the site, the team found that the end section had partially detached from the adjacent pipe section. The team documented evidence of erosion associated with the separation that further undermines the end pipe at the outfall. An area map, indicating the general location of the collapsed infrastructure, is provided in Figure 3.	January 27, 2020: Report received by WPRP from Versar.  January 27, 2020: Report referred to IMD.  January 27, 2020: IMD confirmed that the outfall was inspected via video on 1/18/2019.  April 2, 2020: IMD performed site visit w/IMD contractor. Work will require (2) inlet point repairs, outfall point repair & cleaning of pipe.  June 22, 2020: IMD waiting for IMD contractor to submit cost estimate.  CASE OPEN	UNRESOLVED			



	EROSION AND STRUCTURAL ISSUES								
Survey Date	I&P Compliance Database ID	Outfall/Site Address	Issue	Response	Status				
June 2, 2020		M23O004  703 Gettysburg Court, Davidsonville, MD	While investigating target outfalls for the County's Illicit Discharge Detection and Elimination (IDDE) program, a Versar team found signs of collapsed infrastructure at outfall M230004. The team investigated the site at 12:45 p.m. on Tuesday, June 2. At the site, the team found that the endwall and terminal six feet of the connected pipe had dislocated from the pipe network. The team found evidence of significant erosion in the vicinity of the outfall and surmised that the pipe system collapsed due to the loss of structural support. The team noted the pipe system that remained intact appeared to be functioning adequately to convey stormwater. The team also found a dislocated manhole cover up-network of the outfall; the manhole number was M23M013.	June 4, 2020: Report received by WPRP from Versar.  June 4, 2020: Report forwarded to IMD for further investigation.  June 22, 2020: IMD project updates states that infrastructure is programmed tentatively for repair within next 10-16 months.  CASE OPEN	UNRESOLVED				
June 2, 2020		L23O001 1043 Sugar Maple Drive, Davidsonville, MD	While investigating target outfalls for the County's Illicit Discharge Detection and Elimination (IDDE) program, a Versar team found signs of eroded support for stormwater infrastructure and evidence of a possibly compromised pipe network at outfall L23O001. The team investigated the site at 10:40 a.m. on Tuesday, June 2. At the site, the team found signs of significant erosion behind the endwall and along the connected pipe of the stormwater conveyance system. The team documented water flowing along underneath the endwall and emerging beneath the structure; the team surmised that the water was discharging from the stormwater network, and was thus evidence of a compromise in the pipe system up-network of the outfall.	June 4, 2020: Report received by WPRP from Versar.  June 4, 2020: Report forwarded to IMD for further investigation.  June 22, 2020: IMD project updates states that infrastructure is programmed tentatively for repair within next 6-12 months.  CASE OPEN	UNRESOLVED				



Table 5-2. Follow-up and resolution of past unresolved IDDE cases

Survey Date	I&P Compliance Database ID	Outfall/Site Address	Issue	Response	Status
June 26, 2019	E-2019-492	R200017  Forest Dr. and Solomons Island Rd Annapolis, MD	While gathering a baseflow sample and performing maintenance at the Parole Plaza MS4 stormwater monitoring station, Versar staff observed discolored and odorous water actively discharging from the reinforced concrete pipe behind the Outback Steakhouse on Forest Drive. The team collected a sample for testing. While the sample did not test positive for pollutants, the team noted that the fluoride level was slightly elevated. This is not the first observed incident of this occurring at this location.	June 26, 2019: Complaint received by WPRP from Versar.  June 26, 2019: Investigated by I&P and WPRP staff. Black water was observed discharging from the outfall. While tracing flow back through the system, Inspector observed black water discharging from a pipe into inlet R20I082. Inspector noticed pressure washing activities inside the parking garage at 217 Harker Place, located across Forest Dr from outfall R20O01. The pressure washing crew was washing the floors and walls of the interior of the parking garage and had placed a screen and PIG Oil-Only maintenance absorbent sock around the inlet on level 2. A PIG sock appeared to be removed from the inlet on the next level up and a shovel and broom were observed near the inlet. Numerous inlets were left uncovered. Black water was observed on multiple levels of the parking garage leaking from the ceiling as well as pooling on the floor. Inspector told crews to cease operations immediately. After pressure washing had ceased, discharge at outfall R20O017 decreased significantly. Inspector spoke with pressure washing crew leader as well as parking garage property manager, who agreed that pressure washing activities will stop until a wastewater capturing system is in place or a connection to the County's sewer system is approved and established. Will continue to monitor.  October 14, 2019: I&P attempted to contact property managers via telephone; left voicemail.  October 15, 2019: Follow-up investigations have shown no evidence of power washing wastewater discharge at the outfall. Will close case but continue to monitor site.	RESOLVED



Survey Date	I&P Compliance Database ID	Outfall/Site Address	Issue	Response	Status
May 23, 2019	E-2019-539	E of Waterview Court Glen Burnie, MD	While investigating a target outfall, O050008, a Versar team found signs of flowing water on both sides of Waterview Court, leading to two inlets up-network of the outfall. The team traced the two flow paths to investigate the sources. On the west side of the street, the source was a leaking fire hydrant. The hydrant had foam around its base. The crew did not find a definitive source for the water flowing on the east side of the street. There was a significant amount of water at the cul-de-sac, and evidence of mulch disturbance near two trees. The pattern of the disturbance suggests that the source of the water may have been on the east side of the fence. The crew documented a fire hydrant near the disturbed mulch. While the crew was conducting the investigation, there was a loud noise accompanied by a large amount of flowing water coming from the northeast corner of the building at 6761 Waterview Court. The sign at the lot entrance described the lot as a trailer drop lot for the R. E. Michel Company (according to the company Web site, it is a wholesale distributor of heating, ventilation, air conditioning, and refrigeration equipment, parts, and supplies). The Versar team did not attempt to gain access to the facility, due to high fences around the property and a mechanical gate. The water from the corner of the building flowed for a few minutes before stopping. The receiving inlet was not a feature in the County's digital infrastructure. The short stream leading from the outfall and past the northeast side of the R. E. Michel lot leads immediately to Furnace Creek.	May 24, 2019: WPRP received report from Versar.  May 24, 2019: WPRP referred case to the DPW  Utilities - Emergency Services division to investigate the leaking hydrant; WPRP referred case to I&P to investigate discharge from building at 6761 Waterview Ct.  May 24, 2019: Leaking hydrant investigated by DPW  Utilities - Emergency Services division. Referred to Water Line Maintenance for repair.  28 May 2019: Hydrant repaired by Water Line Maintenance division.  July 19, 2019: Discharge from building at 6761  Waterview Ct. investigated by I&P. No evidence of water discharging from the hydrant or from behind the building. Inspector will continue to monitor the site.  July 29, 2019: Follow up inspection by I&P. Inspector saw no evidence of water discharging from the hydrant or from behind the R.E. Michel building.  August 13, 2019: Follow up inspection by I&P. Inspector observed no evidence of discharge from behind the R.E. Michel building.	RESOLVED
February 5, 2019		S15O022  Ring Rd. & College Parkway Arnold, MD	While investigating a target outfall, Facility ID \$150022, a Versar team found evidence of collapsing infrastructure at the endwall associated with the outfall. The team observed the conditions at 1:55 p.m. on Tuesday, February 5, at the northwest corner of Anne Arundel Community College campus, along Ring Road. The field crew surmised that the roots from a large tree have exerted pressure behind the endwall such that a portion of the structure is now offset by approximately 15 degrees. The forces on the wall are also exacerbating a crack on the face of the structure. These conditions compromise the structural integrity of the endwall, and further damage from water and roots is likely to continue at this site.	February 9, 2019: Complaint received by WPRP from Versar.  February 9, 2019: Complaint referred to IMD for investigation.  February 9, 2019: Investigated by IMD. This repair has been made a "Priority 3" project and will be assigned to the County's contractor for repair based on priority and public safety hazard determination.  June 22, 2020: IMD project updates states that infrastructure is programmed tentatively for repair within next 10-16 months.  CASE OPEN	UNRESOLVED
February 5, 2019		S14O014 1003 Via Amorosa Arnold, MD	While investigating target outfalls in the vicinity, a Versar team found evidence of collapsing infrastructure at a manhole in the network associated with outfall \$140014\$. The team observed the conditions at 3:35 p.m. on Tuesday, February 5, along Via Amorosa. A homeowner alerted the crew to significant ground subsidence around a manhole approximately 30 feet up-network from the outfall. The crew observed that the outfall was also being undercut by water flowing under the end segment. The team estimated the undercut depth to be approximately 18 inches.	February 9, 2019: Complaint received by WPRP from Versar.  February 9, 2019: Complaint referred to IMD for investigation.  February 9, 2019: Investigated by IMD. This repair has been made a "Priority 3" project and will be assigned to the County's contractor for repair based on priority and public safety hazard determination.  May 18, 2020: Repairs/improvements completed by IMD.  CASE CLOSED	RESOLVED



Survey Date	I&P Compliance Database ID	Outfall/Site Address	Issue	Response	Status
May 22, 2019		N04O045 McLean Way Glen Burnie, MD	While investigating the target outfall, N040045, a Versar team found evidence of severe erosion behind the outfall's endwall, which threatens the stability of the stormwater infrastructure at this location. The team observed the conditions at 10:50 a.m. on Wednesday, May 22, at the end of McLean Way. The crew documented that the erosion extended along the sides and below the structure.	May 24, 2019: Complaint received by WPRP from Versar.  May 24, 2019: Complaint referred to IMD for further investigation.  July 18, 2019: Tickler sent by WPRP.  July 18, 2019: Site was placed on list for future site visit and repair cost estimate.  August 19, 2019: Inspected via video. Recommended actions include debris removal, groutbags under endwall, compacted select fill behind endwall, and rock rip-rap plunge pool or rock outlet protection.  March 3, 2020: Repairs to the closed storm drain system were completed.  CASE CLOSED	RESOLVED
May 22, 2019		O06O006 349 Gatewater Court Glen Burnie, MD	While investigating the target outfall, O06O006, a Versar team found evidence of collapsed infrastructure at a curb inlet in the parking lot immediately up-network from the outfall. The team observed the conditions at 12:50 p.m. on Wednesday, May 22, along Gatewater Court. The crew documented that one of the grates at the curb inlet was shifted in its frame, and the surrounding asphalt was crushed.	May 24, 2019: Complaint received by WPRP from Versar.  May 24, 2019: Complaint referred to IMD for further investigation.  July 18, 2019: Tickler sent by WPRP.  July 18, 2019: Site was placed on list for future site visit and repair cost estimate.  August 16, 2019: Informed by IMD that the inlet is on private property (private road) and thus will not by video inspected by County.  CASE CLOSED	RESOLVED
May 22, 2019		O04O005 6704 Curtis Court Glen Burnie, MD	While investigating the target outfall, O04O005, a Versar team found evidence of collapsed infrastructure in the pipe network leading to the outfall. The team observed the conditions at 11:00 a.m. on Wednesday, May 22, northeast of the parking lot associated with 6704 Curtis Court. The crew surmised that erosion had removed some of the supporting ground around and under the pipe structure. Three pipe sections were disconnected from each other; this condition allowed runoff to escape the pipe and contribute to additional erosion. The affected sections of pipe were on a sloped bank immediately behind the outfall's endwall.	May 24, 2019: Complaint received by WPRP from Versar.  May 24, 2019: Complaint referred to IMD for further investigation.  May 24, 2019: July 18, 2019: Tickler sent by WPRP.  July 18, 2019: Site was placed on list for future site visit and repair cost estimate.  August 19, 2019: Inspected via video by IMD.  Recommended actions include removal and replacement of two - (2) sections, approx. total length of +/-16' of collapsed 36" RCP at endwall, grout bags under endwall, compacted select backfill behind endwall, and rock rip-rap plunge pool or rock outlet protection.  February 28, 2020: Repairs to the closed storm drain system were completed.  CASE CLOSED	RESOLVED



#### **6 REFERENCES**

- Anne Arundel County, Maryland Department of Public Works Bureau of Utility Operations. 2011. 2011 Drinking Water Quality Report.
- Center for Watershed Protection (CWP). 2004. Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments.
- Maryland Department of the Environment. 1997. Dry Weather Flow and Illicit Discharges in Maryland Storm Drain Systems.
- Pitt, R. 2004. Methods for Detection of Inappropriate Discharge to Storm Drain Systems. IDDE Project Support Material Used in Preparation of CWP 2004.





# **APPENDIX A**

# EROSION AND STRUCTURAL ISSUES SITE-SPECIFIC REPORTS





Location: Behind 2567 Golfers Ridge Road, Parole, MD

Date: September 16, 2019
Investigators: M. Berlett and C. Tonkin
Concern: Collapsed infrastructure

While investigating target outfalls for the County's Illicit Discharge Detection and Elimination (IDDE) program, a Versar team found signs of collapsed infrastructure at outfall O20O010. The team gained access to the outfall via a golf cart path near Golfers Ridge Road (the path was a feature with the Heritage Harbour Golf Course). The team investigated the site at 10:45 a.m. on Monday, September 16. At the site, there was evidence of ground subsidence or headcutting approximately 12 feet up-network from the outfall (Figure 1). The end section at the outfall appeared to be displaced in a lower and slightly rotated position relative to the adjacent pipe (Figure 2). The team surmised that the two conditions were related, and that the subsidence had facilitated erosion that led to undercutting and loss of support at the outfall. An area map, indicating the general location of the collapsed section, is provided in Figure 3.



Figure 1. A view of ground subsidence (upper left) approximately 12 feet up-network of outfall O20O010 (lower right)





Figure 2. A view of the disconnected flared end section of outfall O20O010

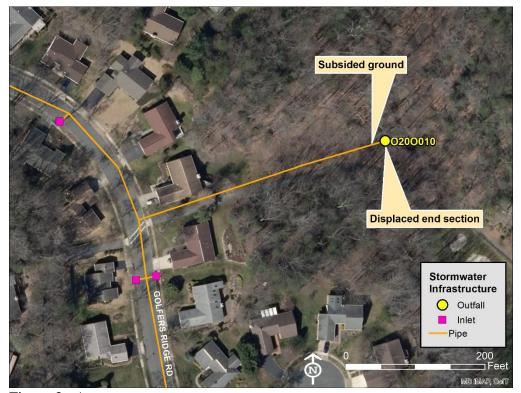


Figure 3. Area map



Location: Behind 145 Cardamom Drive, Edgewater, MD

Date: September 20, 2019

Investigators: M. Berlett and M. Genovese Concern: Collapsed infrastructure

While investigating target outfalls for the County's Illicit Discharge Detection and Elimination (IDDE) program, a Versar team found signs of collapsed infrastructure at outfalls Q210003 and Q210003a. The team investigated the site at 2:50 p.m. on Friday, September 20. At the site, there was evidence of collapsed concrete decking below both outfalls (Figure 1). The team observed the effects of erosion that had undermined the pipe for outfall Q210003 behind the headwall (Figure 2). The team also documented severe erosion downstream of the outfall, which contributes to the evidence of strong forces acting on the infrastructure at the site. An area map, indicating the general location of the collapsed infrastructure, is provided in Figure 3.



Figure 1. A view of collapsed decking below outfalls Q21O003 (right) and Q21O003a (left)





Figure 2. Evidence of erosion undermining the pipe leading to outfall Q21O003 behind the headwall

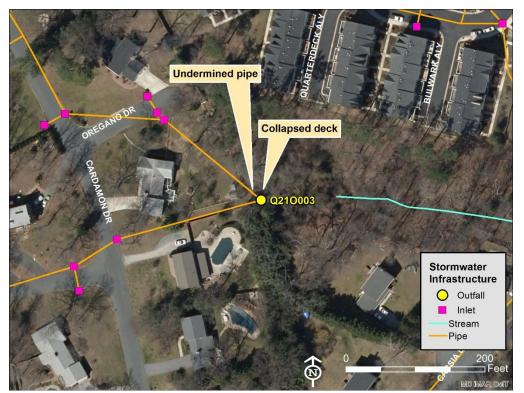


Figure 3. Area map



Location: Behind 2650 Quiet Water Cove, Edgewater, MD

Date: September 26, 2019
Investigators: M. Berlett and J. Latour
Concern: Collapsed infrastructure

While investigating target outfalls for the County's Illicit Discharge Detection and Elimination (IDDE) program, a Versar team found signs of collapsed infrastructure at outfall N20O020. The team investigated the site at 11:00 p.m. on Thursday, September 26. At the site, there was evidence that the pipe and headwall had completely detached from the adjacent inlet, N20I004 (Figure 1). The team documented that erosion had removed supporting soil from the sides and base of the original configuration (Figure 2). The team investigated the contributing pipe network and found that a pipe entering the network from the northeast (outfall N02O009) was oriented to discharge directly on top of a concrete cap of an inlet, N20I083 (Figure 3). The team surmised that the flows from this disconnected outfall may have contributed to the erosion that had occurred approximately 140 feet down-gradient, in addition to overland flows. An area map, indicating the general location of the collapsed infrastructure and the up-network outfall, is provided in Figure 4.



Figure 1. A view of a completely detached pipe and headwall at outfall N20O020; the adjacent inlet (left) is N20O004





Figure 2. A view from the side of inlet N20I004, adjacent to displaced outfall N20O020, showing extensive undercutting of the sediment



Figure 3. A view of the outfall N20O009, up-network of outfall N20O020, which discharges directly onto a concrete cap for an inlet





Figure 4. Area map



Location: 6664 Old Solomons Island Road, Friendship, MD

Date: October 11, 2019 Investigators: M. Berlett and M. Molé

Concern: Collapsed culvert pipe possible

While investigating target outfalls for the County's Illicit Discharge Detection and Elimination (IDDE) program, a Versar team found signs of an undermined pipe at a driveway culvert near outfall O37O002. The team investigated the site at 2:50 p.m. on Friday, October 11. At the site, there was evidence of erosion undermining the pipe that formed the driveway culvert for the residence at 6664 Old Solomons Island Road (Figure 1). The team documented that the ground around the pipe opening appeared to be actively eroding; signs of the extent of the erosion included exposed roots and loss of soil support under the pipe (Figure 2). During the site visit, a resident informed the team that the County had been notified of the issue and the conditions at the site had not yet been resolved. An area map, indicating the general location of the undermined pipe, is provided in Figure 3.



Figure 1. A view of the pipe (center-right foreground) forming a culvert under the driveway (background) at 6664 Old Solomons Island Road; note the eroded bank (lower right)





Figure 2. A view of one end of the driveway culvert showing exposed roots and undermined pipe

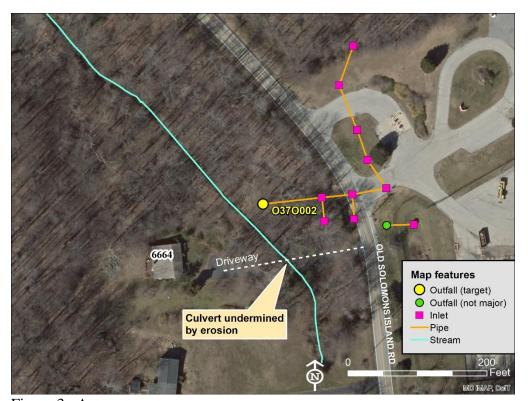


Figure 3. Area map



Location: Behind 1099 Winterson Road, Linthicum Heights, MD

Date: January 23, 2020

Investigators: M. Berlett and L. McDonald Concern: Collapsed infrastructure

While investigating target outfalls for the County's Illicit Discharge Detection and Elimination (IDDE) program, a Versar team found signs of collapsed infrastructure at outfall J04O004. The team investigated the site at 1:00 p.m. on Thursday, January 23. At the site, the team found that the end section had partially detached from the adjacent pipe section (Figure 1). The team documented evidence of erosion associated with the separation that further undermines the end pipe at the outfall (Figure 2). An area map, indicating the general location of the collapsed infrastructure, is provided in Figure 3.



Figure 1. A view of the partially detached end pipe (lower right) at outfall J04O004, which allows water to flow under the structure and further erode the supporting soil





Figure 2. A view of the base of the flared end of the outfall J04O004, showing evidence of the tilted end section which facilitates erosion under the structure

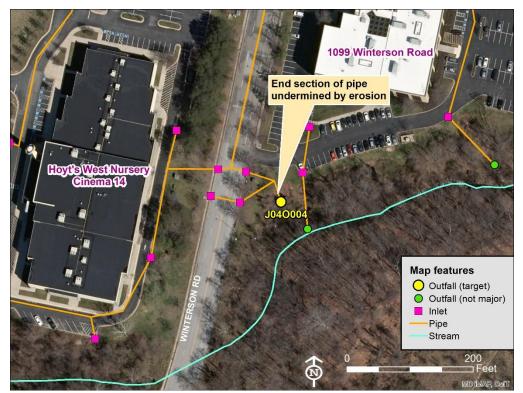


Figure 3. Area map



Location: Behind 1043 Sugar Maple Drive, Davidsonville, MD

Date: June 2, 2020

Investigators: M. Berlett and L. McDonald Concern: Collapsed infrastructure potential

While investigating target outfalls for the County's Illicit Discharge Detection and Elimination (IDDE) program, a Versar team found signs of eroded support for stormwater infrastructure and evidence of a possibly compromised pipe network at outfall L23O001. The team investigated the site at 10:40 a.m. on Tuesday, June 2. At the site, the team found signs of significant erosion behind the endwall and along the connected pipe of the stormwater conveyance system (Figure 1). The team documented water flowing along underneath the endwall and emerging beneath the structure; the team surmised that the water was discharging from the stormwater network, and was thus evidence of a compromise in the pipe system up-network of the outfall (Figure 2). An area map, indicating the general location of the erosion, is provided in Figure 3.



Figure 1. A view of the eroded ground behind the endwall (background) and along the connected pipe (foreground) of outfall L23O001





Figure 2. A view of the water flowing under the apron of the endwall of outfall L23O001 (left foreground)



Figure 3. Area map



Location: Northwest of 703 Gettysburg Court, Davidsonville, MD

Date: June 2, 2020

Investigators: M. Berlett and L. McDonald Concern: Collapsed infrastructure

While investigating target outfalls for the County's Illicit Discharge Detection and Elimination (IDDE) program, a Versar team found signs of collapsed infrastructure at outfall M23O004. The team investigated the site at 12:45 p.m. on Tuesday, June 2. At the site, the team found that the endwall and terminal six feet of the connected pipe had dislocated from the pipe network (Figure 1). The team found evidence of significant erosion in the vicinity of the outfall and surmised that the pipe system collapsed due to the loss of structural support. The team noted the pipe system that remained intact appeared to be functioning adequately to convey stormwater. The team also found a dislocated manhole cover up-network of the outfall; the manhole number was M23M013 (Figure 2). An area map, indicating the general location of the documented conditions, is provided in Figure 3.



Figure 1. A view of the disconnected pipe system at outfall M23O004; note the severed pipe and endwall (left center) partially covered in sediment and the impromptu channel from the acting receiving pool to the stream (center right)





Figure 2. A view of a manhole with a dislodged cover along the pipe network for outfall M23O004

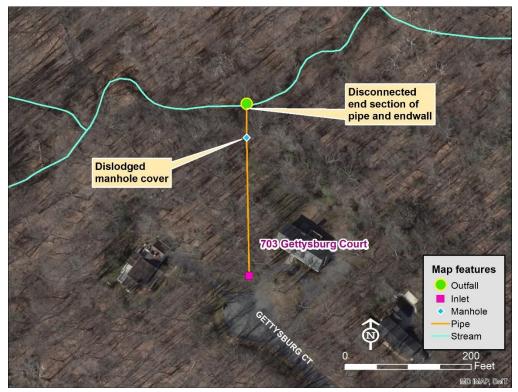


Figure 3. Area map





# APPENDIX B ILLICIT DISCHARGE SITE-SPECIFIC REPORTS





#### **Anne Arundel County Illicit Discharge Report**

Location: 376 Berkshire Road, Riva, MD

Date: September 25, 2019 Investigators: C. Tonkin and B. Hood

Concern: Illicit discharge; possibly pool water

While investigating target outfalls for the County's Illicit Discharge Detection and Elimination (IDDE) program, a Versar team observed a large volume of water cascading over a retaining wall in a residential neighborhood (Figure 1). The field team investigated the conditions at 1:45 p.m. on Wednesday, September 25, 2019. The land at the base of the retaining wall was steeply sloped toward the headwaters of a small tributary to nearby Beards Creek (Figure 2). The team heard voices from the backyard area and observed a commercial truck in the driveway from a pool and spa company (Figure 3). The team surmised that there was a crew in the backyard performing maintenance on the swimming pool. This maintenance may have involved draining the pool for the fall conversion to winter storage; if so, the flowing water may have been pool water discharge. The team could not observe activities within the fenced backyard and could not confirm these suppositions.

The team collected a sample of the flowing water to test for contaminants. The results of the test are provided in Table 1, below. The test results indicated a detergent level of 2.5 mg/L and a chorine level of greater than 1.0 mg/L. Both of these readings were above the program's relevant criteria; other parameter results did not exceed criteria. Staff reported the potential illicit discharge to the Anne Arundel County pollution hotline on September 25. An area map is provided in Figure 4.





Figure 1. A view of water observed cascading down a retaining wall at the lot for 376 Berkshire Drive on September 25, 2019

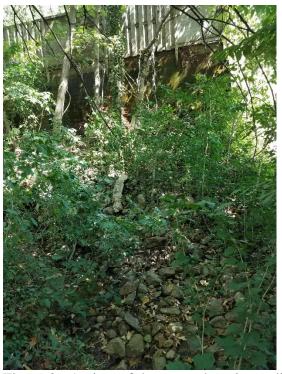


Figure 2. A view of the steep slope immediately adjacent to the retaining wall; note the flowing water passing between the bottom of the privacy fence and the top of the wall (top center)





Figure 3. A view of the commercial truck (a pool and spa company) that was parked at the residence while the water was discharging



Table 1. Chemical test results and corresponding action levels for				
parameters tested for the water sample collected at the retaining wall				
	Action Level Test Result			
pН	$\leq$ 6.5 or $\geq$ 8.5	7.28		
Temperature (°F)		Not recorded		
Ammonia (mg/L)	≥1	0.0		
Total Chlorine (mg/L)	≥ 0.4	>1		
Detergents (mg/L)	≥ 0.5	2.5		
Fluoride (mg/L)	≥ 0.75	0.0		
Phenols (mg/L)	≥ 0.17	0.0		
Copper (mg/L)	≥ 0.21	0.0		



Figure 4. Area map



Outfall ID: J04O004

Location: Behind 1099 Winterson Road, Linthicum Heights, MD

Date: January 23 and 24, 2020

Investigators: M. Berlett, B. Hood, and L. McDonald

Concern: Elevated detergents

On January 23, 2020, a Versar field team inspected outfall J04O004, which is located behind 1099 Winterson Road, as part of annual outfall screening efforts. At 1:00 p.m., the Versar crew found flowing discharge at the 54-inch reinforced concrete pipe outfall (Figure 1). The crew noted that the effluent was green and had a fragrant odor. The crew obtained a sample of the discharge at the mouth of the outfall, to test for illicit discharge indicators. The results of the tests are provided in Table 1, as Test 1. The result for surfactants (detergents) was above the program threshold, at 3 mg/L; other parameters did not have measurable levels. The team members conducted a brief search of the stormwater network to track the source of the unusual discharge. They backtracked the flow to a car wash behind the 7-11 store at 1595 West Nursery Road (Figure 2) and noted obvious green flowing water at the inlet that received the pooled effluent from the southeast edge of the driveway for Hoyt's West Nursery Road Cinema 14 (Figure 3).

The team returned to the site at 10:30 a.m. on January 24 and found dry conditions at the outfall. Extrapolating on the evidence gathered on the previous day's visit, the team obtained a sample of the discharge water at the same inlet investigated on January 23 (see Figure 3) and tested the sample for program parameters. The sample had a green color and a fragrant odor (Figure 4). The results of the tests of the sample are provided in Table 1, as Inlet Test Result. The test results indicated that the concentration of surfactants exceeded the program criteria and the upper range of the color comparator test kit, at more than 3 mg/L. While the team was conducting the tests, the inlet received more discharge from the direction of the car wash. Staff reported the potential illicit discharge to the Anne Arundel County pollution hotline on January 24.

The field team conducted a thorough investigation of the source of the discharge. The discharge accumulated along the south side of the driveway before entering the inlet (see Figure 3). The team backtracked the flow to a curb on the north side of the car wash building (see Figure 2). Discharge water was obviously flowing through seams in the curb (Figure 5). From the fragrant odor and green color of the sample collected from the inlet further downgradient, the team surmised that the discharge leaking from the curb was directly related to car wash operations. The intermittent flow in the discharge also likely correlated with wash water use or pumps in the car wash facility. An area map is provided in Figure 6.





Figure 1. Conditions at outfall J04O004 on January 23

Table 1. Chemical test results (red values indicate concentrations above action levels) of samples collected at outfall J04O004 (Test 1) and the inlet (Test 2) on January 23 and 24, 2020, respectively

	Action Level	Test 1 Result	<b>Inlet Test Result</b>
pН	$\leq$ 6.5 or $\geq$ 8.5	7.97	7.67
Temperature (°F)		45.5	50.2
Ammonia (mg/L)	≥1	0.0	0.0
Total Chlorine (mg/L)	≥ 0.4	0.0	0.0
Detergents (mg/L)	≥ 0.5	3	>3
Fluoride (mg/L)	≥ 0.75	0.0	0.0
Phenols (mg/L)	≥ 0.17	0.0	0.0
Copper (mg/L)	≥ 0.21	0.0	0.0





Figure 2. View of the apparent source of the discharge, the curb alongside the car wash (left foreground; the 7-11 store is seen in the background); the photograph was taken on January 23



Figure 3. View of the path (foreground to background) of the discharge from the car wash toward the inlet near Hoyt's West Nursery Cinema 14; the photograph was taken on January 23





Figure 4. View of the sample collected from the inlet near Hoyt's West Nursery Cinema 14; the photograph was taken on January 24



Figure 5. A view of discharge leaking through a seam in the curb along the north side of the car wash; the photograph was taken on January 24



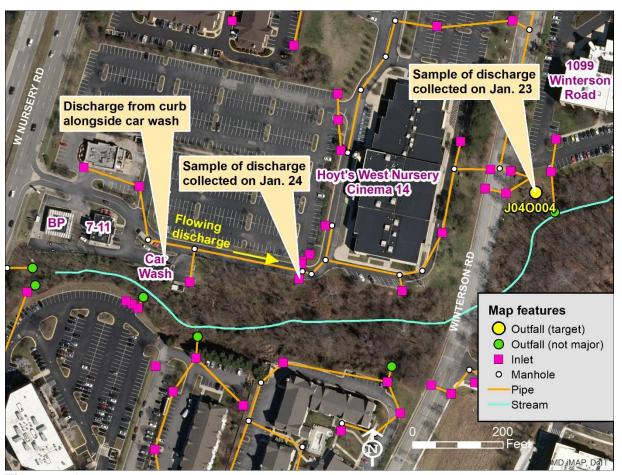


Figure 6. Area map



Outfall ID: T16O006

Location: Behind 1429 Baltimore Annapolis Boulevard, Arnold, MD

Date: May 12, 2020

Investigators: C. Tonkin and T. Ayala

Concern: Elevated chlorine

On May 12, 2020, a Versar field team inspected outfall T16O006, which is located behind 1429 Baltimore Annapolis Boulevard, as part of annual outfall screening efforts. At 10:40 a.m., the Versar crew found backed up, but flowing discharge at the 24-inch reinforced concrete pipe outfall (Figure 1). The crew obtained a sample of the discharge at the mouth of the outfall, to test for illicit discharge indicators. The results of the tests are provided in Table 1, as Test 1 (Outfall). The result for detergents was above the program threshold, at 0.5 mg/L; chlorine was also detected at 0.35 mg/L, but was not above the action level. The team tested the water at the next upstream manhole (Figure 2) to obtain a freely flowing sample, whose results were 0.15 mg/L and 0.10 mg/L for chlorine and detergents, respectively.

The team returned to the site at 4:20 p.m. on May 12 and found similar conditions at the outfall. The team obtained a sample of the freely flowing discharge water from the next structure up-network from the outfall and tested the sample for program parameters. The results of the tests of the sample are provided in Table 1, as Test 2 (Manhole). The test results indicated that the concentration of chlorine was 0.15 and the concentration of detergents was 0.10, both of which were below program action levels.

Because the results at the outfall were assumed to be similar to the first visit and the outfall was a reinspection of a previously identified potential illicit discharge problem, staff treated the outfall as a potential illicit discharge and initiated the trackdown procedure. The team tested flowing water in the curb inlet on the east side of the intersection of Arnold Road and Baltimore Annapolis Boulevard and found concentrations of 0.40 mg/L for chlorine and 0.10 mg/L for detergents. At the curb inlet on the opposite side of Baltimore Annapolis Boulevard, staff noted standing water and detected an odor of chlorine. At the inlet on the north side of Arnold Road (Figure 3), the team found flowing water which tested at 0.60 mg/L for chlorine and 0.20 mg/L for detergents. Other contributing infrastructure was found to be dry. Staff could not ascertain the source of elevated chlorine in the flowing water in the infrastructure along Arnold Road, but suspect the problem to be related to the proximity of a public drinking water supply line (Figure 4) as has been reported previously. Staff reported the potential illicit discharge to the Anne Arundel County pollution hotline on or about May 12. An area map is provided in Figure 5.





Figure 1. Conditions at outfall T16O006 on May 12

0.0

0.0



Phenols (mg/L)

Copper (mg/L)

Table 1. Chemical test results (red values indicate concentrations above action levels) of samples collected at outfall T16O006 on May 12, 2020 **Test 1 Result Action Level Test 2 Result** (Outfall) (Manhole) pН  $\leq$  6.5 or  $\geq$  8.5 7.84 not recorded Temperature (°F) 56.5 not recorded Ammonia (mg/L) 0.0  $\geq 1$ 0.0 Total Chlorine (mg/L)  $\geq 0.4$ 0.35 0.15  $\geq 0.5$ 0.5 0.1 Detergents (mg/L)  $\geq$  0.75 Fluoride (mg/L) 0.0 0.0

0.0

0.0



 $\geq 0.17$ 

 $\geq 0.21$ 

Figure 2. Manhole immediately up-network from outfall T16O006





Figure 3. Flowing water observed in inlet on north side of Arnold Road



Figure 4. Public drinking water supply access on Arnold Road



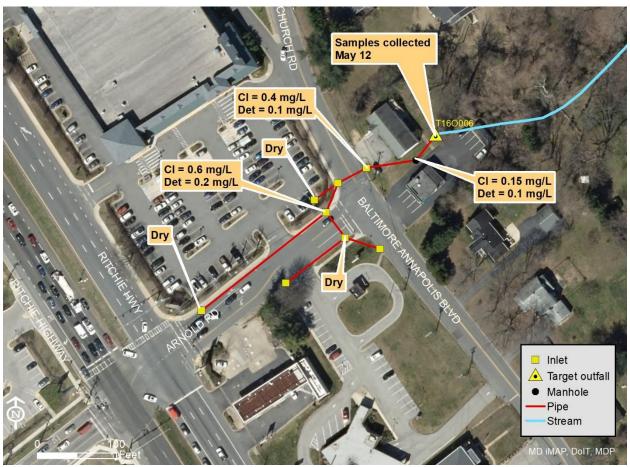


Figure 5. Area map



Outfall ID: P20O003

Location: Behind 104 Marquise Lane, Annapolis, MD

Date: May 13 and 14, 2020

Investigators: C. Tonkin, T. Jones, and M. Genovese

Concern: Elevated chlorine

On May 13, 2020, a Versar field team inspected outfall P200003, which is located behind 104 Marquise Lane, as part of annual outfall screening efforts. At 2:30 p.m., the Versar crew found flowing discharge at the 48-inch reinforced concrete pipe outfall (Figure 1). The crew obtained a sample of the discharge at the mouth of the outfall, to test for illicit discharge indicators. The results of the tests are provided in Table 1, as Test 1. The result for chlorine was above the program threshold, at 0.6 mg/L; detergents were also detected at 0.1 mg/L, but was not above the action level.

The team returned to the site at 1:00 a.m. on May 14 and found continued flowing conditions at the outfall. The team obtained a sample of the discharge water at the outfall and tested the sample for program parameters. The results of the tests of the sample are provided in Table 1, as Test 2. The test results indicated that the concentration of chlorine was 0.4, which was equal to the program action level. Detergents were also detected, but at 0.25 mg/L was below the program threshold. Staff reported the potential illicit discharge to the Anne Arundel County pollution hotline on or about May 14.

The field team initiated the trackdown procedure after the 2<sup>nd</sup> positive result for chlorine. The team did not open the four-way junction manhole immediately up-network from the outfall due to its position in the middle of the driving lanes of Riva Road. Investigation of inlets on Riva Road that feed to the four-way junction revealed them to be dry. The team tracked flowing water to a large parking lot in front of Annapolis High School (Figure 2 and Figure 3) and across Fred Stauffer Lane from Arundel Olympic Swim Center (2690 Riva Road; Figure 4). Test results from water samples drawn from access points along Fred Stauffer Lane and within the parking lot were below action levels for chlorine (0.05 to 0.15 mg/L) and detergents (0.25 to 0.40 mg/L). Staff could not ascertain the source of elevated chlorine at the outfall. An area map is provided in Figure 5.





Figure 1. Conditions at outfall P20O003 on May 14

Table 1. Chemical test results (red values indicate concentrations above action levels) of					
samples collected at out	samples collected at outfall P20O003 on May 13 and 14, 2020				
	Action Level	Test 1 Result	Test 2 Result		
pН	$\leq$ 6.5 or $\geq$ 8.5	7.59	7.49		
Temperature (°F)		55.7	54.8		
Ammonia (mg/L)	≥1	0.0	0.0		
Total Chlorine (mg/L)	≥ 0.4	0.6	0.4		
Detergents (mg/L)	≥ 0.5	0.1	0.25		
Fluoride (mg/L)	$\geq$ 0.75	0.0	0.0		
Phenols (mg/L)	≥ 0.17	0.0	0.0		
Copper (mg/L)	≥ 0.21	0.0	0.0		





Figure 2. Junction manhole near intersection of Riva Road with Fred Stauffer Lane



Figure 3. Inlet at edge of parking lot in front of Annapolis High School





Figure 4. Inlet in front of Arundel Olympic Swim Center

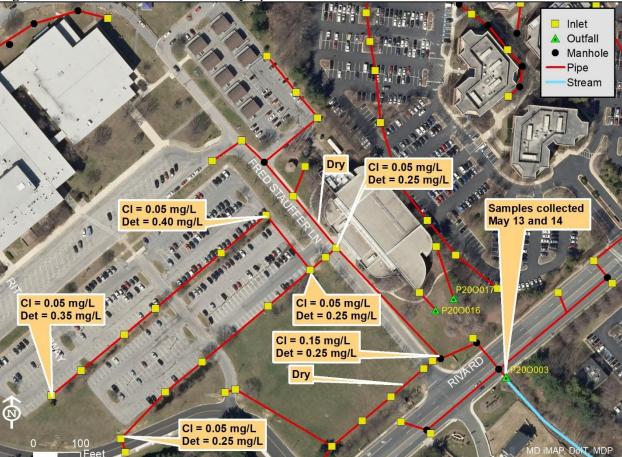


Figure 5. Area map



Outfall ID: F09O005

Location: 2631 Annapolis Road (MD Route 175), Hanover, MD

Date: May 27, 2020

Investigators: M. Berlett and L. McDonald Concern: Elevated surfactants (detergents)

On May 27, 2020, a Versar field team inspected outfall F09O005, which is located southwest of the Shell gas station and car wash facility at 2631 Annapolis Road and Car Doc at 2633 Annapolis Road, in Hanover, MD, as requested by Anne Arundel County staff (as a revisit from several screenings in recent years). At 5:00 p.m., the Versar crew found flowing discharge at the 36-inch-wide reinforced concrete pipe outfall (Figure 1). The crew noted that the effluent was green and odorless. The crew obtained a sample of the discharge at the mouth of the outfall, to test for illicit discharge indicators. The results of the tests are provided in Table 1, as Test 1. The result for surfactants (detergents) indicated a concentration above the program threshold, at 1.9 mg/L; other parameter results did not exceed criteria.

The team returned to the site at 9:00 p.m. on May 27 and obtained a sample of the discharge water to test for program parameters. The results of the tests of the sample are provided in Table 1, as Test 2. The test results indicated that the concentration of surfactants exceeded the program criteria, at 2 mg/L. The team conducted a trackdown of the stormwater network, as well as could be determined from previous surveys in the area and features evident at the site. Note that the County's digital data depicting the stormwater infrastructure in this area does not reflect the current conditions. The team surmised that the parcel occupied by the Shell gas station was the likely source of the illicit discharge. It is possible that water collected from the car wash, which would contain surfactants, is entering the stormwater system (Figure 2). One member of the team had conducted surveys at this outfall in previous years and noted that the outfall structure had been modified since 2016. In 2016, there was severe erosion at the outfall; in 2020, the team noted that the erosion in the area immediately adjacent to the outfall area had been repaired, but that there was evidence of severe erosion approximately 20 feet downstream of the outfall. An area map is provided in Figure 3.

Table 1. Chemical test results (red values indicate above-action-level				
concentration) of sample	s taken from the	discharge from ou	tfall F09O005	
	Action Level Test 1 Result Test 2 Result			
рН	$\leq$ 6.5 or $\geq$ 8.5	7.45	7.72	
Temperature (°F)		67.8	67.8	
Ammonia (mg/l)	≥ 1	0.0	0.0	
Total Chlorine (mg/l)	≥ 0.4	0.0	0.0	
Detergents (mg/l)	≥ 0.5	1.9	2.0	
Fluoride (mg/l)	≥ 0.75	0.0	0.0	
Phenols (mg/l)	≥ 0.17	0.0	0.0	
Copper (mg/l)	≥ 0.21	0.0	0.0	





Figure 1. Flowing effluent from outfall F09F0005, as observed on May 27, 2020



Figure 2. A trench drain at the entrance to the car wash associated with the Shell gas station



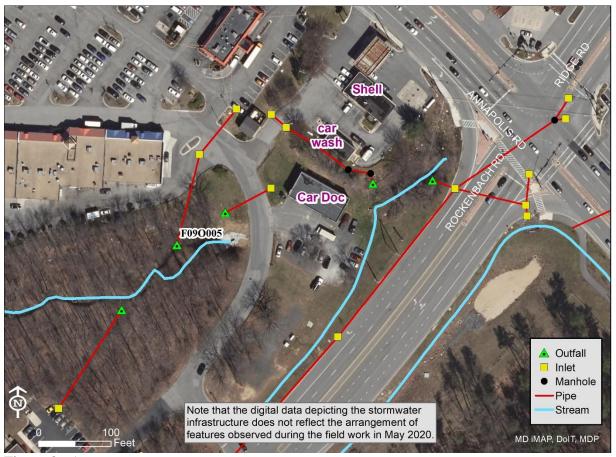


Figure 3. Area map



Outfall ID: O22O014

Location: near 510 Hoot Owl Road, Riva, MD

Date: September 27, 2019, May 13, 2020, and June 2, 2020

Investigators: C. Tonkin, M. Genovese, and T. Jones

Concern: Elevated ammonia

On September 27, 2019, a Versar field team inspected outfall O22O014 at the end of Hoot Owl Road, in Riva, MD, as requested by Anne Arundel County staff (as a revisit from screenings in 2018 and spring 2019). At 10:15 a.m., the Versar crew found flowing discharge at the 72-inch-wide oval-shaped reinforced concrete pipe outfall (Figure 1). The crew noted that the effluent was brown, cloudy, and odorless. There were signs of an extensive population of iron-oxidizing bacteria (a sheen on the water and copious clumps of orange deposits in the pipe and the discharge pool). The crew obtained a sample of the discharge at the mouth of the outfall, to test for illicit discharge indicators. The results of the tests are provided in Table 1, as Test 1. The result for ammonia was above the program threshold, at 1.75 mg/L; other parameter results did not exceed criteria. The preceding dry time for this test was approximately two weeks.

The team returned to the site at 2:15 p.m. on September 27 and obtained a sample of the discharge water to test for program parameters. The results of the tests of the sample are provided in Table 1, as Test 2. The test results indicated that the concentration of ammonia exceeded the program criteria, at 1.5 mg/L; the team did not conduct tests for the full suite of parameters on the second sample. The team also collected a sample of the water flowing at the nearest inlet; the test result indicated an ammonia level of 1.25 mg/L. The team observed that the next inlet up-network was dry; thus, the source of flowing water entered the stormwater network at one or more gaps in the pipe between the two inlets. The team did not identify a likely source for ammonia during the trackdown after the second test. Staff reported the potential illicit discharge to the Anne Arundel County pollution hotline on September 27.

Table 1. Chemical test results (red values indicate concentrations above action levels) of					
samples taken at outfall	samples taken at outfall O22O014 (Tests 1 and 2) and the nearest inlet on September 27, 2019				
	Action Level   Test 1 Result   Test 2 Result   Inlet Test Result				
pН	$\leq$ 6.5 or $\geq$ 8.5	6.75	6.75	NR	
Temperature (°F)		68.0	NR	NR	
Ammonia (mg/L)	≥ 1	1.75	1.5	1.25	
Total Chlorine (mg/L)	≥ 0.4	0.0	NR	NR	
Detergents (mg/L)	≥ 0.5	0.1	NR	NR	
Fluoride (mg/L)	≥ 0.75	0.0	NR	NR	
Phenols (mg/L)	≥ 0.17	0.0	NR	NR	
Copper (mg/L)	≥ 0.21	0.05	NR	NR	
NR: not recorded					

Field staff confirmed that there were manholes that indicated the presence of sanitary sewer lines in the ground along Hoot Owl Road and a sewage pumping station immediately



adjacent to the outfall. Based on the observed manholes, the team concluded that one of the sewer lines crossed the stormwater line between the two inlets on Hoot Owl Road. The relative locations of the two pipe networks suggested that there was a potential for leaks from the sanitary sewer to enter the stormwater system if there were gaps in both lines. An infiltration of wastewater may affect the conditions of the discharge at the outfall and be indicated in water quality test results. Indicators of sewer infiltration may include elevated detergents and ammonia.

A field team returned to the outfall O22O014 on May 13, 2020, to conduct a thorough investigation of the possible sources of the illicit conditions repeatedly observed at the outfall. During the trackdown, the team did not find some of the manholes that were depicted in the County's spatial data sets; the team attempted to open manholes found along the pipe route, but could not remove some of the manhole covers. The team collected discharge samples from two of the access points, to test for levels of ammonia: the first inlet up-network from the outfall (ID: O22I122) and the manhole in front of 514 Fern Road (ID: O22M061). The results of the tests are provided in Table 2.

Table 2. Chemical test results (red values indicate concentrations above action levels) of				
samples taken at outfall O22O014, the nearest inlet, and a nearby manhole on May 13, 2020				
Action Level Outfall Test 1 Inlet Test Manhole Te			Manhole Test	
		Result	Result	Result
		(O22O014)	(O22I122)	(O22M061)
рН	$\leq$ 6.5 or $\geq$ 8.5	6.77	NR	NR
Temperature (°F)		55.6	NR	NR
Ammonia (mg/L)	≥ 1	1.50	1.00	0.35
Total Chlorine (mg/L)	≥ 0.4	0.0	NR	NR
Detergents (mg/L)	≥ 0.5	0.2	NR	NR
Fluoride (mg/L)	≥ 0.75	0.0	NR	NR
Phenols (mg/L)	≥ 0.17	0.0	NR	NR
Copper (mg/L)	≥ 0.21	0.2	NR	NR
NR: not recorded				

A field team returned to the area on June 2 to continue the investigation of the pipe network and to attempt to clarify where the source of ammonia may be entering the stormwater system. The team tested the discharge found in an inlet and two manholes; other structures found and investigated during the trackdown were dry or could not be opened. The results of the tests are provided in Table 3. The result of the test of the sample from the manhole O22M102, which was a splitter, exceeded the range of the field kit (4.9 mg/L). The team documented that the water in the manhole was stagnant and that it exhibited an odor of sewage (Figure 3). The team deduced, from the pattern of ammonia levels and the available access points, that discharge from a sewer line may be infiltrating the stormwater pipe network and backing up into the system. The team surmised that the most likely location for this incursion would be the sections of pipe between manholes O22M102 and O22M062.



Table 3. Chemical test results (red values indicate concentrations above
action levels) of samples taken at inlet O22I258, manhole O22M102, and
manhole O22M101 on June 2, 2020

	Inlet Test 1 Result	Manhole Test Result	Manhole Test Result
	(O22I258)	(O22M102)	(O22M101)
Ammonia (mg/L)	0.35	> 4.00	0.00

As noted, outfall O22O014 has been the subject of repeated screenings in recent reporting years. In May 2018, samples collected from this outfall had levels of copper and ammonia that exceeded the corresponding criteria; detergents were also detected. In March 2019, test results on a sample from this outfall indicated detectable levels of detergents, copper, and ammonia, at concentrations approximately half the levels needed to exceed program criteria. While investigating conditions at the site, the team found a hose discharging liquid from a residential lot (the homeowner later reported that the source was water that had accumulated on the swimming pool cover); tests of the hose discharge indicated exceeding levels of both detergents and ammonia. In both years, the County closed the cases. In 2018, County inspectors did not observe flowing conditions at the outfall. In 2019, County inspectors reported that the issues related to the resident pumping water from the lot had been adequately resolved. An area map, showing the findings from the inspections on May 13 and June 2, is provided in Figure 4.



Figure 1. Conditions at outfall O22O014 on September 27; note the sheen on the water and the clumps of orange deposits — both indicate colonies of iron-oxidizing bacteria





Figure 2. A view inside the inlet immediately up-network from the outfall; note evidence of bacterial colonies similar to those seen at the outfall, as shown in Figure 1



Figure 3. A view of stagnant water in manhole O22M102 on June 2, 2020



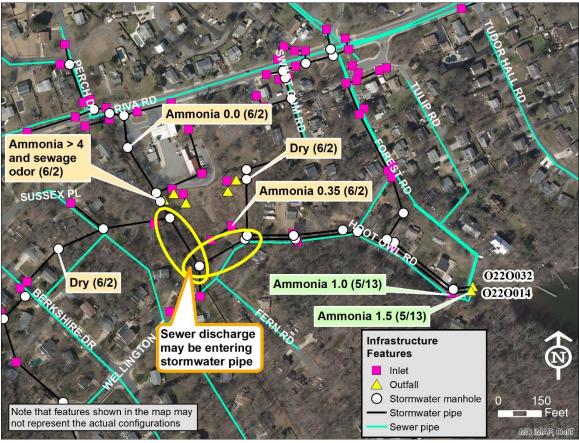


Figure 4. Area map



## Anne Arundel County Special IDDE Site Visit Report

Location: Behind Parole Plaza, Parole

Date: June 26 and 27, 2019

Investigators: K. McGuckin and P. Donovan Concern: Observed grey discharge

As part of the long-term water quality monitoring program for Church Creek, a Versar team conducted routine bi-weekly inspections at outfall R20O017 on June 26. At the site, the team observed an increase in the flow rate of the discharge at the outfall. The discharge was grey and cloudy (Figure 1). In the plunge pool, the discharge exhibited a floating grey sheen, and the team photo-documented foamy globules between the rocks close to the outfall (Figure 2). The team collected a sample of the discharge to test for pollutants. The staff conducted a series of tests on the sample for illicit discharge indicator parameters after returning to the Versar office in Columbia later in the day. The results of the tests are presented in Table 1. Versar staff reported the conditions to the County on June 26.

On June 27, County staff from the Departments of Public Works and Inspections and Permits conducted a site visit to investigate the conditions at the outfall. During the site visit, County staff observed a grey discharge at the outfall coursing through the pipe with a very high flow rate. The County team initiated an investigation to determine the source of the flowing water in the catchment. At the parking garage across Forest Drive from the outfall, the team observed a crew actively power-washing the interior floors of the parking garage. The team documented that some of the interior drains were shielded, albeit inadequately, from the flowing water by installed filters and absorbent socks; some of the drains were not protected from runoff. The County team instructed the maintenance crews to stop the washing activity. The field team confirmed that the flow rate at the outfall declined significantly after the washing activity ceased. An area map, indicating the general locations of the observed conditions, is provided in Figure 3.





Figure 1. A view of grey, cloudy discharge in the outfall R20O017 on June 26



Figure 2. A view of the grey discharge (center right) expanding into the plunge pool; grey foamy globules are evident between the rocks close to the outfall opening



Table 1. Chemical test results and corresponding action levels for				
parameters tested for the water sample collected from outfall R20O017				
	<b>Action Level</b>	Test Result		
pН	$\leq$ 6.5 or $\geq$ 8.5	Not recorded		
Temperature (°F)		Not recorded		
Ammonia (mg/L)	≥1	0.0		
Total Chlorine (mg/L)	≥ 0.4	0.0		
Detergents (mg/L)	≥ 0.5	0.15		
Fluoride (mg/L)	≥ 0.75	0.12		
Phenols (mg/L)	≥ 0.17	0.0		
Copper (mg/L)	≥ 0.21	0.0		

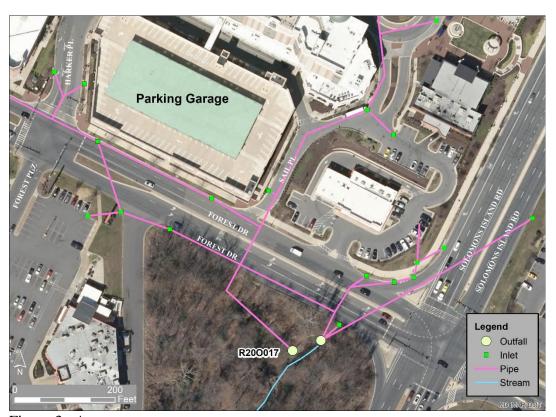


Figure 3. Area map



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# **APPENDIX C**

# UPLAND POLLUTANT SOURCES SITE-SPECIFIC REPORTS



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## **Anne Arundel County Special IDDE Site Visit Report**

Location: The intersection of Deale Place and Park Place, Deale MD

Date: July 10, 2019

Investigators: M. Berlett and G. Rogers

Concern: Possible sewage source for bacteria in Rockhold Creek

Anne Arundel County staff requested a site visit to storm drain outfall Q34O002, at the intersection of Deale Place and Park Place, to gather information that may be used to identify a source of elevated bacteria levels in a nearby tidewater area of Rockhold Creek. The field team investigated the site at 12:43 p.m. on Wednesday, July 10, 2019. The most recent rainfall prior to the site visit had occurred on July 8, and the antecedent dry time was approximately 52 hours. The air temperature at the time of the site visit was 84 °F. On July 10, the team observed that the storm drain outfall was dry. The team investigated the inlets leading to the outfall and found standing water, which had a green tint (Figure 2), at inlet Q34C8I00003. The inlet drained a narrow ditch at the west edge of a residential lot (Figure 3). As the outfall did not exhibit flowing water, the team collected a sample of the standing water at the inlet to test for a suite of water quality parameters. The results of the chemical tests are shown in Table 1. Although the test results indicated measurable levels of some of the parameters, none of the concentrations were at or above the corresponding action level, as specified by Anne Arundel County's Illicit Discharge Detection and Elimination Standard Operating Procedures.

As a reminder, an illicit discharge is any discharge to a storm sewer system that is not composed entirely of stormwater, except for discharges allowed under an NPDES permit (e.g., footer drains, firefighting operations). Field teams consider the relative concentrations of the tested parameters as clues when they infer possible pollution sources for suspected illicit discharges. As an example, concentrations of chlorine and detergents higher than program action levels may be indicators of wastewater or graywater in effluent. High levels of ammonia may also indicate the degradation of organic material in runoff. Water temperatures above 75 °F could also contribute to the evidence of a possible wastewater influence on a stormwater pipe network. A detectable odor of sewage in the storm drain system discharge would be an obvious clue to the possible presence of sewage in the pipe system.

Referring to the field test results found in Table 1, the relatively high temperature of the sample likely reflected the exposure of the stagnant water to direct sunlight, and thus could not reliably be used as an indicator. The sample did not exhibit a detectable odor or color. The test results indicated measurable levels of the three analytes (chlorine, detergents, and ammonia), but none of the readings exceeded the program criteria that would indicate the potential for non-stormwater discharges. Thus, the field team did not document conclusive evidence to support an inference that the stormwater runoff through the network connected to outfall Q34O002 had been conveying sewage with its discharge.

The team investigated the conditions in the vicinity of the outfall and along the drainage path from the outfall to the waterway, Rockhold Creek. The team did not observe signs of solid waste or damage to the sanitary sewer network near the outfall. The ditch that conveyed the outfall drainage toward the creek discharged to an open parcel directly behind the lot on the southeast



side of the intersection of Deale Place and Park Place. The team documented that the discharge extent broadens when it reaches a larger and flatter floodplain downstream of the south end of the ditch (Figure 4). It is here that the team documented the presence of approximately 45 geese and the tracks of many geese in the mud associated with the discharge path. The team surmised that if the geese frequent this area, goose droppings may be concentrated near the cove of the creek which abuts the western boundary of the open lot. If so, stormwater discharge may transport bulk material and leachate from the droppings into the cove at this location. The accumulated feces may be contributing to the growth in the populations of bacteria in the creek. An area map is provided in Figure 5.



Figure 1. A view of the outfall Q34O002





Figure 2. A view of the standing water in the pipe of inlet Q34C8I00003





Figure 3. A view of the narrow ditch that drains toward inlet Q34C8I00003; the inlet headwall is seen in the foreground

Table 1. Chemical test results and corresponding action levels for			
parameters tested for the water sample collected from inlet Q34C8I00003			
	Action Level Test Result		
pН	$\leq$ 6.5 or $\geq$ 8.5	7.05	
Temperature (°F)		83.9	
Ammonia (mg/L)	≥1	0.25	
Total Chlorine (mg/L)	≥ 0.4	0.30	
Detergents (mg/L)	≥ 0.5	0.1	
Fluoride (mg/L)	≥ 0.75	0.0	
Phenols (mg/L)	≥ 0.17	0.0	
Copper (mg/L)	≥ 0.21	0.0	



Figure 4. A view of the flat plain that receives and distributes the discharge from the outfall see in Figure 1 and the drainage ditch seen in Figure 2; Rockhold Creek is visible in the background of the photograph





Figure 5. Area map



## **Anne Arundel County Hotspot Site Visit Report**

Location: Forest Plaza, Annapolis Date: September 27, 2019

Investigators: C. Tonkin and M. Genovese Concern: Improper cooking oil storage

While investigating target outfalls for the County's National Pollutant Discharge and Elimination System (NPDES) screening effort, a Versar team found signs of improper cooking oil storage associated with the business, Restaurante Jalapeños, at the Forest Plaza shopping center in Annapolis, MD. The team investigated conditions at the site at 1:15 p.m. on Friday, September 27. At the rear lot of the northwest portions of the shopping center, behind the restaurant, the team found a kitchen grease bin with an open lid (Figure 1). On the pavement near the dumpster closest to and down-gradient of the kitchen grease bin, the team documented three puddles; one was cloudy, beige liquid with a white sheen, and the other two appeared to be solidified grease (Figure 2). There were several stain paths evident in the photographs taken during the survey and in aerial photography of the parking lot. The most obvious stain paths appeared to be associated with the paths of grease and trash from the restaurant: one path began at an outside rear door (presumably, of the restaurant, based on its location) and diverged into two tracks — to either the grease bin and the nearest dumpster; the second path connected the stains from the grease bin with the stains at the dumpster. All stain paths led to the nearby stormwater inlet at the edge of the parking lot (Figure 3). An area map, indicating the general location of the observed conditions, is provided in Figure 4.





Figure 1. An open kitchen grease bin found in the parking lot behind the Restaurante Jalapeños restaurant; note the dark stains leading from the bin toward the right side of the photograph (down-gradient)



Figure 2. Three puddles found on the pavement near the dumpster closest to the kitchen grease bin seen in Figure 1; one puddle was cloudy, beige liquid with a white sheen; the other two appeared to be solidified grease; note the arc-shaped stain path on the left leading from the door (left background)





Figure 3. A view of several stain paths (left and bottom center) behind the Restaurante Jalapeños restaurant; the inlet that received the drainage from this area of the pavement was out of the photograph, below the bottom center



Figure 4. Area map



Location: Forest Plaza, Annapolis Date: September 27, 2019

Investigators: C. Tonkin and M. Genovese Concern: Improper waste management

While investigating target outfalls for the County's National Pollutant Discharge and Elimination System (NPDES) screening effort, a Versar team found signs of improper waste management associated with the businesses at the Forest Plaza shopping center in Annapolis, MD. The team investigated conditions at the site at 1:30 p.m. on Friday, September 27. At the rear lot of the northwest portions of the shopping center, near the Dollar Tree establishment, the team found an area with obvious staining that led to an inlet (Figure 1). In several areas, the team documented accumulated debris on the pavement alongside dumpsters (Figure 2). In an alcove along the north exterior wall of the Dollar Tree store, the team found two open and overflowing dumpsters and scattered debris (Figure 3). An area map, indicating the general location of the observed conditions, is provided in Figure 4.

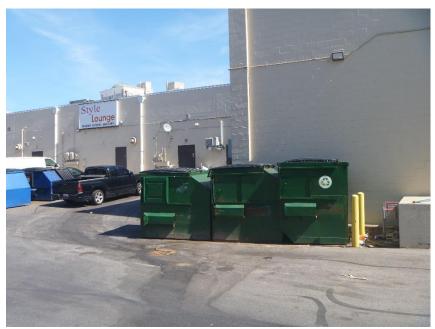


Figure 1. Stains near the dumpsters behind the northwest portion of the Forest Plaza shopping center; the inlet that received the drainage from this area of the pavement was out of the photograph, below the bottom center



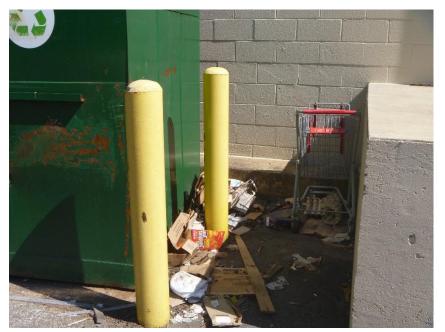


Figure 2. An example of accumulated debris on the pavement near the dumpsters generally located behind the Dollar Tree store



Figure 3. A view of two open and overflowing dumpsters found in an alcove along the north exterior wall of the Dollar Tree store





Figure 4. Area map



Location: 1591 West Nursery Road, Linthicum Heights

Date: January 23, 2020

Investigators: M. Berlett and L. McDonald Concern: Improper waste management

While investigating target outfalls for the County's National Pollutant Discharge and Elimination System (NPDES) screening effort, a Versar team found signs of improper waste management associated with the business operations at the Hoyt's West Nursery Cinema 14 in Linthicum Heights, MD. The team investigated conditions at the site at 1:30 p.m. on Thursday, January 23. The team documented debris strewn about the lot, particularly at the edge of the woods near the building (Figures 1 and 2). The trash material included common public-use debris: paper and plastic food containers, glass and plastic bottles, plastic film, aluminum cans, and metal. The team also found a large, discarded television set during the investigation (Figure 3). At the rear of the lot, the team found a contiguous stain of cooking oil from a rear entrance (Figure 4) to a curb inlet of the stormwater network (Figure 5). The field crew noted that the area had a distinct odor of cooking oil, which confirmed the source and suggested that some of the waste had been recently deposited. The nature of the dark stain suggested that the oil had been dumped or spilled along this trail repeatedly. The team noted that there was a receptacle in the rear lot for waste cooking oil, although the stain pattern on the pavement (leading in the opposite direction from the rear door) indicated that the bin was not used consistently for the disposal of waste oil. An area map, indicating the general location of the observed conditions, is provided in Figure 6.





Figure 1. Debris found scattered in the woods on the lot where the Hoyt's West Nursery Cinema 14 conducts business



Figure 2. An example of accumulated debris and dark stains on the ground adjacent to a curb on the lot of the Hoyt's Cinema





Figure 3. A discarded television set found in the woods in the midst of loose debris



Figure 4. A view of the building side of a contiguous dark cooking oil stain between a rear door of the Hoyt's Cinema and a nearby curb inlet

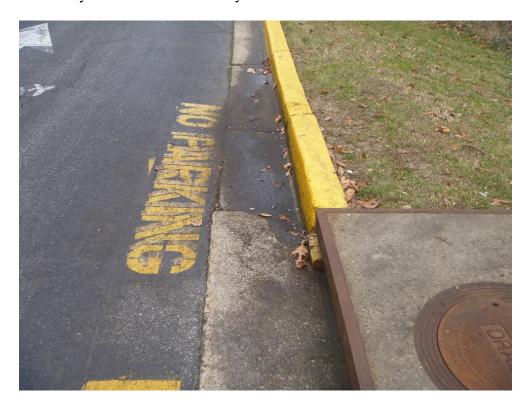




Figure 5. A view of the curb side of a contiguous dark cooking oil stain between a rear door of the Hoyt's Cinema and a nearby curb inlet; note the dark stains at the gutter and the pavement immediately in front of the inlet



Figure 6. Area map



Location: near 2633 Annapolis Road, Hanover

Date: March 18, 2020

Investigators: L. McDonald and B. Smith

Concern: Improper waste management, blocked infrastructure, and erosion

While investigating target outfalls for the County's National Pollutant Discharge and Elimination System (NPDES) screening effort, a Versar team found signs of improper waste management, blocked infrastructure, and erosion near the Ridgeview Plaza Shopping Center. The conditions were evident near the outfall behind the Car Doc business (which was not involved in causing the conditions) at 2633 Annapolis Road in Hanover, MD (outfall ID: F09O003) and on the southwest end of a culvert that conveys stream flow under the Car Doc lot. The team investigated conditions at the site at 1:15 p.m. on Wednesday, March 18. The team observed stagnant green water in the outfall immediately to the southeast of the car wash of the Shell gas station at 2631 Annapolis Road (Figure 1); note that discharge from this outfall has demonstrated illicit conditions in the past, but the water in the outfall was not flowing on the day of the hotspot investigation. The team also documented excessive debris near the stream immediately downhill from the Shell station (Figure 2). The trash material included common public-use debris: paperboard, food containers, plastic film, and metal. The stream is a headwater tributary of Midway Branch, which drains part of the Little Patuxent River watershed. Where the stream entered the culvert, to pass under the Car Doc lot and an access road, the team documented that excessive vegetation had partially blocked the entrance; the team also documented debris accumulated at the culvert entrance (Figure 3). The team investigated conditions at the culvert exit and found signs of severe erosion in the stream (Figure 4). The team surmised that it is likely that stream flows through the culvert have high volume and velocity during storms. According to the digital infrastructure depicting the County's stormwater system, there a second outfall that discharges to the stream upstream of the culvert; the outfall (ID: F09O011) drains portions of several major roadways (Annapolis, Ridge, and Rockenbach Roads). An area map, indicating the general location of the observed conditions, is provided in Figure 5.





Figure 1. Green stagnant water evident in the outfall F09O003, which is immediately adjacent to the car wash of the Shell gas station



Figure 2. Debris found scattered on the hill leading from the Shell gas station toward the stream





Figure 3. A view of the entrance to the culvert partially blocked by excessive vegetation; note the accumulated debris near the entrance



Figure 4. Evidence of erosion in the stream at the downstream end of the culvert; note the scattered debris in the area



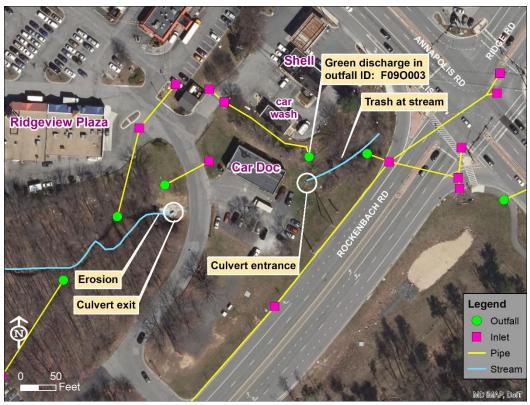


Figure 5. Area map



Location: 2647-A and 2653 Annapolis Road, Hanover (Ridgeview Plaza shopping center)

Date: March 18, 2020

Investigators: L. McDonald and B. Smith

Concern: Improper waste management and improper cooking oil storage

While investigating target outfalls for the County's National Pollutant Discharge and Elimination System (NPDES) screening effort, a Versar team found signs of improper waste management and improper cooking oil storage associated with businesses operating in the Ridgeview Plaza Shopping Center. The team investigated conditions at the site at 1:30 p.m. on Thursday, March 18. At the rear lot of the eastern portions of the main building, the team found an open, overflowing dumpster near the Dollar Tree establishment (Figure 1). The team observed an open kitchen grease bin behind the Mai Dragon restaurant (Figure 2). Near and to the east of the grease bin (and in the direction of the nearest inlet), the team documented a pool of murky grey water in the parking lot (Figure 3); this may be evidence that spilled grease is accumulating on the pavement in this area and combining with standing water to create this color in the pools. There were also gas canisters stored outside behind the restaurant (see Figure 3). According to the County's digital stormwater infrastructure data, there are no inlets directly behind the building in this area. An area map, indicating the general location of the observed conditions, is provided in Figure 4.



Figure 1. An overflowing dumpster behind the Dollar Store





Figure 2. An open kitchen grease bin behind the Mai Dragon restaurant



Figure 3. Several gas canisters stored outside behind the Mai Dragon restaurant; note the murky grey water in the pool (foreground), which may be a sign of accumulated grease





Figure 4. Area map



Location: 2323 Forest Drive (Festival at Riva shopping center), Annapolis, MD

Date: April 9, 2020

Investigators: M. Berlett and M. Molé

Concern: Improper bulk solid waste management

While investigating target outfalls for the County's National Pollutant Discharge and Elimination System (NPDES) screening effort, a Versar team found signs of improper bulk solid waste management on the lot at 2323 Forest Drive, in a rear lot (behind the Giant Food store) for the Festival at Riva shopping center in Annapolis, MD. The team investigated conditions at the site at 1:00 p.m. on Thursday, April 9. The team documented an uncovered pile of mulch, with a base extent of approximately 50 feet by 12 feet, on the parking lot (Figure 1). The pile was located approximately 15 feet up-gradient from an inlet in the parking lot, with no protections from unintentional drainage into the inlet (note that this inlet is not a feature in the most recent version of the County's digital stormwater infrastructure data set). An area map, indicating the general location of the observed conditions, is provided in Figure 2.



Figure 1. A view of an uncovered pile of mulch stored on the parking lot approximately 15 feet from an inlet (center left)





Figure 2. Area map



Location: 2311 Forest Drive, Unit E (Festival at Riva shopping center), Annapolis, MD

Date: April 9, 2020

Investigators: M. Berlett and M. Molé Concern: Improper cooking oil storage

While investigating target outfalls for the County's National Pollutant Discharge and Elimination System (NPDES) screening effort, a Versar team found signs of improper cooking oil storage associated with the business operations at the House of Hunan restaurant in Annapolis, MD. The team investigated conditions at the site at 12:50 p.m. on Thursday, April 9. The team documented excessive kitchen grease and food debris on and around the disposal bin; dark stains on the pavement near the bin provided evidence of grease spills near the bin (Figure 1). An area map, indicating the general location of the observed conditions, is provided in Figure 2.



Figure 1. A view of the kitchen grease bin with accumulated grease on and around the bin; note the dark stains on the pavement





Figure 2. Area map



Location: 110 Hillsmere Drive (Hillsmere Center), Annapolis, MD

Date: April 9, 2020

Investigators: M. Berlett and M. Molé Concern: Improper waste management

While investigating target outfalls for the County's National Pollutant Discharge and Elimination System (NPDES) screening effort, a Versar team found signs of improper waste management associated with the business operations (numerous businesses) at Hillsmere Center in Annapolis, MD. The team investigated conditions at the site at 11:25 a.m. on Thursday, April 9. The team documented an overflowing dumpster and numerous full trash bags and debris accumulated on the pavement near the adjacent dumpster enclosure (Figure 1). An area map, indicating the general location of the observed conditions, is provided in Figure 2.



Figure 1. A view of an overflowing dumpster and numerous bags of trash accumulated on the pavement near the dumpster enclosure





Figure 2. Area map



Location: 2068 Somerville Road, Annapolis, MD

Date: April 9, 2020

Investigators: M. Berlett and M. Molé

Concern: Improper cooking oil storage and waste management

While investigating target outfalls for the County's National Pollutant Discharge and Elimination System (NPDES) screening effort, a Versar team found signs of improper cooking oil storage and waste management associated with the business operations at the Giolitti Fine Italian Market in Annapolis, MD. The team investigated conditions at the site at 2:10 p.m. on Thursday, April 9. The team documented excessive kitchen grease and food debris on and around the disposal bin at the rear of the establishment; dark stains on the pavement near the bin provided evidence of grease spills near the bin (Figure 1). The team also noted that the dumpster lid was open and there were dark stains at the base of the dumpster (Figure 2). The uncovered dumpster storage area included a small, grated drain that would receive drainage from the dumpsters and the kitchen grease bin (Figure 3). The team did not ascertain whether the drain connected to the County's stormwater infrastructure. The area around the dumpster generally looked unkempt (Figure 4). An area map, indicating the general location of the observed conditions, is provided in Figure 5.

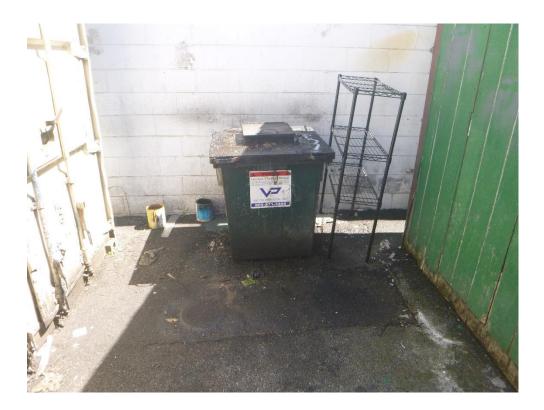




Figure 1. A view of the kitchen grease bin with obvious grease and food debris on and around the bin; note the dark stains on the pavement



Figure 2. A view of an open dumpster with debris scattered around the base; note the dark stains on and around the base of the bin





Figure 3. A view of a small, grated drain immediately adjacent to a dumpster bin



Figure 4. A view of the uncovered storage area for the dumpsters and grease bin; note the grated drain in front of the dumpster shown on the right





Figure 5. Area map



Location: 302 Harry S. Truman Parkway, Annapolis, MD

Date: April 9, 2020

Investigators: M. Berlett and M. Molé

Concern: Improper bulk solid waste management

While investigating target outfalls for the County's National Pollutant Discharge and Elimination System (NPDES) screening effort, a Versar team found signs of improper bulk solid waste management on the lot at 302 Harry S. Truman Parkway in Annapolis, MD. The team investigated conditions at the site at 1:25 p.m. on Thursday, April 9. The team documented an uncovered pile of road salt, with a base extent of approximately 15 feet by 12 feet, at the south end of the parking lot (Figure 1). The pile was located approximately 100 feet up-gradient from an inlet in the parking lot, with no protections from unintentional drainage into the inlet (note that this inlet is not a feature in the County's most recent version of the digital stormwater infrastructure data set). An area map, indicating the general location of the observed conditions, is provided in Figure 2.



Figure 1. A view of an uncovered pile of road salt stored on the parking lot approximately 100 feet from an inlet (indicated by the team member's position in the photograph)





Figure 2. Area map



Location: 3059 Solomons Island Road, Unit G (South River Crossing shopping center)

Date: April 9, 2020

Investigators: M. Berlett and M. Molé Concern: Improper cooking oil storage

While investigating target outfalls for the County's National Pollutant Discharge and Elimination System (NPDES) screening effort, a Versar team found signs of improper cooking oil storage associated with the business operations at the Five Guys restaurant, at the South River Crossing shopping center, in Edgewater, MD. The team investigated conditions at the site at 3:25 p.m. on Thursday, April 9. The team documented excessive kitchen grease stains around and leading from the disposal bin used by restaurant staff (Figure 1). The rear lot did not drain to the County stormwater system (there was an on-site BMP that was designed to receive runoff from the lot). An area map, indicating the general location of the observed conditions, is provided in Figure 2.



Figure 1. A view of the kitchen grease bin with evidence of numerous grease spills on the pavement near the bin, seen as dark stains in the photograph





Figure 2. Area map



Location: behind 1 North Zona Street, Laurel

Date: May 12, 2020

Investigators: M. Berlett and L. McDonald Concern: Improper waste management

While investigating target outfalls for the County's National Pollutant Discharge and Elimination System (NPDES) screening effort, a Versar team found signs of improper waste management associated with the Parkway Village neighborhood in Laurel, MD. The team investigated conditions at the site at 3:30 p.m. on Tuesday, May 12. The field team found evidence of dumping in an area of the woods to the west of North Zona Street, which is immediately adjacent to the Patuxent River. The dumped debris included material that derived from likely residential and possibly commercial uses. Residential materials include furniture, gardening materials, a tire, and a stroller (Figure 1). Material with possible commercial sources included five-gallon buckets, large wheeled bins, and kitchen cabinets (Figure 2). An area map, indicating the general location of the observed conditions, is provided in Figure 3.



Figure 1. A view of material with likely residential origins dumped into a wooded area to the west of North Zona Street in Parkway Village





Figure 2. A view of material with residential and possibly commercial origins dumped into a wooded area to the west of North Zona Street in Parkway Village



Figure 3. Area map



Location: 1153 Route 3 North, Gambrills

Date: May 12, 2020

Investigators: M. Berlett and L. McDonald Concern: Improper waste management

While investigating target outfalls for the County's National Pollutant Discharge and Elimination System (NPDES) screening effort, a Versar team found signs of improper waste management associated with some of the business operations at Crofton Station in Gambrills, MD. The team investigated conditions at the site at 9:50 a.m. on Tuesday, May 12. Restaurants operating in the shopping center, which were clustered in the northern portion of the strip, included Frank and Luke's New York Pizza Kitchen, Bonchon, Hunan Express, Otani Japanese Cuisine, Philly Pretzel Factory, and Subway. The team documented overflowing dumpsters and bagged and loose debris in the dumpster storage area (Figure 1). The arrangement of stacks of debris seen in the photographs suggests that employees had stacked some of the recyclable material, perhaps awaiting an empty dumpster (the dumpster for recycling materials was also overflowing). The debris included cardboard, boxes of empty cans, bags of trash and grass clippings (some of the bags were torn), and food (Figure 2). The team also documented stains around the kitchen grease bins, which were stored on the pavement adjacent to the enclosure; the stains suggest that employees spill grease or oil while they are transferring the material from the restaurants to the bins (Figure 3). An area map, indicating the general location of the observed conditions, is provided in Figure 4.





Figure 1. Overall view of the dumpster area located behind the cluster of restaurants at Crofton Station; note the overflowing dumpsters



Figure 2. Detail of debris, including stacked materials for recycling, torn bags of trash and grass clippings, and food, found in the dumpster enclosure





Figure 3. A view of the kitchen grease bins; the dark stains on the pavement suggest grease and oil spills

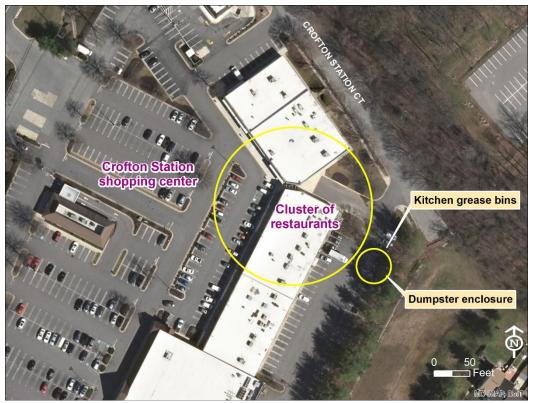


Figure 4. Area map



Location: 2504 Solomons Island Road, Annapolis

Date: June 8, 2020

Investigators: L. McDonald and M. Molé Concern: Improper cooking oil storage

While investigating commercial parcels in the county for the County's National Pollutant Discharge and Elimination System (NPDES) screening program, a Versar team found signs of improper cooking oil disposal associated with the business operations at the grocery store The Fresh Market in Annapolis, MD. The team investigated conditions at the site at 2:40 p.m. on Monday, June 8. The team documented evidence of spilled cooking oil on the ground alongside the disposal bin for used kitchen grease near a rear door for the store (Figure 1). An area map, indicating the general location of the observed conditions, is provided in Figure 2.



Figure 1. Evidence of cooking oil spills on the pavement near a disposal bin for used kitchen grease near a rear door for the grocery store The Fresh Market





Figure 2. Area map



### **Anne Arundel County Hotspot Site Visit Report**

Location: 85 Forest Plaza, Annapolis

Date: June 8, 2020

Investigators: L. McDonald and M. Molé Concern: Improper cooking oil storage

While investigating commercial parcels in the county for the County's National Pollutant Discharge and Elimination System (NPDES) screening program, a Versar team found signs of improper cooking oil disposal associated with the business operations at the Jalapeños Restaurant in Annapolis, MD. The team investigated conditions at the site at 2:15 p.m. on Monday, June 8. The team documented evidence of spilled cooking oil on top of and on the pavement near the disposal bin for used kitchen grease in a rear alcove near the restaurant (Figure 1). An area map, indicating the general location of the observed conditions, is provided in Figure 2.



Figure 1. Evidence of cooking oil spills on and near a disposal bin for used kitchen grease in a rear alcove near the Jalapeños Restaurant





Figure 2. Area map



### **Anne Arundel County Hotspot Site Visit Report**

Location: 3106 Solomons Island Road, Edgewater

Date: June 8, 2020

Investigators: L. McDonald and M. Molé Concern: Improper waste management

While investigating commercial parcels in the county for the County's National Pollutant Discharge and Elimination System (NPDES) screening program, a Versar team found signs of improper waste management associated with the business operations at the Walgreens store in Edgewater, MD. The team investigated conditions at the site at 3:10 p.m. on Monday, June 8. The team documented accumulated debris on the ground alongside the trash compactor (Figure 1). An area map, indicating the general location of the observed conditions, is provided in Figure 2.

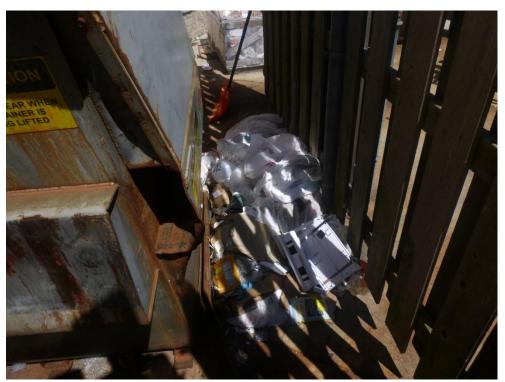


Figure 1. Debris found on the pavement alongside the trash compactor near the Walgreens store





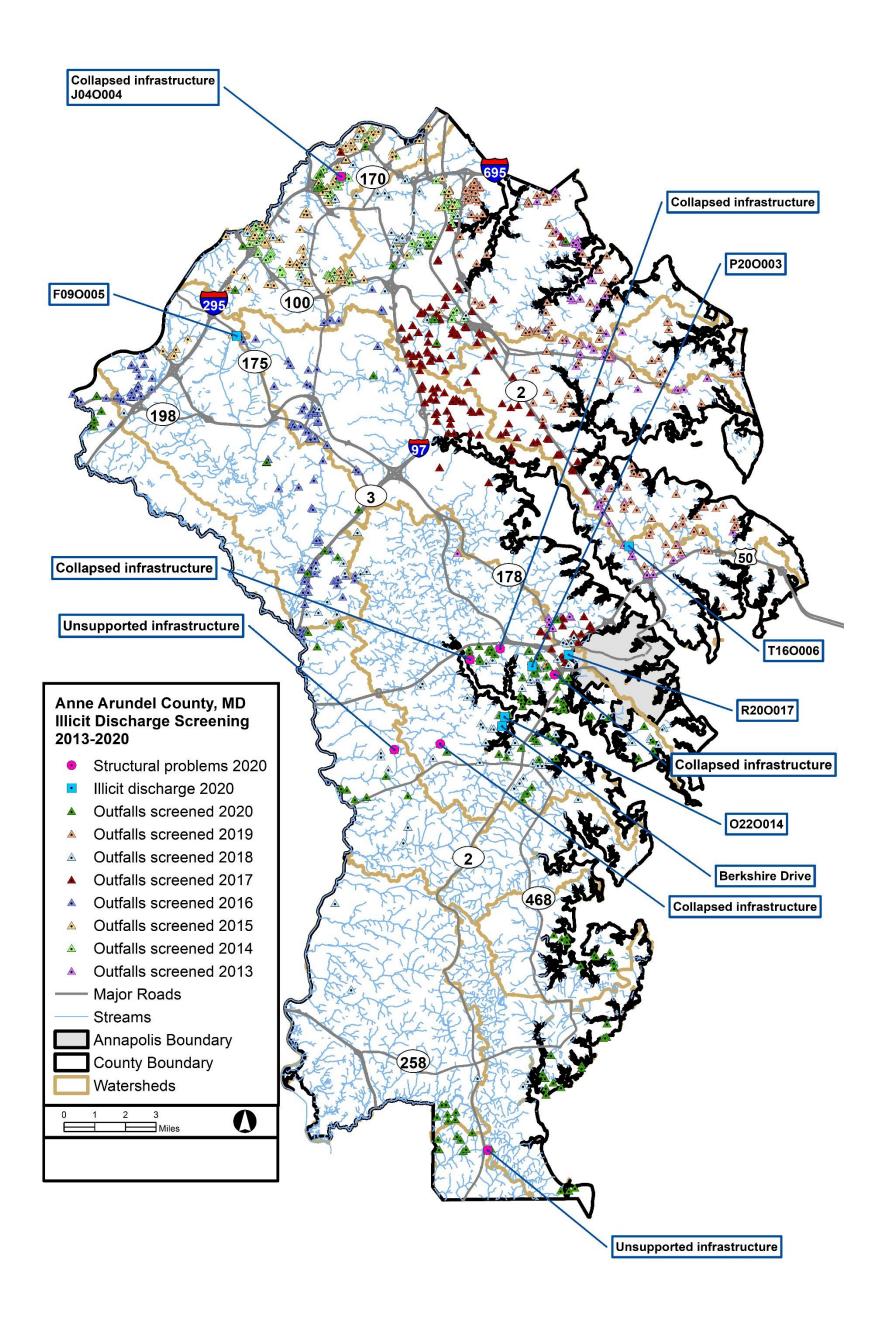




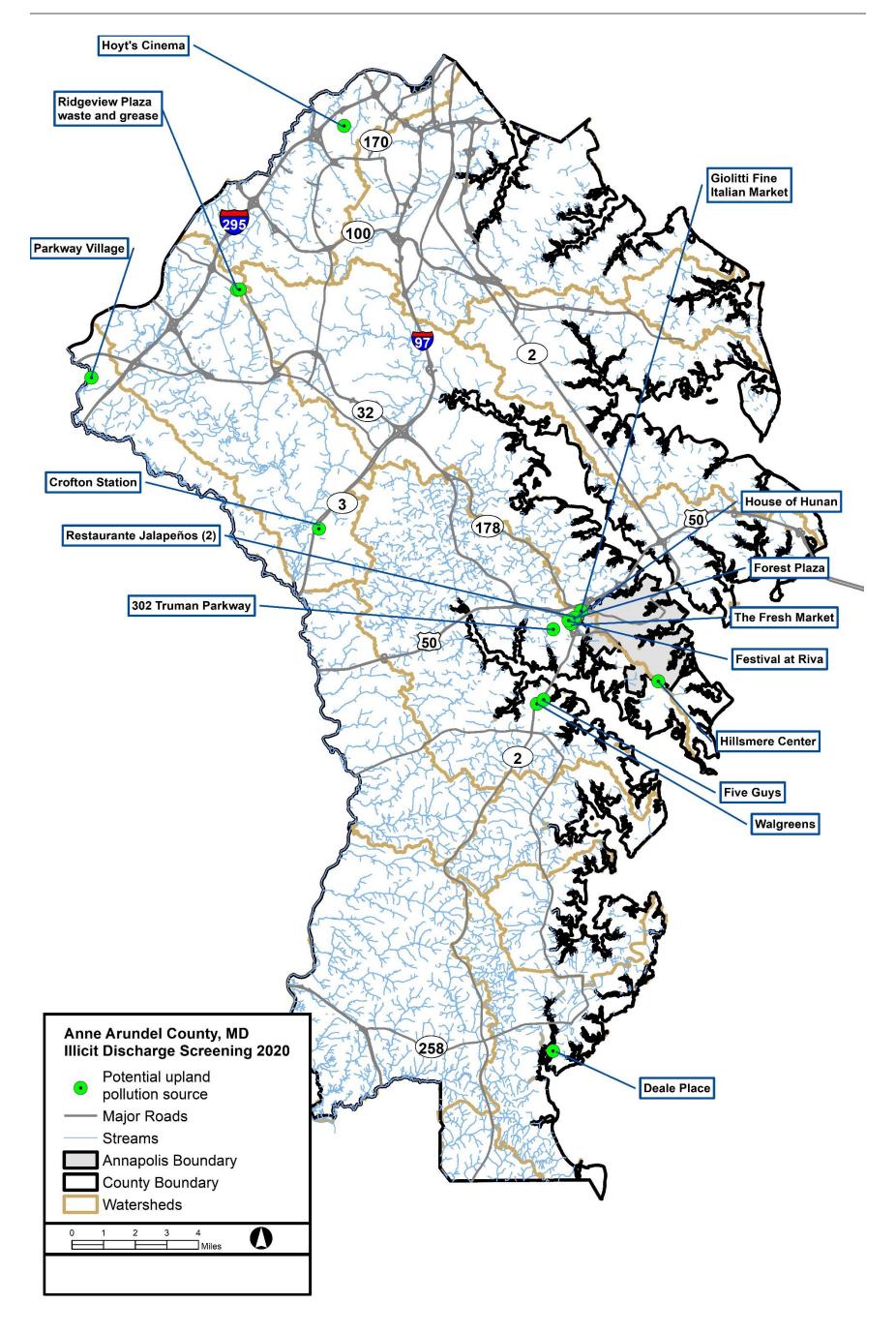
# APPENDIX D MAPS













### **APPENDIX E**

# MS4 GEODATABASE-COMPATIBLE TABLE FOR ILLICIT DISCHARGE DETECTION PROGRAM INSPECTIONS



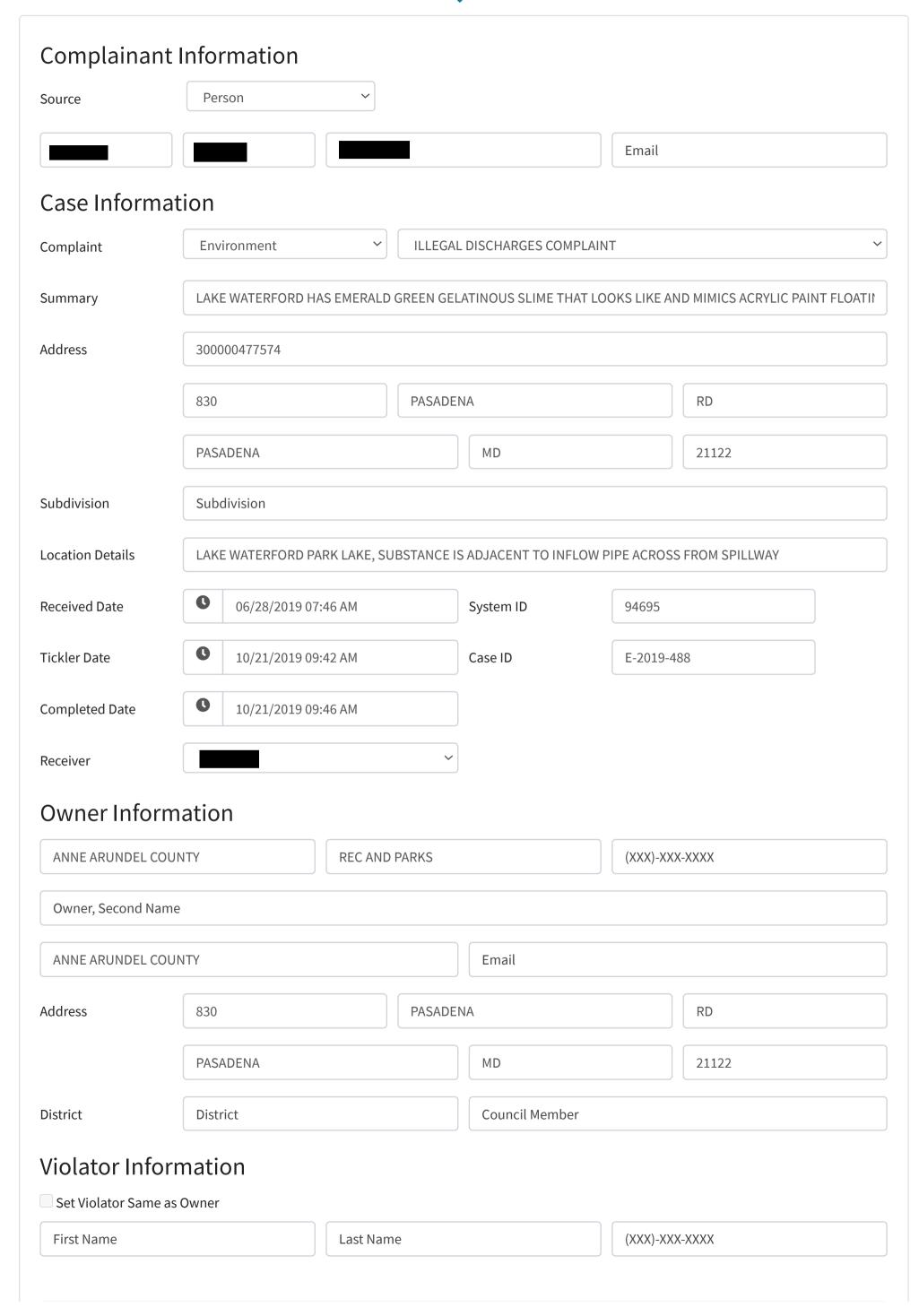


### **APPENDIX F**

# COUNTY INSPECTION COMPLIANCE DATABASE REPORTS







Violator Second N	Name						
Company Name							
Address	Hou	se Number	Street Name			Street Type	
	City			State		Zip	
Assignmen <sup>.</sup>	t Inforr	mation	Warning	×			
Date Assigned	0	06/28/2019 07:46 AM	Please, select rov	N			
nspector			~	Supervisor			~
Permit Number					Waterfront	Υ	~
riginal Case ID					Critical Area	N	~
DC Map					Cty. Council		~
ase Organization							
Case Detail	S						
LAKE WATERFO	ORD HAS EN	MERALD GREEN GELATINOUS	S SLIME THAT	LOOKS LIKE AND N	MIMICS ACRYLIC PAIN	T FLOATING ON TOP	OF

# Active Permit Application Information Type Permit # Status Other Cases On This Property Case # Received Date | Status | Summary | Related Cases type a case number or click to see related cases

# Case Timeline •

First Closed on Oct 21, 2019 by

Last updated on Oct 21, 2019 by



# **CLOSE COMPLAINT**

ANNE ARUNDEL COUNTY DEPARTMENT OF HEALTH ISSUED BULLETIN ON 10/16/2019, THAT THE BLUE GREEN ALGAE ADVISORY HAS BEEN LIFTED FROM LAKE WATERFORD PARK. ADVISORY NOTICE IS INCLUDED BELOW. COMPLAINT CLOSED. Department of Health Lifts Harmful Algal Bloom Water Contact Advisory for Lake Waterford in Pasadena October 16, 2019 – The Anne Arundel County Department of Health has lifted the harmful algal bloom advisory against direct water contact for Lake Waterford in Pasadena. The Maryland Department of the Environment reported the latest microcystin level for Lake Waterford is 2.0 ppb (parts per billion), which is significantly below the state water contact advisory threshold of 10 ppb. The advisory had been issued on July 3, 2019. The blooms of blue-green algae reported at Lake Waterford naturally occur in fresh waters and in Maryland's Chesapeake Bay. The blooms are in nutrient rich environments and can become harmful when they occur in high concentrations or when they produce toxins. When bathers see bright green waters, sometimes with a surface scum that resembles green paint, they are advised to take the following precautions: Do not wade, swim or drink in areas where a blue-green algal bloom is evident. If contact is unavoidable, wash body and clothes with clean, warm soapy water. If there is skin irritation after contact, see a health care provider. Keep pets away from bloom areas. Pets should not ingest or come in contact with water during a bloom. Questions regarding any suspected symptoms in pets should be directed to a veterinarian. Some blue-green algal toxins may accumulate in fish and crabs, primarily in the internal organs such as the liver and kidneys, or the mustard in crabs. Although anyone eating fish or shellfish containing harmful algal bloom toxins may become ill, people with some chronic diseases, such as liver disease, could potentially have very severe illnesses. If you decide to eat fish caught from waters affected by a blue-green algal bloom, remove the fat, skin and organs before cooking. Be careful not to cut into the organs. Before cooking or freezing the fish, rinse the fillets with clean water to remove any contaminants from the cleaning process. Cook fish thoroughly. More information about blooms can be found on the Maryland Department of

Natural Resources website: https://dnr.maryland.gov/waters/bay/Pages/algal\_blooms/Algae-Bloom-FAQ.aspx. To report human illness from bloom water contact, call the Bay Health Hotline at 877- 224-4229.

OCTOBER 21, 2019 by:



# DISCOLORED WATER VIOLATION

MDE EMERGENCY RESPONSE TEAM CONTACTED THE ANNE ARUNDEL COUNTY DEPT. OF HEALTH ON 07/01/2019, CONCERNING THE BLUE-GREEN ALGAE TEST RESULTS AS THE ALGAE PARTS PER MILLION (PPM) EXCEEDED THE PERMISSIBLE LIMITS. DEPT. OF HEALTH POSTED SIGNS AT THE ENTRANCE OF THE PARK AND IN SEVERAL LOCATIONS SURROUNDING THE LAKE ON 07/03/2019. THE OFFICIAL DEPT. OF HEALTH NOTICE THAT WAS ISSUED AND CIRCULATED: DIRECT WATER CONTACT ADVISORY FOR LAKE WATERFORD DUE TO HARMFUL ALGAE BLOOM DEPARTMENT OF HEALTH ISSUES DIRECT WATER CONTACT ADVISORY FOR LAKE WATERFORD DUE TO HARMFUL ALGAE BLOOM JULY 3, 2019 - THE ANNE ARUNDEL COUNTY DEPARTMENT OF HEALTH HAS ISSUED A HEALTH ADVISORY AGAINST DIRECT WATER CONTACT FOR LAKE WATERFORD IN PASADENA DUE TO HARMFUL ALGAE BLOOM. SIGNS HAVE BEEN POSTED AT THE LAKE, AND THE ADVISORY WILL REMAIN IN EFFECT UNTIL FURTHER NOTICE. THE BLOOMS OF BLUE-GREEN ALGAE REPORTED AT LAKE WATERFORD NATURALLY OCCUR IN FRESH WATERS AND IN MARYLAND'S CHESAPEAKE BAY. THE BLOOMS ARE IN NUTRIENT RICH ENVIRONMENTS AND MAY BECOME HARMFUL WHEN THEY OCCUR IN HIGH CONCENTRATIONS OR IF THEY PRODUCE TOXINS. WHEN BATHERS SEE BRIGHT GREEN WATERS, SOMETIMES WITH A SURFACE SCUM THAT RESEMBLES GREEN PAINT, THEY ARE ADVISED TO TAKE THE FOLLOWING PRECAUTIONS: DO NOT WADE, SWIM OR DRINK IN AREAS WHERE A BLUE-GREEN ALGAE BLOOM IS EVIDENT. IF CONTACT IS UNAVOIDABLE, WASH BODY AND CLOTHES WITH CLEAN, WARM SOAPY WATER. IF THERE IS SKIN IRRITATION AFTER CONTACT, SEE A HEALTH CARE PROVIDER. KEEP PETS AWAY FROM BLOOM AREAS. PETS SHOULD NOT INGEST OR COME IN CONTACT WITH WATER DURING A BLOOM. QUESTIONS REGARDING ANY SUSPECTED SYMPTOMS IN PETS SHOULD BE DIRECTED TO A VETERINARIAN. IF YOU DECIDE TO EAT FISH CAUGHT FROM WATERS AFFECTED BY A BLUE-GREEN ALGAE BLOOM,

REMOVE THE FAT, SKIN AND ORGANS BEFORE COOKING. BE CAREFUL NOT TO CUT INTO THE ORGANS. BEFORE COOKING OR FREEZING THE FISH, RINSE THE FILLETS WITH CLEAN WATER TO REMOVE ANY CONTAMINANTS FROM THE CLEANING PROCESS. COOK FISH THOROUGHLY. MORE INFORMATION ABOUT BLOOMS CAN BE FOUND ON THE MARYLAND DEPARTMENT OF NATURAL RESOURCES WEBSITE: HTTP://DNR.MARYLAND.GOV/WATERS/BAY/PAGES/ALGAL\_BLOOMS/ALGAE-BLOOM-FAQ.ASPX. TO REPORT HUMAN ILLNESS FROM BLOOM WATER CONTACT, CALL THE BAY HEALTH HOTLINE AT 877- 224-4229. FOR UP-TO-DATE INFORMATION ABOUT THE ADVISORY STATUS, VISIT THE DEPARTMENT OF HEALTH'S WEBSITE AT WWW.AAHEALTH.ORG. SUBSCRIBERS TO THE DEPARTMENT'S RECREATIONAL WATER QUALITY EMAIL ALERTS RECEIVE EMAILS NOTIFYING THEM OF COUNTY WATERWAY ADVISORIES, CLOSINGS AND REOPENINGS. TO SIGN UP FOR THE FREE E-ALERTS, VISIT WWW.AAHEALTH.ORG/ALERTS. ALERTS CAN ALSO BE RECEIVED BY FOLLOWING THE DEPARTMENT ON TWITTER AT WWW.TWITTER.COM/AAHEALTH\_WATER.

JULY 8, 2019 by:



# **CLOSE COMPLAINT**

MDE WATER COMPLIANCE INSPECTOR, CONTACTED INSPECTOR ON 07/01/2019, AT 0830 HOURS TO ADVISE THAT THE MDE EMERGENCY RESPONSE LAB HAS CONFIRMED THAT THE SUBSTANCE IN QUESTION IS A FORM OF BLUE-GREEN ALGAE, SPECIFICALLY, OF THE OSCILLATORIA SPECIES TYPE. THE OSCILLATORIA BLUE-GREEN ALGAE IS A BOTTOM DWELLING NATURAL OCCURRING ALGAE THAT GENERATES A FOUL ODOR UPON DECOMPOSITION. MDE WILL PROVIDE A WRITTEN REPORT WITHIN THE WEEK. INSPECTOR CALLED LAKE WATERFORD PARK MAINTENANCE LEAD, MR. TO ADVISE OF THE FINDINGS ON 07/01/2019. COMPLAINT IS CLOSED BUT CASE WILL REMAIN OPEN IN ORDER TO UPLOAD MDE REPORT AND LAB FINDINGS.

JULY 2, 2019 by:



# Note

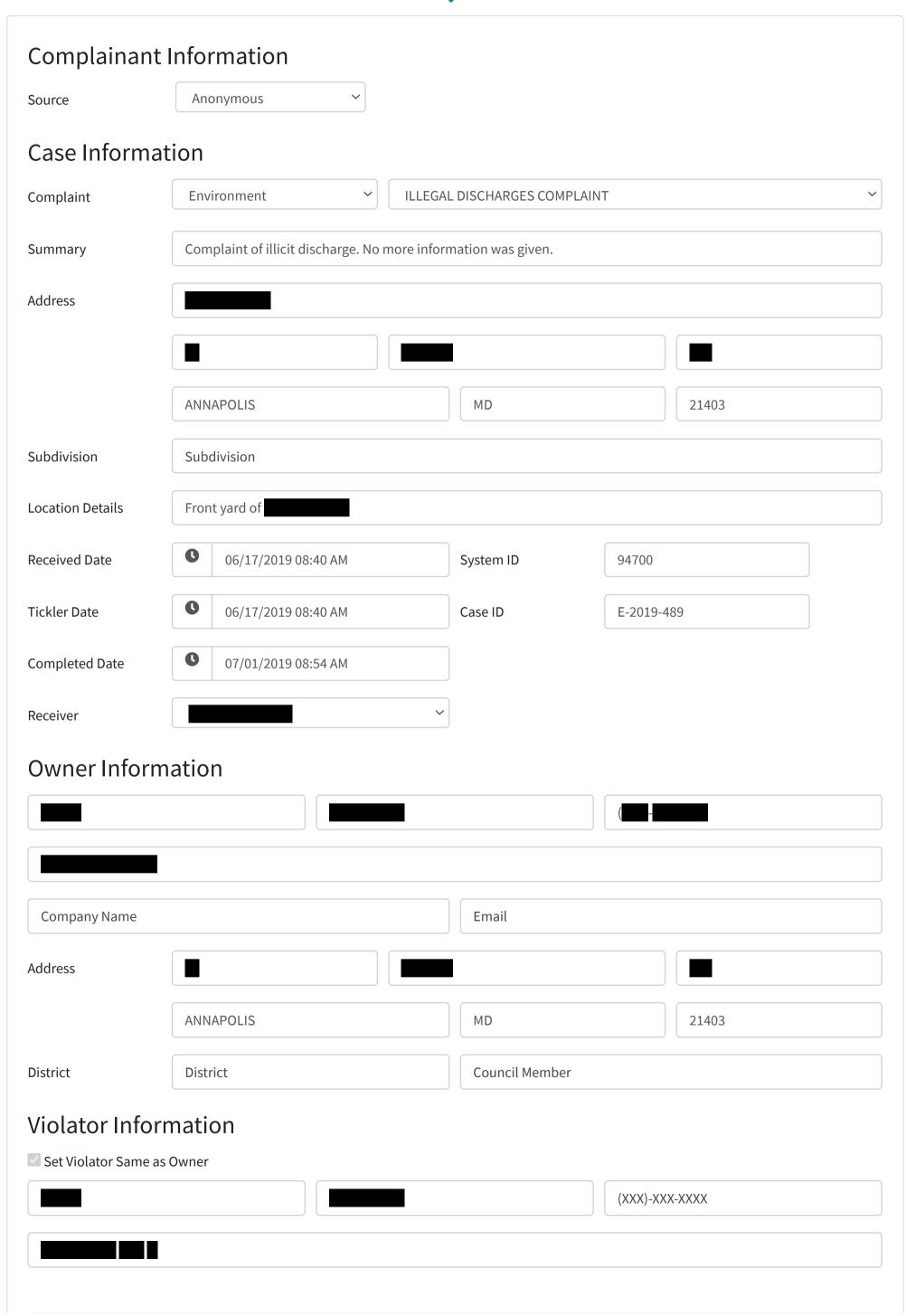
INSPECTOR WAS CONTACTED BY LAKE WATERFORD MAINTENANCE LEAD, ON 06/25/2019, CONCERNING AN EMERALD GREEN GELATINOUS SLIME THAT LOOKS LIKE AND MIMICS ACRYLIC PAINT FLOATING ON TOP OF WATER. THE UNKNOWN MATTER HAS NEVER BEEN SEEN AT LAKE WATERFORD IN PRIOR 12 YEARS THAT HAS WORKED FOR REC & PARKS AND WAS FIRST SEEN THE BEGINNING OF THE WEEK OF JUN 28, 2019, BY INSPECTOR CONDUCTED AN ONSITE INSPECTION ON 06/27/2019, AT 1130 HOURS AND TOOK A SAMPLE OF MATTER IN ADDITION TO VIDEO AND PHOTO

DOCUMENTATION. THERE WAS NO USUAL ODOR TO THE MATTER, INSPECTOR CONTACTED MDE WATER COMPLIANCE	
INSPECTOR WHO ARRIVED ON-SITE AT 1230 HRS. SAMPLES WERE COLLECTED BY BOTH INSPECTORS FOR	
FURTHER ANALYSIS. MDE WATER COMPLIANCE CENTRAL DIVISION CHIEF, AUTHORIZED A SAMPLE TO BE TESTED B	βY
THE MDE EMERGENCY RESPONSE TEAM LAB. INSPECTORS AND WALKED THE LAKE PERIMETER TO OBSERVE AND	
DOCUMENT THE GREEN MATTER AND ALSO WALKED THE UPLAND AREA OF THE PARK. FINDINGS FROM THE UPLAND PARK	
PROPERTY REVEALED THAT AN AREA APPROXIMATELY 3,000 SF OF GROUND WAS DISTURBED FOR THE INSTALLATION OF THE NEW	
PLAYGROUND AREA AND TWO (2) STORMWATER YARD INLETS WERE INSTALLED THAT LIKELY ARE CONNECTED TO THE ORIGINAL	
COUNTY STORM DRAINS THAT OUTFALL INTO THE LAKE (OUTFALL Q100002 AND P100006). HYDRO-SEED WAS APPLIED TO THE	
DISTURBED AREA FOR VEGETATIVE STABILIZATION. UPON CLOSER INSPECTION, THE HYDRO-SEED LAYER THAT HAD BEEN APPLIED	)
WEEKS PRIOR NO LONGER HAD THE GREEN DYE AND CONGEALING COMPONENTS AND WAS ONLY STRAW, SEED, AND SOIL. THE	
LOCATION OF THE (2) YARD INLETS WERE IN THE CENTER OF THE DISTURBED AREA AND COULD HAVE CONVEYED THE DYE AND	
CONGEALING MATERIALS TO OUTFALL IN THE LAKE. MDE WILL ADVISE OF FINDINGS ONCE LAB TEST HAVE BEEN PERFORMED. MDE	-
EMERGENCY RESPONSE TEAM LAB WILL BE PERFORMING LAB TESTS.	

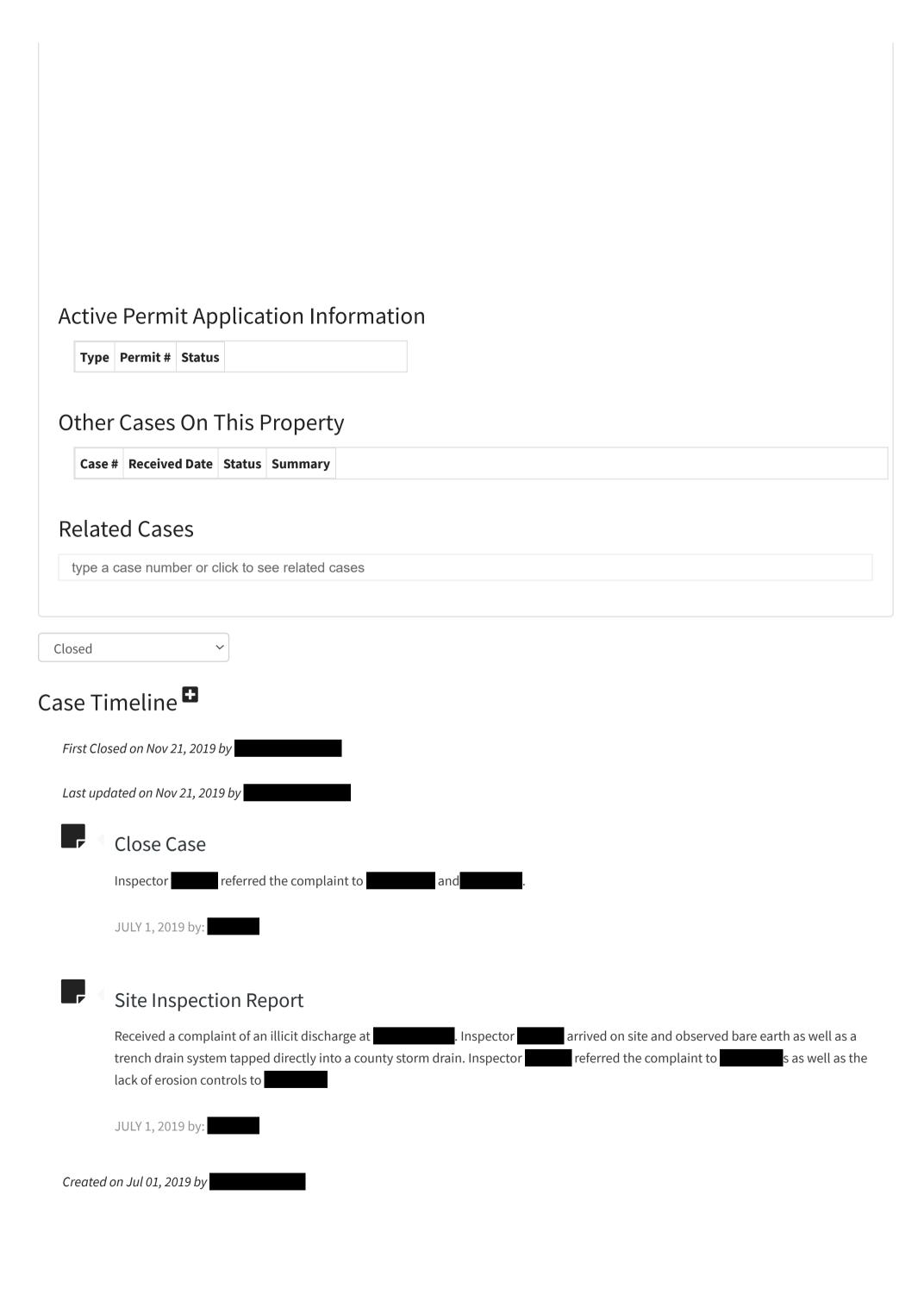
JUNE 28, 2019 by:

Created on Jun 28, 2019 by





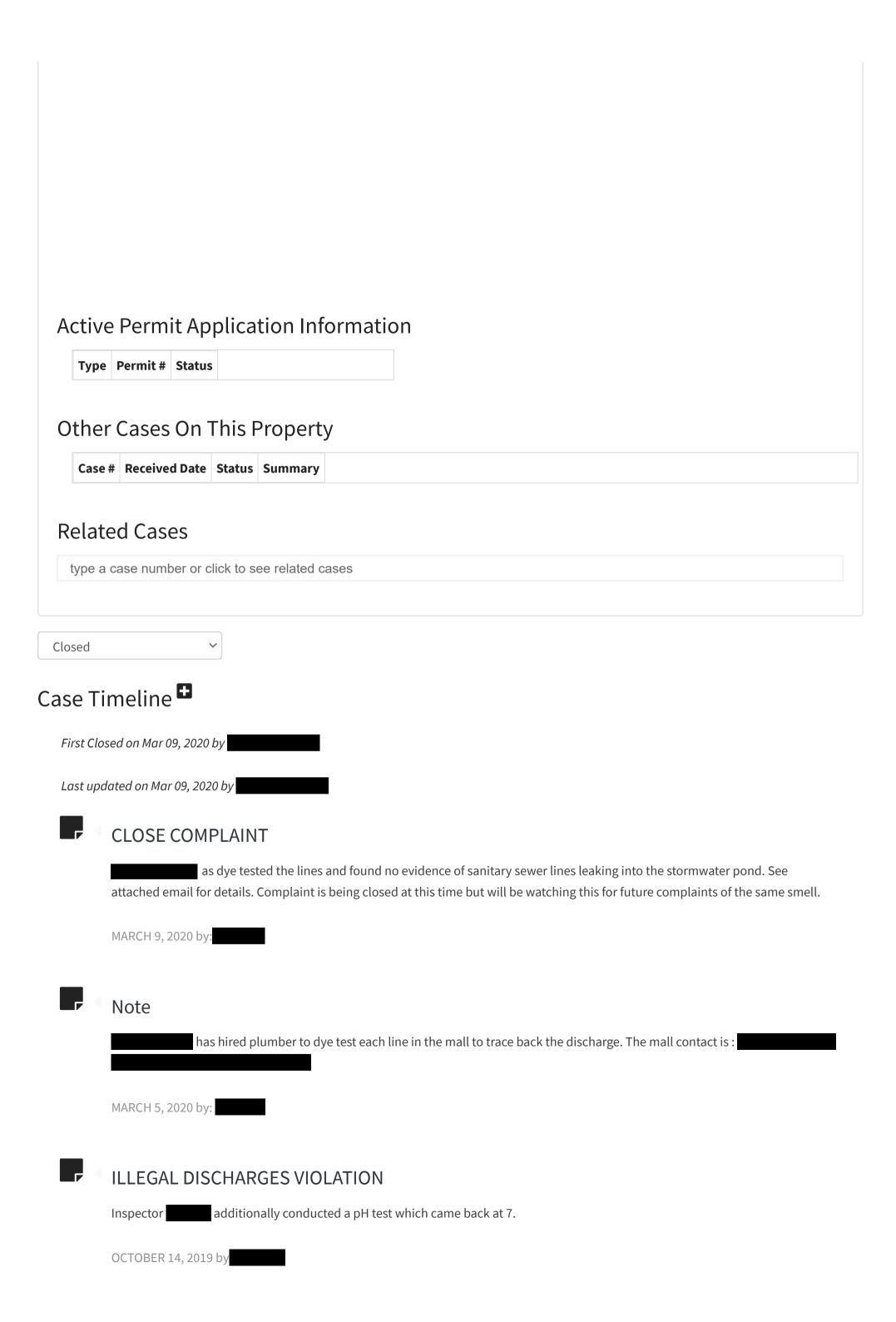








Address					
	ANNAPOLIS		MD	21401	
Assignment In	formation				
Date Assigned	08/22/2019 08:07 AM	Warning	×		
Inspector		Please, select row	Supervisor		~
Permit Number				Waterfront	~
Original Case ID				Critical Area	~
ADC Map				Cty. Council	~
Case Organization					
Case Details					



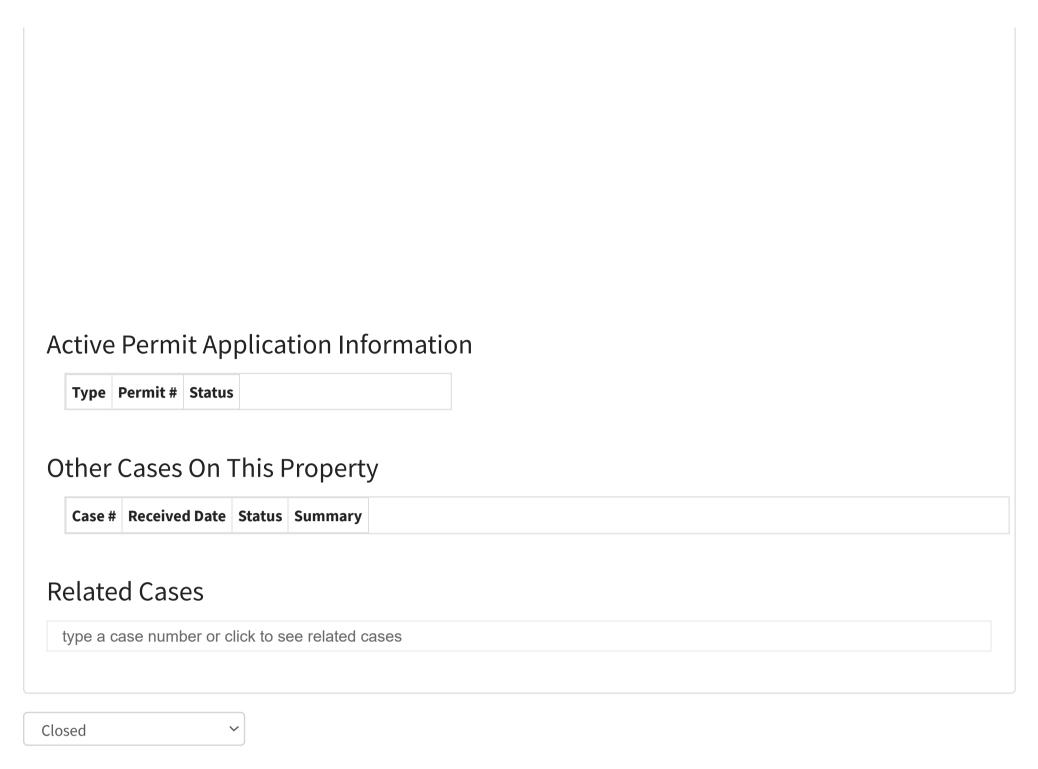
F	ILLEGAL DISCHARGES VIOLATION
	Inspector arrived on site to test the water in the left pipe for free and total chlorine as well as ammonia. All tests came back with undetectable levels of ammonia and chlorine.
	OCTOBER 14, 2019 by
F	ILLEGAL DISCHARGES VIOLATION
	Inspector arrived at the pond at to investigate a complaint of a sewage smell coming from the inlet pipes into the pond. Inspector observed flow in both pipes, one pipe with a broken seal. Inspector smelled the sewage smell in the left pipe and tried to track it back to the source but could not track it further than manhole 48. Inspector sent a correction notice out to the property owners requesting TV of the pipe at to locate the source of the sewage smell.
	OCTOBER 14, 2019 by:

Created on Aug 22, 2019 by





Mama Lucia				
Address				
	hanover	maryland	21076	
Assignment	Information			
Date Assigned	08/27/2019 10:18 AM	Warning		
nspector		Please, select row  Supervisor		
Permit Number			Waterfront	
Original Case ID			Critical Area	
ADC Map			Cty. Council	
Case Organization				
Case Details				
admitted his em legal. Business o	iant 8-26-2019. Investigated complain ployees dump there mop bucket into owner was informed to stop practice on notice will be sent to property own	o Storm Drain. Inspector informed and he said he would comply with	business owner that the the order. Business owne	oractice was not r agreed to clean
Received compli admitted his em legal. Business o drain. Correction property owner.	iant 8-26-2019. Investigated complain ployees dump there mop bucket into owner was informed to stop practice on notice will be sent to property own	o Storm Drain. Inspector informed and he said he would comply with er and business owner. 2nd corre	business owner that the parties the order. Business owne ction notice was sent to tw	oractice was not r agreed to clean vo tenants plus
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Received compli admitted his em legal. Business o drain. Correction property owner.	iant 8-26-2019. Investigated complain ployees dump there mop bucket into owner was informed to stop practice in notice will be sent to property own	o Storm Drain. Inspector informed and he said he would comply with er and business owner. 2nd corre	business owner that the parties the order. Business owne ction notice was sent to tw	oractice was not r agreed to clean vo tenants plus
Received compli admitted his em legal. Business o drain. Correction property owner.	iant 8-26-2019. Investigated complain ployees dump there mop bucket into owner was informed to stop practice in notice will be sent to property own	o Storm Drain. Inspector informed and he said he would comply with er and business owner. 2nd corre	business owner that the parties the order. Business owne ction notice was sent to tw	oractice was not r agreed to clean vo tenants plus
Received compli admitted his em legal. Business o drain. Correction property owner.	iant 8-26-2019. Investigated complain ployees dump there mop bucket into owner was informed to stop practice in notice will be sent to property own	o Storm Drain. Inspector informed and he said he would comply with er and business owner. 2nd corre	business owner that the parties the order. Business owne ction notice was sent to tw	oractice was not r agreed to clean vo tenants plus
Received compli admitted his em legal. Business o drain. Correction property owner.	iant 8-26-2019. Investigated complain ployees dump there mop bucket into owner was informed to stop practice in notice will be sent to property own	o Storm Drain. Inspector informed and he said he would comply with er and business owner. 2nd corre	business owner that the parties the order. Business owne ction notice was sent to tw	oractice was not r agreed to clean vo tenants plus



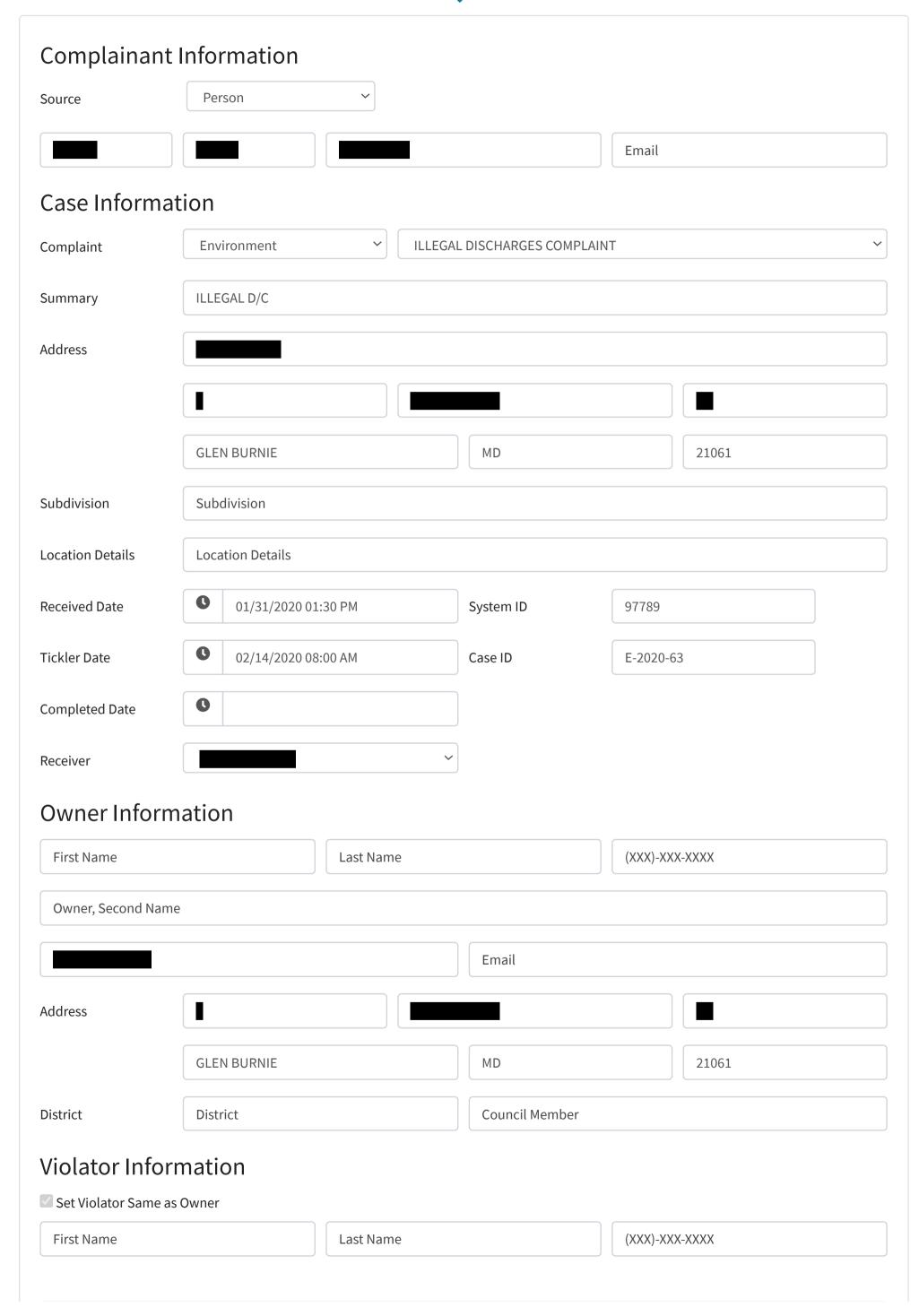
# Case Timeline

First Closed on May 21, 2020 by

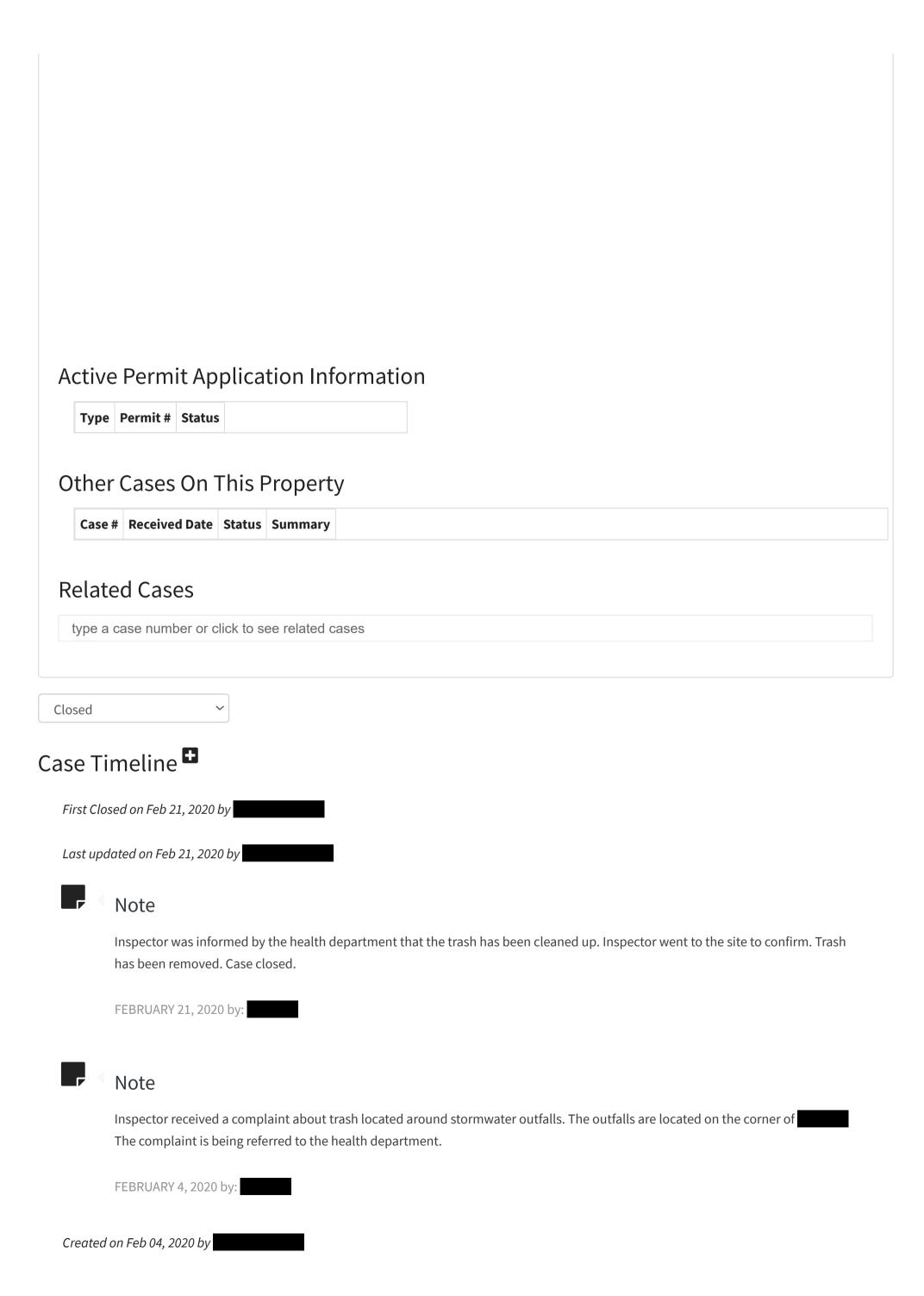
Last updated on May 21, 2020 by

Created on Aug 27, 2019 by

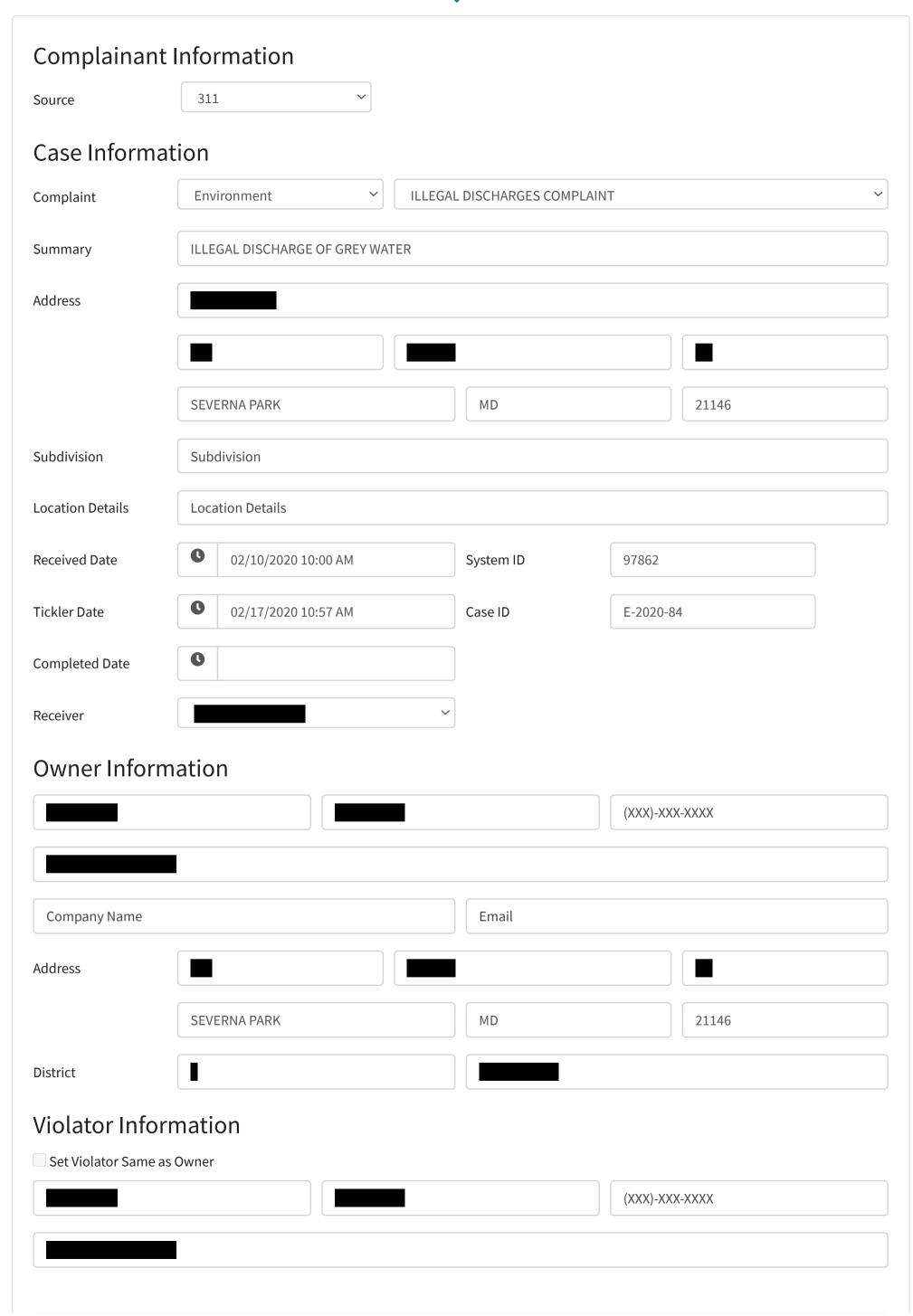


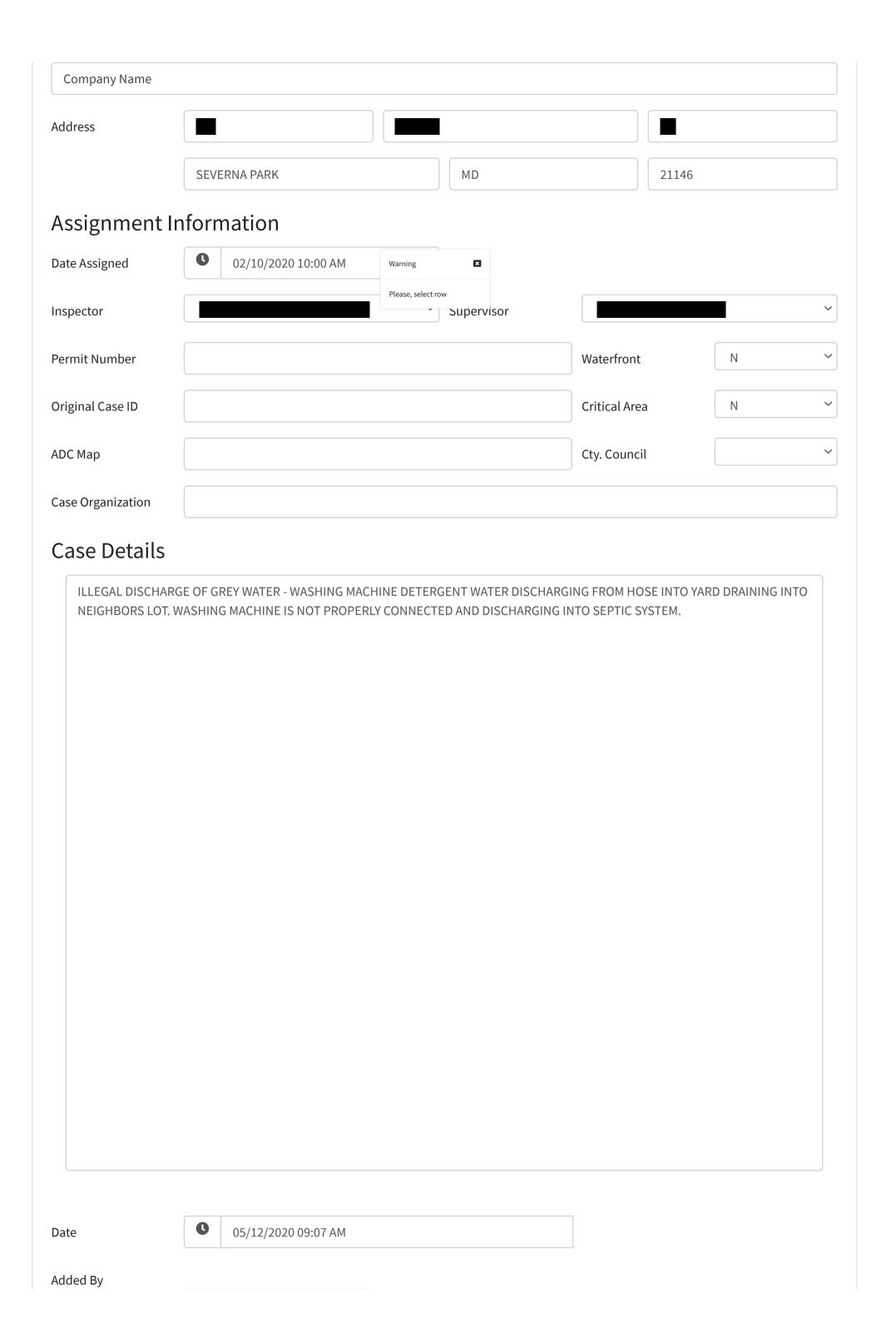


address					
G	LEN BURNIE		MD	21061	
Assignment Info	rmation	Warning	Ø		
Pate Assigned	02/04/2020 09:31 AM	Please, select row	v		
nspector		<b>~</b>	Supervisor		~
Permit Number				Waterfront	~
Original Case ID				Critical Area	~
DC Map				Cty. Council	~
Case Organization					
Case Details					









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PON RECEIPT OF PON RECEIPT OF PONT FURTHER IN PONT FURTHER PONT FURTHE	F PHASE II CERTIFIED LETTER, VIOLATOR CONTACTED WPRP SUPERVISOR  NSPECTIONS CONDUCTED ON HER PROPERTY. SUPERVISOR  ACKNOWLEDGED REQUEST UNDER COVID-19  AND ADVISED VIOLATOR THAT BY RE-CONNECTING THE ILLICIT SOAPY DISCHARGE PIPE, THE ACTION SHOWS REFUSAL ALESTED COMPLIANCE. VIOLATOR VERBALLY EXPRESSED TO SUPERVISOR  OCCUR. AS OF 5/12/2020, VIOLATOR HAS NOT SUPPLIED REQUESTED DOCUMENTATION FROM LICENSED PLUMBER OR CONTINUED MACHINE DISCHARGE HAS BEEN PROPERLY RE-DIRECTED TO SEPTIC TREATMENT ILLI REMAIN OPEN FOR CONTINUED MONITORING.
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ACTION SHOWS REFUSAL AND DENIAL OF REQUESTED COMPLIANCE. VIOLATOR VERBALLY EXPRESSED TO SUPERVISOR THAT NO FURTHER ILLICIT SOARY DISCHARGE WILL OCCUP AS OF 5/12/2020, VIOLATOR HAS NOT SURPLIED REQUESTED.

HIMI NO FORTHER ILLICIT SOME POSCHAROL WILL OCCOR. AS OF STAFAROR, VIOLATOR HAS NOT SOFT LILD REQUESTED

DOCUMENTATION FROM LICENSED PLUMBER OR CERTIFIED SEPTIC SERVICE THAT THE SOAPY WASHING MACHINE DISCHARGE HAS BEEN PROPERLY RE-DIRECTED TO SEPTIC TREATMENT SYSTEM. CASE WILL REMAIN OPEN FOR CONTINUED MONITORING.

MAY 12, 2020 by:



# **CORRECTION NOTICE ISSUED**

PHASE II LETTER ADDRESSING THE RE-CONNECTION OF THE ALLEGED ILLICIT DISCHARGE HOSE, SIGNED BY INP SUPERVISOR,

SENT ON 3/16/2020. PHASE II LETTER SENT VIA CERTIFIED MAIL ON 3/16/2020, STATING THE VIOLATOR WILL BE ISSUED

CIVIL CITATION IF DOCUMENTED EVIDENCE OF RECURRENCE OF ILLICIT SOAPY DISCHARGE IS FOUND. TO DATE AS OF 3/16/20202,

THE VIOLATOR HAS NOT PROVIDED REQUESTED REQUIRED DOCUMENTATION THAT THE SOURCE OF THE ILLICIT SOAPY DISCHARGE

HAS BEEN PROPERLY REDIRECTED AND CONNECTED TO SANITARY TREATMENT SYSTEM.

MARCH 16, 2020 by:



## Note

COMPLAINANT WAS ADVISED ON 3/5/2020, BY INSPECTOR THAT UNLESS PHYSICALLY WITNESSED (BY AN INSPECTOR), ACTIVE ILLICIT DISCHARGE FROM THE BLACK PIPE, NO ENFORCEMENT ACTION CAN BE TAKEN. VOLUNTARY COMPLIANCE HAS BEEN REQUESTED BY BOTH AACO INP AND DEPT OF HEALTH, BUT THERE HAS BEEN NO ACKNOWLEDGEMENT OR RESPONSE FROM THE

PROPERTY OWNER TO DATE TO EITHER AACO INP OR DEPT OF HEALTH. DEPT OF HEALTH HAS CLOSED CASE AS OF 3/5/2020, AS INSPECTOR WAS UNABLE TO WITNESS ACTIVE DISCHARGE FROM THE SUSPECTED PIPE WHEN CONDUCTING HIS RE-INSPECTION ON 3/4/2020. COMPLAINANT WAS ADVISED ON 3/5/2020, IF THERE IS ACTIVE FLUIDS DISCHARGING FROM THE PIPE, TO CONTACT INSPECTOR M-F DURING THE HOURS OF 7:00 - 3:30 PM ON COUNTY MOBILE TO WITNESS DISCHARGE AND CONDUCT FIELD TESTS ON THE DISCHARGED FLUID. IF DETERMINED TO BE ILLICIT DISCHARGE, INP WILL PROCEED WITH A CIVIL CITATION AND FINE. IF DISCHARGE OCCURS ON WEEKEND, COMPLAINANT MAY CALL THE ENVIRONMENTAL HOTLINE AT (4100 222-7171 TO REPORT. INP SUPPORTS ALL EFFORTS IN TRYING TO REMEDY THIS SITUATION AND CASE RE-OPENED WITH AACO INP,

MARCH 5, 2020 by:



# **RE-OPEN CASE**

INSPECTOR RECEIVED PHOTO DOCUMENTATION FROM COMPLAINANT ON 3/4/2020, THAT THE BLACK CORRUGATED PIPE THAT HAD BEEN PREVIOUSLY REMOVED DURING INITIAL INVESTIGATION THAT WAS SUSPECTED OF DISCHARGING ALLEGED ILLICIT SOAPY DISCHARGE WAS NOW RE-CONNECTED AGAIN FROM SAME LOCATION IN REAR OF HOME. INSPECTOR FORWARD PHOTO DOCUMENTATION ON 3/4/2020 TO DEPT OF HEALTH INSPECTOR ASSIGNED TO ORIGINAL COMPLAINT FOR REDIRECTING OR BY-PASSING DISCHARGE PIPE FROM A PROPER SANITARY SYSTEM (SEPTIC).

MARCH 5, 2020 by:



# CLOSE COMPLAINT

NOTIFIED BY COMPLAINANT THAT THE BLACK CORRUGATED HOSE SUSPECTED OF DISCHARGING THE ILLICIT SOAPY DISCHARGE HAS BEEN REMOVED.

MARCH 5, 2020 by:



# Note

DEPARTMENT OF HEALTH INSPECTOR TO CONDUCT CONCURRENT INVESTIGATION FOR THE VIOLATION OF DISCHARGING OF GREY WATER NOT PROPERLY PIPED TO SANITARY SYSTEM (COUNTY SEWER OR PRIVATE SEPTIC

FEBRUARY 21, 2020 by:



# **ILLEGAL DISCHARGES VIOLATION**

EVIDENCE DOCUMENTED DURING COUNTY INVESTIGATION ON 2/11/2020, AND 311 COMPLAINT SUPPORTING DOCUMENTATION PROVIDES SUSPECTED ILLICIT DISCHARGE (GREY WATER WASHING MACHINE DETERGENT DISCHARGE) CONCERNS AND REQUIRES IMMEDIATE RE-DIRECTION OF THE ILLICIT DISCHARGE INTO AN APPROVED TREATMENT SYSTEM OR SEPTIC DRAIN FIELD. COUNTY NON-COMPLIANCE REPORT ISSUED ON 02/12/2020, TO VIOLATOR REQUESTING IMMEDIATE COMPLIANCE WHICH REQUIRES THE IMMEDIATE CEASING OF FURTHER ILLICIT DISCHARGE UNTIL WASHING MACHINE IS PROPERLY CONNECTED TO APPROVED TREATMENT SYSTEM OR SEPTIC DRAIN FIELD. NON-COMPLIANCE REPORT DELIVERED TO RESIDENCE ON 02/12/2020, AND MAILED. IF SUSPECTED ILLICIT DISCHARGE CONTINUES, REPORT IMMEDIATELY TO THE AA COUNTY ENVIRONMENTAL HOTLINE (24 HOURS / 7 DAYS A WEEK) AT (410) 222-7171 AND DEPT OF HEALTH ENVIRONMENTAL TEAM (410) 222-7192. VIOLATOR MUST NOTIFY AA COUNTY INSPECTOR ONCE COMPLIANCE HAS BEEN ACHIEVED AND A ON-SITE INSPECTION WILL BE CONDUCTED TO VERIFY.

FEBRUARY 12, 2020 by:



## Note

INSPECTOR CONDUCTED ON-SITE INVESTIGATION OF ILLICIT DISCHARGE COMPLAINT ON 02/11/2020, AT 1500 HOURS. NO ACTIVE DISCHARGE WAS OCCURRING AT TIME OF INVESTIGATION BUT EVIDENCE OF RE-OCCURRING WASHING MACHINE DETERGENT WATER DISCHARGING INTO THE REAR YARD VIA A BLACK PLASTIC HOSE WAS DOCUMENTED AT PROPERTY ADDRESS PHOTO DOCUMENTING THE DISCHARGE FLOW PATH, BUILT-UP OF RESIDUAL LINT WASHOUT IN GRASS FROM WASHING MACHINE DRAINING IN YARD, AND THE LOCATION OF THE PLASTIC PIPE WERE TAKEN FROM THE TOP OF FENCE FROM THE ADJOINING PROPERTY LOCATED AT PHOTO DOCUMENTATION WAS CONDUCTED BY USE OF A LADDER, LOOKING OVER FENCELINE SINCE PROPERTY OWNERS OF WERE NOT HOME AND NO ACCESS WAS GRANTED TO THE PROPERTY. INSPECTOR ATTEMPTED TO SPEAK WITH PROPERTY OWNERS AT BY ACTIVATING THE RING DOOR MONITORING SYSTEM WHICH WAS NOT ANSWERED. INSPECTOR LEFT AA COUNTY MATERIALS REGARDING ILLICIT DISCHARGE, DEPT OF HEALTH MATERIALS FOR SEPTIC ISSUES/REPAIRS AND PROGRAM INFORMATION FOR APPLYING A SEPTIC SYSTEM GRANT.

FEBRUARY 12, 2020 by:



# **OPENED COMPLAINT CASE**

311 ENVIRONMENTAL COMPLAINT RECEIVED AND ILLICIT DISCHARGE CASE OPENED AND ASSIGNED TO INSPECTOR

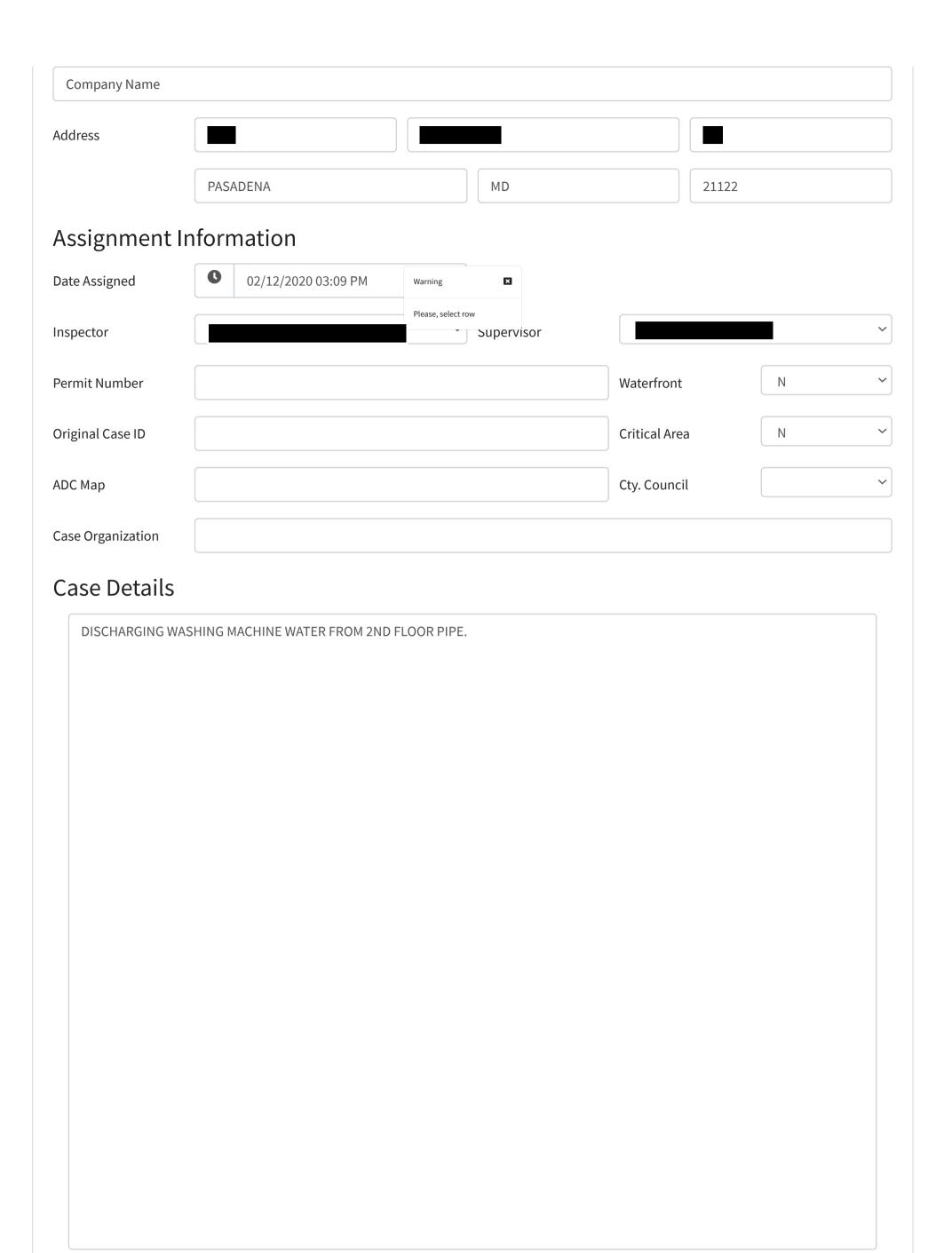
SYSTEM DID NOT PROVIDE VIOLATORS ADDRESS - REQUESTED VIOLATORS ADDRESS VIA 311 SYSTEM.

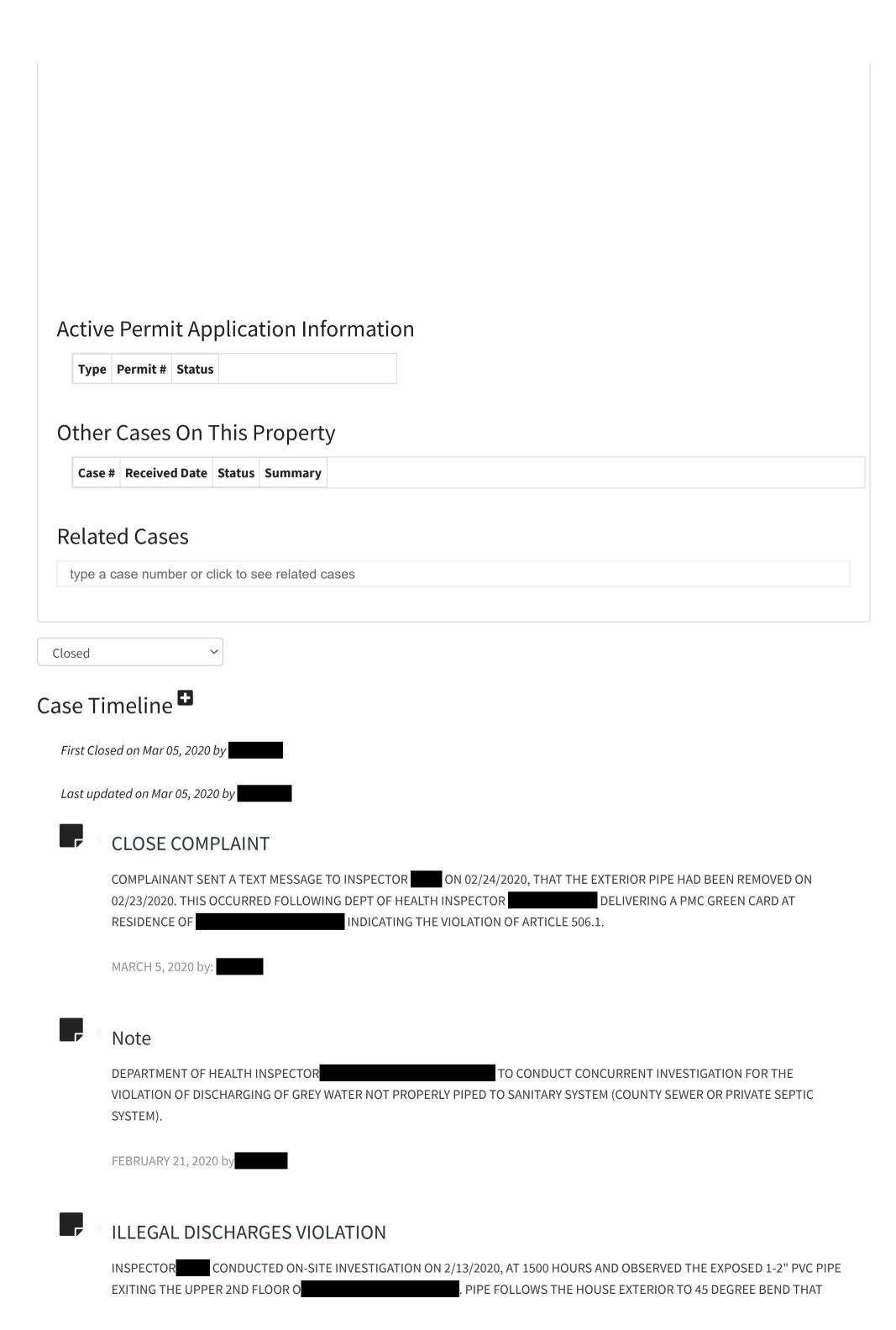
FEBRUARY 12, 2020 by:

Created on Feb 10, 2020 by









EXTENDS THE PVC PIPE TO DRAIN TO THE PROPERTY FENCE LINE ALONG THE ADJOINING LOT OF	1ALL
AREA OF DEPRESSION / EROSION FROM THE PIPE DISCHARGE WAS EVIDENT AND THERE WAS A SMALL AMOUNT OF RESIDUAL	
STANDING WATER IN THE DEPRESSION THAT WAS A SOAPY, FOAM SUBSTANCE. INSPECTOR	NER,
AND PROVIDED COUNTY MATERIALS PERTAINING TO 1) ILLICIT DISCHARGE, 2) SUMP/DOWNSPOUT PIPE REQUIF	RED
SET-BACKS, 3) DEPT OF HEALTH SEPTIC GRANT PROGRAM, AND 4) TITLE 5. ARTICLE 16-5-101 VIOLATIONS (6) AND (11). INSPECTO	)R
EXPLAINED THE NATURE OF THE COMPLIANT CONCERN, SPECIFICALLY THE SUSPECTED ILLICIT DISCHARGE AND PIPE	
DISCHARGING AT PROPERTY FENCE LINE DRAINING INTO ADJOINING LOT. SAID HER HUSBAND WOULD KNOW MORE AB	OUT
THE PIPE AND WHAT WAS CONNECTED AND DISCHARGING. INSPECTOR PROVIDED HER CARD AND CONTACT INFORMATION	1
AND EXPLAINED THAT NO FURTHER USE OF SYSTEM/APPLIANCE CAUSING THE DISCHARGE WOULD BE PERMITTED UNTIL PROPE	ERLY
RE-DIRECTED INTO A SANITARY SYSTEM. NOTICE OF NON-COMPLIANCE ISSUED ON 02/14/2019, REQUESTING IMMEDIATE	
COMPLIANCE	

FEBRUARY 14, 2020 by:



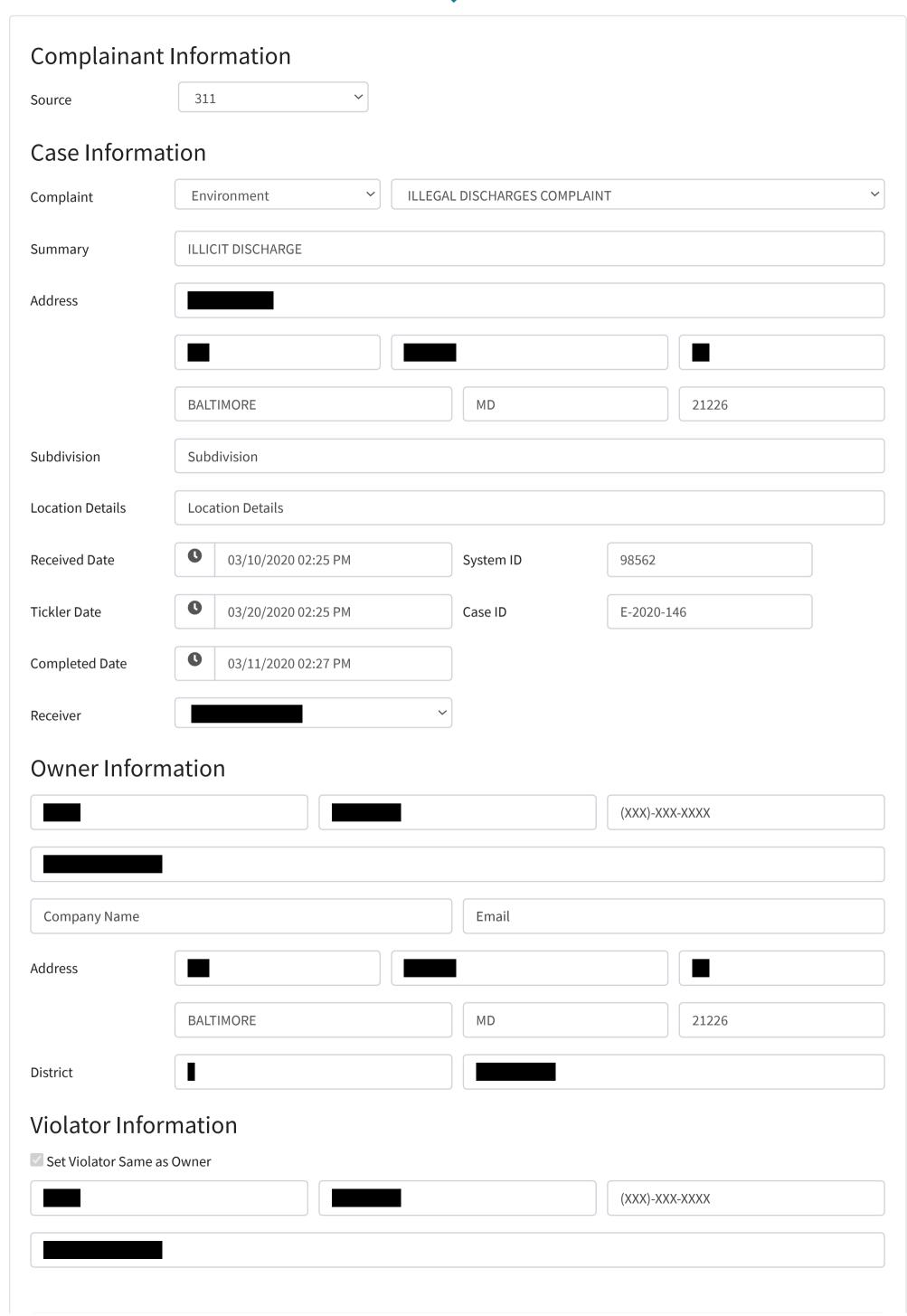
# OPENED COMPLAINT CASE

INSPECTOR RECEIVED COMPLAINT ON 2/13/2020, AND WILL CONDUCT ON-SITE INVESTIGATION ON 2/13/2020.

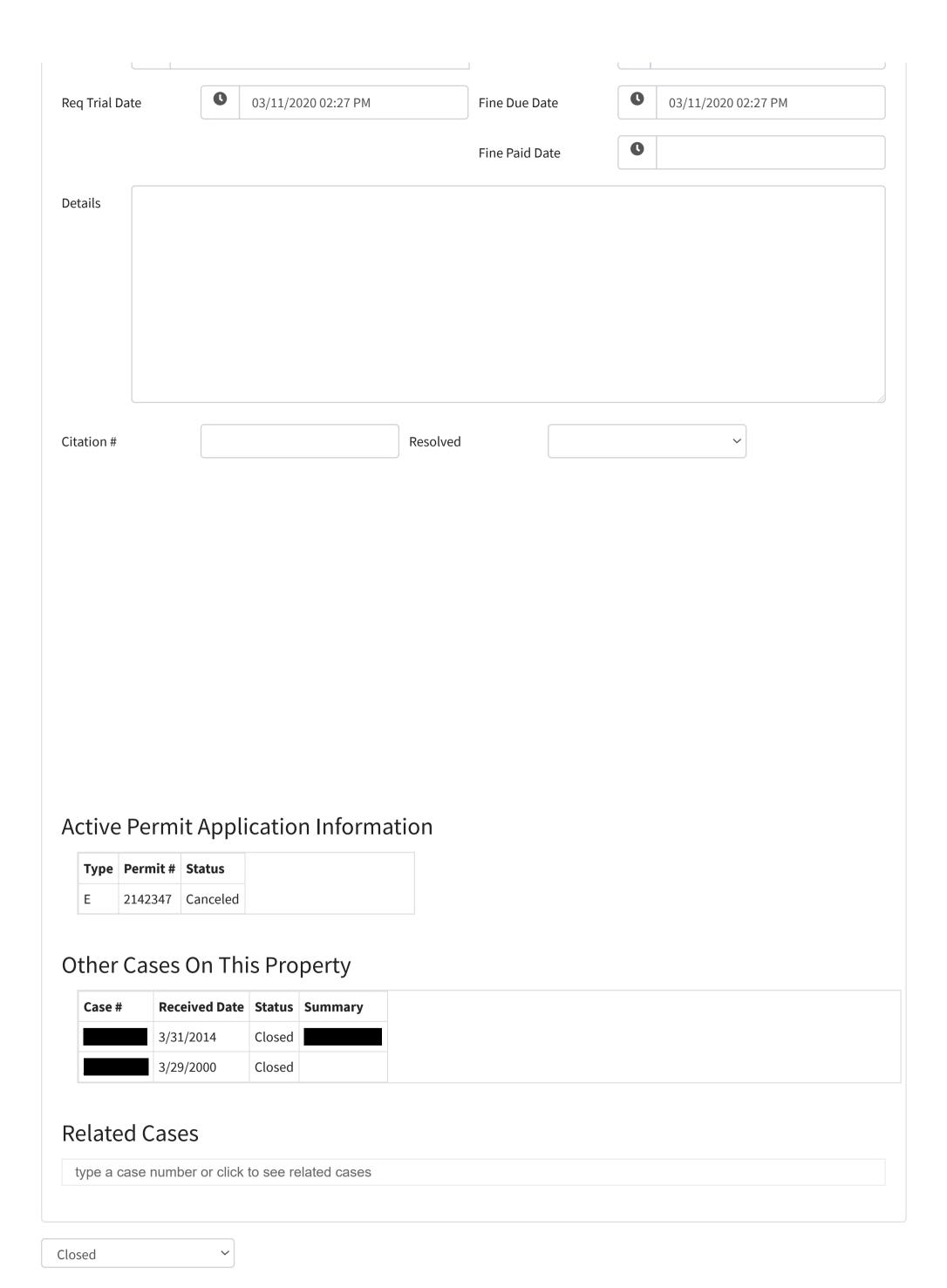
FEBRUARY 13, 2020 by:

Created on Feb 12, 2020 by









First Closed on Mar 11, 2020 by
Last updated on Mar 11, 2020 by
CLOSE COMPLAINT

MARCH 11, 2020 by:

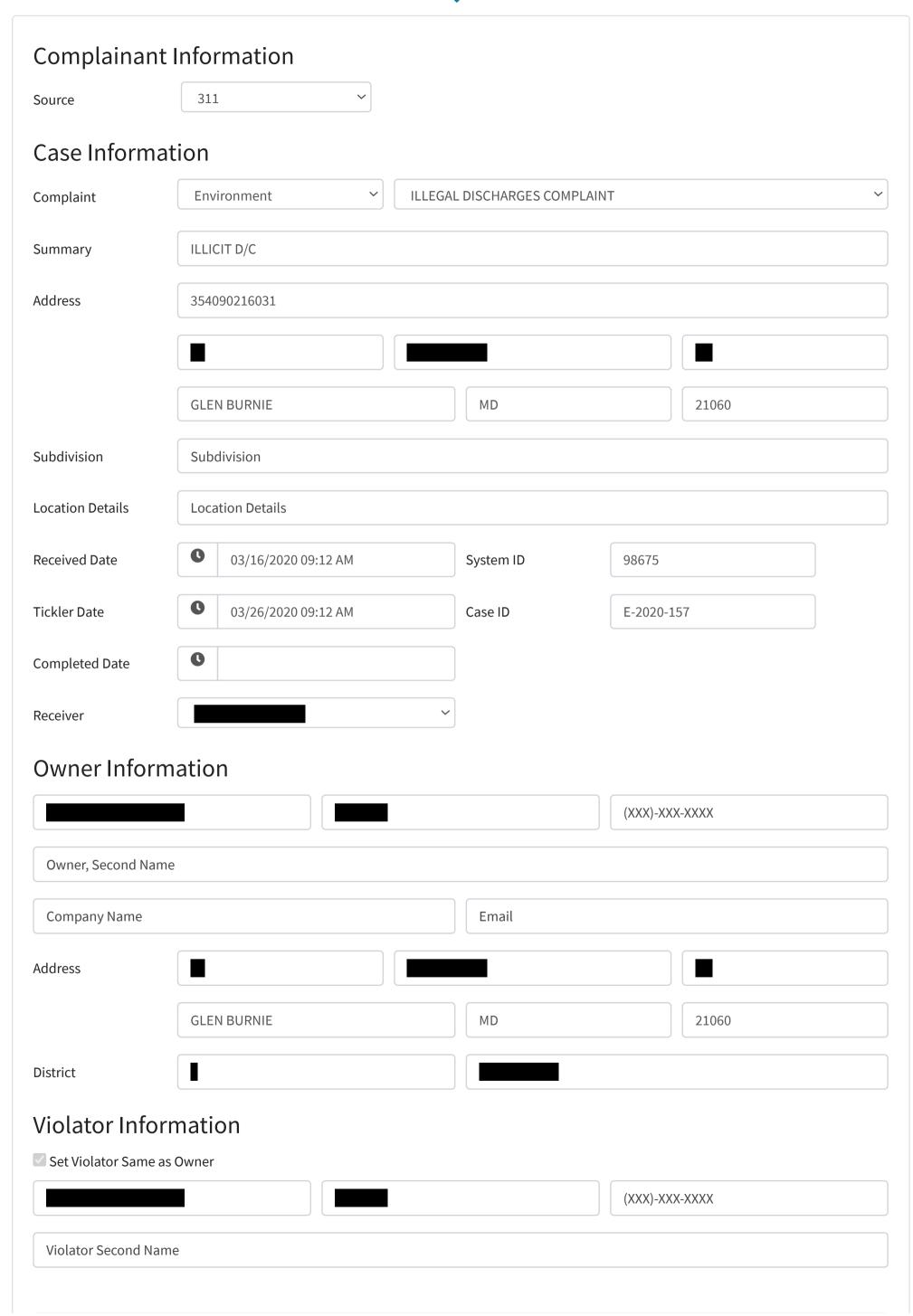
Note

Inspector went to the property and spoke to the owner. The owner said it was his sump pump and is working to correct the issue. This complaint needs to be referred to right of way department since it is a sump pump discharging on to a county road.

MARCH 11, 2020 by:

Created on Mar 10, 2020 by





Company Name							
Address							
	GLEN	I BURNIE		MD	21060		
Assignment In	forn	nation					
Date Assigned	0	03/16/2020 09:12 AM	Warning	X			
Inspector			Please, select row	Supervisor			~
Permit Number					Waterfront	N	~
Original Case ID					Critical Area	N	~
ADC Map					Cty. Council	N	~
Case Organization							
Case Details							

# Active Permit Application Information Type Permit # Status Other Cases On This Property Case # Received Date Status Summary Related Cases type a case number or click to see related cases

# Case Timeline

First Closed on Mar 27, 2020 by

Last updated on Mar 27, 2020 by



Inspector spoke to the owner 2 more times, and also visited the site again. The owner claims that the water is coming only from the sump pump. There was no water when the inspector visited the site on 3/27/2020. The pipe meets the proper set back from the adjacent property, so there is no violation regarding the pipe. Inspector is closing the complaint at this time.

MARCH 27, 2020 by:



Inspector received a phone call on 3/17/2020 from the owner. The owner stated that the water being discharged was solely from the sump pump and no washing machine water was being discharged. Inspector is trying to set up a meeting with the owner to discuss the water being discharged.

MARCH 19, 2020 by:



Inspector went to the site on 3/16/2020. The renter was home and granted access to the inspector to look at the discharge pipe. The water appeared to have soap/detergent in it. There was also lint around the puddle that was present downstream of the pipe. The

discharge is likely from a washing machine. Inspector will send a correction notice to the owner.

MARCH 17, 2020 by:

Created on Mar 16, 2020 by







# Active Permit Application Information Type Permit # Status Other Cases On This Property Case # Received Date Status Summary Related Cases type a case number or click to see related cases

# Case Timeline #

First Closed on May 12, 2020 by

Last updated on May 12, 2020 by



# **CLOSE COMPLAINT**

Compliance Report issued for environmental case E-2020-207. Compliance achieved with the completion of required corrective actions. Documentation of work was submitted as requested.

performed sump pump repair to properly route the soapy discharge that was flowing from the discharge pipe to septic treatment. To prevent erosion and sediment displacement on the property recommendations were made to cover the exposed woven liner at the sump pump pipe outfall with soil and the entire disturbed area where work was completed should be stabilized with seed, straw, straw matting, burlap or other environmental biodegradable anchoring tact product. Curlex-type products that contain plastic twining and shaved hardwood were not recommended. If the crushed gravel that defines the sump pump discharge flow path becomes displaced, homeowner is to reestablish regularly or use a larger stone such as river rock to prevent erosion and sediment deposition. Complaint closed.

MAY 12, 2020 by:



# **ILLEGAL DISCHARGES VIOLATION**

INSPECTOR CONDUCTED ON-SITE INSPECTION ON 04/13/2020, AT 1145 HOURS AND OBSERVED AND VIDEO DOCUMENTED ILLICIT GREY WATER DETERGENT WATER FROM 2 INCH PVC PIPE LOCATED IN REAR OF PROPERTY DISCHARGING TO SIDE YARD.

NOTICE OF NON-COMPLIANCE ISSUED AND MAILED VIA USPS ON 04/13/2020. DEPARTMENT OF HEALTH SEPTIC SUPERVISOR CONTACTED AND NOTIFIED OF THE SANITARY SYSTEM/SEPTIC SYSTEM BYPASS AND ILLICIT DETERGENT DISCHARGING IN CRITICAL AREA. VIDEO DOCUMENTATION EMAILED TO DEPARTMENT OF HEALTH. NOTICE OF NON-COMPLIANCE REQUIRES

IMMEDIATE CEASING OF ILLICIT DETERGENT DISCHARGING AND DOCUMENTATION FROM LICENSED PLUMBER OR SEPTIC SERVICE OF

PROPER RE-DIRECTION AND CONNECTION TO SANITARY OR SEPTIC SYSTEM.

APRIL 13, 2020 by:

Created on Apr 09, 2020 by





Company Name							
dress							
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# Active Permit Application Information Type Permit # Status Other Cases On This Property Case # Received Date Status Summary Related Cases type a case number or click to see related cases

# Case Timeline

Last updated on Apr 27, 2020 by

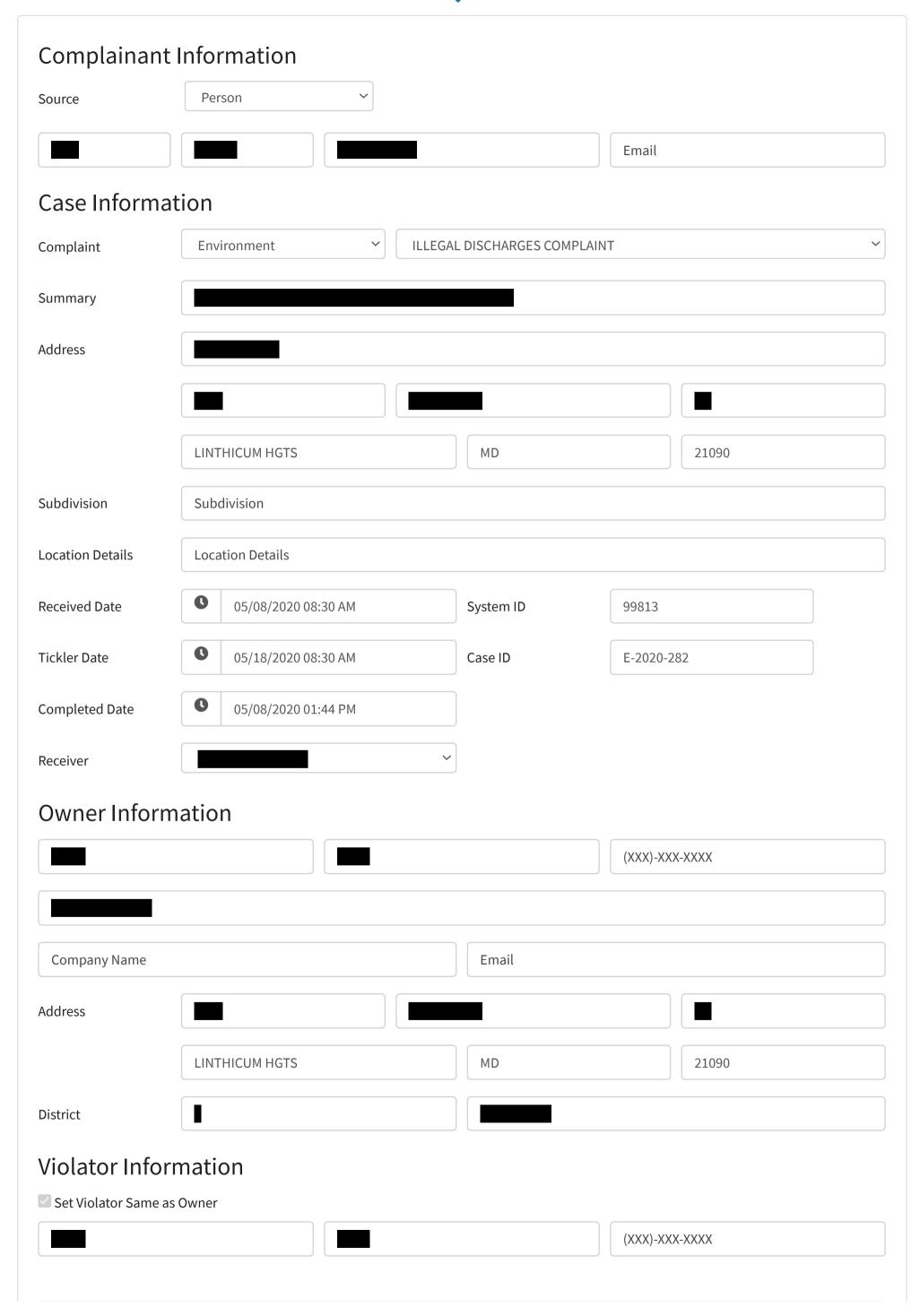


# **CORRECTION NOTICE ISSUED**

ON 04/27/2020, AT 1010 HRS INSPECTOR	NDUCTED AN INSPECTION AT	IN R	ESPONSE TO A
WASTEWATER ILLICIT DISCHARGE COMPLAINT FILE	ED VIA 311 SEE CLICK FIX ON-LIN	NE SYSTEM ON 04/23/2020.	COMPLAINT INCLUDED
PHOTOGRAPH OF 4 INCH BLACK CORRUGATED PIP	E AT PROPERTY THAT DISCHAR	GES AWAY FROM RESIDENC	E INTO COUNTY RIGHT
OF WAY ALONG ROAD. VISUAL INSPI	ECTION YIELDED EVIDENCE OF F	RECENT LIQUID DISCHARGE	FROM THE 4 INCH
CORRUGATED PIPE (STANDING FLUID AT END OF P	IPE AND FLOW PATH). PIPE THA	T DISCHARGES FLOW FOLLO	DWS DESCENDING
GRADE, DRAINS INTO COUNTY RIGHT OF WAY, AND	INTO	FRONT YARD, AND DRIVEWA	Y. EVIDENCE OF
CRACKED AND CRUMBLED CURB LINE, SOME EROS	SION AND SEDIMENT DEPOSITION	N, AND GRASS VEGETATIVE	KILL IN DISCHARGE
FLOW PATH. COMPLAINANT BELIEVES DISCHARGIN	NG FLUID IS FROM WATER COND	ITIONING SYSTEM DUE TO 1	THE SIGNIFICANT GRASS
VEGETATIVE LOSS AND DETERIORATING ASPHALT I	DRIVEWAY. NO VISUAL EVIDENCE	E OF HIGH SODIUM CONTEN	IT AND/OR MANGANESE
WHICH LEAVES A WHITE AND PURPLE CAST AND N	O SUDSY OR SOAPY BUBBLES W	ERE PRESENT DURING TIM	E OF INSPECTION.
COUNTY DOES NOT POSSESS FIELD LAB TEST FOR	WATER CONDITIONING SYSTEM	IS BACKWASH. UNDER ANN	E ARUNDEL COUNTY
CODE (2005) ARTICLE 16-5-101 STATES IT IS A VIOL	ATION TO (6) SPILL, DUMP, OR D	DISPOSE OF ANY MATERIAL (	OR SUBSTANCE OTHER
THAN NATURAL STORMWATER RUNOFF TO A STOR	MDRAIN OR WATERCOURSE UN	LESS AUTHORIZED BY A VAL	LID NPDES PERMIT
ISSUED BY THE STATE OF MARYLAND, AND (11) CR	EATE A SOURCE OF OFFSITE ERO	OSION OR SEDIMENT DEPOS	SITION. CORRECTION
NOTICE ISSUED AND MAILED VIA USPS TO PROPER	TY OWNER	. ANNE ARUNDEL COUNTY	DPW RIGHT OF WAY
DEPARTMENT WILL ALSO BE NOTIFIED OF THE DIS	CHARGE PIPE TO RIGHT-OF-WAY	Y FOR ADDITIONAL ENFORC	EMENT UNDER ANNE
ARUNDEL COUNTY CODE (2005) ARTICLE 13-2-206.			

APRIL 27, 2020 by:

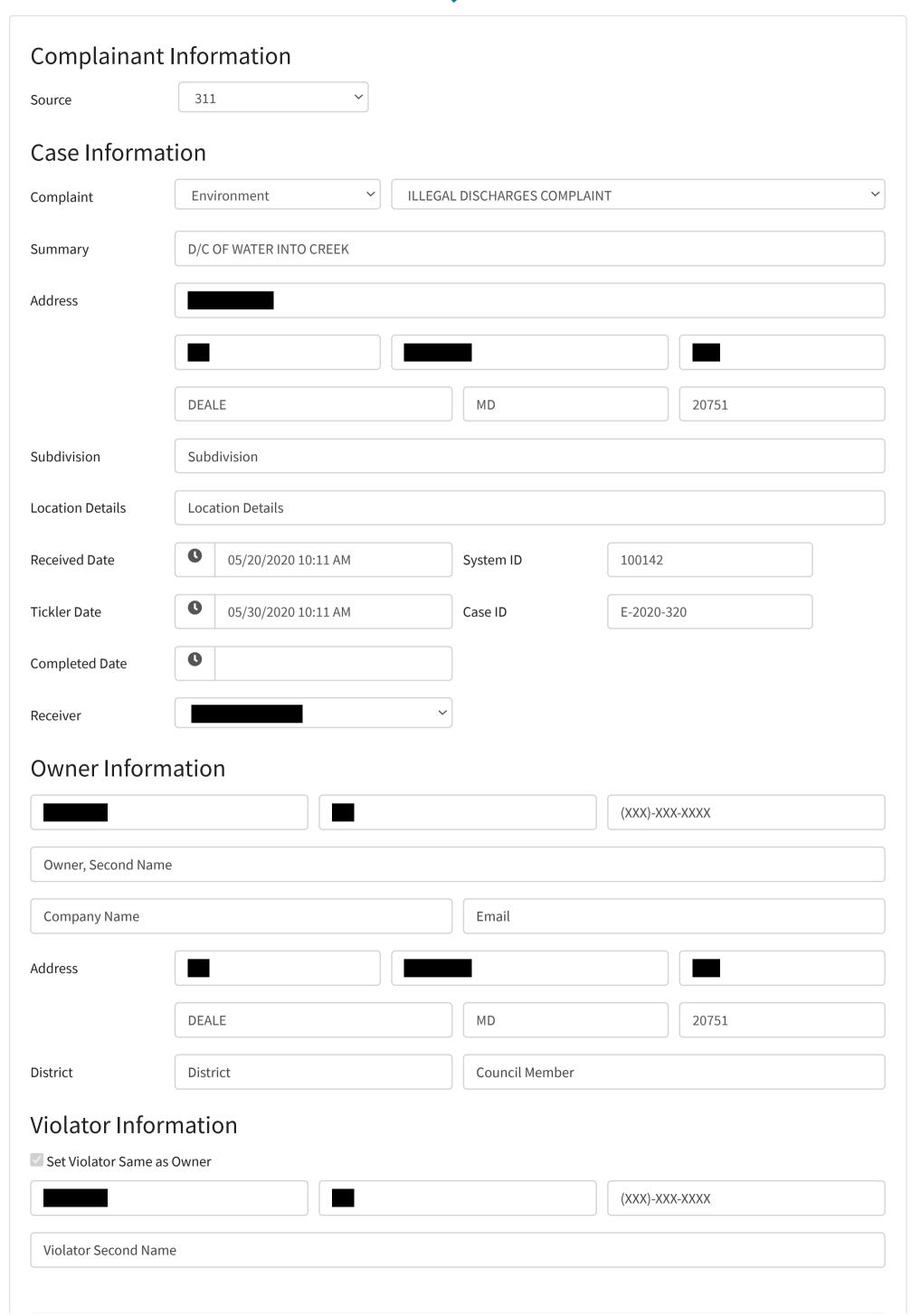




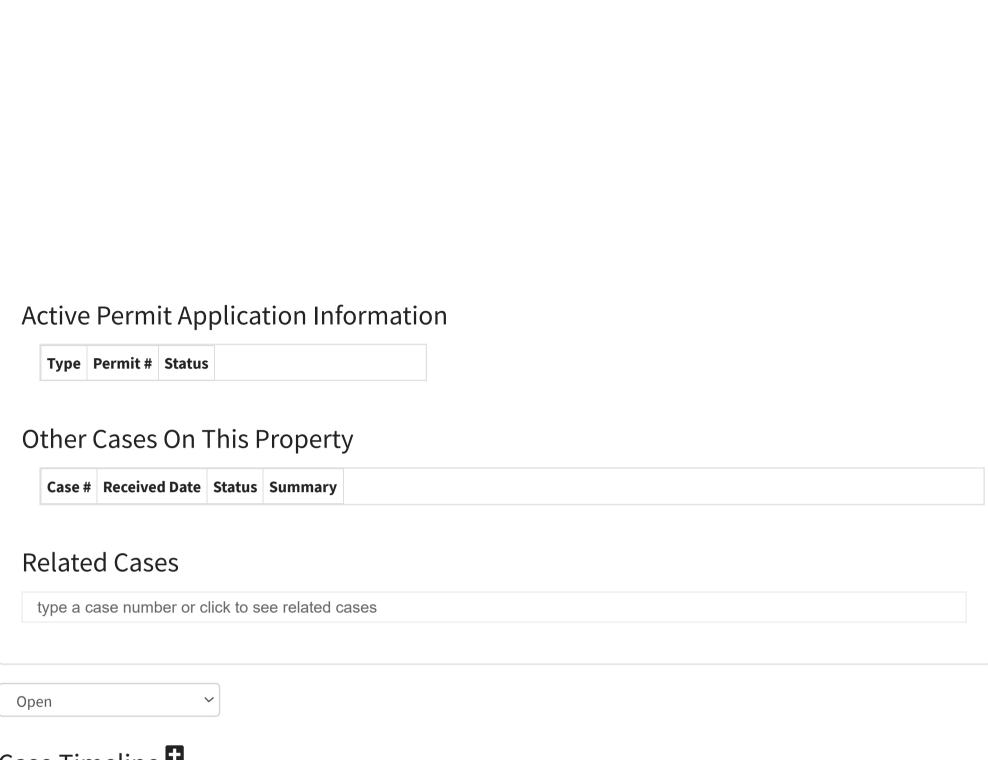
LINTHICUM HGTS  MD  21090  Assignment Information  ate Assigned  05/08/2020 08:30 AM  Spector  Supervisor  Waterfront  N  Critical Area  N  Cty. Council  N	Company Name					
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ase Organization	Priginal Case ID			Critical Area	N	~
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Case Details	ase Organization					

Active Permit Application Information
Type Permit # Status
Other Cases On This Property
Case # Received Date Status Summary
Related Cases
type a case number or click to see related cases
Closed
Case Timeline <sup>••</sup>
First Closed on May 08, 2020 by
Last updated on May 08, 2020 by
Last apaated on may 08, 2020 by
CLOSE COMPLAINT
Upon arrival and inspection at the property (, Lithincum) Inspector did not observe any pool water discharging
at the time (12:50p.m.) of inspection on May 8th 2020. Inspector knocked on the door in attempt to speak with the property owners (he was mindful of social distancing and wore his mask) although nobody answered the door. Inspector took 3 photo's
to document his observations (see attached). This complaint will be closed with no further action at this time
MAY 8, 2020 by:
CLOSE COMPLAINT
Upon arrival and inspection at the property ( Lithincum) Inspector did not observe any pool water discharging
at the time (12:50p.m.) of inspection on May 8th 2020. Inspector knocked on the door in attempt to speak with the property
owners (he was mindful of social distancing and wore his mask) although nobody answered the door. Inspector took 3 photo's to document his observations (see attached). This complaint will be closed with no further action at this time
MAY 8, 2020 by:

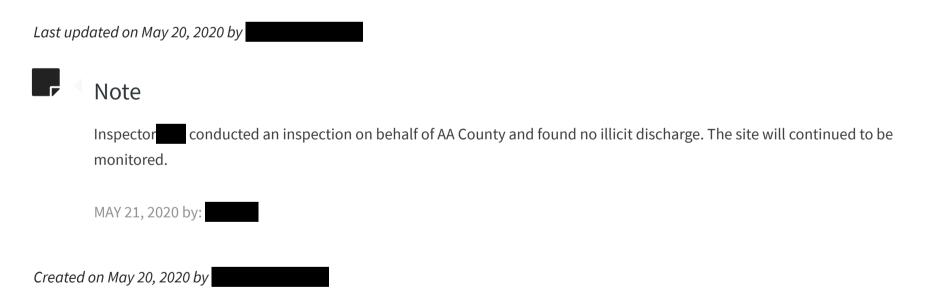




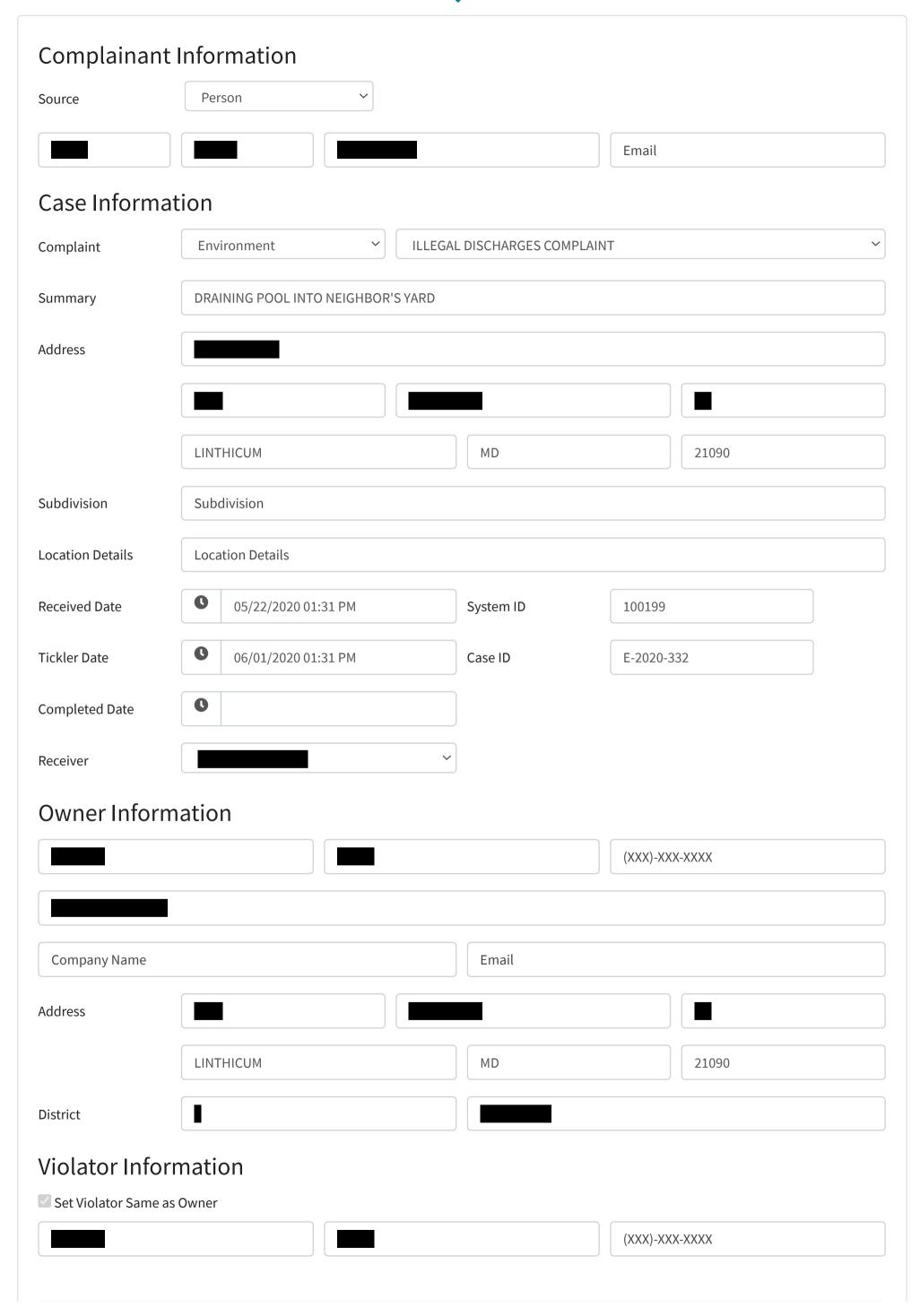
Company Name								
Address								
	DEAL	E		MD		20751		
Assignment Inf	orm	nation						
Date Assigned	0	05/20/2020 10:11 AM	Warning	×				
Inspector			Please, select row	Supervisor				~
Permit Number					Waterfront		N	~
Original Case ID					Critical Are	a	N	~
ADC Map					Cty. Counc	il	N	~
Case Organization								
Case Details								



# Case Timeline •



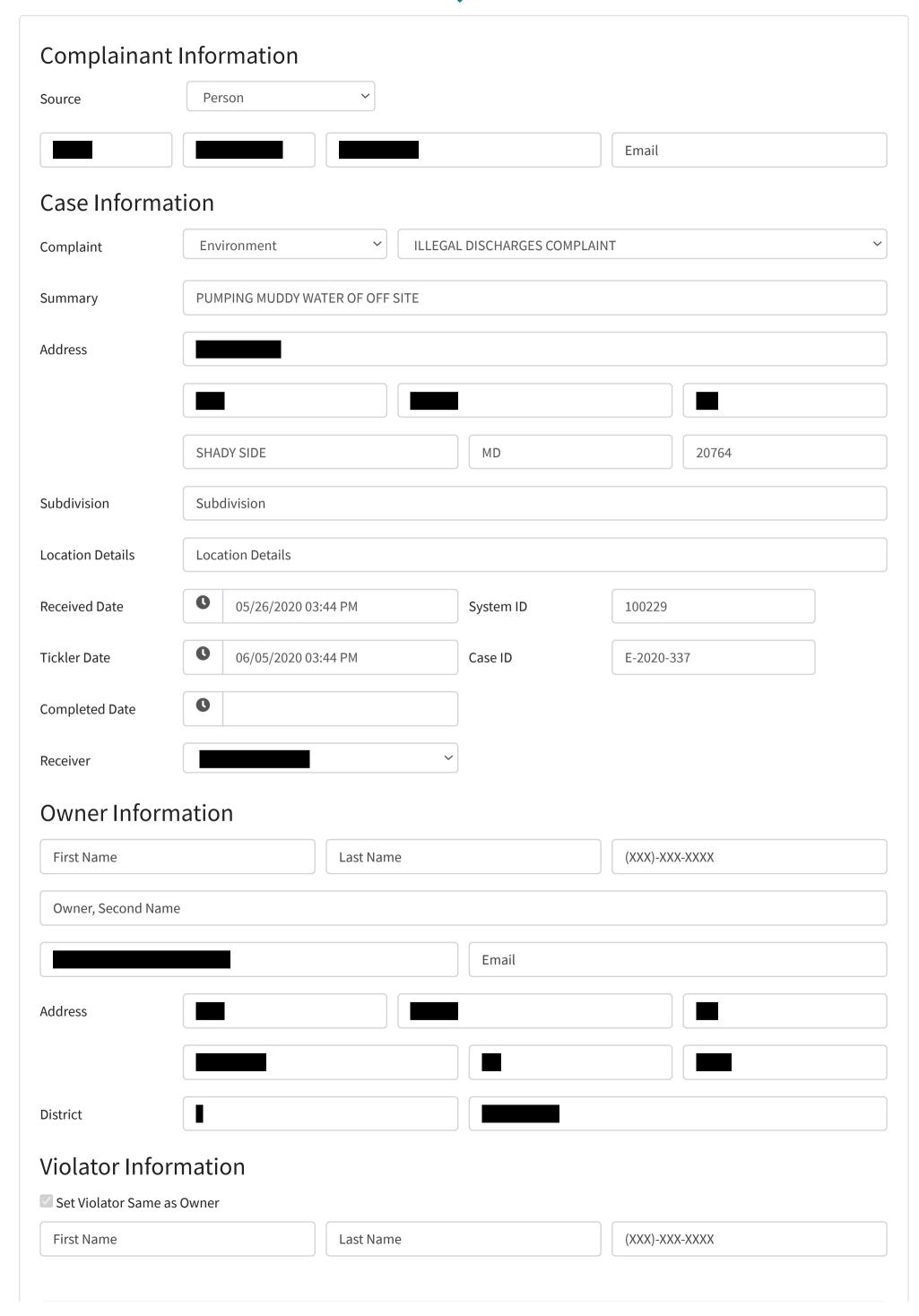




LINTHICUM  MD  21090  Assignment Information  ate Assigned  05/22/2020 01:31 PM  Please, select row  aspector  Waterfront  N  Critical Area  N  Cty. Council	Company Name					
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Active Permit Application Information
Type   Permit #   Status
Type Permit # Status
Other Cases On This Property
Case # Received Date Status Summary
Related Cases
type a case number or click to see related cases
Closed
Constitute H
Case Timeline **
First Closed on Jun 01, 2020 by
Last updated on Jun 01, 2020 by
Note
Inspector spoke to on the phone and in person about the issue. She said that the neighbor was draining their above
ground pool onto her property. The inspector went in backyard and did not witness a hose or water coming from her
neighbor's property. The inspector then went to speak to (the owner of the property with the pool). He stated that he never drains the pool all the way down and when he drains the pool he discharges it into a clean out that leads to the county sanitary
sewer. The inspector also noticed that backyard is one of the lowest points in the area. At the time of the inspection no violation was present. Case closed.
MAY 28, 2020 by:
Created on May 22, 2020 by





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dress						
	SHADY SIDE		MD	2076	64	
ssignment Ir	nformation	Warning Please, select r	×			
te Assigned	05/26/2020 03:44					
spector		~	Supervisor			,
ermit Number				Waterfront	N	
riginal Case ID				Critical Area	Υ	
ОС Мар				Cty. Council	N	,
se Organization						

# **Active Permit Application Information** Type | Permit # | Status Other Cases On This Property Case # Received Date | Status | Summary **Related Cases** type a case number or click to see related cases Closed Case Timeline • First Closed on Jun 08, 2020 by

Last updated on Jun 08, 2020 by



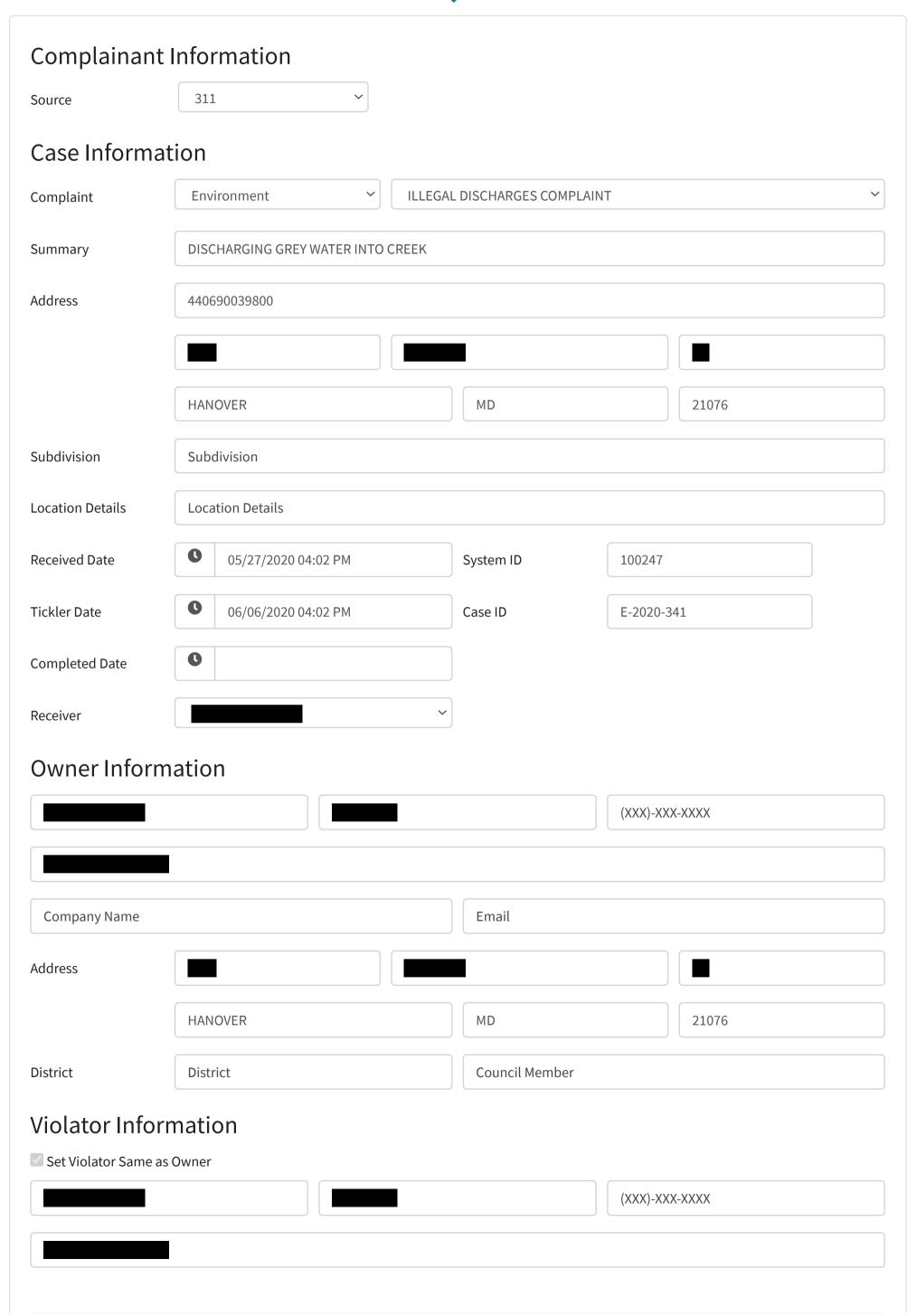
#### **CLOSE COMPLAINT**

Contractor pumping water from foundation within the LOD and inside the RSF Water had run into ditch causing muddy water. Advised Complaintant no mud was going into the creek as contractor had installed dirtbag on discharge pipe and strawbales at pipeline for extra precaution

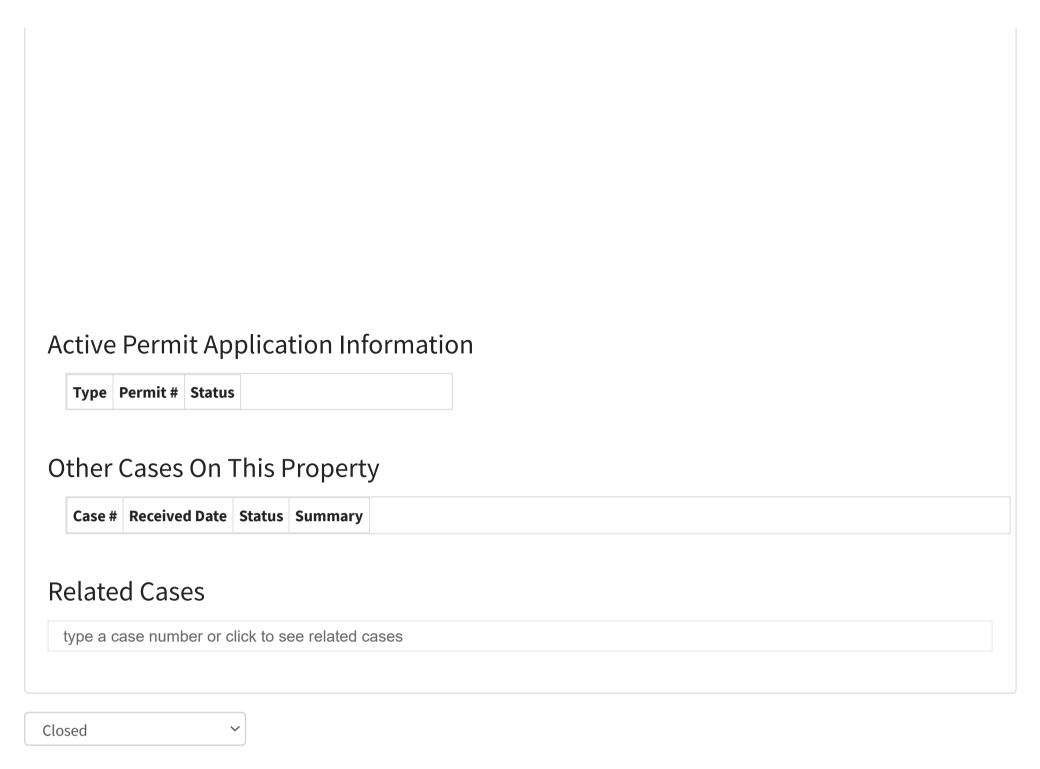
JUNE 8, 2020 by:

Created on May 26, 2020 by





Company Name							
ddress							
	HANG	OVER		MD	2107	6	
\ssignment I	nforn	nation					
ate Assigned	0	05/27/2020 04:02 F	PM Warning	R			
nspector			Please, select ro	Supervisor			\
ermit Number					Waterfront	Υ	\
riginal Case ID					Critical Area	Υ	\ 
DC Map					Cty. Council	N	\ 
ase Organization							



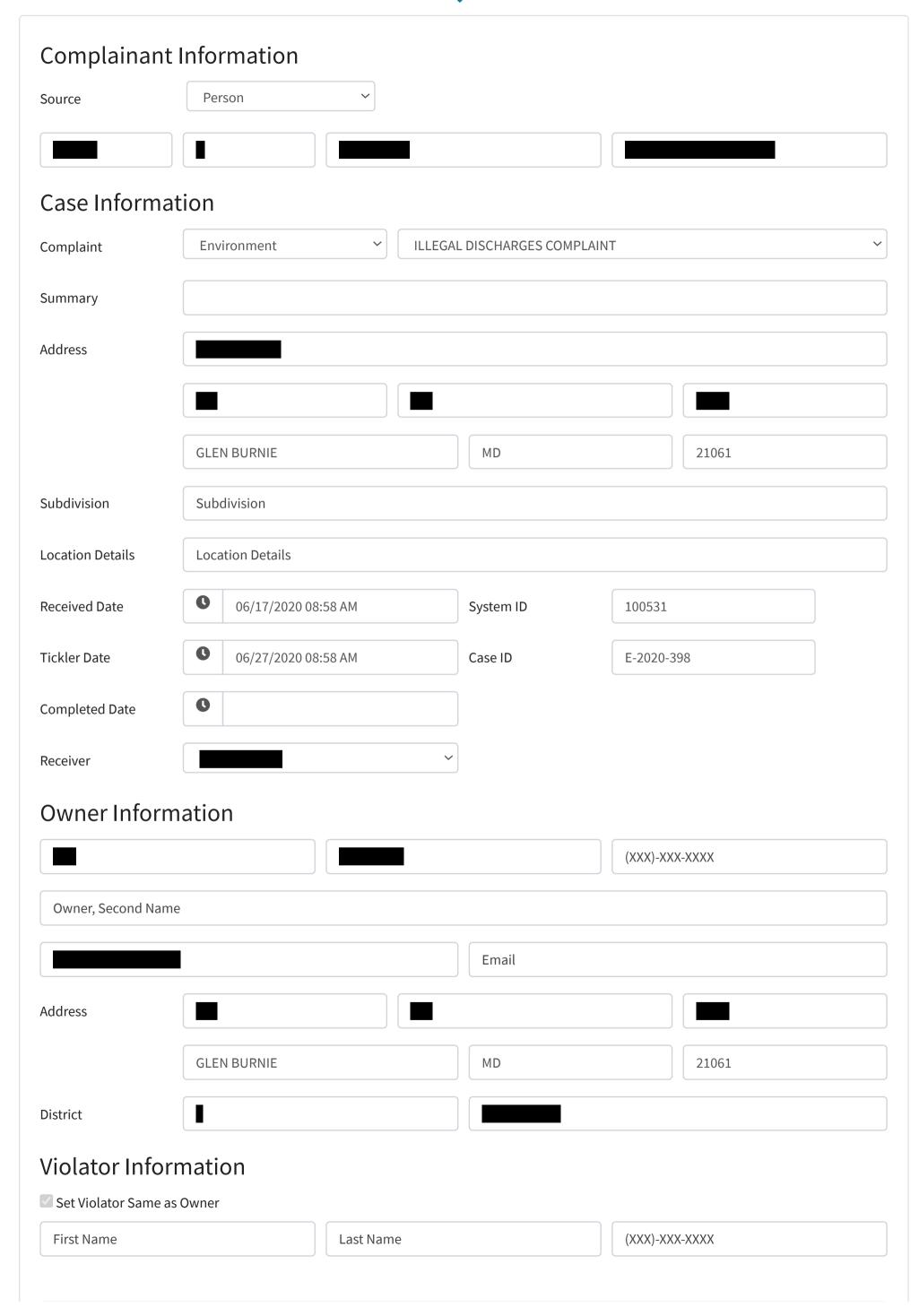
## Case Timeline

First Closed on Jun 15, 2020 by

Last updated on Jun 15, 2020 by

Created on May 27, 2020 by







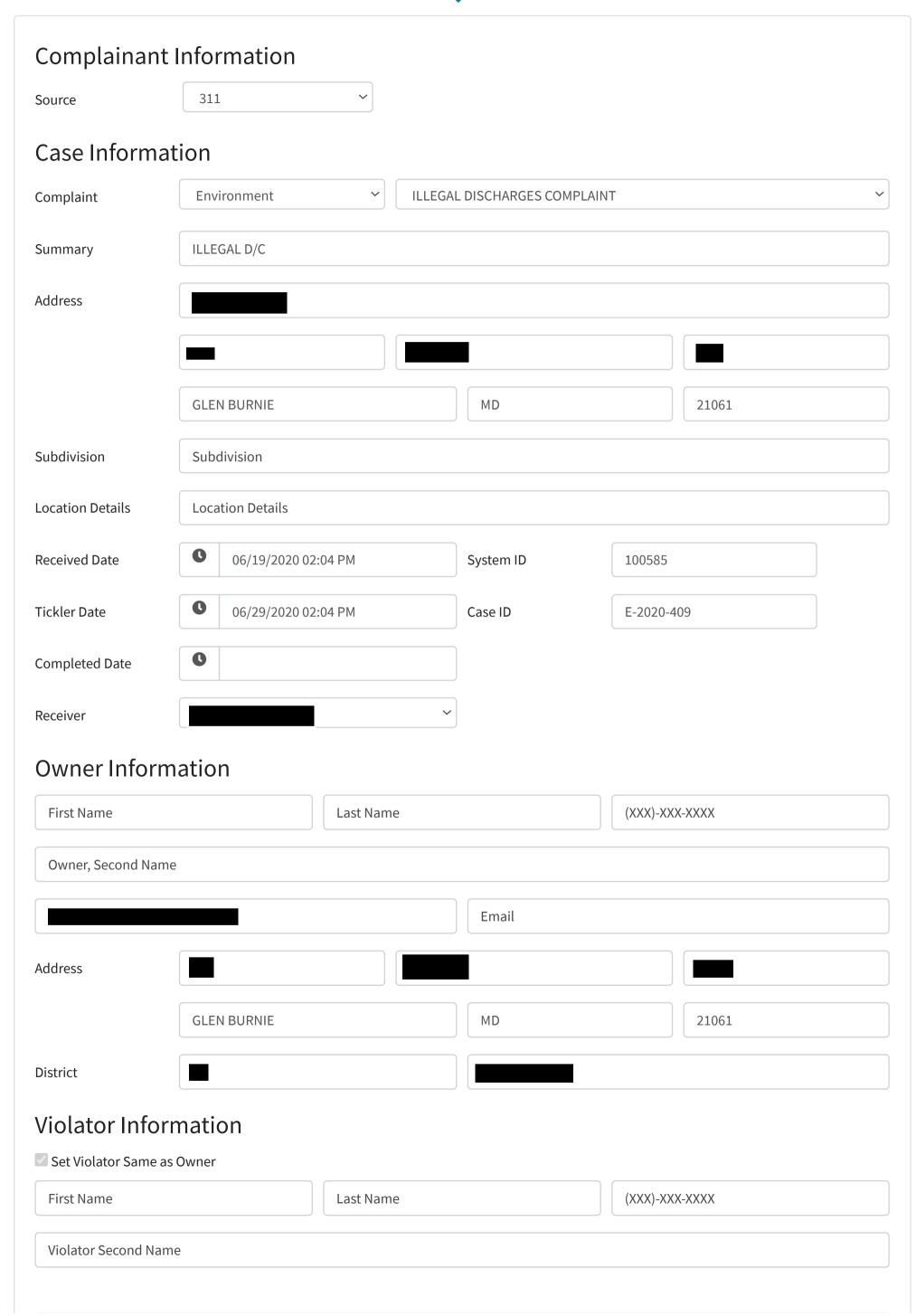
Added By	
Notes	
observed wet sog did not knoc	received that a pool has been discharging water onto an adjacent property. On June 16th 2020 at about 1400 Inspector ggy grass and a muddy back yard but he did not observe any illegal discharge taking place at the time of inspection. Inspector k on the door of the home to inform the tenant living at the home of proper protocol and code because 2 medium sized dog's thin the fence line. Inspector will mail the tenant and the property owner a correction notice. He will follow up and keep then for 30 days.
Active Per	mit Application Information
Active Per	mit Application Information  t # Status
Type Permi	
Type Permi	t # Status
Type Permi	es On This Property ived Date   Status   Summary
Type Permi	es On This Property ived Date   Status   Summary
Other Case  Case # Rece  Related Ca  type a case no	es On This Property ived Date Status Summary ases
Type Permit Other Case  Case # Rece  Related Ca  type a case nu	es On This Property  ived Date Status Summary  ases  umber or click to see related cases
Type Permi	es On This Property  ived Date Status Summary  ases  umber or click to see related cases
Other Case  Case # Rece  Related Ca  type a case number  Open	es On This Property  ived Date Status Summary  ases  umber or click to see related cases

code pecause 2 medium sized dog s (pitputt) were with in the fence line. Inspector with mait the tenant and the property owner a correction notice. He will follow up and keep this complaint open for 30 days.

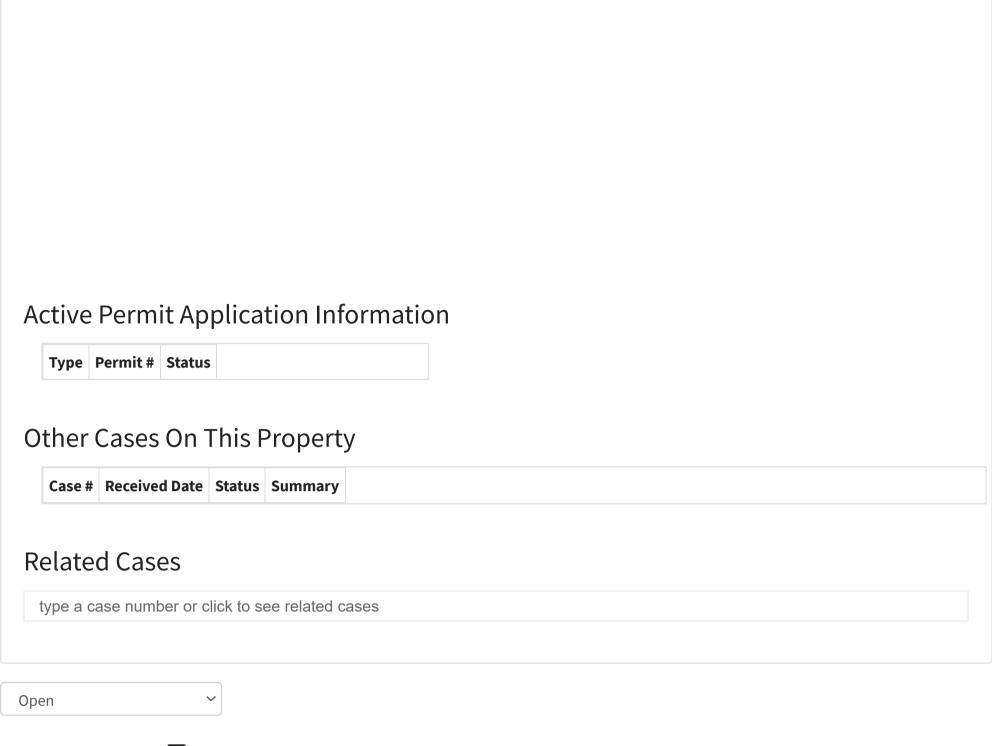
JUNE 17, 2020 by:

Created on Jun 17, 2020 by





Address						
	GLEN BURNIE		MD	21061		
Assignment In	formation					
Date Assigned	06/19/2020 02:04 PM	Warning	×			
Inspector		Please, select row	Supervisor			~
Permit Number				Waterfront	N	~
Original Case ID				Critical Area	N	~
ADC Map				Cty. Council	N	~
Case Organization						
Case Details						



#### Case Timeline •

Note

Correction notice has been sent on 6/25/2020.

JUNE 25, 2020 by:

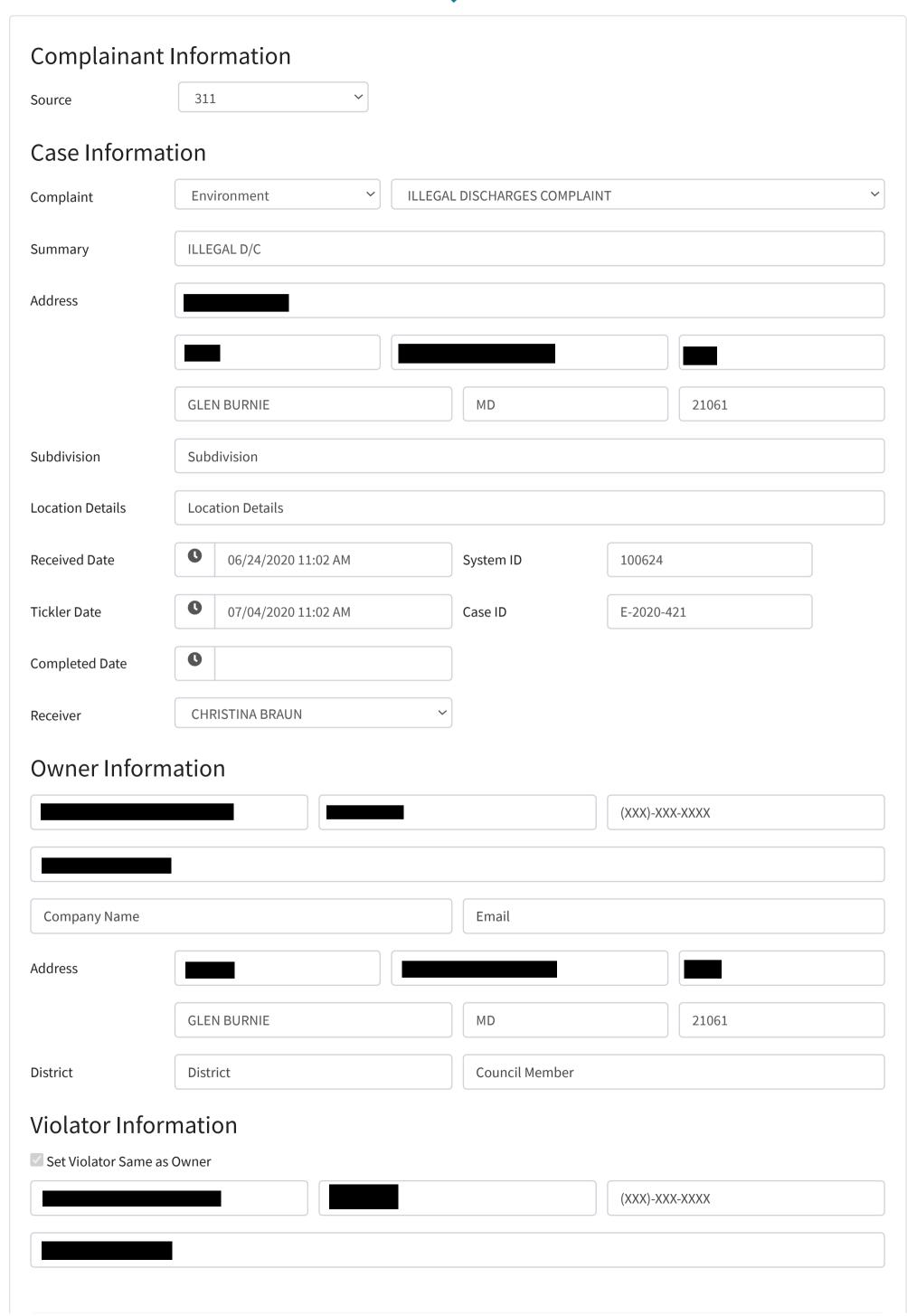
Note

Inspector went to the fire house on 6/23/2020. No washing was taking place at the time. Inspector asked a firefighter where they wash the vehicles. The vehicles are washed right outside the indoor bays where the vehicles are parked. The wash water does likely leave the site during washing. Inspector will send a correction notice to the fire headquarters to discuss options.

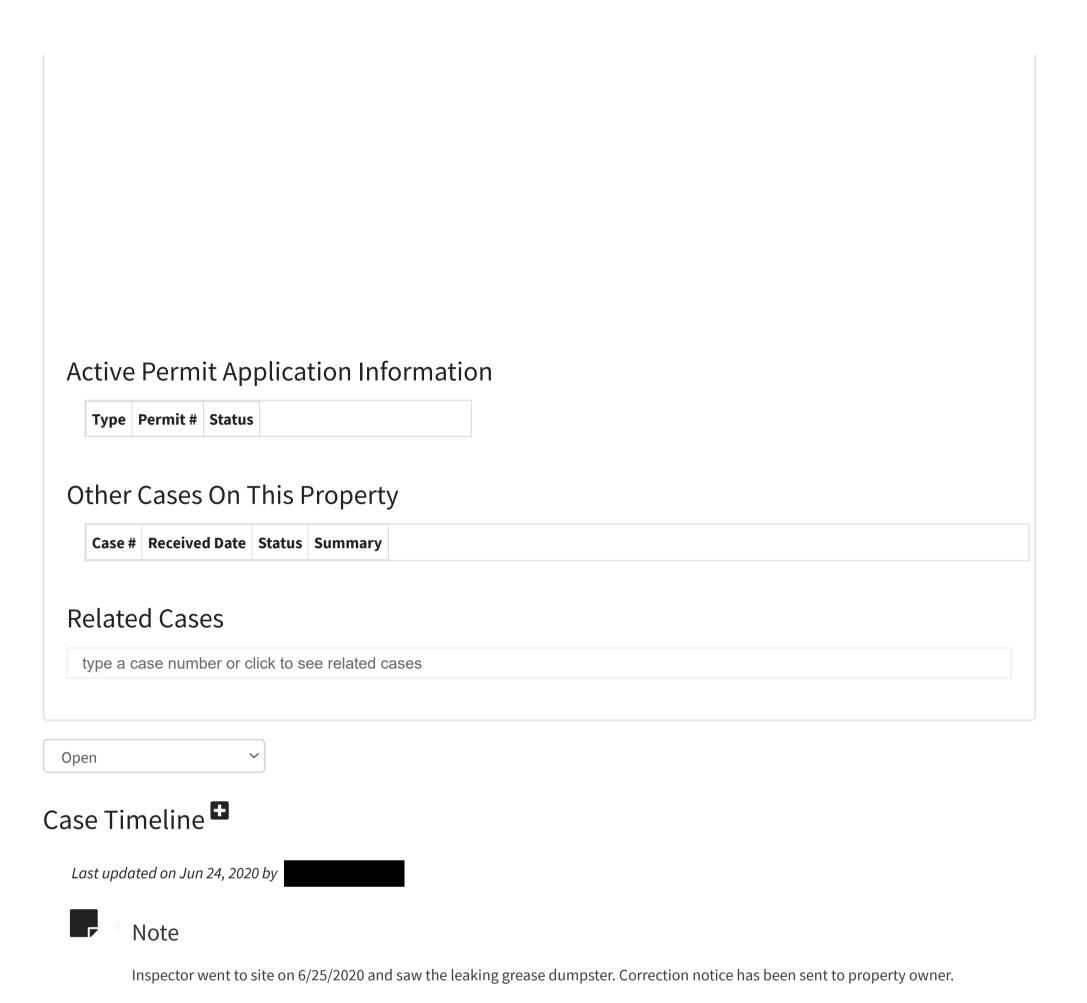
JUNE 24, 2020 by:

Created on Jun 19, 2020 by





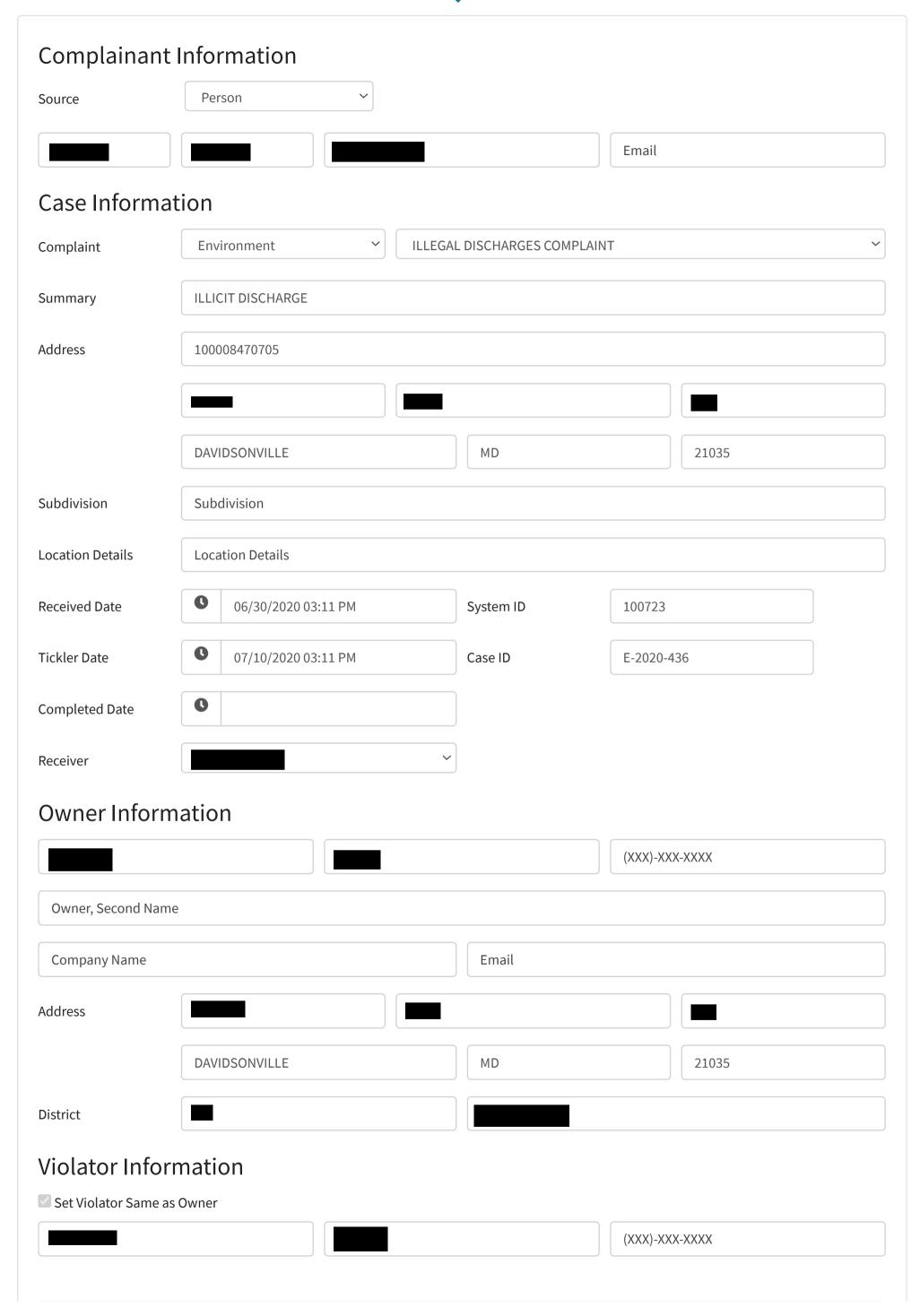
Company Name								
Address								
	GLEN	I BURNIE		MD		21061		
Assignment In	form	nation						
Date Assigned	0	06/24/2020 11:02 AM	Warning	×				
Inspector			Please, select ro	Supervisor				~
Permit Number					Waterfront	:	N	~
Original Case ID					Critical Are	ea	N	~
ADC Map					Cty. Counc	il	N	~
Case Organization								
Case Details								



JUNE 25, 2020 by:

Created on Jun 24, 2020 by







#### Active Permit Application Information

Туре	Permit #	Status
Е	2182178	Canceled
Р	2146082	Canceled

#### Other Cases On This Property



#### **Related Cases**

type a case number or click to see related cases



### Case Timeline

Last updated on Jun 30, 2020 b

Created on Jun 30, 2020 by