



# ILLICIT DISCHARGE DETECTION AND ELIMINATION PROGRAM TRAINING

ORANGE COUNTY FAIR AND EVENTS CENTER

SEPTEMBER 2016



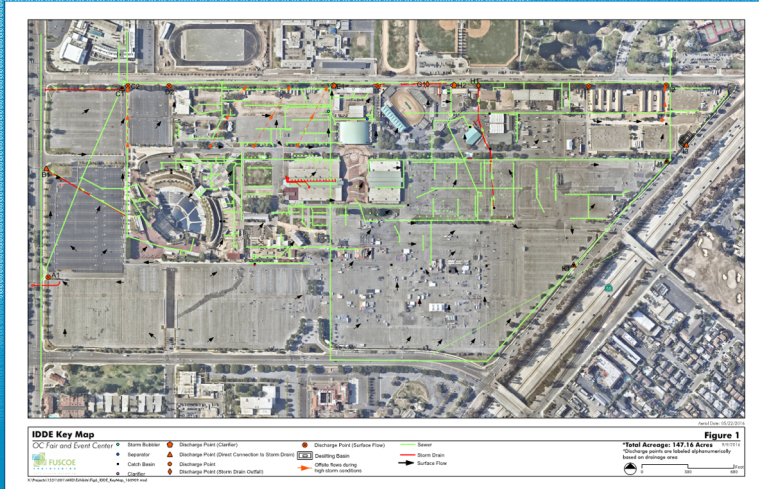
## PURPOSE

- The purpose of an IDDE program is to **find**, **fix** and **prevent** illicit discharges
- Accordance with the federal Environmental Protection Agency (EPA) Phase II storm water regulations, promulgated under the Clean Water Act (CWA) and incorporated into the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) Order No. 2013-0001-DWG, NPDES No. CAS000004.



## KNOW YOUR STORM DRAIN/SEWER SYSTEM

- Trace illicit discharges to the source.
- Used as a predictive tool to intercept illicit discharges.



## DEFINITION

- Illicit discharges are defined as a **storm drain that has measurable flow during dry weather containing pollutants and/or pathogens.**
- Each illicit discharge has a unique frequency, composition and mode of entry in the storm drain system.
- Illicit discharges are frequently caused when the **sewage disposal system interacts with the storm drain system.**
- Illicit discharges of other pollutants are produced from specific source areas and operations known as **“generating sites.”**





## EXAMPLES

- Sewage flows are produced from sewer pipes and septic systems.
- Washwater flows are generated from a wide variety of activities and operations. Potential applicable examples at the OCFEC include discharges of **carwash wastewater, amphitheater washing, fleet washing, horse wash water, and floor washing.**
- Liquid wastes refers to a wide variety of flows, such as **oil, paint, and process water** (radiator flushing water, plating bath wastewater, etc.) that enter the storm drain system.
- Tap water flows are derived from leaks and losses that occur during the distribution of drinking water in the water supply system.
- **Landscape irrigation flows** occur when excess potable water used for irrigation ends up in the storm drain system.
- Groundwater and spring water flows occur when the local water table rises above the bottom elevation of the storm drain (known as the invert) and enters the storm drain either through cracks and joints, or where open channels or pipes associated with the MS4 may intercept seeps and springs.



Oil



Paint



Irrigation water



Fleet Washing



Pressure Washing Surfaces





# PROCEDURE FOR DETECTION, CONTAINMENT AND CLEAN UP AND REPORTING OF ILLICIT DISCHARGES

- Step 1: Complete Incident Checklist
- Step 2: Investigating the Discharge
- Step 3: Containment and Cleanup of Discharge
- Step 4: Reporting of Illicit Discharge



# STEP 1: COMPLETE INCIDENT CHECKLIST

- Pollution Notification / Investigation Checklist

**POLLUTION NOTIFICATION / INVESTIGATION CHECKLIST**

**STAFF MEMBER REPORTING**

Name/Phone #: \_\_\_\_\_

Title/Position: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Department: \_\_\_\_\_ Division: \_\_\_\_\_

**LOCATION**

Affected area: \_\_\_\_\_

Street, storm drain, food channel, etc.: \_\_\_\_\_

Channel/facility name: \_\_\_\_\_

Distance from landmark/cross street(s): \_\_\_\_\_

GPS: BE \_\_\_\_\_ long \_\_\_\_\_

**INCIDENT ORIGIN IDENTIFIED?**

Please circle: YES, NO

**IF YES, describe the origin/source and site down to RESPONSIBLE PARTY below:**

\_\_\_\_\_

Note: If the discharge must eventually be RECORDED, DO NOT attempt to clean it up. Please follow the CDFM Containment and/or Remedial Response Guidelines Program: <http://www.ocwater.com/containinguidelines/> For PCB/PCB-USE notifications, call 1-800-852-7650 and get in touch immediately for containment and cleanup.

If the discharge is from the sewer system, please call the following entities:

Sevier Right Reporting / Measurement / Control Unit	714/433-5510
Orange County Stormwater Program	714/433-5510
Orange County Health Care Agency Environmental Health	714/433-5510
Santa Ana Regional Water Quality Control Board	951/782-4130
California Office of Emergency Services	361/261-7400

IF NO, proceed to INCIDENT DETAILS on next page.

**INCIDENT DETAILS**

Incident: \_\_\_\_\_

INDICATOR	CHECK IF PRESENT	DESCRIPTION (circle)	COMMENTS
Color		<ul style="list-style-type: none"> <li>Sewage</li> <li>Raincloud</li> <li>Black</li> <li>Grey</li> <li>Yellow</li> </ul>	<ul style="list-style-type: none"> <li>White</li> <li>Other</li> </ul>
Color		<ul style="list-style-type: none"> <li>Clear</li> <li>Blue</li> <li>Orange</li> <li>Red</li> </ul>	<ul style="list-style-type: none"> <li>Green</li> <li>Black</li> </ul>
Possible cause (circle one)		<ul style="list-style-type: none"> <li>Normal (not event)</li> <li>Petroleum (oil sheen)</li> <li>Soap</li> <li>Other</li> </ul>	
Outfall Damage		<ul style="list-style-type: none"> <li>Spilling, leaking or chipping</li> <li>Peeling paint</li> <li>Corrosion</li> <li>Other</li> </ul>	
Debris/items		<ul style="list-style-type: none"> <li>Clay</li> <li>Flare line</li> <li>Paper</li> <li>Other</li> </ul>	
Abnormal Condition		<ul style="list-style-type: none"> <li>Excessive</li> <li>Unusual</li> </ul>	

In the rare occasion that the origin/source of discharge is still unknown, a sample of the discharge must be taken. Please contact OC Environmental Resources for assistance.

**RESPONSIBLE PARTY**

Responsible Party: \_\_\_\_\_ phone: ( ) \_\_\_\_\_

Contact: \_\_\_\_\_ phone: ( ) \_\_\_\_\_

Address: \_\_\_\_\_ city: \_\_\_\_\_ state: \_\_\_\_\_ zip: \_\_\_\_\_

**CONTAINMENT AND CLEANUP**

Containment and cleanup lead by: \_\_\_\_\_ date: / / time: \_\_\_\_\_

Material/Waste involved: \_\_\_\_\_ Estimated volume/quantity: \_\_\_\_\_

Containment (Was a storm drain covered)? \_\_\_\_\_

Cleanup (Please describe cleanup process below): \_\_\_\_\_



## STEP 2: INVESTIGATING THE DISCHARGE

*Must determine the origin of the discharge*

GENERATING SITE	ACTIVITY GENERATING THE DISCHARGE
Vehicle Operations (maintenance, repair, fueling, washing, storage)	<ul style="list-style-type: none"> <li>• Improper disposal of fluids down shop and storm drains</li> <li>• Spilled fuel, leaks and drops from wrecked vehicles</li> <li>• Hosing of outdoor work areas</li> <li>• Wash water from cleaning</li> <li>• Spills</li> </ul>
Outdoor Materials (loading/unloading, outdoor storage)	<ul style="list-style-type: none"> <li>• Liquid spills at loading areas</li> <li>• Hosing/washing of loading areas into shop or storm drain</li> <li>• Leaks and spills of liquids stored outside</li> </ul>
Waste Management (spill prevention and response, dumpster management)	<ul style="list-style-type: none"> <li>• Spills and leaks of liquids</li> <li>• Dumping into storm drains</li> <li>• Leaking dumpsters</li> </ul>
Physical Plant Maintenance (building repair, remodeling and maintenance, parking lot maintenance)	<ul style="list-style-type: none"> <li>• Discharges from power washing and steam cleaning</li> <li>• Rinse water and wash water discharges during cleanup</li> <li>• Runoff from degreasing and re-surfacing</li> </ul>
Turf and Landscaping (turf management, landscaping/grounds care)	<ul style="list-style-type: none"> <li>• Non-target irrigation</li> <li>• Improper rinsing of fertilizer/pesticide applicators</li> </ul>
Unique Hotspot Operations (food areas, amphitheater, maintenance yards)	<ul style="list-style-type: none"> <li>• Dumping of sewage and grease</li> <li>• Pressure washing discharge</li> </ul>



## STEP 2: INVESTIGATING THE DISCHARGE

*Known origins of potential illicit discharges at the OCFC*



**PACIFIC AMPHITHEATER PRESSURE WASHING**  
Water drains here and gets pumped to Storm Drain



**MALL AND GROUND PRESSURE WASHING**  
Water bubbles out here, goes to gutter, flows off-site into storm drain

## STEP 2: INVESTIGATING THE DISCHARGE

*Field examples of illicit discharges*




Clean water from distribution truck being accidentally leaked

Clean water becoming dirty flowing down gutter (sediment, horse manure)

Dirty water becoming illicit discharge

## STEP 2: INVESTIGATING THE DISCHARGE

*Field examples of illicit discharges*





## STEP 2: INVESTIGATING THE DISCHARGE

*If you cannot determine origin of discharge, you must contact OC Public Works, Environmental Monitoring Division so they can sample the discharge*

Parameter	Indicator Parameters Used to Detect Illicit Discharges				Discharge Types It Can Detect	Laboratory/Analytical Challenges
	Sewage	Washwater	Tap Water	Industrial or Commercial Liquid Wastes		
Ammonia	●	⊙	○	⊙		Can change into other nitrogen forms as the flow travels to the outfall
Color	⊙	⊙	○	⊙		
Conductivity	⊙	⊙	○	⊙		Ineffective in saline waters
Detergents – Surfactants	●	●	○	⊙		Reagent is a hazardous waste
Fluoride*	○	○	●	⊙		Reagent is a hazardous waste Exception for communities that do not fluoridate their tap water
Hardness	⊙	⊙	⊙	⊙		
pH	○	⊙	○	⊙		
Potassium	⊙	○	○	●		May need to use two separate analytical techniques, depending on the concentration
Turbidity	⊙	⊙	○	⊙		

● Can almost always (>80% of samples) distinguish this discharge from clean flow types (e.g., tap water or natural water). For tap water, can distinguish from natural water.  
 ⊙ Can sometimes (>50% of samples) distinguish this discharge from clean flow types depending on regional characteristics, or can be helpful in combination with another parameter  
 ○ Poor indicator. Cannot reliably detect illicit discharges, or cannot detect tap water  
 N/A. Data are not available to assess the utility of this parameter for this purpose.  
 Data sources: Pitt (this study)  
 \*Fluoride is a poor indicator when used as a single parameter, but when combined with additional parameters (such as detergents, ammonia and potassium), it can almost always distinguish between sewage and wash water.



## STEP 3: CONTAINMENT AND CLEANUP OF DISCHARGE



**Non-hazardous**  
OCFEC Internal Oil Spill Clean Up



**Hazardous**  
OC CUPA Cleanup  
HAZMAT SPILL NOTIFICATIONS CALL 1-800-852-7550  
<http://occupainfo.com/programs/calarp>



## STEP 3: CONTAINMENT AND CLEANUP OF DISCHARGE


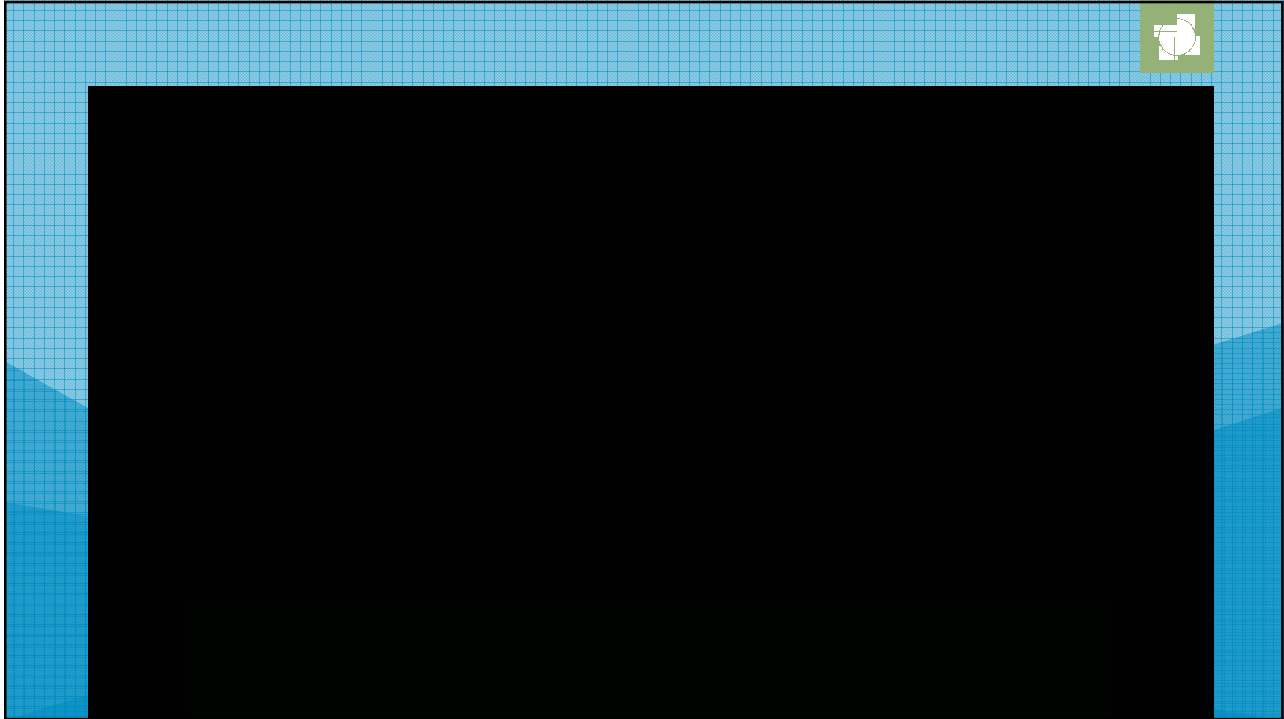
- **Block or cover the storm drain.**
- **Dike, berm or dam** — Construct by shoveling dirt or sand to prevent liquid materials from flowing. For larger area or high pollutant flows, the use of heavy equipment may be necessary in order to move dirt or sand for the construction of a larger dam or berm.
- **Underflow Dam** — for spills that involve pollutants that float on water such as oil, an underflow dam may be constructed by inserting a pipe underneath the dam at an incline. This will allow the water to flow from underneath the surface, but contain the pollutants.
- **Containment booms** — for spills involving petroleum products, there are commercially available floating devices that contain and prevent the dispersion of petroleum products in water. A number of these devices can be connected together to extend the width of a channel or encircle a large surface area to contain the material.
- **Diversion** — in select circumstances, the pollutants may be diverted to a basin or sump for subsequent removal. However, this should only be undertaken with the permission of the jurisdiction or ownership of the basin or sump.



## STEP 3: CONTAINMENT AND CLEANUP OF DISCHARGE

- **Pumping operations** - When a large volume of water needs to be removed, the most appropriate action may be removal with a vacuum, pump, or Vactor truck.
- **Absorbent booms and pads** - Absorbents can be placed directly on the liquid, picked up, and transported offsite for disposal. Many absorbents are designed for a specific spill substance, such as acids, bases, oils, or solvents. Acid and base absorbents usually have neutralizing capabilities. The oil and solvent absorbents can also be hydrophobic allowing their use for spills into waterways. Many of these absorbents are manufactured in the form of long tubes called booms so they can be placed across streambeds or used as containment dikes.
- **Granular absorbent** - Examples of absorbents include sand, dirt, sawdust, clay particles, and vermiculite. Absorbents are generally used for small volumes of liquid releases. Absorbents are dispersed onto liquid pollutants, allowing the pollutant to be absorbed by the absorbent, then the mixture can be swept and picked up for disposal.
- **Steam cleaning/power washing** - After removing pollutants from the impacted area, the remaining residue may be removed by steam cleaning or pressure washing, with the waste material contained and disposed of properly.
- **Soil removal** - If soil has been impacted in an area, it can be removed for proper treatment or disposal.





.....> **STEP 4: REPORTING OF ILLICIT DISCHARGE**

**Internal Checklist + Photos**

- File with Jerry Eldridge, Director of Facilities

**Storm Drain Discharge Notifications**

- Santa Ana Regional Board – (951)782-4130

**Sewage Discharge Notifications**

- Orange County Health Care Agency (HCA) – (714)433-6419
- State Office of Emergency Services (OES) – (800)852-7550
- Santa Ana Regional Board – (951)782-4130
- Orange County Stormwater Program – (877)897-7455



## ENFORCEMENT AND PREVENTION

- For various illicit discharges, the table below summarizes the general action items for enforcement and prevention

Type of Discharge	Source	Removal Action(s)
Sewage	Break in sewer line	Repair by sewer agency
	Illicit direct connection to storm drain	Enforcement; Removal
	Infrequent discharge (e.g., RV dumping)	Enforcement; Spill response
Wash Water	Vehicle and Equipment Wash	Enforcement; Education
	Horse Wash Water	Enforcement; Education
Liquid wastes	Oil change/vehicle maintenance	Enforcement; Spill response
	Heating oil/solvent dumping	Enforcement; Spill response
	Spill	Spill Response
	Other industrial wastes	Enforcement; Spill response



### EDUCATION

Stenciling Competition  
 Promote ongoing education with vendors