

10.0 ILLEGAL DISCHARGES/ILLICIT CONNECTIONS

10.1 Introduction

Since illegal discharges and illicit connections can be a significant source of pollutants from the municipal storm drain system, the DAMP includes a comprehensive program for detecting, responding to, investigating and eliminating these types of discharges/connections in an efficient and timely manner. In order to ensure that the program is efficient and effective, the Permittees have instituted regular documentation procedures for their water pollution complaint and spill response activities.

During the Second Term Permit period, the data collected through the implementation of this program has allowed the Permittees to more efficiently track key pieces of information such as the types of materials and responsible parties that are involved in the various incidents. This information has then been utilized within other areas of the stormwater program such as the public education program component so that educational materials could be more strategically focused toward a particular target audience or type of material such as paint or pool water. By using this integrated approach, the Permittees are better able to prevent the pollution that may be caused by an illegal discharge or illicit connection instead of responding to a problem after it has occurred.

With the adoption of the Third Term Permits, the Permittees were required to begin to re-evaluate and revise the existing ID/IC program. The objectives of the Illegal Discharges/Illicit Connections stormwater program component is to provide the Permittees with:

- A program framework for effectively prohibiting and responding to the discharge of non-stormwater into the municipal stormdrain system;
- An iterative process by which they can detect, respond to and eliminate illegal discharges or illegal connections in a timely and efficient manner; and
- Methodologies to meet the NPDES permit requirements.

To assist the Permittees with the implementation of this program component within their jurisdiction, a Model Local Implementation Plan (LIP) was developed (**Appendix A-10**)

The Model Program is intended to be implemented as described in Section A-10 of each Permittee's Local Implementation Plan. In developing its Local Implementation Plan, the Permittee may modify the Model Program in response to local conditions. It is not the intent for this Model Program to restrict city or county governing bodies from imposing additional stormwater management requirements to control illegal discharges/illicit connections.

10.1.1 Regulatory Requirements

The federal regulations require that municipal stormwater programs include a component to detect and effectively eliminate illegal discharges/illicit connections into the municipal storm drain systems. The Third Term Permits similarly specify that the Permittees continue to implement the existing ID/IC program and modify it as necessary in order to reduce the pollutants in stormwater discharges.

The ID/IC program component was developed in order to fulfill the municipal commitments and requirements of:

- Sections III 1 and VII 1&2 of the Santa Ana Regional Water Quality Control Board Municipal NPDES Stormwater permit, Order No. R8-2002-0010; and
- Sections B.1 and F.5¹, of the San Diego Regional Water Quality Control Board Municipal NPDES Stormwater permit, Order No. R9-2002-0001.

10.1.2 Program Development and History

The First and Second Term Permits required a facility inspection and documentation program to identify illegal discharges and illicit connections (ID/IC) to the storm drain systems and required the Permittees to certify the completion of the reconnaissance of the storm drain system by February 28, 1997. The Reconnaissance Survey Report of February, 1997 reported finding two illicit connections countywide and inspection of drainage facilities is now conducted as part of the Municipal Activities Program (DAMP Section A-5).

The permits also included a specific provision requiring each Permittee to have adequate legal authority to control the discharge of pollutants from certain sources into the municipal storm drain system. In 1997, the Permittees developed the Water Quality Ordinance (Ordinance). By the end of 1997, the cities had adopted similar ordinances based on the Model Ordinance.

Subsequent to the adoption of the Ordinance, the Enforcement Consistency Guide (ECG) (DAMP Section 4.0 **Exhibit 4.I**) was developed as the Ordinance's companion to provide step-by-step guidance to Permittees and other City and County personnel responsible for implementing the Ordinance enforcement element of the program. The ECG assists stormwater staff in identifying, documenting, and responding to violations of the Ordinance and selecting appropriate enforcement actions and provides a consistent approach to water quality ordinance enforcement throughout Orange County.

¹ Order WDR 2002-0014 grants a stay for provision F.5.f and part of Finding 26 of Order No. R9-2002-0001 issued by the San Diego Regional Water Quality Control Board for discharges of urban runoff from the municipal storm drain system draining the watersheds of the County of Orange, the Incorporated Cities of Orange County.

10.2 Illegal Discharges/Illicit Connections Program

With the adoption of the Third Term Permits, the Permittees were required to begin to re-evaluate and revise the ID/IC Program. The re-evaluation and revision has been completed and the revised program, which was developed as a companion document to the Model Water Quality Ordinance and Enforcement Consistency Guide is presented below.

The use of the program as presented promotes countywide consistency among the Permittees, which provides for uniform receiving water quality protections and program effectiveness assessments. This section is also structured to assist the Permittees with the development of their corresponding local implementation plan (**Appendix A-10**).

The ID/IC Program provides practical guidance for Permittees when identifying, responding to and mitigating the effects of illicit discharges and enforcing the ID/IC Program component for the protection of public health and the environment. The ID/IC Program provides the framework and a process for conducting the following NPDES permit compliance activities for illegal discharges and illicit connections:

- Program administration
- Detection of illegal discharges and illicit connections
- Responding to water pollution incidents and complaints
- Inspections/investigations
- Education/Enforcement
- Assessments of program effectiveness; and
- Annual training

In order to be effective, the ID/IC program has been integrated with the municipal, industrial, commercial, residential and construction inspection programs so that if an illegal discharge or illicit connection is discovered during an inspection it can be properly addressed and eliminated. In addition, on behalf of the Permittees, the Principal Permittee implements the water quality monitoring programs which can also assist in identifying illegal discharges and illicit connections.

For the purposes of this program, the following definitions are provided:

Illegal discharge - any discharge to a municipal separate storm sewer that is not composed entirely of stormwater and that is not covered by a National Pollutant Discharge Elimination System (NPDES) permit. An illegal discharge or “prohibited discharge” refers to the disposal of non-stormwater materials such as paint or waste oil into the storm drain or the discharge of waste streams containing pollutants to the storm drain.

Illicit connection - an undocumented and/or unpermitted physical connection from a facility to the storm drain system.

The Illegal Discharges/Illicit Connections response procedures are based upon a three-tiered philosophy for reducing the potential impacts on water quality. The three tiers are Pollution Prevention, Source Control, and Treatment, as shown below in **Figure 10.1**.

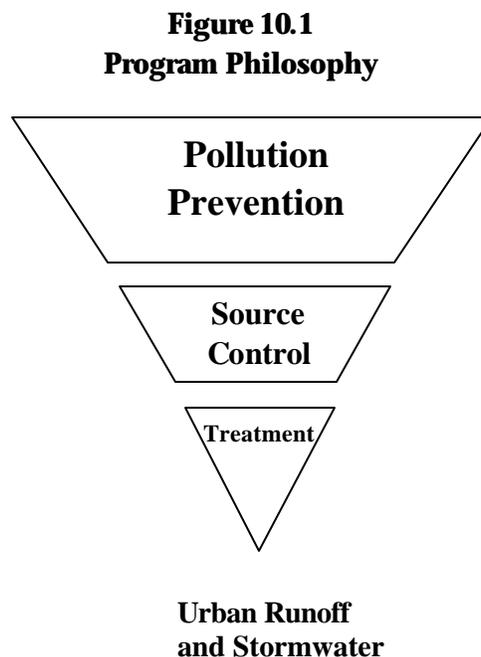
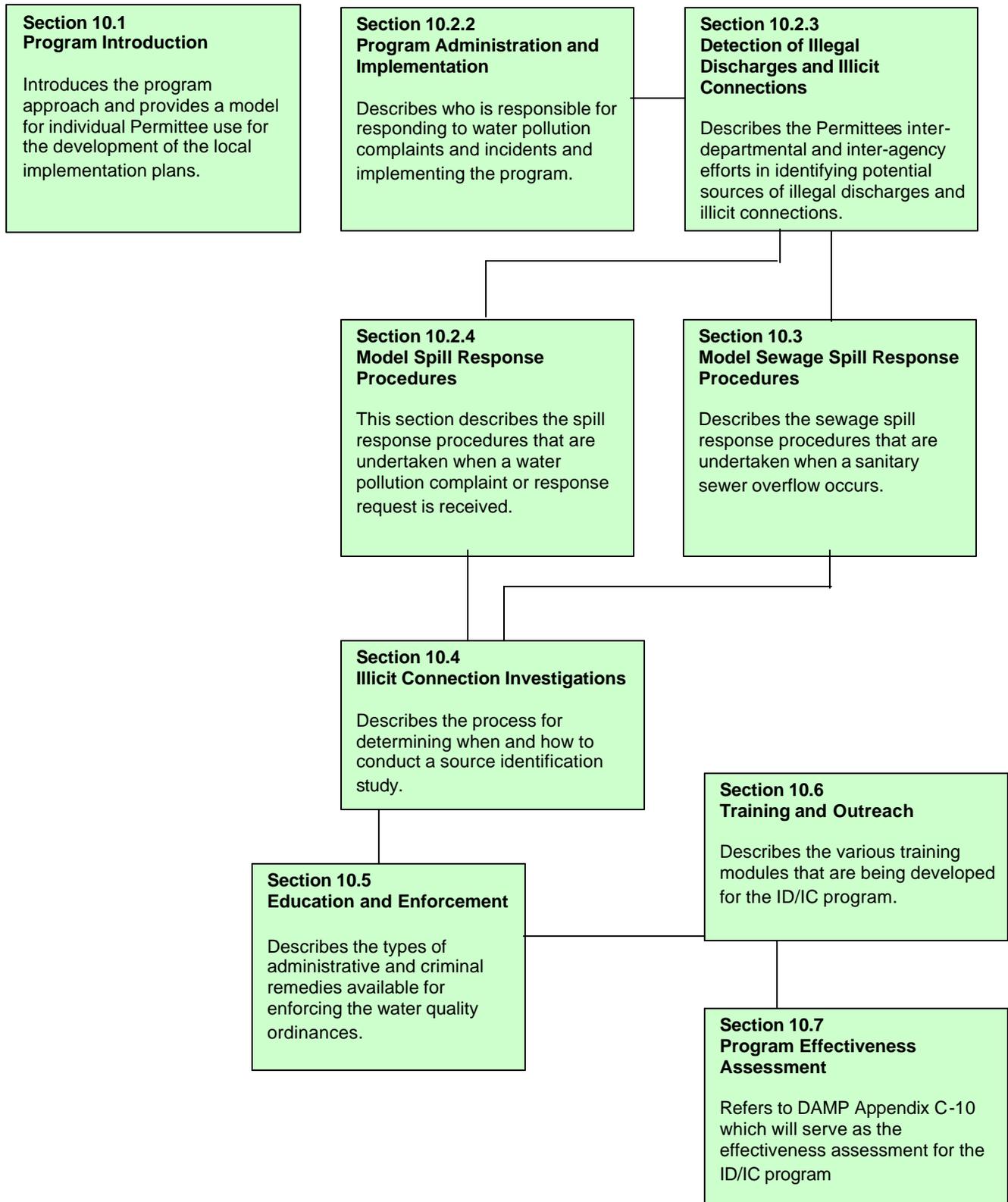


Figure 10.2 represents the flow of the program with a brief description of each section. Information from one section supports subsequent sections. The flow of the program eliminates duplication and improves the efficiency of the overall program efforts. Arrows represent the flow of information from each section.

Figure 10.2
Model Program Flow



10.2.1 Illegal Discharges and Dumping

The ID/IC Program provides guidance to the Permittees on how to detect, respond to, and investigate water pollution problems caused by various pollutant sources. Below are detailed descriptions of pollutant sources that may be the result of illegal discharges, including sewage spills and illicit connections.

An illegal discharge is any intentional discharge to the municipal separate storm sewer that is not composed entirely of stormwater and that is not covered by a NPDES permit. An illegal discharge refers to the disposal of non-stormwater materials such as paint or waste oil into the storm drain or the discharge of waste streams containing pollutants to the storm drain.

The Model Ordinance defines the term “prohibited discharges” as any discharge from public or private property containing any pollutant to: the stormwater drainage system, any upstream flow which is tributary to the stormwater drainage system, groundwater, river, stream, creek, wash, dry weather arroyo, wetlands, marsh, coastal slough/bay/harbor, or Pacific Ocean.

Prohibited discharges typically are generated from poorly managed on-site operations, illegal dumping and/or contaminated stormwater discharges.

Various site operations may produce prohibited discharges including the releases of:

- Process waters such as boiler blow down, rinse waters, chlorinated pool discharges
- Waste materials such as manufactured floatable materials, animal wastes from kennels or riding stables, vehicle fluids (oils, coolants, etc.)
- Sand/gravel, cement, fertilizers, pesticides from raw materials unloading and storage areas

Practical examples of problematic site operations may include:

- Pressurized washing and steam cleaning areas
- Auto repair shops where operations occur out of doors in unprotected areas and no provision is made for preventing contamination from leaving the site
- A non-retail fueling area where vehicle washing also occurs and runoff flows to storm drain areas
- Manufacturing storage yard for concrete materials where materials are uncovered and wash off flows directly to storm drain
- Construction location where debris, materials, and silt flows off the construction site
- Trauma scene clean up

Illegal activities include intentional dumping of:

- Household wastes such as home, garden or yard debris; trash or rubbish; household hazardous wastes
- Commercial wastes such as landscape debris or soil; trash or rubbish; hazardous wastes in drums or canisters
- Animal or agricultural wastes such as manure, stock wastes, fruit and vegetable materials and animal carcasses

Practical examples of illegal dumping activities could include:

- Home/yard debris dumped near curb inlet to stormwater drainage system
- Trash, drums or discarded materials left on creek or wash area banks
- Used oil dumped on the ground or into storm drains
- Paint waste dumped on the ground or into storm drains

Stormwater pollution can occur as rain water is contaminated running off of impervious surfaces. Though the runoff is due to storm events, prohibited discharges can occur from the following:

- Construction or work on an exposed site where soils are being tracked onto the street and washed down the gutter in quantities that will interfere with or adversely affect the beneficial uses of the receiving waters, flora or fauna of the State
- Construction or work on an exposed site where materials, such as sand, are migrating into street gutter area either through non-concentrated exposure to water, such as sprinkler systems, or by actual contact with other runoff water in quantities that will interfere with or adversely affect the beneficial uses of the receiving waters, flora or fauna of the State
- Petroleum contaminated soils in equipment servicing areas, which are exposed to gutter area through tracking
- Uncovered areas of stockpiled construction demolition materials
- Uncovered materials storage areas for cleaning fluids where obvious ground staining has occurred
- Outside storage of unsealed paint and solvent containers
- Exposed truck loading docks with uncovered materials
- Equipment storage yards without runoff controls

Although sewage spills are a part of the overall illegal discharge category, the Permittees have begun to pay special attention to these types of spills to ensure that there is better coordination between the municipality and the sanitation districts for the appropriate containment and response activities.

A sewage spill may be the result of an accidental or irregular discharge of raw (untreated) sewage from a sanitary sewer system or from private property tributary to a public sewerage system. The definition has been expanded in recent years to include discharges of treated (partial, secondary or to Title 22 standards) wastewater as well as other human wastes (e.g., septic tank overflows, etc.).

To estimate the potential impact associated with septic systems and portable toilets on receiving water quality, the Permittees conducted two focused studies in 2003. The *Septic System Inventory and Assessment* (presented in **Appendix E4**) consisted of a GIS inventory of septic systems throughout the County and a random field survey of septic system owners within four selected major areas to evaluate existing system performance. Of the eighty field surveys that were conducted, only one failed system was noted, representing a failure rate of 1.25%. A spreadsheet model was also developed to estimate the loading of pathogen indicators and total Kjeldahl nitrogen (TKN) from the failed systems, which indicated that the load from the failed septic systems is a very marginal contributor to pathogen indicators in the receiving waters and is an insignificant contributor for TKN. Based on the analyses conducted, the study concluded that septic systems do not represent a significant source of constituents of concern for Orange County receiving waters.

As required by the Santa Ana Region Permit, the Permittees also conducted an evaluation of practices and impacts associated with the use, maintenance, and oversight of portable toilets in Orange County. Industry standard practices were identified and described, and current practices related to siting, maintenance, transport, disposal, and storage were presented in the report. Water quality impacts associated with portable toilets were assessed based on a review of reported pollution incidents and anecdotal information derived from interviews. The assessment found a small number of formal incidents over the past several years where an observed or potential direct impact to a drainage channel from a portable toilet occurred, probably through flooding or vandalism. The study found that current standard industry practices for use, maintenance, transport and storage of portable toilets within Orange County are generally sufficient to prevent impacts to receiving waters, but that these practices should be formalized and shared with suppliers and users within Orange County to ensure their consistent application. The *Portable Toilet Pollution Prevention Study* is presented in **Appendix E5**.

10.2.2 Program Administration and Implementation

Although each Permittee is responsible for responding to water pollution complaints and incidents within their jurisdiction, a number of cities chose to contract with the Orange County Flood Control District (OCFCD) to perform these services by entering into a Water Quality Ordinance (WQO) Implementation Agreement. The agreement allows the Permittees to utilize OCFCD to provide scientific, technical, and enforcement services that the Permittees may be unable to provide. The Permittees may also have other alternatives than contracting with OCFCD. Outside service providers/contractors may be used by Permittees to implement the program.

SECTION 10, ILLEGAL DISCHARGES/ILLICIT CONNECTIONS

The **Tables 10.1** and **10.2** below demonstrates the general differences in the roles and responsibilities between the Permittees that have chosen to contract with OCFCD and Permittees without the Agreement.

Table 10.1

Responsibilities of Permittee with OCFCD WQO Implementation Agreement	
Roles	Responsibilities
Reporting Hotline and Dispatch	Establish and maintain, receive complaints, and make notifications – <i>Contact OCFCD to respond when necessary</i>
Designated Authorized Inspector, NPDES Representative or	Assess and investigate non-hazardous incidents - <i>refer hazardous or after hours incidents to OCFCD</i>
Authorized Inspector or Code Enforcement	Initiate, track and report enforcement activities related to non-hazardous incidents – <i>refer hazardous or after hours incidents to OCFCD. Obtain information from OCFCD for annual report.</i>
Authorized Inspector, Public Works or Contractor	Initiate, supervise and report non-hazardous clean-up activities - <i>refer hazardous or after hours incidents to OCFCD. Obtain information from OCFCD for annual report.</i>
Authorized Inspector or NPDES Representative	Complete annual reporting requirements – <i>obtain information from OCFCD for annual report.</i>

Table 10.2

Responsibilities of Permittee without OCFCD WQO Implementation Agreement	
Roles	Responsibilities
Reporting Hotline and Dispatch	Establish and maintain, receive complaints, and make notifications
Designated Authorized Inspector, NPDES Representative or Spill Responder	Assess and investigate incidents.
Authorized Inspector or Code Enforcement	Initiate, track and report the enforcement activities
Authorized Inspector, Public Works or Contractor	Initiate, supervise and report the clean-up activities. Obtain contractor if necessary.
Authorized Inspector or NPDES Representative	Complete annual reporting requirements

In response to the Third Term Permit requirements, the Permittees re-evaluated their program implementation structure in early 2002 and established a number of new committees and task force groups to oversee and provide direction for the management and implementation of the Orange County stormwater program.

The Water Quality Ordinance Authorized Inspectors Sub-Committee was established to provide a forum for the coordination, investigation, enforcement and training aspects of the water pollution response and enforcement program. The meetings are held quarterly and provide water quality enforcement program and authorized inspector responsibilities training and serve as a forum to discuss ongoing or new issues and to profile cases or incidents.

10.2.2.1 Program Roles and Responsibilities

The key roles for the ID/IC program are presented below. For a more detailed discussion regarding the types of duties that each person may be involved the Enforcement Consistency Guide (**Exhibit 4.I**) should be referenced.

Authorized Inspector

The Model Water Quality Ordinance identified many of the duties of the Authorized Inspector (AI) as the responsibility of the City Manager [City Administrator, City Engineer, Director of Public Works, Director of Public Facilities and Resources Department], and those persons directed by them and under their instruction and supervision who are assigned to investigate compliance with, detect violations of, and take actions pursuant to the Ordinance.

The AI may be assigned to investigate compliance with and detect incidences of violations of the Ordinance and should be trained to recognize and appropriately respond to various types of incidents.

Spill Responder

The spill response personnel may be Authorized Inspectors and other City/County personnel responsible for coordinating with the local fire department for the immediate response to any accidental spill, leak or prohibited discharge of pollutants requiring immediate cleanup.

Enforcing Attorney

The Enforcing Attorney (EA) should be either the City Attorney [County Counsel] or District Attorney (DA) acting as counsel for the Permittee and their appointee. For purposes of criminal prosecution, only the DA or designee [and/or City Attorney, and Deputy District and City Attorneys as assigned] should act as the EA.

10.2.3 Detection of Illegal Discharges and Illicit Connections

The Permittees have a number of programs in place that help facilitate the detection of sources of illegal discharges and illicit connections. These programs include the following:

- Municipal Activities (DAMP Section 5) – field inspectors and facility managers assist in the identification of illegal discharges and illicit connections during their daily activities. For example, during the routine maintenance of a drainage facility, a field inspector will report any dumped materials and/or undocumented connections to the NPDES representative.
- Public Education (DAMP Section 6) – assists with the distribution of public education materials that provide phone numbers and encourage the reporting of spills
- Construction Activities (DAMP Section 8) - assists with the identification of illegal discharges from construction sites
- Existing Development Programs (DAMP Section 9) – assists with the identification of actual or threatened illegal discharges from industrial, commercial and residential areas
- Water Quality Monitoring Program (DAMP Section 11) – assists with the identification of problem areas through the collection of water quality data

10.2.3.1 Industrial Facility Inspection

In addition to the integrated program coordination, the Permittees also participate with other departments and agencies for industrial facility inspections. On behalf of the Permittees, the Principal Permittee coordinates with a number of public agencies who routinely conduct inspections of industrial facilities in Orange County.

These agencies and their areas of responsibility include the following:

- The Orange County Health Care Agency regulates the storage and disposal of hazardous wastes. Approximately 6,339 businesses are inspected annually to ensure proper waste management.
- The Fire Departments in Orange County regulate the storage of hazardous materials through disclosure ordinances such as OCC Sec 4-3-200-300 and Article 80 of the Fire Code. This regulation involves inspection at approximately 7,000 businesses.
- Agricultural chemicals, notably pesticides, are regulated by the Agriculture Commissioner through the State Agriculture Code (California Code of Regulations (CCR) Title 3, Sec. 6000 et seq.). The Commissioner's office performs facility inspections at about 200 facilities/year out of a total of approximately 700 facilities that use/store pesticides. The Commissioner's office also initiates enforcement action for non-compliance (NC).
- Discharges to the sanitary sewers are mostly regulated by the Orange County Sanitation District (OCSD) and the Aliso Water Management Agency/South East Regional Reclamation Authority, who routinely conduct pre-treatment facility inspections.

Routine coordination with staff of these inspection programs occurs through the Orange County Hazardous Materials Strike Force. The Strike Force is headed by the Orange County District Attorney's (DA) Office and includes representatives of a wide variety of local, regional, and state agencies.

In addition, the Principal Permittee has developed and provides Stormwater Awareness training annually for these inspectors so that they are cognizant of stormwater issues and regularly notify the Principal Permittee of situations that may present a source of water pollution.

10.2.3.2 Countywide Reconnaissance Monitoring

During the First Term Permit and part of the Second Term Permit, the Permittees conducted field screening/reconnaissance every year, which included conducting a site investigation and chemical analysis once during dry weather and once during storm events. While the primary objective of this component of the water quality monitoring program was to detect gross contamination from illegal discharges through field analyses minimal incidences were detected.

New monitoring program objectives set in the Second Term Permit prompted a reevaluation of the monitoring program starting in 1997. In May 1999, a final report outlining a new monitoring program that addressed the requirements of this permit was submitted to the Regional Boards and the program was implemented.

The reconnaissance and source identification section of the third term permit water quality monitoring program addresses the need to determine if an identified water quality problem is the result of an illegal discharge or illicit connection through a series of source identification

studies. If problems are found, they are referred to the Permittees' Authorized Inspectors or NPDES program representatives.

10.2.3.3 Water Pollution Problem Reporting

Important to the detection of illegal discharges and illicit connections are the public reporting hotlines. As the public becomes increasingly educated on urban runoff, they will serve as an important source of information for detecting illegal discharges and illicit connections.

The public reporting of water pollution problems is facilitated by the following:

- Permittee business telephone numbers in materials produced and distributed by the NPDES Stormwater Program's public education activities (brochures, posters, magnets, etc.);
- The inclusion of the countywide water pollution problem reporting telephone number in the Orange County "White Pages" telephone directories;
- The countywide 24 hour water pollution problem reporting hotline (714) 567-6363 and corresponding e-mail address in materials produced and distributed by the NPDES Stormwater Program's public education activities;
- The development and advertisement of the Principal Permittee's website (www.ocwatersheds.com). This website contains information on behalf of the Permittees such as public education information, brochures and an online reporting form for reporting water pollution complaints.

10.2.4 Model Spill Response Procedures

In addition to the proactive detection and elimination of threatened or occurring discharges, a large portion of the Permittees ID/IC program is responding to water pollution complaints and incidents.

Permittee spill response procedures have been developed and are individually described within their respective Local Implementation Plans. The general response to a spill is illustrated in **Figure 10.3**.

While spills to municipal storm drain system are important and responses are often the same, sewage spills have merited special regulatory attention as coordination with other public agencies as well as private owners is often involved; for this reason sewage spill response procedures are covered separately in Section 10.3.

Figure 10.3
Spill Response Procedures

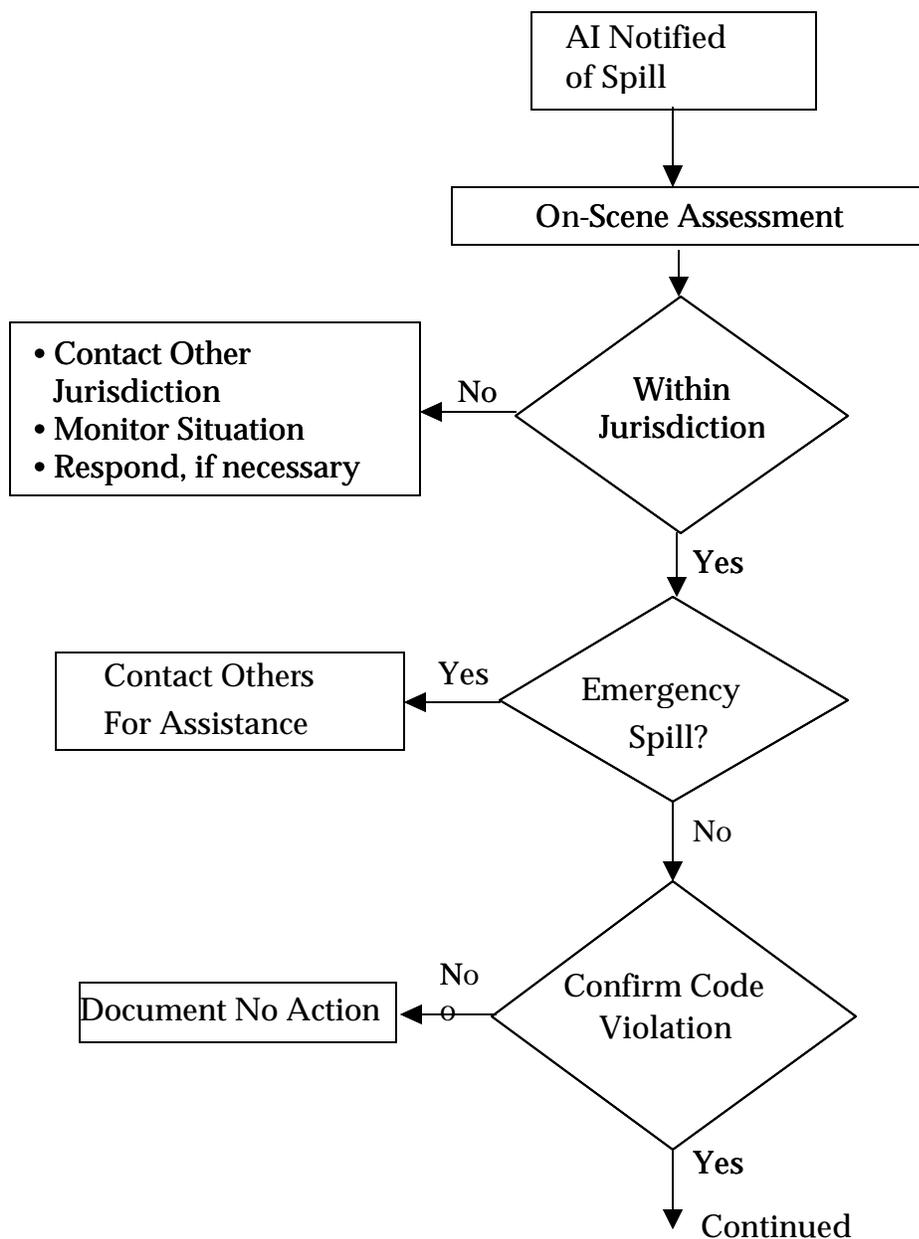
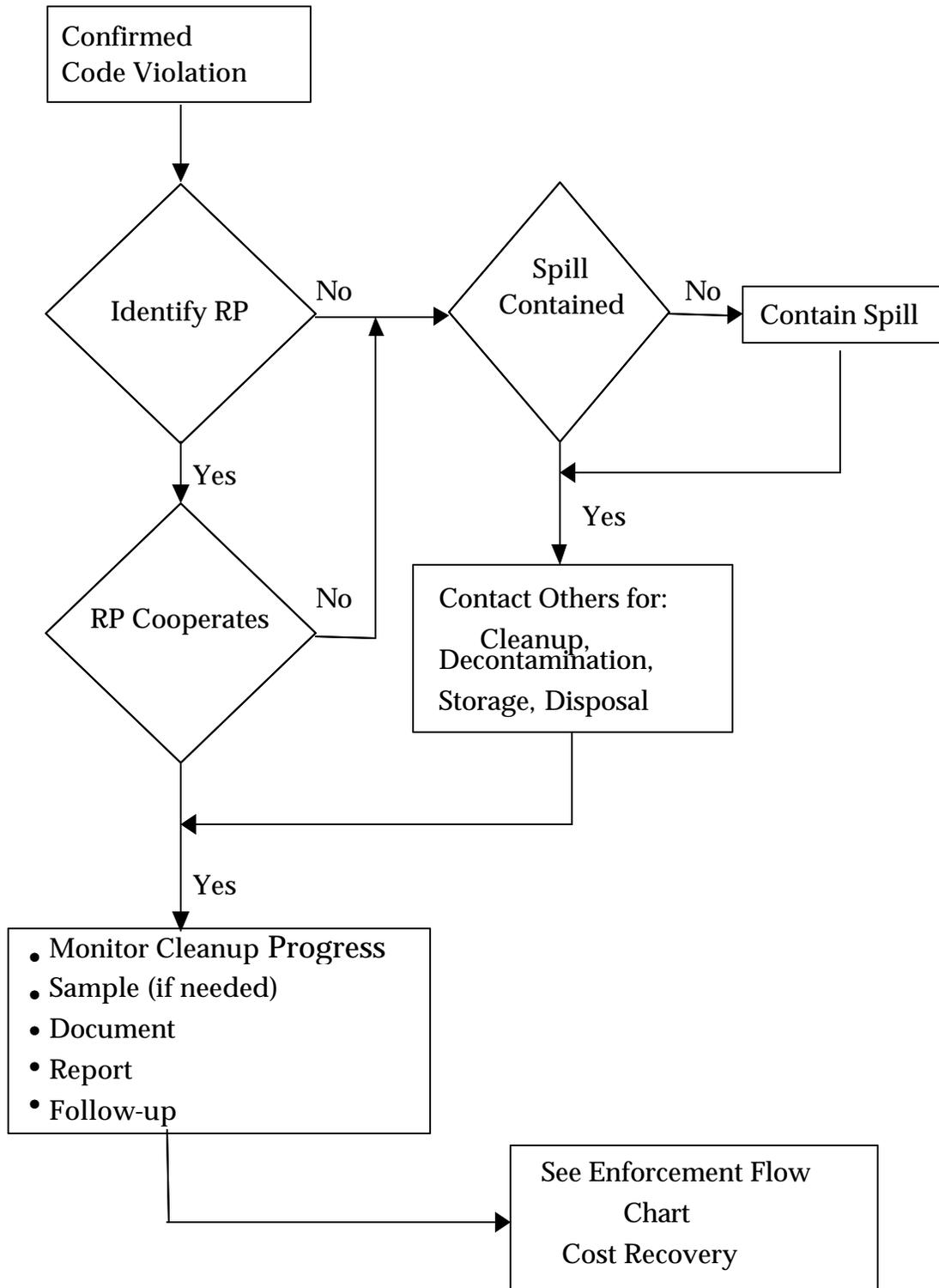


Figure 10.III
Spill Response Procedures
(cont'd)



Protocols used in responding to any type of spill are essentially the same. The primary objectives in a response to a water pollution incident or spill include:

- Protection of human health and welfare
- Preservation of surface water quality and protection of environmentally sensitive areas
- Protection of personnel that may come in contact with the spill
- Protection of storm drain infrastructure
- Protection of private and public property

The response procedures consist of the following elements:

- Record Keeping
- Notifications and Response Requests
- Response
 - On-Scene Assessment/Notifications
 - Containment
- Investigations
- Clean-Up
 - Decontamination
 - Waste Storage and Disposal
- Reporting

10.2.5 Record Keeping

Information from a complaint, notification, or response request is accurately documented throughout the entire process in order to:

- Provide accurate information for any personnel involved in the incident;
- Allow the data to be analyzed in order to determine if there are repeat offenders, problematic areas, problematic types of businesses, etc.
- Ensure that the required regulatory notification and/or reports are completed;
- Provide the required information for any enforcement actions and/or cost recovery;
- Assist with the annual reporting and program effectiveness evaluations; and
- Allow for better decision making for program improvements.

To ensure that the necessary information is collected, the Permittees use pre-established forms to collect information on the:

- Initial notification/response request;
- The location and specific details about the complaint or spill;
- Information about the alleged responsible party;
- The results of the investigation; and
- The actions that were taken as a result.

Documentation may also include photographs, the collection of samples, detailed notes on observations, witness interviews, discussions on decisions made and other information relevant to the investigation.

After the initial entry of the information on the Pollution Notification/Investigation Request (PNIR) or related form, the information is generally entered into a database so that the data can be analyzed and future enforcement activities focused on either problematic responsible parties, locations or constituents. In addition, the use of a database allows the Permittees to quickly and accurately provide the information that is necessary for the annual progress reports.

It is generally recommended that documents created or compiled during any complaint or request be retained for a minimum of five years from the date of the incident.

10.2.6 Notifications and Response Requests

In order to have a successful ID/IC program, the Permittees need to obtain information about potential or existing complaints and spills as soon as possible so that the problem can be mitigated as quickly as possible.

Notifications of water pollution complaints or spill response requests generally come from a variety of sources including:

- The general public;
- Permittee staff such as field inspectors;
- Other agency personnel such as Health Care inspectors or Regional Board staff; and
- Emergency personnel such as police and fire departments.

In order to facilitate the reporting of problems by the general public, the Permittees advertise the County's 24 hour water pollution problem reporting hotline number (714-567-6363) as well as the website reporting form (www.ocwatersheds.com) on the of the public education brochures and posters and have created a magnet for the sole purpose of advertising the number (DAMP Section 6).

The Permittees also coordinate with internal staff and other agency and emergency response personnel and hold various training sessions and meetings so that they understand how to identify a problem and who to report it to. An example of this type of inter-agency coordination is Orange County Hazardous Materials Strike Force.

10.2.7 Response

After receiving a notification of a water pollution problem or spill, Permittee staff either refers the problem to their internal Authorized Inspector and/or Spill Responder or to the County's Authorized Inspector and/or Spill Responder if they are under contract. Each complaint or spill should be investigated as soon as possible to ensure that valuable information is not lost and to minimize any potential human health and environmental impact.

During an incident response it is always important to follow general safety guidelines such as:

- Never eat, smoke, or drink at or around hazardous material incident scenes.
- Avoid exposure - Approach incidents from upwind, upstream, and upgrade, positioning vehicle/apparatus headed away from incident. Establish a command post and a staging area of the involved parties outside of the contaminated area. The area should be positioned well upwind and upgrade from the incident. Do not walk into, or touch, any hazardous materials or unknown spilled material.
- Isolate the hazard area and deny entry— Establish perimeters securing the area from vehicle or pedestrian travel. Utilize barricades and personnel to establish outer perimeter.

10.2.7.1 On-Scene Assessment

Since the information collected during the initial report may, at times, be inaccurate or erroneous, it is important to conduct an on-scene assessment to verify the complaint and gather more specific information.

If the Authorized Inspector or Spill Responder is not the first on-scene, they should first report to the person in charge or Incident Commander in order to obtain a briefing on the known information and current status of the incident.

The initial on-scene assessment should either be conducted at the same time that containment is taking place or as quickly as possible followed by a more thorough investigation so that the materials are not simply allowed to continue to travel downstream.

For the on-scene assessment, the Permittee staff should evaluate the following:

- Jurisdiction - Verify jurisdiction boundaries to be sure of appropriate responsibility and authorization for enforcement and any clean-up costs.
- Storm Drain Maps—The Authorized Inspector or Spill Responder should consult the drainage maps and determine the flow path of the discharge as well as safe access locations so that the extent of the discharge can be determined.

- Responsible Party - Locate and identify the Responsible Party (RP) and inform them that the discharge of pollutants is prohibited and that the discharge or release is a violation of the Ordinance and should cease immediately.

If the RP is not immediately available or cannot be contacted, the Ordinance provides for entry on property without consent or warrant if the discharge or release constitutes an imminent danger to public safety or the environment. If necessary to protect the public safety or the environment, an emergency abatement may proceed without prior notice to or consent from the owner or occupant thereof and without judicial warrant. However, the authorized inspector or spill responder should be able to establish that the emergency abatement is necessary to eliminate an immediate, dangerous condition.

Improper entry is actionable by civil suit, and the Permittee staff should have more than a mere suspicion that the condition is harmful. In fact, prior to doing so, the Authorized Inspector or Spill Responder should consult with local law enforcement and/or city counsel.

If doubt exists whether the condition presents a harmful situation, it may be appropriate to contact the OC Hazardous Materials Strike Force and/or the Permittee Fire Department to make the determination. In most cases, if the threat is serious, these agencies will be prepared to take emergency steps to stop the threatened harm.

If the RP cannot be located, the property owner or local jurisdiction may be responsible for reimbursement of response and clean-up costs.

- Material Identification—Identify the type and amount of pollutant. If the pollutant may be hazardous, observe any indications of pollutant reaction (fumes, smoke, bubbling, foaming etc.); be aware of any strange odors. Identify the material(s) involved by examining placards/labels, shipping papers, container markings, or other information from the facility operator or transport driver of the cargo load. After identifying the pollutant, refer to various references including Merck's Index, Sax's Properties of Industrial Materials, EPA Red Book, CHRIS Manual etc. for the pollutant's hazard and characteristics information.
- Cause of Incident—Conduct an initial assessment to try and determine why the incident occurred and whether the discharge or release was deliberate or accidental and if the incident is a repeat occurrence. After completing the containment, conduct any further investigations that may be necessary prior to commencing cleanup.
- Impacts—Determine if the discharge or release may impact or has impacted public health, the environment or wildlife. Determine the extent of the impacted area and whether the pollutant has entered the storm drain system. If the pollutant has entered the stormdrain, assess potential downstream impacts.
- Clean-Up - Conduct an initial assessment of the extent of and type of cleanup that will need to occur in order to mitigate the affected area. This initial information should be provided to the RP, if located, so that the necessary resources can be assembled.

After verifying or collecting additional on-scene information and completing the above on-scene assessments, a determination should be made on what types of resources may be needed in order to properly contain and clean up the incident.

10.2.7.2 Notifications

After conducting an on-scene assessment, several notifications may be necessary.

Notifications may include:

- Notification to Other Agencies—Notifications need to be made to any agencies or entities that may be affected by or have jurisdiction over the pollutant or discharge.
- Requesting Assistance—If it is determined that the incident requires a multi-agency response, it may be necessary to request additional assistance from the other agencies.

10.2.7.3 Large or Emergency Incident Assessment and Notification

A large incident or emergency may require a multi-agency response and involve more than one jurisdiction. To maximize effort and reduce confusion during these types of responses, the Incident Command System is utilized.

During a large incident, the Authorized Inspector(s) and/or Spill Responder(s) should:

- Upon arrival at the scene, report immediately to the Incident Commander (IC). After obtaining a briefing from the IC, perform an on-scene assessment and provide the IC with the results
- Identify the material and sample for evidence, if necessary
- Provide access to areas under the AI's jurisdiction
- Provide the IC with technical support on environmental protection measures
- Provide the IC with access to the AI's available resources

During the incident, the Authorized Inspector or Spill Responder may need to coordinate response activities with the following agencies or entities:

- Federal
 - EPA
 - Coast Guard
- State
 - Regional Boards
 - Cal Trans
 - Department of Fish & Game
- Local

- County departments including Health Care Agency, Public Facilities and Resources Department, District Attorney
- Municipalities
 - City departments – Fire, Police, Public Works and Code Enforcement

10.2.7.4 Containment

If not already completed upon arriving on scene, the discharge or release of pollutants should be discontinued and contained as close to the originating site as possible after the initial assessment has been completed. This is critical in preventing further contamination or degradation downstream and will ultimately result in an easier and less expensive cleanup effort.

The order of preference for the containment would be:

- On-site at the point of origination
- In the curb/gutter or street
- In the catch basin
- In the storm drain system
- In the channels/streams

Containment can be achieved by constructing dikes or dams or through the use of a containment booms. Typical containment measures are described below:

- Block or cover the storm drain
- Dike, berm or dam—Construct by shoveling dirt or sand to prevent liquid material 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 large 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

After containment is achieved, a formal assessment/investigation may be completed, if necessary and then clean-up of the site initiated.

10.2.8 Investigations

After the initial assessment and containment, the Inspector or Responder should determine why the incident occurred and whether the discharge or release was deliberate or accidental and if the incident is a repeat occurrence. The objective in conducting the investigation is to obtain legally defensible documentation of the incident.

Although the Enforcement Consistency Guide should be consulted for further information on inspections and the collection of defensible data, the scope of the investigation may include:

- Entering the property (by consent or warrant) to investigate the source of any discharge to any public street, gutter, storm drain or municipal storm drain system
- Carefully observing the physical conditions including
 - Odors, such as sulfide smells (similar to rotten eggs), which may indicate discharges from meat packers, dairy operations or stale wastewater dumping;
 - Color, such as green discharges, which may indicate runoff from chemical or textile facilities;
 - Turbidity, such as cloudy water, which may indicate waste runoff from automotive dealers; and
 - Floatable matter, such as oil sheen, which may indicate discharges from petroleum refineries or vehicle service facilities.
- Identifying products produced, processes conducted, chemicals used and materials stored on the property
- Identifying point(s) of discharge of pollutants, wastewater and process water systems
- Investigating the natural slope of the property, drainage patterns and man-made conveyance systems and establishing the location of the points of discharge from the property, whether by surface runoff or through a storm drain
- Requesting records relating to the chemicals or processes occurring on site, including, material or chemical inventories, facilities maps or schematics and diagrams, material safety data sheets, hazardous waste manifests, business plans, pollution prevention plans, State General Permits, stormwater pollution prevention and monitoring plans
- Inspecting, sampling and analyzing water quality or sediment samples from area runoff, soil, process discharge, materials within any waste storage area (including container contents), and/or treatment system discharge for the purpose of determining the potential for contribution of pollutants to the municipal storm drain system

The Permittee staff should carefully document the investigation to ensure that accurate information is obtained and the evidentiary requirements are met.

A thorough investigation may include one or more of the following:

- Collection of Samples;
- Photographs; and
- Interviews

After the investigation, the Inspector or Responder should prepare a detailed written report, including a description of the site, the processes thereon, the location of each sample point, the names and addresses of the potential witnesses, recorded observation of physical conditions indicating possible discharge, the findings of the investigation.

10.2.8.1 Sample Collection

In many cases, it may be necessary to collect samples for possible enforcement action. Since safety is a primary consideration in the collection of samples, the Inspector or Responder should use appropriate personal protective equipment to prevent exposure to hazardous pollutants.

The Inspector or Responder should obtain samples of suspect runoff or dry weather discharges which may contribute to a prohibited discharge. Samples for evidence should only be taken after the substance is identified and properly contained.

The procedures for the sample collection are as follows:

- Samples should be obtained, if possible, from
 - The point at which water is flowing off the property;
 - Just upstream from the point at which the water is flowing off the property;
 - Just downstream from the point at which the water is flowing off the property;
 - In any areas suspected of being impacted; and
 - From a nearby location that was not impacted (as a background sample)
- Consult with the laboratory that will analyze the samples obtained to determine if any special handling or preservation techniques are required.
- Seal the sample container with evidence tape and store the sample in a secure area until delivered to the laboratory for analysis.
- Assign a sample identification number for each sample. The sample number should be marked on the sample container, on the sample log sheet and in the Field Notebook indicating the sample number and the location where the sample was obtained.
- Photograph the sample containers and location of sampling.
- Upon request, the discharger should, if possible, be offered and/or provided with a split sample of each sample obtained.

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In order to ensure that the samples are admissible in an enforcement case, sample collection should follow the sampling protocol that includes a Chain-of-Custody form. Although the Chain of Custody's vary from lab to lab, they generally request the following information:

- Sampling Location—Identifying the exact sampling location.
- Contact Person—This individual is the person the laboratory can contact for further direction. In most cases the contact person will be the Inspector or Responder.
- Phone #—The direct line of the contact person.
- Sampled By—This individual is the person that physically collected the samples, and is responsible for the integrity of the samples until they are properly relinquished.
- Case #—Enter the case or equivalent (PNIR) identifying number
- Contract Lab—List the contract laboratory which should be a state certified analytical laboratory.
- Contract Lab Log Number—The lab personnel fill this in.
- Sample Number—Same as sample ID on label.
- Date and Time Sampled—Fill out the date and time that the sample was collected.
- No. of Containers—Enter the number of sample containers with the same sample number.
- Sample Medium—Describe the sample medium (aqueous, sediment, etc.)
- Sample Description—The sample description space is limited to 30 characters, so descriptions should not exceed this (including spaces). Depth, color, odor, or other pertinent characteristics should be noted.
- Analysis Required—Either designate a US EPA analytical method or designate particular compounds that need to be analyzed for. The contract laboratory can be consulted for assistance with this.
- Remarks—Any pertinent information the lab will require should be entered here. Examples include the designation of diesel or gasoline for the US EPA modified 8015 method; safety precautions for laboratory personnel; and to reaffirm the return of evidence sample.

The bottom half of the form is typically reserved for custody changes. Each time the custody of the samples changes (i.e., a change in responsibility for the samples), two signatures should be provided: one from the person relinquishing the sample, and one from the receiver. As a rule, the number of custody changes should be minimized.

To ensure validity of sample results, samples should be analyzed before their holding time is exceeded. Sample holding times vary for each type of analysis. Consult with the laboratory on the sample holding times.

10.2.8.2 Photographs

During the course of an investigation, it may be necessary to take photographs to record visual observations and to document evidence for possible future enforcement action.

Photograph the pertinent areas of the investigation, using standard 35-mm film for future ease in developing and enlarging. The first and last photo taken of any series of documentation or evidence should be a poster or paper indicating the date and the case name.

Document photographs with a written narrative in the photograph log sheet or Field Notebook indicating:

- Location where photograph is taken;
- Date and time of photograph; if possible, use the camera's date/time stamp option;
- Name of photographer; and
- Description of contents of the photo, including buildings, markers and items depicted in the photograph

The goal in preparation of a written narrative is to allow someone not present at the scene to match the photographer's description to the photographs. This step assists in verifying that the Inspector or Responder did, in fact, take the picture, and he/she can accurately testify as to what it shows. The written narrative should be prepared as near in time as possible to taking the photograph.

10.2.8.3 Interviews

Interviews should be conducted as soon as possible after arrival at the site to assist in determining the cause of the discharge or incident as well as the extent of the pollutants involved.

Separate interviews should be conducted with persons on the site who are responsible for facilities management or may otherwise have information relevant to the potential of the operations/facilities to contribute pollutants to the municipal storm drain system. If the investigation is criminal in nature, the interviews should be conducted by trained investigators from the District Attorneys office.

Part of the interview may involve a request for the appropriate records relating to the chemicals or processes occurring on site including: material or chemical inventories, facilities maps or schematics and diagrams, Material Safety Data Sheets, hazardous waste manifests, business plans, pollution prevention plans, State General Permits, and Stormwater Pollution Prevention and Monitoring Plans. Results of the interview should be recorded in the Field Notebook or on an interview log sheet as soon as possible.

10.2.9 Clean-up

The main objective in a clean-up operation is to restore the impacted area back to its original state (to the greatest extent possible) and prevent further environmental degradation in the surrounding area of the incident. It is important that the clean-up is completed in a timely and cost-effective manner.

During the initial site assessment, the Authorized Inspector or Spill Responder makes an assessment of the extent of cleanup that would be required so that the necessary resources could be assembled.

During the clean-up phase of the response, the Inspector or Responder is generally overseeing and directing the cleanup and should re-evaluate the resources necessary to perform the clean-up and ensure that they are being prepared and sent to the site. The general responsibilities are:

- Provide list of clean-up companies for the RP to contact;
- Oversee clean-up—Provide clean-up directions and verify pollutant removal;
- Document clean-up company's activities (proper and safe procedures) to verify appropriate clean-up charges;
- Document amount of waste or pollutant removed to verify disposal costs

Typical clean-up tasks and considerations are as follows:

- Before clean-up procedures commence, make sure that any samples for case documentation, if needed, have already been collected.
- In order to ensure that multiple agency concerns are considered during the clean-up, coordinate with other environmental or regulatory agencies for clean-up actions;
- If the RP has been located and is cooperating, discuss necessary clean-up actions. Require the RP to obtain the necessary resources to clean-up the affected area which may include contracting with a commercial clean-up company. If requested, provide RP with a list of acceptable companies in the area;
- Discuss the equipment and labor requirements to mitigate the incident with the RP, contract clean-up company and other agencies involved.

If the RP could not be located, the local agency has to obtain the necessary resources to conduct the clean-up themselves. This may include contracting with a clean-up company or obtaining assistance from the Public Works Crew if the materials involved are non-hazardous. This may include materials such as – sand, gravel, concrete, plaster and water-based paint. A clean-up conducted by the Public Works Crew can normally be achieved using absorbent material or sand to absorb liquid pollutants and/or sweeping the absorbent material and pollutant from the impacted area. The resulting waste can then be transported back to the public works yard for storage and subsequent disposal.

Typical clean-up measures for both hazardous and non-hazardous materials are listed and described below.

- 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.

10.2.9.1 Trauma Scene Cleanup

Trauma scene cleanup requires special procedures in addition to the general cleanup procedures described above. Trauma scene wastes (i.e. blood and human tissue) may be generated at various types of crime or accident scenes. These types of wastes can pose a serious human health risk to those who are responsible for overseeing and conducting the cleanup. It is important that the procedures described below be employed when feasible to protect personnel and prevent unnecessary discharge of material into the storm drain. The types of blood borne pathogens that may be encountered at a trauma scene include, but are not limited to HIV, Hepatitis B and Hepatitis C.

General Trauma Scene Cleanup Procedures

- Trauma scene cleanup operations must be performed in accordance with the Medical Waste Management Act, *California Health and Safety Code, Sections 117600 – 118360*. The

Act may be viewed on the California Department of Health Services web page at: www.dhs.ca.gov/ps/ddwem/environmental/Med_Waste/mdm_act.pdf

Fire Departments on emergency calls who clean up a scene themselves are not required to have a Biowaste Hauling Permit to remove liquid or solid trauma scene waste(s) from the scene for temporary storage or disposal. The County of Orange Medical Waste Section (Emergency Response through Control 1 after hours at (714) 628-7008) is available for consultation/assistance with trauma scene management.

- A Registered Trauma Scene Management Practitioner (RTSMP) is necessary when a scene requires decontamination and cleanup beyond the capability of Public Agency personnel on scene. RTSMP's are registered with the Department of Health Services pursuant to Section 118321 of the Medical Waste Management Act. A list of RTSMP's can be obtained from the California Department of Health Services web page at: www.dhs.ca.gov/ps/ddwem/environmental/Med_Waste/medwasteindex.practitioners.pdf
Additional information may be obtained by calling the Department of Health Services at 916-327-6904.
- Universal precautions and adequate personal protective equipment must be utilized during any clean-up operation. Additional information and guidance for cleanup policies and procedures for bodily fluids may be obtained 24 hours a day by contacting the Orange County Health Care Agency (HCA), Regulatory Health Services. Business hours call (714) 667-3600, after hours, call Control One at (714) 628-7008.
- Implement appropriate BMPs and protect the stormdrain system to the maximum extent practicable when conducting cleanup of trauma scene. Notifications regarding significant potential impacts to the stormdrain system and additional information and guidance on BMPs to be implemented may be obtained 24 hours a day by contacting the County of Orange Public Facilities and Resources Department at (714) 567-6363 or through Control One at (714) 628-7008.

Cleanup of Trauma Scene Wastes on Public Property

Public Agency personnel shall observe the following points:

- Cleanup of trauma scene waste(s) on public property must be performed by properly trained (OSHA - blood borne pathogen trained) Public Agency personnel (police, fire or safety personnel), or by a Registered Trauma Scene Management Practitioner (RTSMP) called to the scene by the incident commander.
- Before proceeding with site cleanup, Public Agency personnel must possess proper personal protective equipment, adequate supplies of bleach and sufficient water to properly complete the cleanup operation.
- Wear gloves when washing or handling contaminated equipment, clothing or other materials. Wear other personal protective gear as necessary according to the potential for splashing.

- The Coroner's Office should remove any human tissue or body parts at the scene of a fatality. Coroner's Office personnel should follow their own departmental policies and procedures for removing any human tissue found on scene. The Coroner will not respond to a non-fatal incident for the purpose of human tissue removal.
- Human tissue, body parts, or blood/body fluids in a solid state can not be allowed to enter a storm drain. Appropriate BMPs should be implemented to prevent tissue from entering or being washed into the storm drain system; tissue found in the stormdrain system should be removed to the maximum extent practicable.
- Dispose of sharps waste in a rigid sharps container. Dispose of the sealed container in an appropriate manner in compliance with the Medical Waste Management Act.
- The Orange County Health Care Agency (HCA), Regulatory Health Services may be contacted if needed for consultation/assistance in trauma scene management or questions regarding legal disposition of medical waste.
- For incidents on freeways, discuss with CHP the potential use of CALTRANS for cleanup of trauma scene waste.
- When a Registered Trauma Scene Management Practitioner (RTSMP) is called to a scene, each agency or jurisdiction shall have a policy in place that establishes which department (fire, law enforcement, public works, etc.) is responsible for staying on scene until the RTSMP arrives on scene. In no case shall the scene be abandoned prior to the arrival of the RTSMP.

Specific Cleanup Procedure for Small Spills:

Public Agency personnel may decontaminate and then wash down small amounts of human blood/body fluids that are still in a liquid state. A "small" spill shall be defined as a spill that can be thoroughly and completely disinfected with one gallon of 10% chlorine disinfectant. This determination should be made with the understanding that multiple applications may be necessary to accomplish full disinfection.

When it is determined that the incident may be designated as small the following procedures shall apply:

- Apparatus shall carry a Hudson sprayer, maximum capacity 1 gallon. The sprayer shall be filled to 90% capacity with clean tap water.
- In a separate container, apparatus shall carry liquid household chlorine bleach and the ability to measure ¼ cup quantities of it.
- When decontamination of a liquid trauma scene waste becomes necessary, personnel shall add a minimum of ¼ cup of the liquid bleach to the water in the Hudson sprayer. This will create a 10% solution.
 - o If an agency chooses to premix a 10:1 water to chlorine solution, they must replace it with fresh solution daily.

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- o In lieu of using a 10% chlorine solution for decontamination, a Public Agency may follow a pre-described sanitization protocol outlined by OSHA (29 CFR 1910.1030) or other professionally recognized state or federal documents
- Personnel shall wear PPE's to protect skin, mucus membranes, lungs and clothing from chlorine or trauma scene waste during the mixing and cleanup process.
- Personnel shall apply disinfectant to the liquid biowaste (they may see foam develop) and let it sit for a minimum of 10 minutes.
- After 10 minutes, personnel shall wash down the area using a fire hose, pressurized water extinguisher, etc.
- In non-emergency situations, and circumstances permit personnel should:
 - o Attempt to move trash, or miscellaneous debris from the path of the runoff so no additional or unnecessary material is carried into the storm drain.
 - o If the incident location provides personnel with a choice between directing the runoff down a storm drain, or a sewer, always use the sewer.
 - o Porous surfaces such as asphalt may require multiple repetitions of the procedure to completely disinfect and thoroughly clean the area. Unless the repeat decontamination and wash down procedure can be accomplished until the area is thoroughly cleaned from start to finish with 1 gallon of 10% bleach solution, a RTSMP should be called.
 - o No biowaste in a solid state, or the water associated with the clean up of this waste shall be washed down a storm drain. If present, call a RTSMP to handle the cleanup.

If the material requiring cleanup meets any of the following criteria, Public Agency personnel shall call in a Registered Trauma Scene Management Practitioner (RTSMP).

- Criteria:
 - o The amount of liquid trauma scene waste at the incident reasonably exceeds the ability to thoroughly disinfect the incident with 1 (one) gallon of 10% chlorine disinfectant.
 - o The material requiring clean up is human tissue or a body part, and Coroner's Office personnel will not be responding to the scene to remove the material because the incident did not involve a fatality.
- A Registered Trauma Scene Management Practitioner (RTSMP), can be requested through dispatch when needed.
- When a Registered Trauma Scene Management Practitioner (RTSMP) is called to a scene, each agency or jurisdiction shall have a policy in place that establishes which department (fire, law enforcement, public works, etc.) is responsible for staying on scene until the RTSMP arrives on scene. In no case shall the scene be abandoned prior to the arrival of the RTSMP.

Cleanup of Trauma Scene Wastes on Private Property

- The property owner has two options. Hire a Registered Trauma Scene Management Practitioner (RTSMP) or cleanup the affected area personally while observing the following restrictions.
 - o Employees of the property owner who have not been given OSHA mandated Bloodborne Pathogens training, proper personal protective equipment, and adequate supplies of bleach and water to complete the cleanup operation shall not be used for this task.
 - o Trauma scene wastes must be disposed of properly and shall not be discharged to a storm drain.
 - o A list of RTSMP's that offer trauma scene waste cleanup service may be obtained from the California Department of Health Services web page at www.dhs.ca/gov/ps/ddwem/environmental/Med_Waste/medwasteindex.practitioners.pdf
Note: List is not a recommendation on these companies.

10.2.9.2 Clean-up Costs

Since clean-up costs may be substantial the Inspector or Responder should determine how clean-up costs will be paid. Prior to initiating spill clean-up, it is essential that the RP be contacted and that they clearly accept or deny responsibility for clean-up and response costs.

If the clean-up is too large and the RP cannot be located or persuaded to assume clean-up responsibility, and the incident requires immediate action to protect life, property or the environment, the Inspector or Responder may need to contract with a contract clean-up company for clean-up costs. To prepare for this situation, the Inspector or Responder should be authorized to initiate clean-ups. This authorization states that the individual has signature authority for contracting private clean-up companies to conduct clean-up without the usual purchasing procedure.

In certain situations, clean-ups that exceed \$25,000 may be eligible for State and Federal emergency funds. Additional information may be obtained by contacting the State Water Resources Control Board or Coast Guard, respectively.

10.2.9.3 Follow-up

After clean-up is completed, a follow-up inspection is conducted to ensure that the clean-up is adequate. Follow-up investigation tasks may include:

- Verify that the problem has been mitigated;
- Checking for any residue in street curbside, storm drain or channel;

- Monitoring, using applicable field instrumentation, for pH, conductivity, or hydrocarbons at random locations, which may have been affected by the incident discharge;
- Collecting and analyzing random samples to verify absence of pollutant;
- Requesting additional clean-up of inadequately cleaned areas;

Each incident should be evaluated after its occurrence to determine if appropriate action and corrective measures were taken.

10.2.9.4 Decontamination

Decontamination refers to both the equipment and tools used by the clean-up personnel, as well as decontamination of the spill area. After the clean-up is completed the vehicles, equipment and Personal Protective Equipment should be decontaminated. Clean, non-contaminated equipment is essential for the safety of the next user.

10.2.9.5 Waste Storage and Disposal

Wastes generated from the mitigation and clean-up of pollutants need to be properly transported and stored for subsequent disposal.

The wastes may be:

- Non-hazardous or
- Hazardous

Non-hazardous wastes may be disposed of by common methods including disposing of solid wastes with the regular trash or rubbish. In some cases, non-hazardous wastewater may be diverted or discharged, with prior approval from the appropriate sewer collection agency, to the sanitary sewer system.

The hazardous wastes generated from the incident, including absorbents and decontamination items, should be properly packaged by a clean-up contractor in Department of Transportation (DOT) containers accompanied with manifest forms, transported, and disposed of in accordance with Resource Conservation and Recovery Act (RCRA) guidelines.

Whether the wastes are generated from clean-up performed by agency staff or a private contractor, if the RP has not been identified, the local jurisdiction has to assume responsibility for the transportation, storage, and disposal of the material.

10.2.10 Reporting

The ID/IC program has a number of reporting requirements. These documentation requirements and procedures are summarized below.

- **Proposition 65 Notification** – Health and Safety Code 25180.7 provides that “Any designated government employee who obtains information in the course of his official duties revealing the illegal discharge or threatened illegal discharge of a hazardous waste within the geographical area of his jurisdiction, and who knows that such discharge or threatened discharge is likely to cause substantial injury to public health or safety, should, within 72 hours, disclose such information to the local health officer.” In Orange County, the Proposition 65 Hotline telephone number is (714) 667-3765
- **Regional Board Notifications** – If a spill, leak or illegal dumping is determined to pose a threat to human health or the environment, the Permittees are required to report this information to the Regional Boards by phone or e-mail within 24 hours of the discovery followed by a written report within 5 days.

10.3 Model Sewage Spill Response Procedures

Permittee spill response procedures have been developed and are individually described within their respective Local Implementation Plans. While spills to the municipal storm drain system are important and responses are often the same, sewage spills have merited special regulatory attention as coordination with other public agencies as well as private owners is often involved.

While the protocols used in responding to any type of spill are essentially the same, the specific differences for sewage spills are described within this section.

The following definitions of terms are relevant for sewage spills:

- **Sanitary Sewer System**—A wastewater collection system including sewers, pipes, pumps or other conveyances that convey sewage wastewater (e.g. domestic, commercial and industrial wastewaters) to a treatment plant. The sanitary sewer collection system also includes the temporary storage and conveyance facilities. **Sewage Collection Agency**—City or any other public entity (e.g., water, sewer, sanitary, sanitation district) responsible for the operation, maintenance, repair and replacement of the sanitary sewer system (from a regulatory standpoint, considered as a wastewater discharger even if responsibility is placed with a regional treatment and disposal agency).
- **Sewage Spill/Sanitary Sewer Overflow (SSO)**— Any spill, release, discharge or diversion of wastewater from a sanitary sewer system. The definition has been expanded in recent years to include the discharges of treated (partial, secondary or to Title 22 standards) wastewater as well as other human wastes (e.g., septic tank overflows, etc.) that are explicitly prohibited from entering municipal storm drain system and subsequently the waters of the US. Sewage spills/overflows, irrespective of source or level of processing, constitute an illegal discharge to the municipal storm drain system.

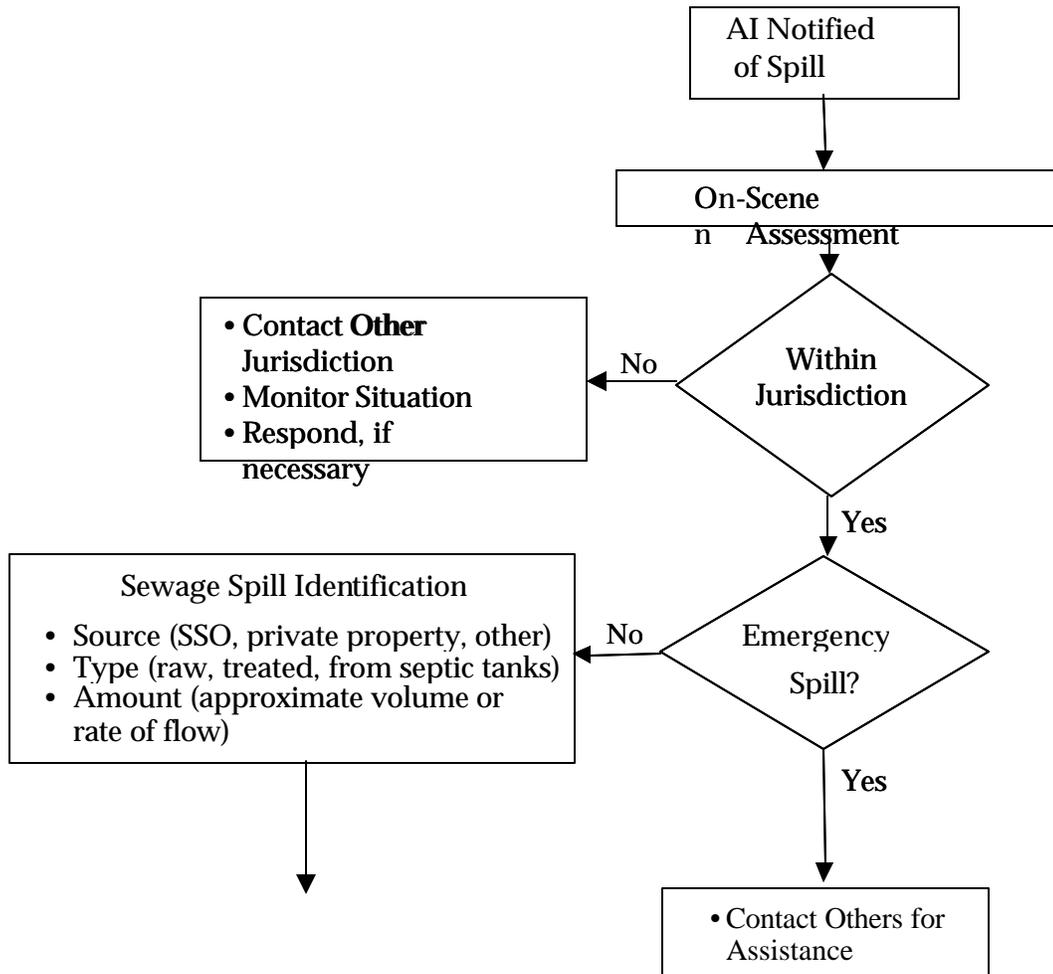
The primary response procedures for sewage spills are the same as for other types of spills and consist of the following elements:

- **Record Keeping**

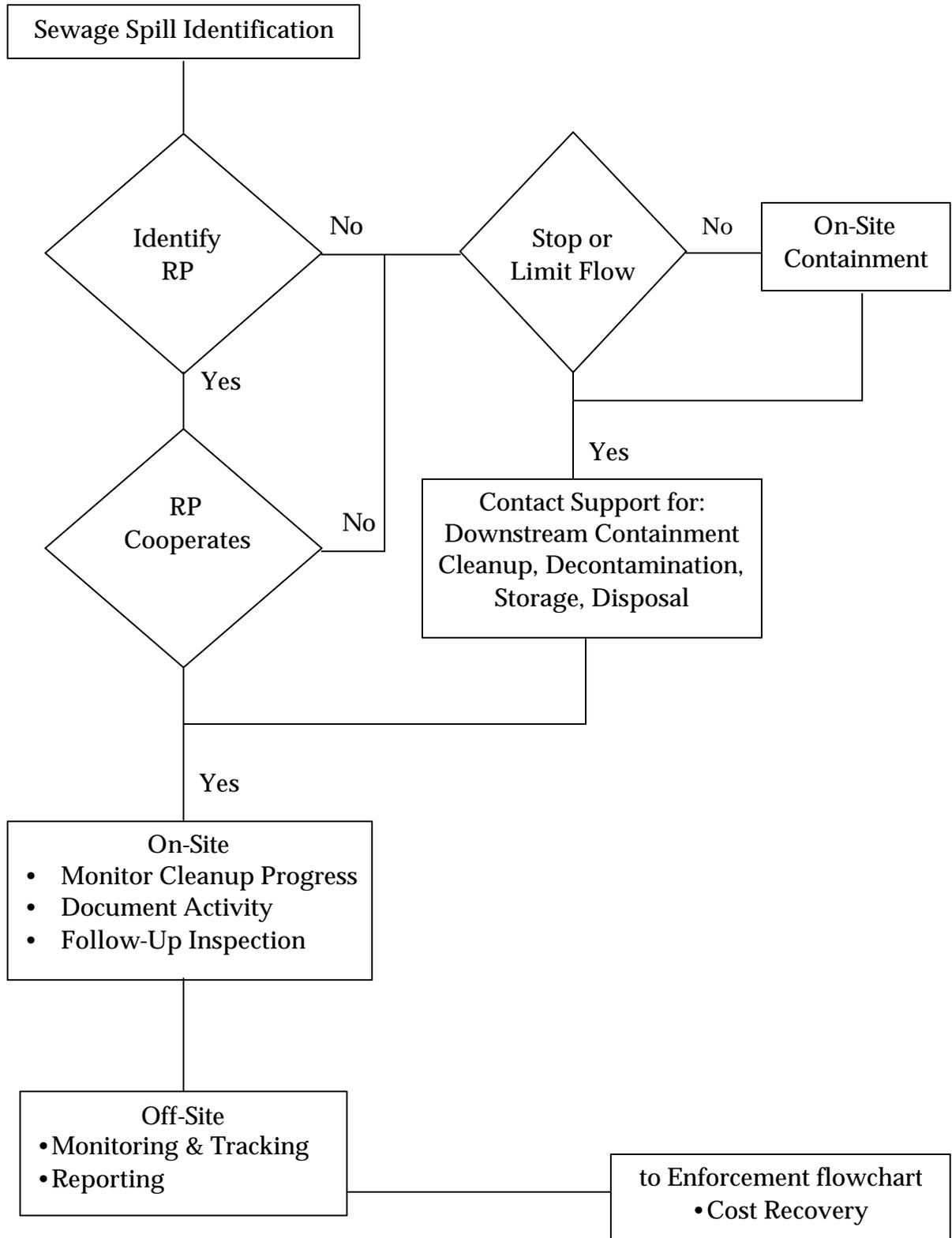
- Notifications and Response Requests
- Response
 - On-Scene Assessment/notifications
 - Containment
- Investigations
- Clean-Up
 - Decontamination
 - Waste Storage and Disposal
- Reporting

Figure 10.4 presents a flow chart that outlines the typical sewage spill response procedures.

Figure 10.4
Sewage Spill Response Procedures



**Figure 10.4
Sewage Spill Response Procedures (cont'd)**



10.3.1 Program Responsibilities

Although there are some instances where the municipal storm drain and sanitary sewage collection systems are under the same public agency (City) ownership, there are also many situations where the jurisdictions are not the same. Responding to overflows that reach the municipal storm drain system is, in these instances, a joint or shared responsibility of both (stormwater and waste water) Permittees.

Following is a list of the types of spills that may occur and who has primary responsibility for them:

- Private Property – property owner has the responsibility of clearing the line from the sewer main to the property and typically contacts a plumber
- Local sewage system - local sewer collection agency has primary responsibility for responding to the spill and clearing the line
- Regional trunk sewers – Local sanitation district has the primary responsibility for responding the spill and clearing the line.

Regardless of where the spill originates, if the spill has entered or may enter the storm drain system, the Permittees respond to assist with the cleanup and remediation of the area.

10.3.2 Record Keeping

To ensure that the necessary information is collected, the Permittees use forms similar to the County's Pollution Notification and Investigation Request (PNIR) form.

This form is used for collecting information on the:

- Initial notification/response request;
- The location and specific details about the complaint or spill;
- Information about the alleged responsible party;
- The results of the investigation; and
- The actions that were taken as a result.

In addition to the information that is collected on the PNIR form, the following pieces of information are helpful when documenting a sewage spill:

- Information regarding whether a sewage spill entered a storm drain (i.e. where sewage is observed running into a drain, or directly to a receiving water, creek, channel, etc. or there is residual evidence thereof), including the location and name of the receiving water;
- Determination of spill start and stop time;
- A determination of spill volume

10.3.3 Response

If not already completed upon arriving on scene, the discharge or release of sewage should be discontinued and contained as close to the originating site as possible after the initial assessment has been completed. This is critical in preventing further contamination or degradation downstream and will ultimately result in an easier and less costly cleanup effort.

The order of preference for the containment would be:

- On-site at the point of origination
- In the curb/gutter or street
- In the catch basin
- In the storm drain system
- In the channels/streams

10.3.4 Clean-Up

The main objective in the clean-up operation is to restore the impacted area back to its original state (to the greatest extent possible) and prevent further environmental degradation in the surrounding area of the incident. It is important that the clean-up is completed in a timely and cost-effective manner.

During the initial site assessment, the Authorized Inspector or Spill Responder makes an assessment of the extent of cleanup that would be required so that the necessary resources could be gathered.

During this phase of the response, the Inspector or Responder is generally overseeing and directing the cleanup and should re-evaluate the resources necessary to perform the clean-up and ensure that they are being prepared and sent to the site.

The general responsibilities are:

- Coordinate with sanitation districts or others for clean-up actions;
- Provide list of clean-up companies for the RP to contact;
- Secure spill site to prevent contact by the public;
- Oversee clean-up—Provide clean-up directions and verify pollutant removal. No readily identified residue, e.g., sewage solids, papers, etc. should remain;
- Ensure that any debris that the wastewater was in contact with is removed for proper disposal;
- Disinfect where appropriate. If disinfected, the wastewater should be contained and disposed of properly;
- Document clean-up company's activities (proper and safe procedures) to verify appropriate clean-up charges;
- Document amount of waste or pollutant removed to verify disposal costs;

10.3.5 Reporting

Sewage spill reporting to various regulatory agencies has parallel and overlapping requirements. However, reporting spills to one regulatory agency will not necessarily satisfy the requirements of the other. Therefore, the Permittees should report to each entity designated to receive sewage spill reports.

Storm Drain Dischargers Notifications

- Regional Board Notifications – If a spill, leak or illegal dumping is determined to pose a threat to human health or the environment the Permittees report this information to the Regional Boards by phone or e-mail within 24 hours of the discovery followed by a written report within 5 days.

Sewage Discharger Notifications

- Orange County Health Care Agency (HCA) - California Health and Safety Code Section 5411.5 requires that sewage spills be immediately reported to the HCA 24-hours a day. During standard work hours (M-F, 8:00 a.m. to 5:00 p.m.) sewage spills that may impact beaches or the ocean should be called in by phone directly to Regulatory Health Services, Environmental Health, Ocean Water Protection Program staff personnel at (714) 667-3660. After hours reports for emergency spills can be phoned in through the County Communications number (714) 628-7008.
- State Office of Emergency Services (OES) - California Water Code Section 13271 and the CCR Section 2250 require that the State OES be notified immediately of sewage spills of 1,000 gallons or more from public sewer systems by telephone
- Santa Ana Regional Board - Order No. 2002-0014 requires that sewage dischargers immediately report SSOs entering a storm drain, drainage channel, or surface water body to the Board by telephone, voice mail, e-mail, or FAX. Completed SSO Report Forms, or equivalent, for each and every overflow event should be submitted within five days of the initial notice. Full reports for each SSO occurrence including photos and mitigation measures should be submitted electronically to the RWQCB at the end of each month. Submittal of SSO Summary Reports and certification statements are also required 30 days following the spill report period.
- San Diego Regional Board - Order No. 96-50 requires that sewage dischargers report spills of at least 1,000 gallons, or to surface waters, within 24-hours by FAX or telephone. In these instances the discharger should fax a SSO Report Form to the Board within five days of the spill. The completed SSO Form should also be faxed to the Department of Health Services (DHS). A quarterly report of the sanitary sewer spills, including those not meeting the criteria stated above, should be submitted electronically to the Regional Board.

10.3.6 Sewage Spill Response Planning

In an effort to develop more proactive response procedures for sewage spills, the County and the Orange County Sanitation District (OCSD) have been cooperatively coordinating a sewage spill prevention and response demonstration project called the “Tustin Area Spill Control Demonstration (TASC) Project”.

The project includes portions of the City of Tustin and the unincorporated area of North Tustin. This geographical area was chosen due to the high number of “preventable” small sewage spills (those that occur in small diameter pipes and are less than 1,000 gallons) that occur primarily as a result of grease or root blockages.

The main objectives of the project are to:

- Create broader awareness on causes SSOs and measures to prevent them;
- Improve the interagency coordination when responding to SSOs;
- Understand the resource needs in responding and mitigating impacts;
- Develop predictive tools for identifying impacts; and
- Protect the beneficial uses of local water bodies.

During 2002-2003 the project team met completed the development of the main objectives and initiated work on the short and long term workplan elements in order to improve coordination between the two agencies. Following are items that were completed during 2002-2003:

- Preparation of a GIS maps consisted of the following layers:
 - Direction of stormwater drainage;
 - Street and aerial map;
 - Watershed boundaries;
 - Land uses;
 - Flood control channels; and
 - Sewer trunk lines and manholes.
- Upper Newport Bay Time of Travel Studies – SCCWRP

The time of travel studies for the Upper Newport Bay Watershed were completed and the results were mapped on a GIS layer. The goal of this study was to investigate hydrodynamic transport through storm drain channels in the upper Newport Bay watershed. The studies used a fluorescent tracer to simulate the transport and mixing of a sewage spill through the system at low (dry) and high (shortly after a storm) flow conditions.

- Pre-staging materials at key containment areas

The two areas that were identified as candidates for the sewage spill demonstration project were the Santa Ana-Sante Fe and the El Modena Irvine sub-watersheds. Within the

watersheds, containment areas were identified and materials pre-staged at the confluence of F10/F10P01 and F07/F13P05, respectively.

- Spill response training and coordinated responses

Cooperative training was conducted between the two agencies. OCSD attended an Authorized Inspectors Committee meeting and provided a presentation entitled “All A Stormwater Inspector Would Want to Know About Sanitary Sewer Overflows (SSOs)” and the County provided the annual existing facility inspector training to OCSD source control inspectors.

- Development of integrated sewage spill response procedures

In response to the new municipal stormwater permit and the new sewage collection system permit that was issued in the Santa Ana Region, the two agencies coordinated closely on the development of the sewage spill response guidelines.

- Completion of TASC Demonstration Project Report

The completed TASC report, is included in **Appendix E8** of the DAMP, documents the project’s accomplishments and also provides a workplan for continuing coordination efforts.

10.4 Illicit Connection Investigations

An illicit connection to the storm drain system is an undocumented and/or unpermitted physical connection from a facility to the storm drain system. The First Term Permit required the Permittees to undertake programs to identify and effectively eliminate illicit connections to the storm drain system. The Permittees developed a facility inspection and documentation program to identify such connections and currently implement the program through the routine maintenance of their facilities.

The Ordinance defines the term “Illicit Connection” as any man-made conveyance or drainage system through which the discharge of any pollutant to the stormwater drainage system occurs or may occur. Constructed (man-made) Illicit Connections include: pipelines, conduits, inlets or outlets, connected impervious areas, channels or swales.

Practical examples of Illicit Connections include:

- Unpermitted pipes which discharge onto adjacent property or into a water runoff area
- Facilities constructed adjacent to construction areas which allow dewatering runoff to flow to the stormwater drainage system (the dewatering activities, except those authorized by each respective permit, requires coverage under either a general or individual permit from either of the RWQCBs; if a permit does not exist, it is an illicit connection)

- Storm drain inlets that drain from equipment, vehicle or similar wash areas directly into the stormwater drainage system

Any illicit connection identified during routine inspections is investigated by the affected Permittee. Appropriate actions are then taken to approve undocumented connections by permit procedure and/or pursue removal of those connections that are determined to be illicit connections and not permissible.

If evidence of an illegal discharge is detected and the source does not appear to be evident a source investigation may be conducted to determine if the discharge is being conveyed through an illicit connection.

10.4.1 Source Investigations

Source investigations may be conducted when an ID/IC is detected or suspected, and the source is not readily identifiable. The purpose of the investigation is to locate the source so that measures to eliminate the ID/IC can be implemented. Source investigations will be initiated when appropriate information suggests evidence of an ID/IC.

Examples of potential ID/IC evidence includes:

- The dry weather monitoring program detects constituent levels which meet or exceed action criteria (see below);
- Monitoring personnel determine that there is a reasonable potential for an ID/IC to exist due to observations and measurements; or
- A public or City staff report indicates the possibility of an ID/IC with an unknown source

In order to assist in determining when source investigation studies are warranted, the Dry Weather Monitoring Program (**DAMP Section 11.0**) includes a set of criteria that will trigger focused IC/ID studies by the City when the monitoring data indicate the presence of a problem.

When sampling data from the routine dry weather monitoring program exceeds certain criteria, this will trigger a consideration of whether follow-up investigations by the City are warranted.

These criteria are designed to identify sites that:

- Exceed the overall regional average by a substantial amount in one or more constituents
- Exhibit substantial changes in their characteristics over time that could be indicative of worsening or improving conditions. (It may be informative to continue monitoring where conditions are improving in order to gain information that could be useful elsewhere.)

When the County has identified a site that meets the criteria, it will notify the City that follow-up IC/ID efforts may be necessary. However, if the monitoring program finds extreme conditions that represent a clear and immediate risk to human health or receiving water quality, or that provide unambiguous evidence of a substantial upstream problem, then this routine

procedure will be bypassed and the relevant inspector for that City will be notified immediately.

In both kinds of instances, if the monitored site is near a jurisdictional boundary and the upstream drainage network for the site extends into a neighboring jurisdiction, both the jurisdiction containing the site as well as the jurisdiction containing the upstream portion of the drainage network will be notified.

10.4.2 Tracking a Pollutant Upstream

Once the Permittee is notified of the potential problem and it is determined that a source investigation is warranted, the approach used for tracking a pollutant source upstream or identifying an illicit connection primarily involves the following steps (**Figure 10.5**):

- Step One - Initial Screening
- Step Two - Source Evaluations and Inspections
- Step Three - Monitoring
- Step Four - Document, Notify and Report

Figure 10.5
Source Investigation Procedures

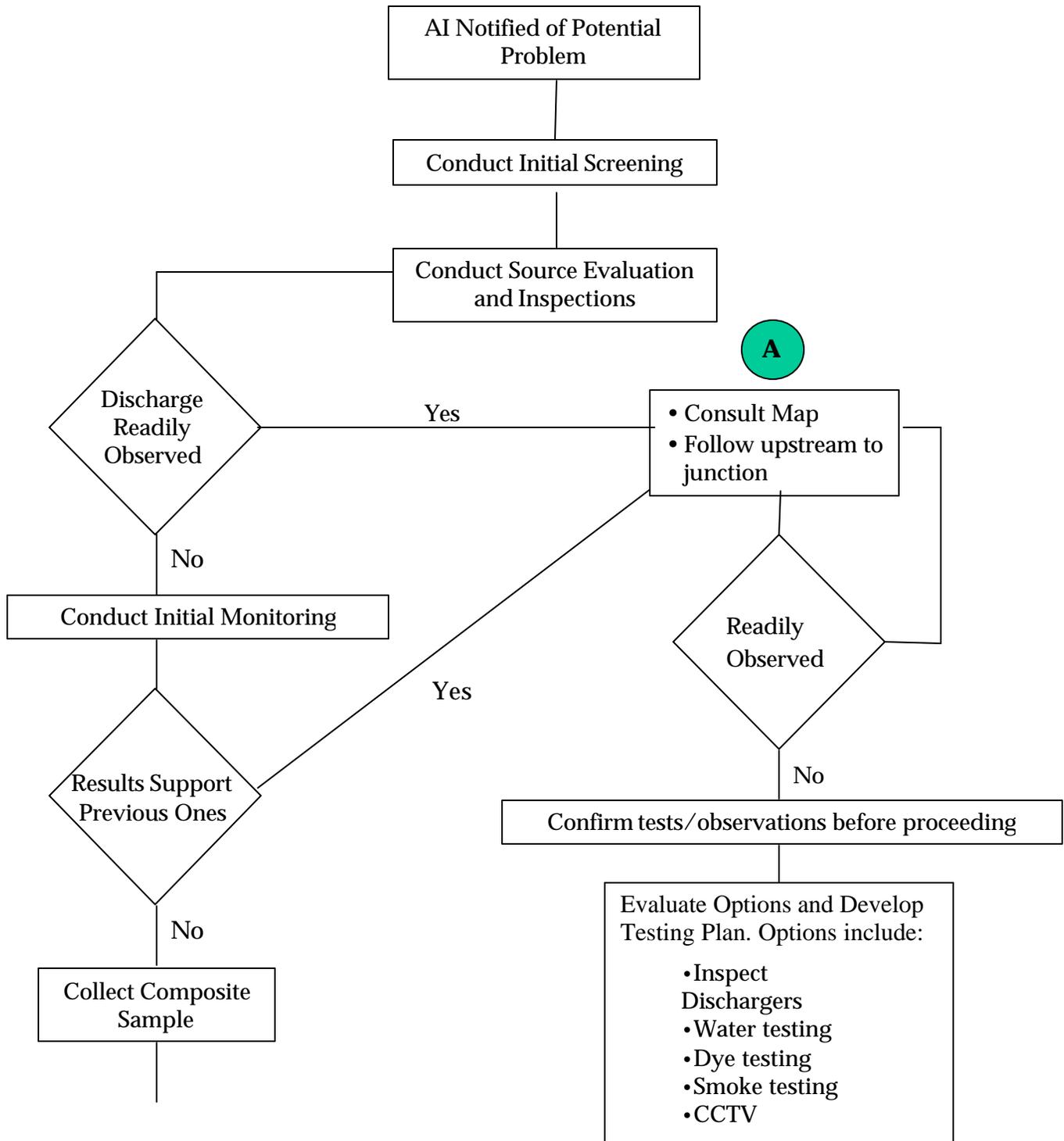
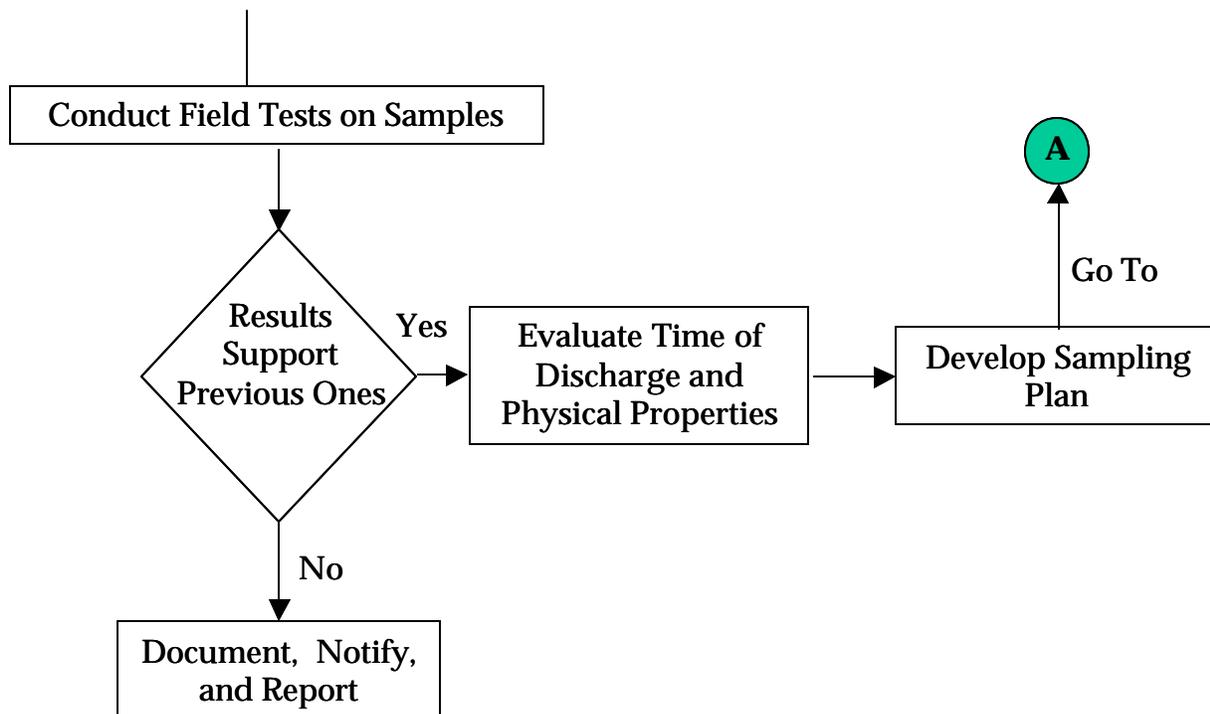


Figure 10.5
Source Investigation Procedures (Cont'd)



Step One - Initial Screening

The initial screening may consist of the following steps:

- Gather information on sources that may have been identified in other jurisdictions with similar circumstances;
- Review previous source investigations within the city to determine if there are any similarities;
- Contact other local agencies/cities who may have performed similar source investigation studies;
- Review the maps of the drainage facilities within the problem area and locate the upstream connections and drainage basins;
- Review other records such as connections or encroachment permits to determine if a permitted connection may be the source; and
- Compile and analyze the available water quality data from the drainage area in question to determine if a potential source may be identified. Laboratory data used in conjunction with previous investigation notes may be reviewed to help identify pollutant sources.

In the search for potential sources of pollutant discharges, it is important to correlate the type of pollutant with type of industry or business in the area. Below are examples of pollutants and their potential associated industrial or business sources or chemical properties.

- Solid particle materials, such as: chips, dusts, plastic pellets, wood or metal shavings. The metals may be cadmium, lead, zinc, copper, silver, nickel or chromium. Non-metal materials would also include phosphorus and silica. These could range in size from clearly visible to microscopic, in which case they might appear as a layer or sediment. Sources include manufacturing and textile facilities, lumber mills, and metal operations.
- Petroleum products and engine coolants, such as: fuels, oils, solvents, grease or coolants. These may appear as oil sheens on visible water areas, or brown staining. Possible sources are petroleum refineries or vehicle storage facilities, or locations where vehicle maintenance takes place or petroleum products are stored.

- Miscellaneous conditions can include:
 - High or low pH in waters indicating acid or base discharge
 - Liquids or stains colored yellow (indicating a chemical or textile source), brown (packing plants, printing, metal works, stone/concrete works, refineries), green (chemical or textile sources), red (meat packing plants), or gray (dairies)
 - Cloudy or opaque waters (indicating some form of suspended substance)
 - Characterized by odors typical to decomposing materials such as sewage or sulfide (rotten egg) or rancid-sour smells, indicating a release of organic compounds
 - High BOD, COD, TOC, or temperature in waters
 - Dying, stained, or burnt-appearing vegetation, indicating toxics; and
 - Deposits, stains or actual damage to concrete or metal storm drain structures, indicating caustics
- Pollutants from construction sites typically include sediments, petroleum products and engine coolants, metal shavings or materials, pesticides, fertilizers, toxic chemicals such as solvents, cleaners, sealers, adhesives, or paints. Construction sites are also sources of miscellaneous wastes such as wash waters, landscape or yard waste materials, packaging materials, trash and sewage.
- Pollutants from residential activities typically include petroleum products, engine coolants, pesticides, fertilizers, landscape or yard waste and trash.

Step Two - Source Evaluations and Inspections

When conducting an inspection in an above or below ground system with multiple inlets and flow is observed coming from more than one of the tributaries, track each inlet one at a time, using visual observations, odors, and/or sampling to determine the possible source(s).

It is generally easiest to track the largest flow first, however if they are about the same, start with the inlet that is easiest, shortest, or with the least number of junctions. Otherwise track those originating from areas with the greatest potential for illegal discharges.

The source evaluation may include the following steps:

- Review the drainage maps and identify key locations for physical inspections along the main stream or storm drain as well as the tributaries that are flowing into the storm drain

- Maintain personal notes of observations and interviews, as well as cross-references to the photographs, forms, items of evidence, and other documents in a formal dated Field Notebook. Information should be entered in ink and legible for others to read. If possible, each notation should also indicate the time of day it was entered to the nearest half-hour. Corrections should be in ink, initialed and dated. If additional information is entered at a later time, it should also be noted in the Field Notebook and dated as a subsequent entry in the Field Notebook.
- Conduct an above ground physical inspection in the drainage area to see if a source can be readily identified. Physical inspections of manholes, catch basins, and drainage channels may provide an inexpensive way to track flows upstream or to locate illicit connections. In order to provide a cursory look at the system, flows may be observed from one manhole to the next in order to identify a possible pathway for the pollutant.

During the inspection check catch-basins and gutters between manholes for evidence of flows such as runoff from steam-cleaning operations, car washing, irrigation runoff, etc. and look for evidence of recent or past dumping, such as wet or stained pavement or gutters.

- Conduct a below ground physical inspection - Facilities that are large enough for personnel to enter can also be physically inspected, however, entry into these facilities requires strict adherence to health and safety procedures, including confined space entry procedures.

In general, a space is defined as confined if it is not intended for human occupancy, has limited openings for entry or exit, and has insufficient natural or mechanical ventilation. Information on safety procedures can be found in many documents, including the Occupational Safety and Health Guidance Manual, National Institute for Occupational Safety and Health; OSHA Safety and Health Standards 29 CFR 1910 (General Industry), US Department of Labor, and Title 8 of the CCR, General Industry Safety Order.

Once underground, the storm drain system can be inspected for the hard pipe connections or other conveyance that may be directing a discharge into the storm drain facility as well as staining, etching or any other signs of a discharge.

Video Inspections

In addition to using personnel to conduct underground inspections, closed circuit television (CCTV) inspections can also reveal if illicit connections exist. Robotized or otherwise mobile television cameras allow visual inspection of storm drains (pipes) too small or dangerous for personnel to enter.

Although an excellent method of identifying and documenting illicit connections, CCTV inspection carries higher costs for longer lengths of pipe unless equipment is owned or borrowed from neighboring agencies.

- Once completed, evaluate the information and narrow the investigation based upon the results and repeat as necessary.

Step Three - Monitoring

Monitoring for illegal discharges and illicit connections may include the following steps:

- Review the drainage maps and identify key locations for monitoring locations along the main stream or storm drain as well as the tributaries that are flowing into the storm drain.
- Visit the identified sampling locations and determine their suitability for the investigation. Items to consider include vehicle traffic, accessibility, flows within the channel, etc.
- Conducting initial field screening monitoring

Field screening consists of a series of qualitative field observations, flow measurement, and field analyses of selected water quality parameters. Information relating to weather conditions, the amount of time since last rainfall/storm discharge, and type of stormwater conveyance facility should also be recorded. Specific observations and results of the field water quality analyses are recorded on a standard field data sheet. The data sheet can also serve as a record of the field visit and should be completed for every site visit regardless of whether samples are collected or not.

Qualitative field observations should be made during each site visit regardless of whether ponded or flowing water is observed or not. Such observations are intended to provide a general assessment of the site and include variables like odor, water clarity, presence of floatables, visible deposits/stains, and biological status. Evidence of present or past illicit connection to a municipal storm drain system can often be ascertained by careful field observations. Each field screening location should be photographed to provide additional information and documentation of site conditions.

- Obtaining flow measurements. Flow measurements should be obtained for each site visit. Flows can be used to estimate pollutant mass loading, prioritize storm drains for future investigation, and/or identify significant changes in discharge that may be indicative of an illegal release upstream. In the absence of a permanent flow measurement installation, several field methods may be employed to measure discharge rates.

- Prepare a monitoring plan and identify the following:
 - The locations and descriptions of the sampling sites;
 - The types of analyses that will be conducted on the samples (nutrients, metals, coliform, etc);
 - The field crews and analytical laboratories that will be used;
 - The days and times that the samples will be collected;
 - The types of samples that will be collected (grab or composite);
 - The types of sample bottles that will be used (plastic, glass, etc.);
 - The types of preservatives that will be used;
 - The holding times that the samples must be analyzed within;
 - The types of Quality Assurance/Quality Control (QA/QC) that will be followed both in the field as well as within the laboratory; and
 - The Chain of Custody procedures that will be followed.

- Conduct the monitoring according to *Sections 10.4.2.1* and/or *10.4.2.2* below

10.4.2.1 Water Quality Analysis

At the start of the investigation, Permittee staff may wish to characterize a sampling site of potentially high pollutant concentration through field water quality analysis. This also helps track the source upstream. Both flow and concentration measurements can be made to determine the mass emission of pollutant being discharged and assist Permittee staff to make informed decisions should there be more than one flow to the site.

In following flows upstream, Permittee staff may find more than one flow converging into a manhole or junction box. In this case, Permittee staff can use color, clarity, or temperature to distinguish which flow should be followed to determine the source. If not possible, field water quality sampling can be used to determine which is the likely flow source. Water quality testing is also used to verify that a flow being investigated by Permittee staff shows the same characteristics as the original flow identified as being the problem. When the source is identified, Permittee staff should also use field water quality testing to confirm that the source has the same characteristics as the original flow.

Dry weather flow sampling typically involves collection of grab samples using the following procedures:

- Inspect the sample container to confirm that it is clean and dry;

- If practical, collect a grab sample from at about 60 percent of the stream depth (from the surface) in an area of maximum turbulence. Avoid stagnant pools near the edge of flowing streams. Enter the channel downstream of the sampling location and move upstream, disturbing as little of the bottom material as possible;

- Rinse the sample container with the sample at least twice;

- Carry the sample container out of the stream to a stable location where you can perform the field analysis;
- Follow the field water quality analysis kit instructions for the test;
- Record the qualitative observations and field testing results on the field data sheet for subsequent entry into the database. Estimate the flow rate and note any deviations from the standard procedures (for whatever reason), and describe any unusual or noteworthy conditions or results in detail on the bottom of the sheet;
- Water quality meters should be calibrated in the laboratory or office before field use. Calibration solutions should be protected from contamination and not be used after their expiration dates;
- Field meters and cameras should be in proper working order. Make sure that batteries have sufficient voltage to power the equipment for the entire field trip. Recharge or replace them as necessary. Keep extra batteries in the instrument case. Probes should be inspected, cleaned and reconditioned regularly;
- Clean and rinse sampling equipment after returning from the field. Store clean equipment in clear polyethylene bags or storage cases;
- Glassware used in the field (e.g., graduated cylinders for sample dilutions, test kit flasks and/or beakers) should be cleaned immediately after usage. Use laboratory detergent, a brush, and hot tap water or 10% Analytical Grade hydrochloric acid. Rinse three to four times with deionized water and wipe the outside of the glassware dry with a white paper towel. Dry in an inverted position. Store the dry glassware in the cabinets with stoppers intact (volumetric flasks) or in an inverted position (beakers).

10.4.2.2 Sample Collection for Laboratory Testing

Permittee staff may need to collect samples for analysis by a certified laboratory for evidentiary reasons in a civil or criminal case. Reasons for laboratory analysis include: field test kits are not able to obtain results at low concentrations, confirmation of field results, or there is no field test kits for the pollutant of concern and no surrogate parameter. The duties for equipment maintenance and safety are the same as those described above.

Laboratory Sampling Procedures

Laboratory samples are typically grab samples. If a composite sample is required, it is best to use an automatic sampler unless for volatile organics. Sample collection procedures are as follows:

- Use appropriate containers. Laboratories routinely provide pre-cleaned sample bottles with preservatives already added.
 - Rinse the container with the sample at least twice. Do not rinse pre-cleaned, preserved containers, as the preservative will be lost.
 - Use the proper preservatives. Use only analytical or higher grade reagents for preserving samples. Store samples in an ice chest (at 4° C) until custody is transferred to the analytical laboratory directly or via contracted courier.
 - Avoid contaminating the sample. Wear latex or vinyl gloves.
- Collect a representative sample from the stream as described above;
- Record the qualitative observations and field testing results on the field data sheet, noting any deviations from standard procedures (for whatever reason), and describe any unusual or noteworthy conditions or results in detail on the bottom of the sheet

Dispose spent reagents, reacted samples, and rinse solutions in the appropriate waste containers. Upon returning to the office or laboratory, decant these wastes into the office or laboratory sewer unless otherwise instructed by the sewer agency. Be sure to clean the equipment (recheck calibration if any results were questionable), and restock reagents (if necessary);

- If filtering samples in the field for dissolved trace metals analysis, do not preserve with HNO₃ until after the sample is filtered. If field personnel are submitting unfiltered samples for dissolved trace metals analysis those samples should not be preserved with HNO₃.
- Samples collected for laboratory analysis should be submitted to the laboratory as soon as possible after collection. Complete the following tasks:
 - Fill out the chain-of-custody form making sure that the sample bottles are correctly labeled;
 - Carefully pack the sample bottles in the cooler;
 - Transport the samples to the laboratory;
 - Complete the chain-of-custody form to transfer the samples to the laboratory.
- Samples should be analyzed using the same methods and detection limits used when the Monitoring Group (See **DAMP Section 11**) conducted their sampling and analyses to ensure comparable results.

Step Four – Document, Notify and Report

Once the source investigation is completed it should be properly documented and followed up on so that any identified sources are eliminated and necessary notifications made.

If an illegal discharge or illicit connection is found, the site visit should be documented and appropriate actions taken to ensure that the source of flow is eliminated. If the flow originates in another jurisdiction, investigators should immediately inform the neighboring agency of the situation.

If the source is still not found, and the discharge has ceased, the field investigation should be documented and the location of the last place that flow was observed marked on a map so that the area can be further investigated at a later date.

10.5 Education and Enforcement

Enforcement actions are undertaken according to the adopted Water Quality Ordinances and accompanying Enforcement Consistency Guide (**Exhibit 4.I**). Water pollution cases may be handled administratively or in more serious instances, be prepared for prosecution by the Orange County District Attorney who may prosecute under the applicable sections of the Water Quality Ordinance, State Fish and Game Code, State Water Code, Uniform Fire Code, and Penal Code that address pollutant discharges.

The Permittees have formerly designated the staff responsible for carrying out the enforcement services according to the Enforcement Consistency Guide and update these designations every year as a part of Annual Progress Report.

As provided for in the Enforcement Consistency Guide, when selecting enforcement options, it is important that the Permittees ensure that violations of a similar nature are subjected to similar types of enforcement remedies. Nonetheless, a more severe enforcement option may be selected when a violator has either a history of noncompliance or has failed to take good faith actions to eliminate continuing violations or to meet a previously imposed compliance schedule.

The Permittees generally utilize four types of remedies including:

- Educational letters;
- Administrative Remedies - Notices of Noncompliance, Administrative Compliance Orders, Cease and Desist Orders;
- Criminal Remedies – Misdemeanors, Infractions, Issuance of Citations or Complaints; and
- Other civil or criminal remedies as appropriate

10.5.1 Choosing the Type of Enforcement

The Enforcement Consistency Guide provides a framework to the Permittees for selecting the type of enforcement that may be pursued. Some of the factors that influence this decision include: the duration and significance of the violation; cooperation and willingness of the responsible party to remedy the conditions; whether the incident is isolated or re-occurring; and whether the violation or potential impacts will affect or harm human health or the environment.

Although the discussion below provides some guidelines on the use of various enforcement options and the Enforcement Consistency Guide is the primary reference for enforcement procedures and processes, each Permittee reserves the right to determine, by their own discretion, how to enforce each violation.

10.5.1.1 Educational Letters

Although the Authorized Inspectors primarily rely on the administrative remedies as discussed below, there are still a few occasions when an enforcement letter is appropriate.

These situations may occur when:

- An authorized inspector believes that the water pollution complaint may be valid, but does not have evidence to substantiate it; and/or
- A second party, or resident, hires a contractor who causes an incident. In this case the contractor should receive the administrative remedy and the resident should receive an educational letter.

A couple of examples include:

- A complaint is filed against a private residence and, upon investigation, the authorized inspector determines that a contractor hired by the resident caused the violation. The appropriate action may be to issue the contractor a Notice of Noncompliance in the field and an enforcement letter to the resident.
- A group of adjacent businesses are suspected of chronic violations, but several inspections produce no hard evidence. An enforcement letter to each shop may be appropriate in this situation, to make the business owners/managers aware of exactly what the regulations are and why they should comply.

Educational brochures, pamphlets, posters, magnets, etc. are included with the letter so that the responsible party has additional information regarding the proper handling/disposal of the materials involved in the complaint (e.g. pool water, concrete, dog waste, etc.).

Educational materials include the following topics:

- ❑ Carpet Cleaners
- ❑ Restaurant Cleaning
- ❑ Automotive Service Center
- ❑ Gas Station
- ❑ Horse and Livestock
- ❑ Dog Waste
- ❑ Pool Maintenance
- ❑ Waste Oil Collection
- ❑ Pest Control Products
- ❑ Permitted Lot and Pool Drains
- ❑ Car Wash Fundraisers

10.5.1.2 Administrative Remedies

The Permittees generally utilize four types of administrative remedies

- Notices of Non-compliance – This is the least onerous enforcement tool and constitutes a basic request that the RP rectify the condition causing or threatening to cause non-compliance with the Ordinance.

The Notice of Non-compliance may be issued when one or more of the following circumstances exist:

- The violation or potential impact is not significant and has been short in duration
- The RP is cooperative and has indicated a willingness to remedy the conditions
- The violation or potential impact is an isolated incident
- The violation or potential impact does not affect and will not harm human health or the environment

Prior to the issuance of an Administrative Compliance Order or a Cease and Desist Order to a responsible party (RP), the Permittee may consider issuing a Notice of Non-compliance, which states the act or acts constituting the violation and directs that the violation be corrected. The Notice of Non-compliance should provide the RP with a reasonable time period to correct the violation before further proceedings are brought against the RP. However, a Notice of Non-compliance should not be the first enforcement method used if circumstances indicate that a more stringent enforcement method is appropriate.

- Administrative Compliance Orders – This is an appropriate enforcement tool in the following circumstances:
 - An actual condition of Non-compliance exists, but the condition cannot be remedied within a relatively short period of time
 - The owner of the property or facility operator has indicated willingness to come into compliance by meeting milestones established in a reasonable schedule
 - The violation causes a discharge to the stormdrain system but does not pose an immediate threat to human health or the environment

- Cease and Desist Orders – This is appropriate when the immediate action of the RP is necessary to stop an existing discharge, which is occurring in violation of the Ordinance. The cease and desist order may also be appropriately issued as a first step in ordering the removal of nuisance conditions, which threaten to cause an unauthorized discharge of pollutants if exposed to rain or surface water runoff.

The cease and desist order may be issued when one or more of the following circumstances exist:

- The violation or threat is immediate in nature and may require an emergency spill response or immediate nuisance abatement if left unattended
 - The violation or threat exhibits a potential situation that may harm human health or the environment
 - The AI's contacts with the property owner or facility operator indicate that further authority may need to be demonstrated before remedial action is forthcoming
 - The AI's prior Notices of Non-compliance have not obtained a favorable response
- Other Administrative Procedures or Civil Actions
 - Where the Permittee has issued a local permit, the AI may elect to initiate administrative proceedings to suspend, revoke or modify the permit if the permit terms are violated or if changed conditions occur.
 - In consultation with the Enforcing Attorney, the AI may also consider the use of an injunction or other civil enforcement proceedings

10.5.1.3 Criminal Remedies

Criminal enforcement is appropriate when evidence indicates that the responsible party has acted willfully with intent to cause, allow to continue, or conceal a discharge in violation of the Ordinance.

The Permittees generally utilize three types of criminal remedies

- Issuance of Citation - Where criminal enforcement is indicated, and the AI witnesses the violation, the AI may cause issuance of a citation to the responsible party. The citation shall include:
 - The name and address of the violator
 - The provisions of the Ordinance violated
 - The time and place of required appearance before a magistrate

The responsible party should sign the citation thereby promising to appear. If the cited party refuses to sign the citation, the AI may cause the arrest of the discharger, or may

refer the matter to the Enforcing Attorney for the filing of a criminal complaint and the issuance of a warrant for arrest.

- Infractions - At the discretion of the Enforcing Attorney, misdemeanor acts may be treated as infractions. Factors that the EA may use in determining whether the misdemeanor is more appropriately treated as an infraction may include but are not limited to:
 - The duration of the violation or threatened violation
 - The compliance history of the person, business or entity
 - The effort made to comply with an established compliance schedule
 - The existence of prior enforcement actions
 - The actual harm to human health or the environment from the violation

An infraction is punishable by a fine of not more than \$100 for a first violation, \$200 for a second violation, and a fine not exceeding \$500 for each additional violation occurring within one year.

- Misdemeanors – Criminal enforcement is appropriate when the evidence indicates that the violator of the Ordinance has acted willfully with intent to cause, allow to continue or conceal a discharge in violation of the Ordinance.

10.5.1.4 Administrative Hearings

The ordinance provides for appeals of the Authorized Inspector's decisions to a designated Hearing Officer. The final decisions of Hearing Officers (or city counsel, if a hearing officer's decision is not final or is appealable to the city counsel) are appeal able to the court with proper jurisdiction under statutory review procedures. For further information on the administrative hearing process see the Enforcement Consistency Guide.

10.6 Training and Outreach

Education and training of municipal and/or other agency staff is one of the keys to a successful stormwater program. This is especially true with the ID/IC program because the Permittees will be in the public eye when conducting extensive investigation efforts and proceeding with enforcement actions. To assist the responsible municipal and/or other agency staff in understanding the Illegal Discharges and Illicit Connections Program, several different annual training sessions have been or are being developed (**Appendix B-10**).

Permittee staff in the following programs or disciplines are likely candidates for the ID/IC training modules:

- Public Works Department
 - Flood control maintenance
 - Stormwater program
- Utilities Department
 - Wastewater pretreatment program

- Water conservation program
- Fire Department – HAZMAT Program

In addition to Permittee sponsored training, staff are also encouraged to attend training seminars or workshops related to stormwater management and water quality conducted by other organizations.

10.6.1 Training Modules

In order to adequately address the different areas of the Illegal Discharge and Illicit Connection Program element, four training modules have been developed and are included in **Appendix B-10**.

The four training modules are:

- *ID/IC Program Management Training (Exhibit B-10.I)*

This training module is generally targeted for stormwater program managers and will address the overall program framework, objectives and approach so that they may gain a broader understanding of how the program is developed and implemented at a local level. It also includes the tools necessary to determine program responsibilities, conduct investigations, utilize proper enforcement procedures and report incidents of non-compliance.

- *ID/IC Program - Authorized Inspector Training (Exhibit B-10.II)*

This training module is generally targeted for authorized inspectors, spill responders and/or code enforcement officers and will address the responsibilities of the field personnel implementing the ID/IC Program. This training will include reporting requirements, spill response, inspection, clean-up and enforcement procedures.

- *ID/IC Program - Sewage Spill Response Training (Exhibit B-10.III)*

This training module is generally targeted for municipal authorized inspectors or spill responders as well as sanitation district staff and specifically focuses on the responsibilities of the field personnel in responding to sewage spills. The training will address a sewage spill from both the sanitation and municipal perspective and provide a framework for the responders to follow when responding to ensure that both sets of objectives are met.

- *ID/IC Program - Emergency Personnel Training (Exhibit B-10.IV)*

This training module is generally targeted for fire department personnel. The module focuses on the emergency and non-emergency types of activities that fire department personnel may be involved with and directs them to the three stormwater program

components (municipal, existing development and illegal discharges/illicit connections) that provide BMPs for the various activities. For each program element there is a brief discussion as to what activities may be occurring and what types of BMPs may be employed in order to protect water quality.

10.6.2 Record Keeping

Records of training provided to staff are maintained to allow for a better determination of:

- Staff training requirements
- When training sessions were conducted
- Compliance with the permit requirements

10.7 Program Effectiveness Assessment

The overall Program Effectiveness Assessment (PEA) serves as the foundation for the submittal of the annual progress report that is submitted each year to the Principal Permittee and subsequently to the Regional Boards and serves as the basis for evaluating each municipality's individual ID/IC efforts (See **Appendix C-10**).

By completing the effectiveness assessment, the Permittees will each have a baseline by which they can compare subsequent evaluations and identify trends. This information can then be used to determine where modifications within the program may be necessary and ensures that the iterative evaluation and improvement process is applied to the program component and used as an effective management tool.