
Central Texas Coastal
Area Contingency Plan
(CTCACP)

Emergency Response Surface Water
Sampling Plan

Annex FF
August 2026

Record of Changes

Change Number	Change Description	Section Number	Change Date	Name
1				
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1000 Purpose of Water Sampling

Through the collection and analysis of water samples, responders can uncover valuable data needed to inform decisions related to response tactic deployment, determining cleanup endpoints, waterway closures, recreational and consumption advisories, and fisheries management. During a response, water sampling may be necessary to answer a variety of questions. For example:

- What is the source of the spill?
- Is oil/hazardous substance detected in the surface water samples?
- Is the water body of acceptable quality for recreation, fish consumption, irrigation, or a designated beneficial use?
- Is oil/hazardous substance migrating?
- Is water quality improving or worsening?
- Is sediment and tissue sampling required?

This section contains guidance and plan templates to standardize the process to collect, analyze, and disseminate sampling results that can support decision making during a response. Sampling guidance throughout the plan only covers surface water. All sampling fieldwork is to be conducted in accordance with the site safety plan developed for the response.

1100 Quality Assurance/Quality Control

To maintain a high level of quality sampling and analysis, the sampling plan should support steps for quality assurance (QA) and quality control (QC) such as auditing of the process during the response. Key elements of a sampling approach during a response where QA/QC should be continuously conducted include:

- Use of appropriate procedures;
- Collection of representative samples;
- Sample contamination prevention;
- Proper sample preservation; and
- Chain-of-Custody (COC) maintenance.

1200 Data Sharing

Implementation of a sampling plan should also result in data sharing amongst all parties involved. Initially, real-time data should be made available on the responsible party's water sampling service provider's database/system to UC/IC, officials, and other decision makers. Incident water sampling data should be posted to the official incident website for public viewing within the first two operational periods after receiving results back from the laboratory. The incident website shall serve as the official messaging site for all incident related information. Other organizations or agencies should make a concerted effort to share their separate water sampling data and attempt similar messaging. Refer to Section 5000 for recommended data and information sharing processes within the incident management team and externally to the public.

1300 Water Sampling Roles and Responsibilities

This section describes the key roles and personnel assigned to develop and implement the water sampling plan (Figure 1). Water sampling staff are typically stationed in the Incident Command Post in the Planning Section within the Environmental Unit (EU).

1301 Water Sampling Technical Specialist

The water sampling technical specialist is an advisor responsible for helping to create the water sampling and analysis plans, including the Initial Incident Characterization Sampling and Analysis Plan, and any needed updates throughout the response based on the sampling results. The Water Sampling Technical Specialist is responsible for monitoring the progress of sample analysis at the designated laboratory(ies) and making arrangements for receipt of data.

1302 Water Sampling Coordinator

The Water Sampling Coordinator is responsible for implementing the water sampling and analysis plan. He or she oversees and coordinates the field sampling teams' operations and communications. The Water Sampling Coordinator works within the Planning Section (or ENVL) and may have other responsibilities to that section.

1303 Water Sampling Team Leader

The Water Sampling Team (or Task Force) Leader is responsible for the sample collection, documentation (including time and location), preservation, and preparation for shipment. Sampling teams may be divided geographically (by divisions or proximity to the release point), or means of access (boat versus shoreline).

1304 Data Manager

The data manager will establish a data management plan, process and manage all forms of data, and ensure the data is disseminated per Section 5000.

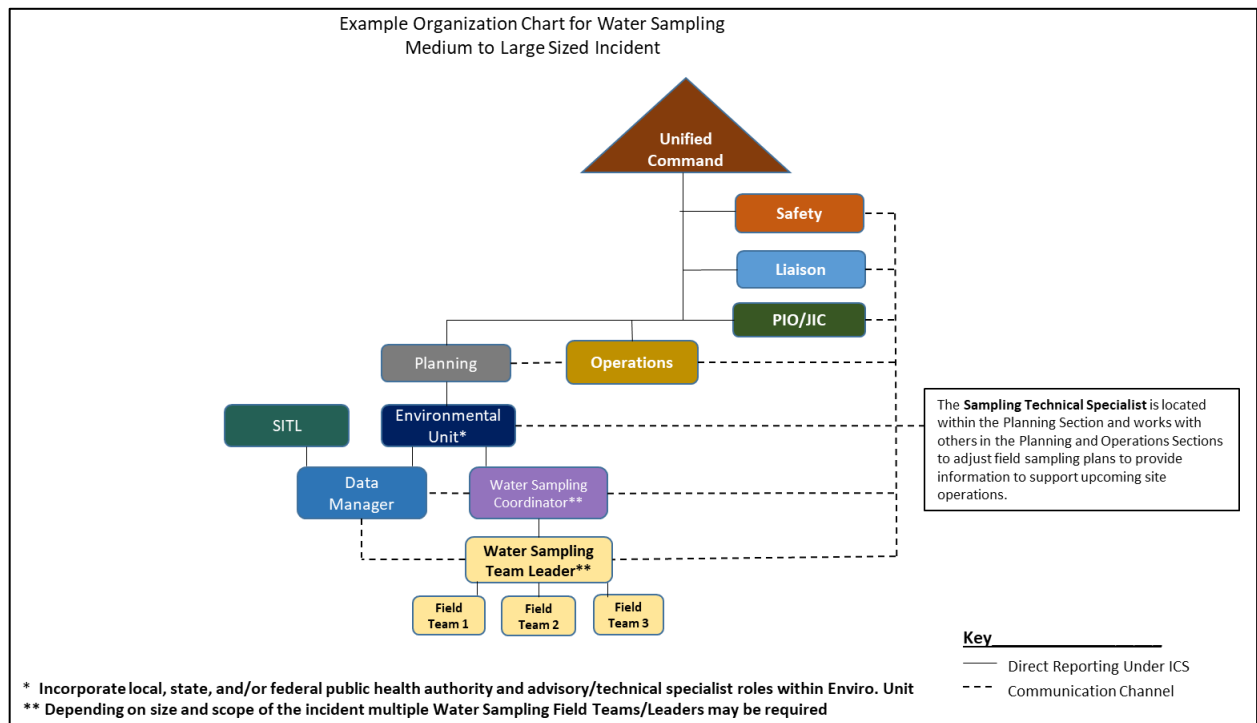


Figure 1: Surface Water Sampling Organization Chart and Information Flow

2000 Templates

There are two templates included in this document. The first (Section 3000) is intended to be used in the early phase of the response when many details are unknown but samples need to be collected. The second template (Section 4000) is intended for use later in the response when more information on the incident and receptors are available.

2100 How to Use These Templates

The major headings of this document are suggested for the completion of a sampling plan. A sampling plan is not required to follow the format, however it should contain the content and detail commensurate to the scale (size or sensitivity/threat) of the response. Sampling plan templates may be customized to match organization structures, capabilities, and the availability of field teams during the operational period for which the plan is to cover.

Delete and replace these instructions as applicable. Rewrite suggested text to fit the incident and organization-specific needs.

Additionally, some tables are pre-populated with examples or common information that may be relevant to an emergency response scenario. To complete tables, delete irrelevant examples and add applicable information as dictated by the incident.

Values presented in the tables should be verified and adjusted to meet the expectations and capabilities of various response organizations, receiving analytical laboratories, and local response agencies.

Reference checklist sections for supporting details and information to create a sampling plan.

After completion, review the template as a whole with all parties involved, including the Water Sampling Team Coordinator, to evaluate and address potential gaps. After finalized, route the sampling plan through Unified Command for approval and integration into the Incident Action Plan.

Retain this document for continuing emergency operations. Information assembled here may be used to create additional site documents and ICS planning forms.

3000 Initial Sampling Plan Cover Sheet

INITIAL INCIDENT CHARACTERIZATION SAMPLING AND ANALYSIS PLAN

Incident Name: _____
Responsible Party: _____
Spilled Material: _____
Spill Location: _____
Spill Date/Time: _____
Spill Source (vessel, facility, etc.) _____

This sampling plan has been prepared by the Planning Section at the request of Incident Command. The purpose of this plan is to quickly begin characterization of the release to support site response operations and develop information that will inform the subsequent response phases/operational periods. Additional sampling and analysis plans may be created to support complicated or larger responses, provide data for health and safety plan development, the monitoring of responder and community health, and/or waste management and disposal operations. This plan is purposefully brief, with the intent of facilitating initial site characterization sampling efforts during the early hours of a response.

This plan does not cover health and safety aspects of sample collection, or safely accessing field locations to collect samples. All field work is to be conducted in accordance with the Health and Safety Plan (HASP) developed for the response. Water sampling operations should not be conducted until the HASP is reviewed, and until authorization is obtained from the Safety Officer.

Once approved by Unified Command and incorporated with the Incident Action Plan, this plan will remain in force until superseded by a newer version or the cessation of response activities.

Plan Authorization

Approved by USCG/EPA:
Approved by SOSOC:
Approved by Responsible Party:
Approved by LOSC:
Approved by Other:
Drafted and Submitted for Approval by:
Op. Period to Initiate Sampling

Signature

Date

3100 Initial Sampling Schedule

This section describes the general schedule for initial sample collection, including when the sampling is to be initiated. This schedule will be modified/incorporated into subsequent sampling plans, if developed.

These are general guidelines that will be tailored to fit each incident

Table 1: Estimated Sampling Schedule

Activity	Est. Start (Time/Date)		Est. End (Time/Date)		Notes
Mobilize to Site					
Sample Collection					
Transport to Lab					
Laboratory Analysis (turnaround time)					
Data Manager provides data to Water Sampling Coord., who decides if additional sampling is needed					
Data Received by the Environmental Unit					

3200 Initial Sampling Program Description

This section describes the general sampling purpose and design, followed by a table summarizing the samples to be collected, means of collection, and sample handling/custody and destination. Refer to Section 6000 for CTCAC standard sample analytes list recommended to be taken at all incidents. Refer to Section 7000 for additional analytes as dictated by the incident.

Example: Surface water grab samples will be collected beginning at the outfall source area and continue every half (0.5) mile downstream to the end of visible contamination, concentrating on areas with the largest visible sheen. Reference locations upstream or outside the zone of impact of the outfall (or suspected source) should also be collected. Additional or alternative sample side locations may be determined based on site-specific factors and suspected contamination.

Table 2: Water Sample Description

	Source Product	Surface Water	Other (describe)	Notes
Approximate # of samples				
Type of Sample (discrete, composite)				
Sample Collection Method				
Quality Control Sample/Type				
Means of Access (boat, shoreside, etc.)				
Team Name(s)				
Transportation				
Laboratory Name (or Field Analysis/Screening)				

3300 Initial Sample Collection, Labeling, and Documentation

The United States Environmental Protection Agency Contract Laboratory Program Guidance for Field Samplers (EPA-540-R-014-103, October 2014) provides descriptions of field sampling methods, as well as QA/QC guidance. Samples collected will be documented on the sample collection form provided (Section 9000), or a suitable substitute will be used. The sample collection form also specifies the sample labeling format and sample location documentation requirements. A formal Chain of Custody (COC) (Section 10000) shall be maintained for all samples collected. If the laboratory cannot supply or does not require a specified COC, then the provided CTCAC COC will be used.

3400 Initial Sample Map of Area(s)/Features

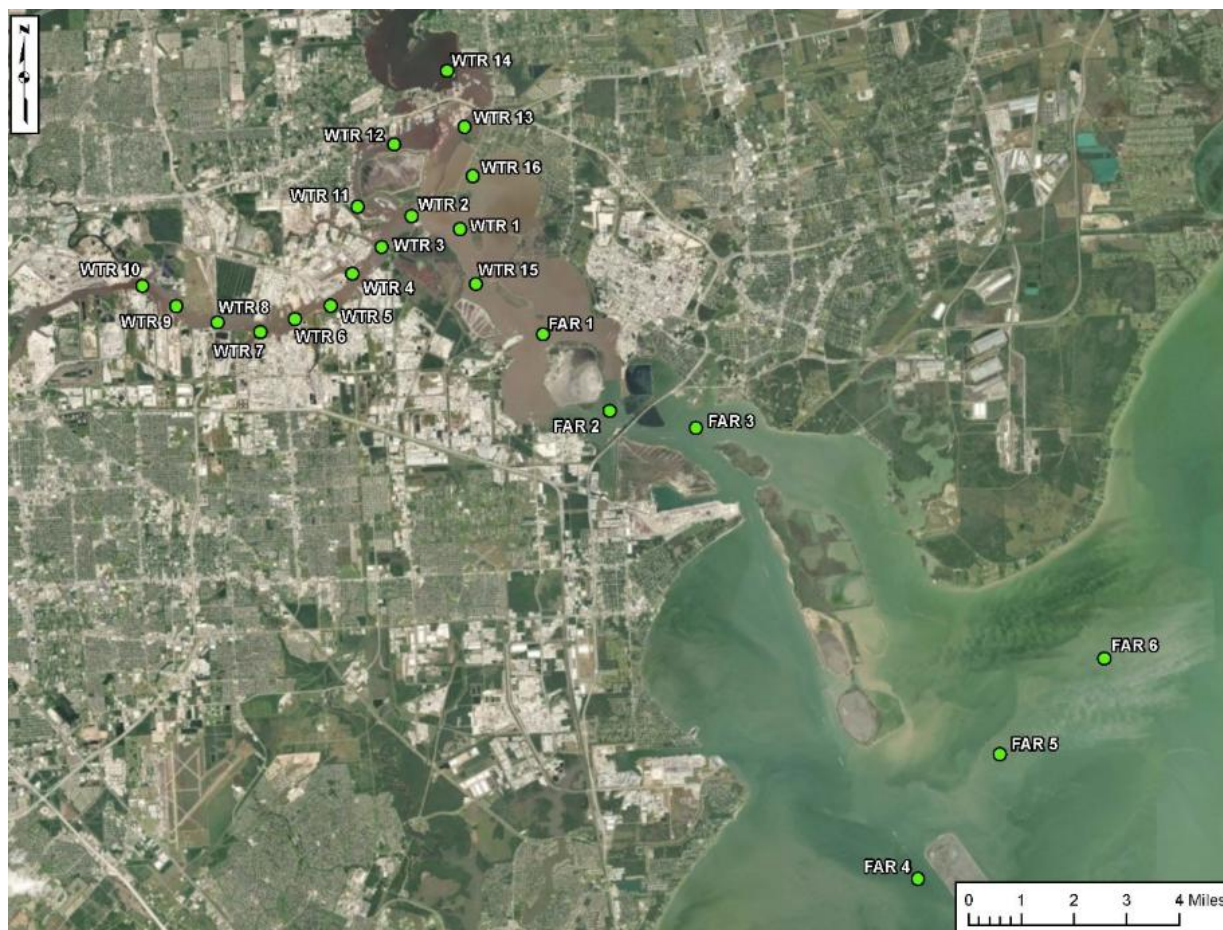


Figure 2: Example of Map Outlining Initial Water Sample Locations

4000 Water Sampling and Analysis Plan

WATER SAMPLING AND ANALYSIS PLAN COVER SHEET

(Incident Name and Location)

(Date)

(Operational Period)

Submitted by Environmental Unit

Leader:

Date:

Printed Name:

Plan Authorization/Approval

Title	Signature	Date
Federal On-Scene Coordinator	_____	_____
Printed Name	_____	_____
State On-Scene Coordinator:	_____	_____
Printed Name	_____	_____
Local On-Scene Coordinator	_____	_____
Printed Name	_____	_____
Responsible Party IC:	_____	_____
Printed Name	_____	_____

4100 Introduction and Purpose

This plan has been prepared by the Planning Section at the request of the Incident Command/Unified Command. This emergency response water sampling and analysis plan is intended to be used during an incident where water sampling is required. The purpose of this plan is to characterize the release to support the site response operations and unified command/official decision-making.

This sampling plan will direct the sampling and analytical work for a specific operational period. It is meant to be used in emergency responses where more detailed or larger-scaled sampling efforts are to be conducted by water sampling teams (hereafter referred to as field teams). This sampling plan may incorporate the Initial Incident Characterization Sampling and Analysis Plan, which is intended to guide the early collection of water samples during a response on an expedited timeframe and when most of the Incident Command resources have not yet mobilized to the site. This plan is not meant to support the natural resources damage assessment operations.

The development of this plan will standardize the documentation, communication, planning, and overall quality associated with the sampling information by:

- Ensuring field team(s) understand the goals and objectives of the sampling to be conducted before the generation of water sampling data;
- Documenting methodologies to be utilized in the collection and handling/preservation of samples;
- Documenting predetermined information in a standardized format;
- Outlining communication flow between sampling personnel and decision makers; and
- Assuring that data quality objectives (DQOs) and QC steps are in place to result in the generation of accurate and defensible data.

This water sampling and analysis plan describes the sampling strategy and techniques, as well as the analytical methods that will be employed at the site for the collection of water samples. The information contained in this plan is based on the information available at the time of preparation. This plan will be updated as necessary to reflect new site information, address different objectives or decision points, and support incident response/cleanup operations

Once approved by Unified Command and incorporated into the Incident Action Plan, this plan will remain in force until superseded by a newer version or water sampling operations are suspended by the Unified Command.

4000 Best Practice: With IC/UC approval, water sampling is suspended when the source is controlled, when the oil/product is no longer mobile, and there have been three sampling events at regular intervals with no exceedance and/or meets designated end points (Situation dependent)

4101 Sampling Objectives

The objectives of this sampling event include:

List all objectives for sampling. These objectives should be based on the Incident Command/Unified Command objectives. Delete the rows that do not apply. These are common examples, modify as necessary for site-specific project goals.

- Sampling to determine the presence or absence of a hazardous substance within the area of concern;
- Sampling to characterize hazardous substances within the area of concern;
- Sampling to estimate contamination levels within the area of concern;
- Sampling to delineate contamination area(s) within the area of concern;
- Sampling to determine the location of hot spots within the area of concern;
- Sampling to confirm contamination migration from the site;
- Sampling to delineate the degree of contamination migration from the site;
- Sampling from existing surface water intakes to determine if contamination is migrating from the site;
- Sampling off-site to determine general background concentrations;
- Support Unified Command decision-making regarding cleanup endpoints;
- Ensure sampling is repeatable;
- Collect product samples related to an oil spill for characterization and fingerprinting.

4102 Estimated Sampling Schedule

This section describes the general schedule for sample collection, including when the sampling is to be initiated. This schedule will be updated as needed.

Table 3: Estimated Sampling Schedule

Activity	Est. Start (Time/Date)		Est. End (Time/Date)		Notes
Mobilize to Site					
Sample Collection					
Transport to Lab					
Laboratory Analysis (turnaround time)					
Data Manager provides data to Sampling Coordinator who decides if additional sampling is needed					
Data received by Environmental Unit					

4200 Assigned Roles and Responsibilities

Water Sampling Technical Specialist

Name: Click here to enter text **Primary Contact Phone:** Click here to enter text

Organization: Click here to enter text **Secondary Contact:** Click here to enter text

Water Sampling Coordinator

Name: Click here to enter text **Primary Contact Phone:** Click here to enter text

Organization: Click here to enter text **Secondary Contact:** Click here to enter text

Water Sampling Team Leader

Name: Click here to enter text **Primary Contact Phone:** Click here to enter text

Organization: Click here to enter text **Secondary Contact:** Click here to enter text

Data Manager

Name: Click here to enter text **Primary Contact Phone:** Click here to enter text

Organization: Click here to enter text **Secondary Contact:** Click here to enter text

Safety Officer

Name: Click here to enter text **Primary Contact Phone:** Click here to enter text

Organization: Click here to enter text **Secondary Contact:** Click here to enter text

Field Team 1 Contact

Name: Click here to enter text **Primary Contact Phone:** Click here to enter text

Organization: Click here to enter text **Secondary Contact:** Click here to enter text

Additional Personnel and Positions as Needed

Name: Click here to enter text **Primary Contact Phone:** Click here to enter text

Organization: Click here to enter text **Secondary Contact:** Click here to enter text

4300 Safety

This plan does not cover health and safety aspects of sample collection or safely accessing field locations to collect samples. All field work is to be conducted in accordance with the Health and Safety Plan (HASP) developed for the overall response, including an understanding of the materials that have been released from the Safety Data Sheets. Water sampling operations will not be conducted until the HASP can be reviewed and authorization is obtained from the Safety Officer.

Add all safety messages here. The following are examples:

- Safety is the number one priority. Sampling should not be attempted in any location it is unsafe to do so.
- Be aware of physical and chemical hazards at the site. Do not enter confined spaces unless they have been determined to be safe. Special care should be paid to the traffic, physical, and chemical hazards outlined the HASP. Individuals collecting samples should use care entering the spill site. Sampling should be conducted in accordance with the approved HASP.
- Slips, trips, and falls from steep slopes, rocks, and vegetation are safety hazards to workers conducting sampling.
- Proper personal protective equipment must be worn at all times by all workers on site in accordance with the approved HASP.

4400 Incident Location and Information

Incident Name:	
Incident Address:	
Latitude:	
Longitude:	

- Provide a short description of the incident to support the need for a sampling plan (include spill materials, spill source etc...).
- Discuss the site and any known information.
- Associated watershed
- Discuss on-site features.
- Discuss surrounding land uses.
- Provide a site map

4500 Contaminants of Concern and Action Levels

Provide an overview of the contaminants of concern for the incident. List compounds in narrative or tabular format that may pose a threat to human health and the environment relevant to the incident. This section should be comprehensive.

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Potential contaminants of concern for the site, action levels, transport mechanisms, and potential receptors are provided in the table below. Refer to Section 8000 for protective concentration/action levels.

Table 4: Contaminants of Concern and Action Levels

Contaminant	Transport Mechanism	Receptor	Action Level (Specific to Receptor)
Mercury, arsenic, lead	Contaminated soil migrating to surface waterbodies	Water targets such as wetlands and/or federally listed threatened and endangered species	
Volatile organic compounds (VOCs)	Contaminants in subsurface soils leaching to groundwater and/or surface water	On-site water flows to a nearby river where fishing occurs. Residents consuming water	

For contaminants without established action levels, complex mixtures, or unknown constituents and composition, provide a narrative description and working action level with justification for the selection of the action level.

4600 Sampling Approach

This section describes the general sampling purpose and design, followed by a table summarizing the samples to be collected, method of collection, and sample handling/custody and destination.

Refer to contaminants of concern list above, Section 6000 for CTCAC standard sample analytes list recommended to be taken at all incidents and Section 7000 for selection of additional analytes when developing the sampling program

Example: Surface water grab samples will be collected beginning at the outfall source area and continue every half (0.5) mile downstream to the end of visible contamination, concentrating on areas with the largest visible sheen. Reference locations upstream or outside the zone of impact of the outfall (or suspected source) should also be collected. Additional or alternative sample side locations may be determined based on site-specific factors and suspected contamination.

Table 5: Sampling Approach Example

Area Segment or Division	Sample Location	Sample Name	Team Name	Sampling Pattern (Random/Targeted)	Sample Type (Grab/Composite)	Field QC Duplicate/Blank	# of Field Samples	Analytical Parameter/Method Description and #	Hold Time	Sample Preservation (all 4°C ± 2°C)	# & Type of Sample Container per Sample	Total Number of Sample Containers (Lab and Field)	Lab Name
WS-01	29deg/093deg	TCEQ WS TM1 WS01 03122020	WS TM 1	Targeted	Grab		3	Gasoline Range Organics/TPH - Gx/GC-FID	14 days	pH ≤2 with HNO ₃	3x40 mL glass amber with Septa lid		
										NA			

Typical water laboratory analyses are included in Sections 7000 and 8000 that will aid in the completion of this table.

Key:

°C = degrees Celsius

FID = Flame ionization detector

HNO₃ = nitric acid

NA = not applicable

TXTPH-Dx/GC = Texas Total Petroleum Hydrocarbon Diesel/Gas chromatograph

TXTPH-Gx/GC = Texas Total Petroleum Hydrocarbon/Gas chromatograph

QC = quality control

4601 Sample Methodology

All field samples are to be collected in accordance with a state or federally approved sampling method. The following standard operating procedures (SOPs) and/or instrumentation manuals will be used during the project.

Samples collected will be documented on the sample collection form provided in Section 9000. A formal chain of custody (COC) will be maintained for all samples collected for the incident. If the laboratory to be used cannot supply or does not require a specific COC, then the COC provided in Section 10000 will be used. Field teams should always reference standard quality procedures, SOPs, and standard methods for sampling and analytical guidance.

4601.1 Sample Nomenclature

Develop a systematic naming convention for all sampling activities. Ensure that each sample is uniquely identified to a specific geographic location. Record addresses and/or latitude/longitude for each sample location. An effective naming convention will allow more sample locations to be added throughout a response. Design a sample nomenclature plan for the incident.

4601.2 Sample Management

Develop procedures to manage sample preservation, documentation, hold times and packaging/shipping of samples, including how to maintain COCs, how and where to deliver the samples, and how to manage the paperwork. Example language:

Proper sample management is required to make sound response decisions. The following action will be taken to manage samples from collection to analysis:

- COC documentation will be recorded for all samples collected. A copy of the COC forms will be placed in a binder stored in the EU, with a copy provided to the Documentation Unit.
- All samples collected by all Field Teams are to be properly stored until delivered to sample processing and the laboratory.
- Copies of all preliminary and final sample results will be maintained in the sample binder in the EU with a copy provided to the Documentation Unit. The results will also be provided to the Water Sampling Coordinator and EU Leader electronically as soon as they are received (refer to Section 5000 for data/information flow guidance)
- The Water Sampling Coordinator will ensure samples were collected, handled and shipped according to established QA/QC measures. A Technical Specialist may be appointed to review and summarize sampling results, create a summary of results, noting any exceedances of protective concentration levels, issues with established QA/QC measures, and provide updates to UC of the schedule established in Section 1200 of this document. If QA/QC issues are noted by Technical Specialist, the Water Sampling Coordinator will address the issues.

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4601.3 Sample Transport

All samples will initially be analyzed with an 8, 12, 24 hours, turnaround time (TAT). Some analysis may require a longer TAT because testing itself may take more than 24 hours. As the cleanup progresses, EU may recommend moving to a standard 2-week TAT. This plan will be updated as needed to reflect TATs.

4700 Data Management

All field data will be managed in accordance with the Data Management Plan as outlined in Section 4900 of this document. Data generated will:

- Be compared with a background or reference sample;
- Be compared to an available protective concentration/action level;
- Be compared with federal or state occupational health limit (e.g. Occupational Safety and Health Administration);
- Be compared with a Resource Conservation Recovery Act (RCRA) or other regulatory limit on waste;
- Be used to profile a water material for off-site disposal or treatment; and
- Assist with determining a material's general hazard classification.

4701 Data Reporting

The following deliverables will be developed using the data obtained. Deliverables will be coordinated with the EU Leader and Incident Command/Unified Command.

Table 6: Data Reporting Deliverables

Reporting Task	Data Inputs	Deliverables Format	Frequency	Responsibility
Sample Result Reports	Water, analytical results	Tabular [.xlsx] Color coded map	Daily	Data Manager
Situational Reports	Photographs, Field reports, Sampling Results	Document [.docx]	Daily	Data Manager

Table 7: Data Reporting Contacts

Title	Name	Organization	Email & Phone #
Federal On-Scene Coordinator			
State On-Scene Coordinator			
Local On-Scene Coordinator			
Situation Unit Leader			

4800 Data Quality

Data can generally be divided into three categories: definitive methodology (generally data generated utilizing standard methodology), non-definitive methodology (also referred to as screening data), and screening data with at least 10% definitive confirmation. The generation of definitive data is preferable; however, in an emergency or time-critical situation, where definitive data is not available, or for certain types of monitoring equipment, non-definitive data may be generated. The following DQOs will be applied to the incident:

- Definitive data which may include water, samples analyzed at an off-site fixed laboratory;
- Screening data from the following instrument (provide a list of instrumentation); and
- Screening data with at least 10% definitive data from (provide a list of matrices for which off-site fixed lab confirmation samples will be submitted including the matrix).

4801 Data Quality Objectives

A well-constructed DQO includes the activity, criteria for making a decision, and describes the action after a decision is made. Add, delete, or update the bulleted list below to fit the response and your agency policy and procedures.

The DQOs for the incident are:

- Acquire data that can be reliably used to make decisions regarding the release and presence of site contamination;
- Determine the presence or absence of a hazardous substance at levels above an available protective concentration/action level;
- Determine the area of impact due to a hazardous substance release (i.e., horizontal or lateral extent of contamination); and
- Document any threats or potential threats to public health or the environment.

4802 Quality Assurance/Quality Control

Write in narrative format the steps and considerations to establish QA/QC for incoming and published data. As appropriate, identify predetermined standards for data verification, analysis, and reporting. QA/QC may be organized into functional activities with suggested QA/QC procedures.

4803 Sampling and Analytical Results

- COC documents will be completed for each sample.
- The laboratory will provide analytical reports. Preliminary or draft reports with provisional will be non-definitive. Final reports received by the laboratory will be definitive data. The data will be reviewed and validated for representativeness, comparability, completeness, precision, and accuracy by a multi-agency analysis team (DSHS, TPWD, TCEQ, et al.). All entities will quality-assure the data.
- Laboratory QC samples (blanks, duplicates, and matrix spikes) will be utilized to assess laboratory performance.

4804 Data Reporting and Deliverables

- Daily Data Summaries may be provided for informational purposes using data that have not undergone complete QA/QC.
- Comprehensive reports of analytical data may be generated following QA/QC.
- The DQO process applied to this incident follows what is described in the Guidance on Systematic Planning Using the Data Quality Objectives Process/G-4 (EPA 2006).

4900 Data Management Plan

Table 8 on the following page should be updated as necessary. Most sites will have site files, photographs, and sampling information if this template is being used.

All field data will be managed in accordance with the following Data Management Plan.

Table 8: Data Management Plan

Data Source	Required Information	Processing Instructions	Processing Frequency	Processing Responsibility	Storage Location	Final Output (file format)
Site Documents	Site files, Sampling Plan, HASP, sample collection forms	File hard copies in EU, provide a copy to the Documentation Unit	Beginning of incident and as files become available	Water Sampling Coordinator	Digital: Hard copy: EU & Documentation Unit	Documents [.docx, .pdf]
Digital Photographs	Date, time, direction, location, description, photographer	Photos will be downloaded from field cameras and stored in the site files.	Daily	Data Manager	EU & Documentation Unit	Photos [.jpg], Photographic log [.xlsx or .docx]
Sample Information	Sample number, Date, Time, Sampler, Location, Matrix	Record data onto field forms, file hard copies in EU provide a copy to the Documentation Unit	Daily or as records are produced	Data Manager	EU & Documentation Unit	COCs, sample labels, maps, tabular reports

Key:

COC = Chain-of-Custody

EU = Environmental Unit

HASP = Health and Safety Plan

5000 Data Information Sharing Processes

5100 Internal IMT and External Officials Information Sharing Process

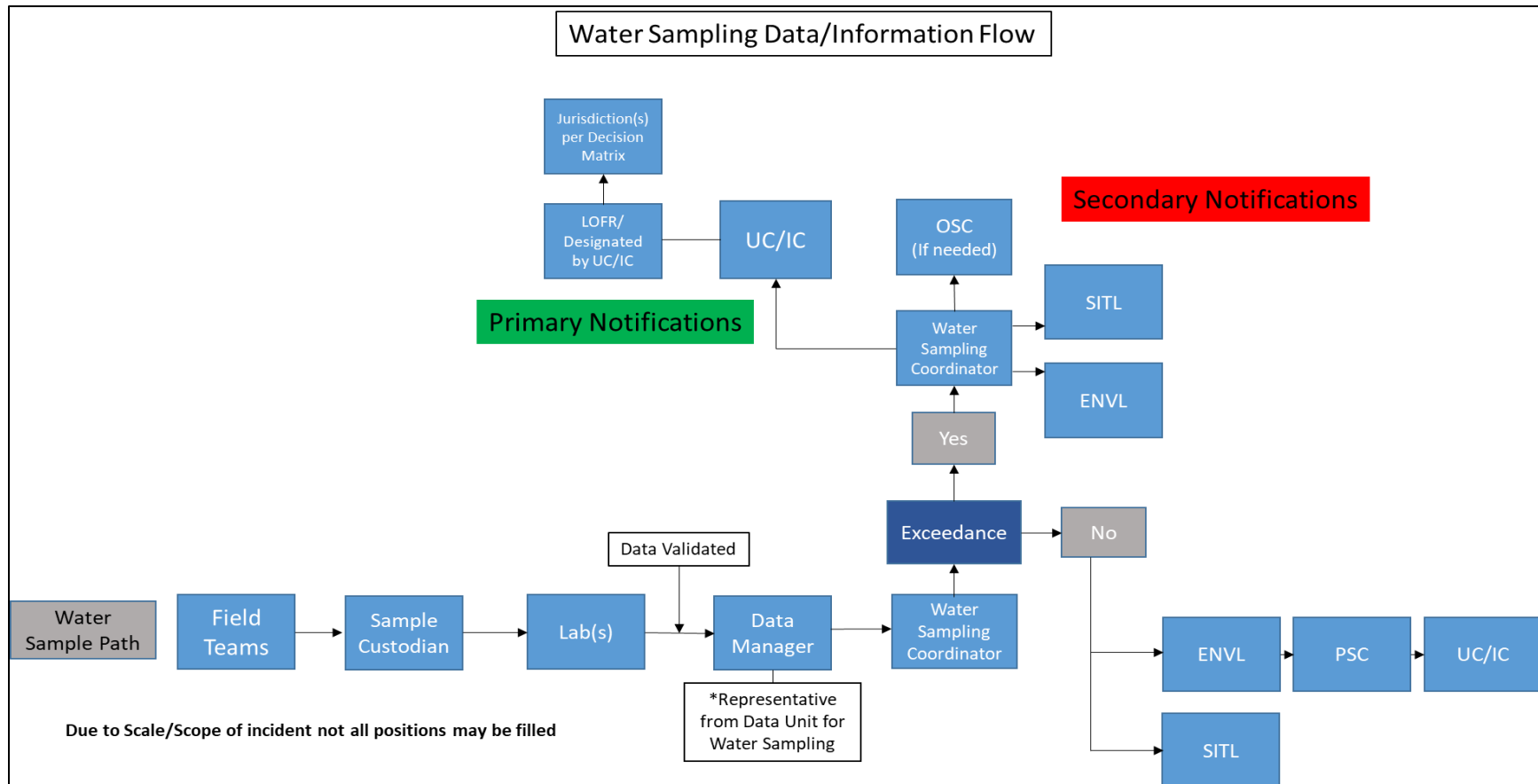


Figure 3: Internal IMT and External Officials Information Sharing Process

5200 General Public Information Sharing Process

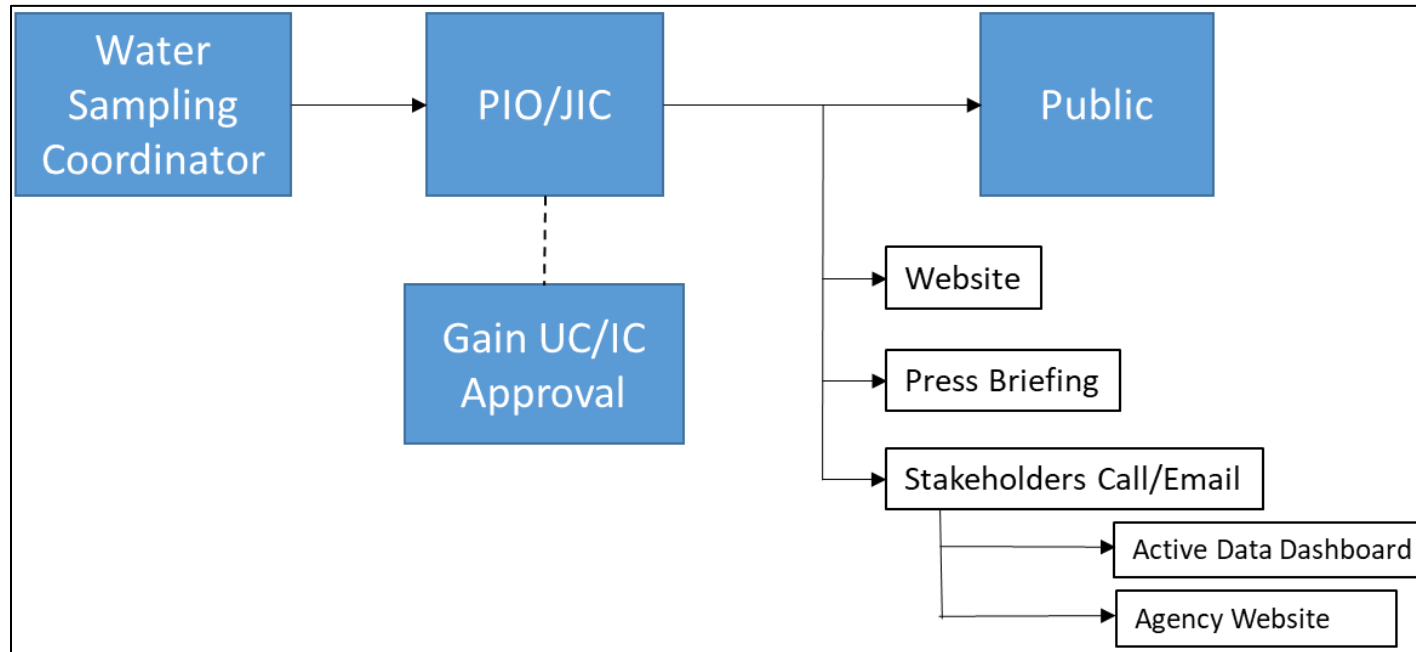


Figure 4: General Public Information Sharing Process

6000 CTCAC Standard Sample Recommendations

ANALYSIS	POTENTIAL METHOD
Water Temperature (°C)	N/A
pH (0-14 standard units)	N/A
Conductivity (Siemens/meter)	N/A
Chemical Oxygen Demand	SM 5220D-2011
Volatile Organic Compounds (VOCs) + TICs	EPA SWA-846 8260b
BTEX	EPA SW846-8260C
Semi-volatile Organic Compounds (SVOCs)	EPA SWA-846 8270 SIM 42 PAH
TX-TPH	TX-1005
PFAS (PFOS and PFOA Only) *If Firefighting Foam Use	EPA 537M
TOC	SM 5310C
Oil and Grease	Method 9071

Figure 5: CTCAC Standard Sample Recommendations

7000 Expanded Sampling List

Table 9: Expanded Sampling List

Analytical Parameter/ Method Description	Matrix	Potential Quantitation Limit	Technical Holding Time
Hydrocarbon Identification/TX TPH	Liquid	0.25 mg/L – Gas 0.63 mg/L – Diesel and Motor Oil	14 days
Diesel, Residual Range & Motor Oil Range Organics/TX TPH	Liquid	250 µg/L – Diesel 500 µg/L – Other	14 days to extraction 40 days to analysis
Gasoline Range Organics	Liquid	250 µg/L	14 days
Oil & Grease/EPA 9071B and 1664A	Liquid	5 mg/L	28 days
BTEX/EPA SW-846 8240	Liquid	0.5 – 10 µg/L	14 days
Petroleum Hydrocarbons/EPA SW-846 8015D	Liquid	50 µg/L	
Volatile Organic Compounds/EPA SW-846 8260	Liquid	0.5 µg/L	14 days
Semivolatile Organic Compounds (including PAHs)/EPA SW-846 8270	Liquid	0.1 – 10 µg/L	14 days
Paraffins, Isoparaffins, Aromatics, Napthalenes, & Olefins(PIANO)	Liquid	1 µg/L	14 days
Chlorinated Herbicides/EPA SW-846 8151	Liquid	0.1 – 1.5 µg/L	7 days
Polychlorinated Biphenyls/EPA SW-846 8082	Liquid	1 µg/L	7 days
Dioxins & Furans/ EPA SW-846 8280/8290	Liquid	10 – 100 pg/L	NA
Metals (not including mercury, hexavalent chromium, includes RCRA and Priority Pollutant Metals)/EPA SW- 846 6000/7000 Series	Liquid	1 – 500 µg/L	6 months
Mercury (may be combined with metals analysis)/EPA SW-846 7471B/7470A	Liquid	0.2 µg/L	28 days
Ammonia/EPA 350.1	Liquid	0.01 mg/L	28 days
Total Dissolved Solids/EPA 160.1	Liquid	20 mg/L	7 days
Total Kjeldahl Nitrogen (TKN)/EPA 351.2	Liquid	0.5 mg/L	28 days
Total Organic Carbon (TOC)/ PSEP-TOC & SM 5310B	Liquid	1 mg/L	28 days
pH/EPA 9040	Liquid	NA	Immediately
Salinity/SM 2520B	Liquid	NA	28 days
Anions/EPA 300.0	Liquid	0.04 – 0.03 mg/L	Bromate – 28 days Bromide –28 days Chlorate–28 days Chloride– 28 days Chlorite - Immediately Fluoride– 28 days Nitrate as Nitrogen – 48 hours Nitrate/Nitrite– 28 days Nitrite as Nitrogen– 48 hours Ortho-Phosphate-p– 48 hours Sulfate– 28 days
Chlorinated Pesticides/EPA SW-846 8081	Liquid	0.05 – 5 µg/L	7 days

Key:

µg/kg = micrograms per kilogram

mg/L = milligram per liter

EPA = Environmental Protection Agency

L = liters

mg/L = milligrams per liter

ng/kg = nanogram/kilogram

HCID = Hydrocarbon Identification Analytical Method

pg/L = picogram/liter

µg/L = micrograms per liter

BTEX = benzene, toluene, ethylbenzene and xylene

HDPE = high-density polyethylene

mg/kg = milligrams per kilogram

mm = millimeters NA = not applicable

TPH- Total Petroleum Hydrocarbon

PAH = Polycyclic aromatic hydrocarbon

RCRA =Resource Conservation and Recovery Act

8000 Decision Making Process

This section provides the Unified Command and officials with important information to help facilitate decision-making during an incident such as waterway closures and consumption advisories. None of the action levels below have been officially approved nor endorsed by the Central Texas Coastal Area Committee (CTCAC).

To use this section, follow the process outline in Figure 5 (Water Sampling Incident Flow Chart). At various points, the Water Sampling Incident Flow chart will direct users to other sections of this document. When utilizing Table 10 (Decision Matrix), first refer to the appropriate receptor or required decision (10 column 1) (i.e. human contact/beach closure). Next, refer to the agencies who have jurisdiction (10 column 2) and ensure they're involved in the process. Next, refer to the Protective Concentration Level column (Table 10 column 3) and reference Table 11 (Water Protective Concentration Level), for benchmark level. Based on water sampling results, refer to column 4 of Table 10 for recommended actions if exceedance occurs.

The Texas Risk Reduction Program and Texas Surface Water Quality Standard associated values including Human Contact Recreation Water Protective Concentration Levels (Table 11 Column 1) and Human Health Surface Water Risk-Based Exposure Limits (Table 11 Column 2 and 3) are the primary values used as benchmarks to support Unified Command and Officials decision making during an incident. DSHS Health Assessment Comparison (HAC value) (Table 11 Column 4) is the primary value used to determine whether a fish or shellfish advisory may be required. In certain cases when there is no TRRP/TSWQS or EPA NWQC, the National Primary Drinking Water Maximum Contaminant Level (MCL) (Table 11 Column 5) should be used.

The list of chemicals of concern (COC) in Table 11 includes commonly transported chemicals and/or materials frequently spilled. In the event the chemical released during the incident is not listed in Table 11, please utilize the same process identified in this section and review the provided links for the corresponding values. In some circumstances, there may be no values listed anywhere for a particular chemical. In this situation, consult TCEQ Risk Assessment and Research Division at (512) 239-1793 for guidance and establishment of a value. Furthermore, during prolonged responses the Unified Command and Officials may need to consult with TCEQ Risk Assessment and Research Division to refine previously listed protective concentration levels (i.e. conduct tier 2 or 3 assessment).

8100 Definitions

8101 Contact Recreation Water Protective Concentration Levels (PCLs)

Individuals using surface water for recreation (e.g., swimming) may be exposed to COCs through the incidental ingestion of surface water and dermal contact. In developing PCLs for recreation water exposure pathways, Tier 1 exposure factors were used when applicable (e.g., exposure duration, body weight). However, certain pathway-specific exposure parameters (e.g., exposure frequency, incidental surface water ingestion rate) are not available in TRRP and were taken from Table 5-1 of TRRP-24. The residential RBEL-4 equations (see Figure 30 TAC §350.74 (a)) were used to evaluate the incidental ingestion of surface water pathway by changing the exposure

frequency and the ingestion rate (including calculation of an age-adjusted incidental ingestion rate of 0.126 L-year/kg-day). Dermal exposure to surface water was evaluated using equations and inputs provided by USEPA in Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment), Final Guidance (July 2004) and errata

(www.epa.gov/oswer/riskassessment/ragse/pdf/part_e_final_revision_7-27-06.pdf).

TRRP chemical/physical data (i.e., logKow, molecular weight) were used to calculate skin permeability coefficients (i.e., Kp values). The child exposure scenario was most sensitive for non-carcinogenic hazard, and the age-adjusted scenario was most sensitive for carcinogenic risk. The contact recreation PCL table for surface water will be updated periodically (i.e., every March along with the other PCL and RBEL tables). (TCEQ, Contact Recreation PCLs, 2006)

8102 Human Health Surface Water Risk-based Exposure Limits (SWRBEL) Water and Fish

The surface water RBEL (SWRBEL) is the protective concentration of a COC at the Pathway of entry in surface water. The criteria used is to prevent contamination of drinking water, fish and other aquatic life to ensure that they are safe for human consumption. If the water body is designated or used as a public drinking water supply, then the criteria for Water and Fish apply. (TCEQ, Determining PCLs for Surface Water and Sediment, 2007)

8103 Human Health Surface Water Risk-based Exposure Limits (SWRBEL) Fish Only

The surface water RBEL (SWRBEL) is the protective concentration of a COC at the POE in surface water. Criteria used is to prevent contamination of fish and other aquatic life to ensure that they are safe for human consumption. These criteria apply to salt/freshwater which have sustainable fisheries and which are **not** designated or used for public water supply (TCEQ, Determining PCLs for Surface Water and Sediment, 2007)

8104 National Drinking Water Maximum Contaminant Level (MCL)

The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to Maximum Contaminant Level Goal (MCLGs) as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards.

Maximum Contaminant Level Goal (MCLG) - The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety and are non-enforceable public health goals. (TCEQ, Determining PCLs for Surface Water and Sediment, 2007)

8200 Decision Making Flow Chart/Tables

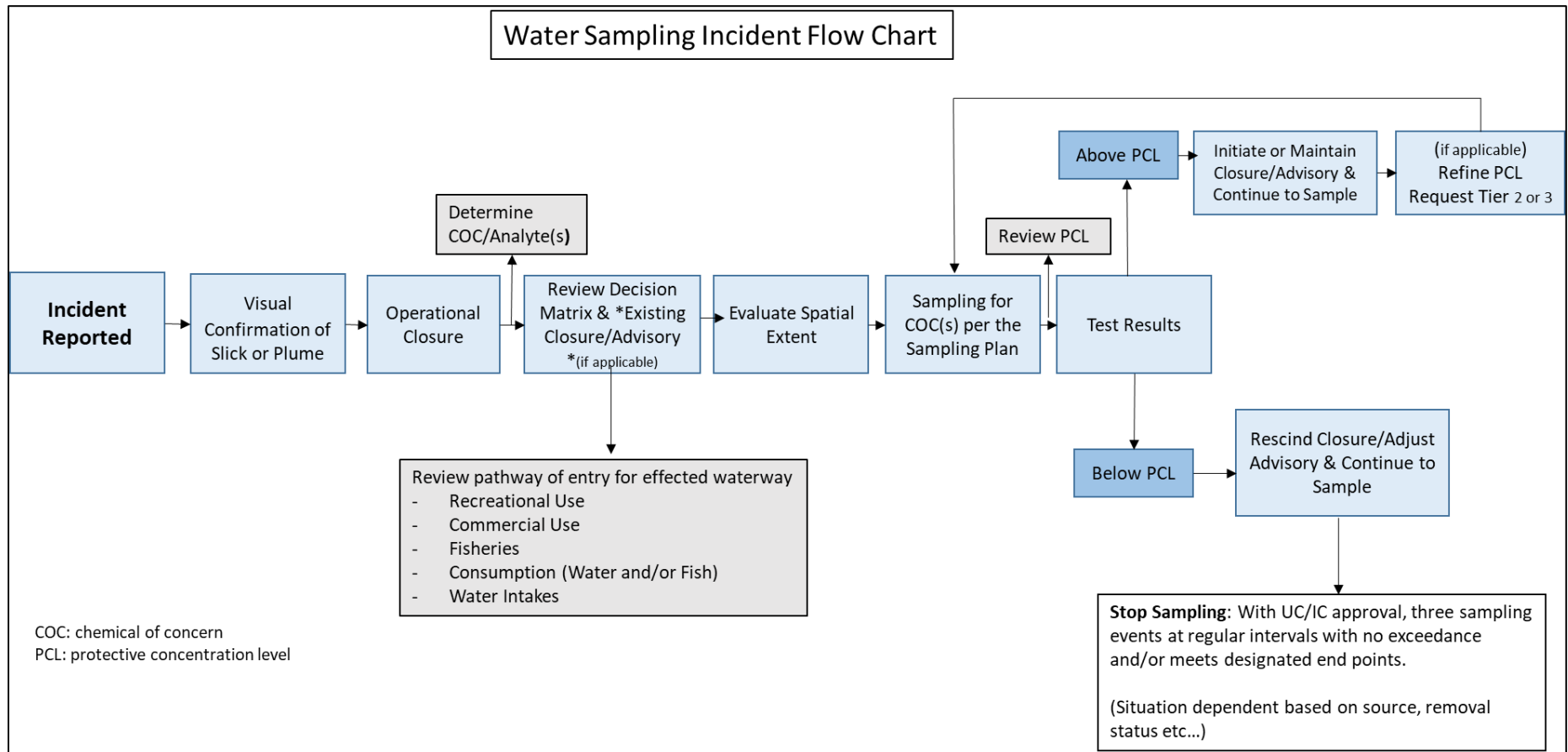


Figure 6: Water Sampling Incident Flow Chart

Table 10: Decision Matrix

Decision/Receptor (1)	Jurisdiction (2)	Protective Concentration Level (3)	Actions (4)
Contact Recreational Use Closure	City: As applicable County: As applicable State: TPWD/TGLO Federal: USFWS/NPS/NMFS	Contact Recreation Water PCL Combination <u>*Reference: Table 11 Column 1</u>	Issue public notice Close the affected area Establish safety zone Enforce zone
Water Intake Closure	City: As applicable County: As applicable Industrial/Private: As applicable	Human Health Surface Water RBEL (Water & Fish) <u>*Reference: Table 11 Column 2</u>	Notification Call Close intake
Drinking Water Closure	Public Water System Owner	Human Health Surface Water RBEL (Water & Fish) <u>*Reference: Table 11 Column 2</u>	Issue Notice
Fisheries Closure	TPWD w/DSHS	Human Health Surface Water RBEL (Fish Only) <u>*Reference: Table 11 Column 3</u>	Issue public notice
Fish Consumption Advisory	DSHS	DSHS Health Assessment Comparison Value <u>*Reference: Table 11 Column 4</u>	Consider Advisory

Table 11: Water Protective Concentration Levels

Water Protective Concentration Levels						
Chemical of Concern (COC)	CAS ID #	(1): Contact Recreation Water PCL (comb)1	(2): Human Health Surface Water RBEL (Water and Fish) 2	(3): Human Health Surface Water RBEL (Fish Only) 3	(4) DSHS Health Assessment Comparison Value	(5) National Drinking Water MCL
Acenaphthene	83-32-9	2440 µg/L	70 µg/L	90 µg/L	140,000 µg/L	
Acrolein	107-02-8	426 µg/L	3 µg/L	400 µg/L		
Acrylonitrile *	107-13-1	75.7 µg/L	1 µg/L	115 µg/L	1,008 µg/L	
Benzene *	71-43-2	235 µg/L	5 µg/L	581 µg/L	9,899 - 36,296 µg/L	
Carbon Disulfide	75-15-0	34300 µg/L			233,333 µg/L	
Chlorine	7782-50-5	56,400 µg/L				
Cresols	1319-77-3	10,880 µg/L	1,041 µg/L	9,301 µg/L		
Ethanol	64-17-5	27,300,000 µg/L				
Ethylbenzene	100-41-4	12800 µg/L	700 µg/L	1867 µg/L	23,333 µg/L	
Ethylene Glycol	107-21-1	1,000,840 µg/L	46,744 µg/L	10,000,000.68 µg/L		
Formaldehyde *	50-00-0	148000 µg/L				
Hexane	110-54-3	4790 µg/L				
MTBE	1634-04-4	5.47 µg/L	15 µg/L	10,482 µg/L	700,000 µg/L	
Naphthalene *	91-20-3	2550 µg/L			46,667 µg/L	
Nitrate	14797-55-8	1,000,320 µg/L	10,000 µg/L			
Phenol	108-95-2	100,600 µg/L	4000 µg/L	300,000 µg/L	700,000 µg/L	
Phosphine	7803-51-2	169 µg/L				
Polychlorinated Biphenyls *	1336-36-3		.00064 µg/L	.00064 µg/L	272 µg/L	0.5 µg/L
Styrene	100-42-5	29,800 µg/L			466,667 µg/L	100 µg/L
Toluene	108-88-3	10,650 µg/L	1000 µg/L	1000 µg/L	186,667 µg/L	
Vinyl Chloride *	75-01-4	11.3 µg/L			389 µg/L	2 µg/L
Xylenes	1330-20-7	20,400 µg/L			466,667 µg/L	10,000 µg/L
		Column (1):	https://www.tceq.texas.gov/remediation/trrp/trrppcls.html			
		Column (2):	https://www.tceq.texas.gov/remediation/trrp/trrppcls.html			
		Column (3):	https://www.tceq.texas.gov/remediation/trrp/trrppcls.html			
		Column (4):	Contact DSHS			
		Column (5):	https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulation-table			

NOTE: The values above are compiled from various sources which update at varying frequencies. This plan is reviewed annually and its associated values will be updated accordingly. Users of this plan should always verify the values listed in the plan are the most current valued listed in the originating source.

9000 Sample Collection Form

Incident Name:						Operational Period:							
Field Sampling Team Lead Information						Contact Information (Sampling Tech Specialist in ICP)							
Contact/Mobile Phone:						Contact/Phone:							
Affiliation/Email:						Affiliation/Email:							
Team Members:						DOC Section Email:							
Sampling Objective (from Sampling Plan)						Sampling Conditions/Notes (notes on individual samples below)							
Sample ID <i>Location Code/Matrix/ Depth Interval/2-Digit Sample Code (Example COL-SW-0-02 for Columbia River, Surface Water, Depth 0, Sample #2)</i>	Sample Date <i>(mm/dd/yyyy)</i>	Sample Time <i>(24-hr local)</i>	Matrix <i>(e.g., water, soil, product)</i>	Preserved Y / N	Type <i>(e.g., Grab/ Composite/ trowel, etc.)</i>	Sampling Method <i>(e.g., bailer, direct, etc.)</i>	Sample Location <i>Latitude / Longitude in decimal degrees (ex: xx.xxxx/- yy.yyyyyy)</i>		Container Type <i>(ex. 1-liter amber)</i>	# Containers	Sample Notes <i>Note any filtration, problems with sample, etc.</i>		
Sampling Lead Signature						Form #		of		Cooler ID:		ICED :	Y / N

10000 Chain of Custody Form

Field Sampling Team Lead Information						Contact Information (Sampling Tech Specialist in ICP)											
Contact/Mobile Phone:						Contact/Phone:											
Affiliation/Email:						Affiliation/Email:											
Incident/Project Name:						Lab Report Email To:											
Laboratory Information						Analyses Requested						Cooler					
Laboratory:												# Containers / Type	Turnaround Time (or hold)	ID:	ICED: Y / N		
Lab Contact Name:														COC#		of	
Lab Phone/Email																Comments Include preservative type, control samples, if used.	
Sample ID (record location, description, etc. in field book or sampling form)	Sample Date (mm/dd/yyyy)	Sample Time (24-hr local)	Matrix (water, soil, product)	Preserved Y / N List Type Used	Type Grab/Com po- site/etc.												
Samples Relinquished By						Samples Received By											
Date	Time	Signature	Name (printed)			Date	Time	Signature	Name (printed)								
Special Instructions:																	

11000 Acronyms

COC	Chain of Custody
CTCAC	Central Texas Coastal Area Committee
DQO	Data quality objectives
DSHS	Texas Department of State Health Services
ENVL	Environmental Unit Leader
EPA	Environmental Protection Agency
EU	Environmental Unit
HASP	Health and Safety Plan
IC/UC	Incident Command/Unified Command
ICP	Incident Command Post
ICS	Incident Command System
JIC	Joint Information Center
LOFR	Liaison Officer
LOSC	Local On-Scene Coordinator
MCL	Maximum Containment Level
MCLG	Maximum Contaminant Level Goal
NWQC	National Recommended Water Quality Criteria
OSC	Operations Section Chief
PCL	Permissible Contamination Limit
PIO	Public Information Officer
PSC	Planning Section Chief
QA	Quality Assurance
QC	Quality Control
RBEL	Risk Based Exposure Limit
RCRA	Resource Conservation Recovery Act
SITL	Situation Unit Leader
SOP	Standard Operation Procedures
SOSC	State On-Scene Coordinator
TAT	Turn Around Time
TCEQ	Texas Commission on Environmental Quality
TGLO	Texas General Land Office
TPWD	Texas Parks and Wildlife Department
TRRP	Texas Risk Reduction Program
TSWQS	Texas Surface Water Quality Standards
VOC	Volatile Organic Compounds