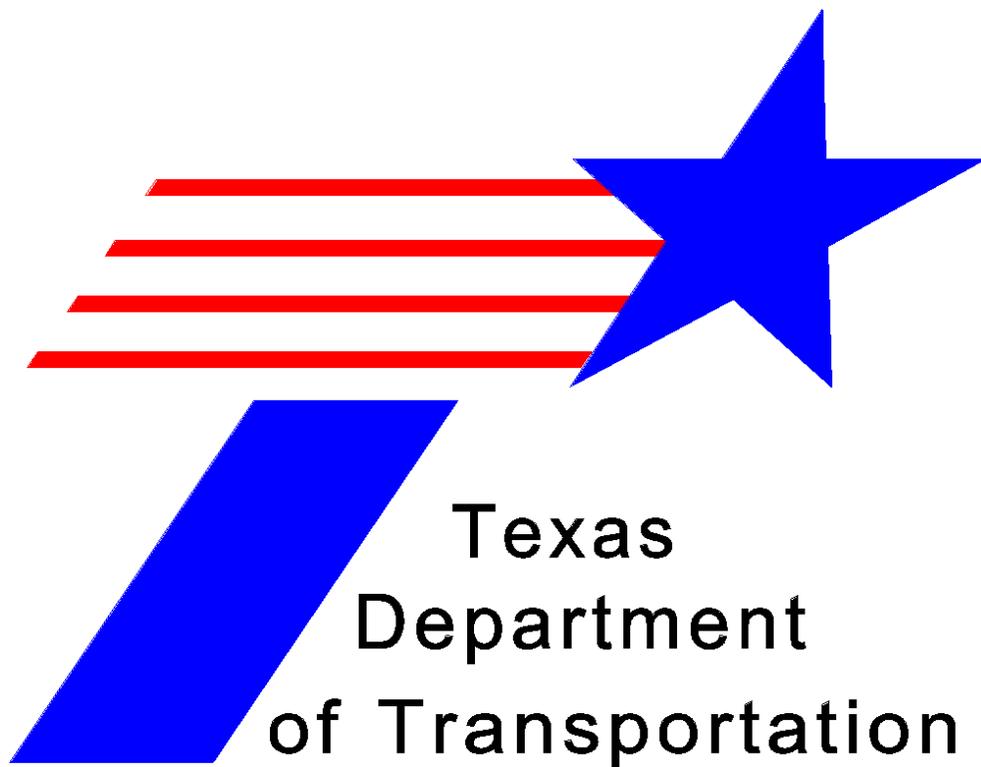


Hazardous Materials in Project Development Manual



Revised September 2007

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Manual Notice 2007-2

From: Dianna Noble, Director, Environmental Division

Manual: Hazardous Materials in Project Development Manual

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Purpose

This manual provides guidance on issues related to Hazardous Materials in Project Development. It provides procedures and practices related to Hazardous Materials in the functional areas of advanced planning and environmental documentation, right of way, design and construction.

Contents

This revision includes an updated name for the Texas Department of Health (now the Department of State Health Services) in Chapter 3, Section 2. It also includes an updated table in Chapter 7 for Hazardous Materials Recommended Training (Table 7-2).

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Archives

Past manual notice are available in a manual notice [archive](#).

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Chapter 1

Introduction

Contents:

Section 1 — Overview

Section 2 — Hazardous Material Concerns

Section 3 — TxDOT Decisions and Communication

Section 1

Overview

Scope of Guidance

For the purpose of the Hazardous Materials in Project Development Manual, project development includes the following four functional areas:

- ◆ advanced planning and environmental documentation
- ◆ right of way
- ◆ design
- ◆ construction.

This manual is organized into the following chapters and appendices:

1. Introduction
2. Advanced Planning and Environmental Documentation
3. Right of Way
4. Design
5. Construction
6. Hazardous Materials Services Contracts
7. Training and Certification Information

Guidance for TxDOT facility or maintenance programs (such as bridge maintenance, abandoned material, spills, hazardous waste management and vegetation management) is not included in this document.

Responsibilities

The Environmental Affairs Division (ENV), particularly the Pollution Prevention and Abatement Branch (ENV-PPA), is responsible for coordinating hazardous materials management issues and serves as the initial point of contact for each district.

Each district is responsible for ensuring coordination of hazardous material issues during planning and project development. To facilitate this coordination, the district should consider assigning a single hazardous materials coordinator for project development or a hazardous materials team consisting of members from all functional areas. The assignments of district personnel and/or section responsibilities rest with the District.

An Environmental Continuous Improvement Team established initial division and district responsibilities for department environmental activities. District Engineers and the Environmental Affairs Division Director entered into intra-departmental agreements that included specific tasks and minimum qualifications, such as knowledge, training and experience, for hazardous material duties. The hazardous materials tasks and minimum qualifications are provided in Chapter 7, [“Training and Certifications.”](#)

Obtaining Assistance

Persons conducting or coordinating environmental site assessments and investigations should be familiar with applicable federal, state and local environmental laws and regulations. Additionally, knowledge of hydrogeologic, environmental engineering, manufacturing processes, chemistry and biological processes may be necessary. As a result of the Continuous Improvement Intra-Departmental Agreements, training sources have been established and are outlined in Chapter 7, [“Training and Certifications.”](#)

A multi-disciplinary team of experienced professionals may be needed to assess or investigate projects at high risk for hazardous materials. This team may include structural and environmental engineers, geologists, hydrogeologists, biologists, chemists, toxicologists and/or industrial hygienists. The team will identify major concerns and any corrective or preventative activities required to resolve them. These activities may include health and safety training, acquisition of licenses and permits, and/or coordination with regulatory agencies.

Some districts may already have in-house staff with the knowledge, education and experience necessary to perform or coordinate corrective or preventative activities. However, a district may also opt to use environmental engineers on statewide contract with TxDOT to perform this work. The services of environmental specialty contractors may also be required. As further discussed in Chapter 6, [“Hazardous Materials Services Contracts,”](#) the General Services Division (GSD) and the Office of General Council, Contract Services Section (CSS) should be contacted for purchasing and contracting assistance. The Pollution Prevention and Abatement Branch of ENV should be contacted for technical and regulatory assistance.

TxDOT employees can obtain additional information on occupational safety, health and training in the *TxDOT Occupational Safety Manual*, particularly the chapters on hazardous materials, safety rules and standards.

Section 2

Hazardous Material Concerns

Hazardous Materials/Waste

Hazardous materials/waste are defined in Article 1.58 Hazardous Materials or Waste of *TxDOT's Standard Specifications*. Hazardous materials/waste include, but are not limited to, such materials as:

1. explosives
2. compressed gas
3. flammable liquids
4. flammable solids
5. combustible liquids
6. oxidizers
7. poisons
8. radioactive materials
9. corrosives
10. etiological agents
11. other materials classified as hazardous by Title 40 Code of Federal Regulations - Part 261 (40 CFR 261) or applicable state and federal regulations.

The term “hazardous materials” refers to a broad category of hazardous wastes, hazardous substances and toxic chemicals that can negatively impact human health or the environment. The presence or suspected presence of hazardous material that may potentially influence a project creates a multitude of problems affecting right-of-way acquisition, project development and construction.

The definition of “hazardous materials” also includes “chemicals of concern” as defined in 30 TAC §350 – Texas Risk Reduction Program (TRRP), as well as any media (such as soil and water) contaminated by those chemicals of concern.

A “chemical of concern” is any chemical with the potential to adversely affect ecological or human receptors due to its concentration, distribution, and mode of toxicity. Depending upon the program area, chemicals of concern may include the following:

- ◆ solid waste, industrial solid waste, municipal solid waste and hazardous waste as defined in the Texas Health and Safety Code §361.003, as amended, and the Texas Water Code §26.263, as amended

- ◆ hazardous constituents as listed in 40 CFR 261 - Appendix VIII, as amended
- ◆ constituents on the groundwater monitoring list in 40 CFR 264 - Appendix IX, as amended
- ◆ constituents as listed in 40 CFR 258 - Appendices I and II, as amended
- ◆ pollutant as defined in Texas Water Code §26.001, as amended
- ◆ regulated substance as defined in Texas Water Code §26.342, as amended, and 30 TAC §334.2 (relating to Definitions), as amended
- ◆ petroleum product as defined in Texas Water Code §26.342, as amended, and 30 TAC §334.122(b)(12) (relating to Definitions for ASTs), as amended
- ◆ other substances as defined in Texas Water Code §26.039(a), as amended, and daughter products of the aforementioned constituents.

Why Address Hazardous Materials in Project Development?

In the National Cooperative Highway Research Program (NCHRP) Report 310, "Dealing with Hazardous Waste Sites - A Compendium for Highway Agencies," the challenges posed by hazardous materials were described as follows:

"Hazardous waste sites can pose a myriad of legal, regulatory, financial, and technical problems to a highway agency and its officials. An agency becomes exposed to substantial liability when it purchases a contaminated parcel of land or if it owned property when wastes were placed there (either by past agency practices, by third-party illegal disposal practices, or by the activities of tenants). Under a number of federal and state statutes, claims can be made against the agency for a variety of cleanup costs, as well as for personal or property damages. In addition to these costs, the additional time delay that results from cleaning up a contaminated site can add significantly to overall project costs. Highway agency personnel - unfamiliar with the signs and properties of hazardous wastes - can expose themselves to considerable safety and health risks."

For the above reasons, and to address compliance with the National Environmental Policy Act (NEPA) 42 USC §4321 et seq and the Federal Highway Administration's (FHWA) 1988 Interim Guidance, issues related to hazardous materials must be considered throughout project development.

If unavoidable, NEPA requires mitigation of adverse impacts to the environment. FHWA provides the following directives to meet the NEPA requirements:

- ◆ identify hazardous material concerns early in the planning process
- ◆ evaluate and document the feasibility of avoidance and minimization of hazardous materials involvement
- ◆ facilitate cost recovery from responsible parties.

TxDOT's interests include actions to:

- ◆ avoid or minimize liability for environmental remedial action
- ◆ avoid or minimize unnecessary costs, such as field changes and contractor downtime due to unanticipated encounters of hazardous materials
- ◆ protect the health and safety of the public, contractors and TxDOT staff.

The best engineering solutions are developed when issues are identified early. These solutions avoid or minimize concerns to meet communities' transportation needs as effectively and efficiently as possible.

In the NCHRP Report 351, "Hazardous Wastes in Highway Rights of Way," the Committee on Hazardous Wastes in Highway Rights-of-Way of the Transportation Research Board stated that an effective way to deal with hazardous waste was early discovery and assessment. The report states:

"Some of the alternatives that might flow from such a strategy of early discovery and assessment in descending order of the level of avoidance include:

1. Realignment to avoid the site completely
2. Realignment to minimize the contaminated property taken
3. Redesign to avoid disturbing the contaminated portion of the property
4. Redesign to minimize the disturbance of the hazardous waste
5. If disturbance is unavoidable, securing cleanup by the property owner prior to acquisition
6. If prior cleanup is unattainable, use of low-cost, but often time-consuming, remediation techniques
7. Use of fast, but often expensive, techniques to clean up the site
8. A decision not to build if the costs of all the alternatives exceed the project's benefits

The earlier in the project development phase the problem is discovered, the more of these choices may be available."

TxDOT is incorporating the above approach for managing hazardous materials issues into its formal environmental process, as required by the NEPA.

Concerns for TxDOT Pertinent to Hazardous Materials Issues

The following are examples of the health and safety, environmental, project planning, liability, cost and public concerns of TxDOT related to hazardous materials management:

- ◆ Health and safety concerns include the abilities to:
 - ensure the safety of public and department personnel

-
- avoid worker exposure to contaminants and provide notification to contractors
 - develop construction health and safety plans
 - determine long-term or maintenance health and safety considerations.
 - ◆ Environmental concerns include the abilities to:
 - avoid or minimize further hazardous material releases into the environment
 - determine appropriate re-use or disposal requirements.
 - ◆ Project planning and development concerns include the abilities to:
 - facilitate preferred alignment selection
 - facilitate planning and scheduling
 - facilitate the incorporation of special measures into the project's Plans, Specifications and Estimates (PS&E).
 - ◆ Liability concerns include the abilities to:
 - avoid or minimize cost of litigation against the FHWA and TxDOT
 - avoid or minimize potential for future liability and/or cleanup responsibilities
 - establish innocent landowner and eminent domain defenses.
 - ◆ Minimizing costs concerns include the abilities to:
 - avoid or minimize project redesign
 - minimize corrective action and disposal costs
 - avoid or minimize construction delays or downtime costs
 - facilitate cost recovery or responsible party clean-up.
 - ◆ Public image concerns include the abilities to:
 - avoid or minimize delay in completing projects
 - avoid adverse publicity.

Section 3

TxDOT Decisions and Communication

Decision-Making Process

Regardless of the stage at which a hazardous substance or petroleum contamination is identified, a decision must be made to revise the location of the project, delay the project, or terminate the project. This decision should be based on cost/benefit evaluations and risk assessments, which depend upon the types of contaminants present, level of health risk, contaminant fate and mobility, and feasible treatment options.

FHWA guidance is steering TxDOT toward the proactive policy of conducting site assessments during the project planning phase to avoid, minimize and recover costs. If a hazardous materials site cannot be avoided, then the project should be designed to minimize hazardous materials impacts. To minimize the impact most effectively, the environmental site assessments and investigations must be comprehensive to determine the extent and severity of the contamination of concern. The level of investigation should correlate to the amount of information the department needs to determine the following:

1. Can the contamination be effectively remediated prior to letting without causing undue traffic flow interruption or redundant excavation?
2. Can the construction contractor work in the contaminated areas without exceeding the permissible exposure limits (PEL) for the chemical of concern? In other words, is the construction site safe for the contractor?

Decision-making during the construction phase of the project is usually limited to unanticipated hazardous materials/waste sites encountered during ongoing construction activity. In cases of anticipated site(s) where there is a strong certainty that hazardous materials/wastes are present, project-specific action should already have been sequenced in the plans.

If hazardous materials are discovered in a work zone, the first determination the Engineer must make is the impact, if any, a work stoppage might have on construction site safety. For example, could stopping the work have a disastrous effect on the project, such as the collapse of an earth wall or retaining structure? Once that determination is made and a stage has been reached at which the work can be safely stopped, the contaminants must be identified and concentrations determined to assess whether the exposure level is above that permitted by the Occupational Safety and Health Act (OSHA). The next decision the Engineer must make is whether the project should be terminated, suspended or altered to avoid or mitigate the effects of the hazardous materials/waste. The contract(s) may be amended to accommodate whatever decision is made. If the decision is made to continue with the project, a careful investigation must follow to examine the possibility of concurrently executing both clean-up and construction activities and to establish the sequence offering optimum accomplishment of both objectives.

Communication

Communication between districts and divisions is essential in determining the most effective and economic method of proceeding with project development. Figure 1-1 depicts the communication flow that should occur during project development between advanced planning, right-of-way, design and construction functional areas.

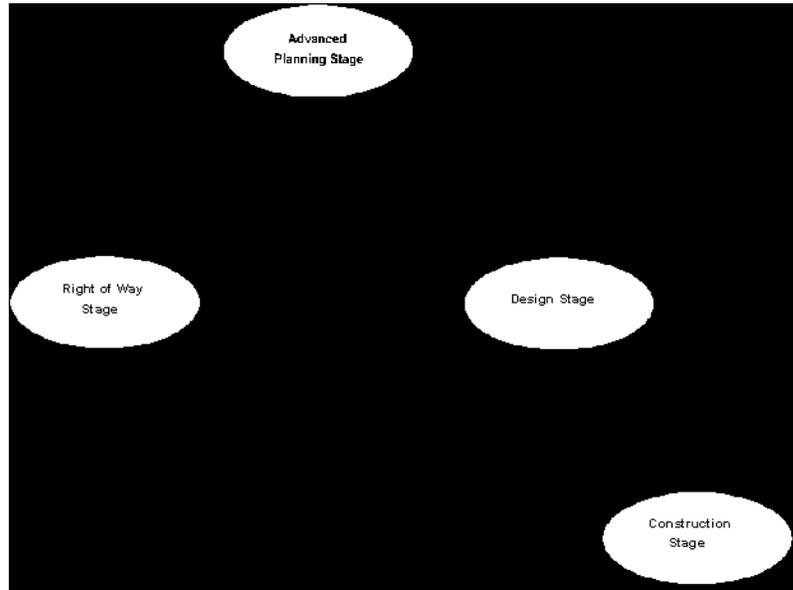


Figure 1-1.

Chapter 2

Advanced Planning and Environmental Documentation

Contents:

Section 1 — Overview

Section 2 — Site Assessments and Investigations

Section 3 — Planning and Preliminary Engineering Considerations

Section 4 — Environmental Documentation and Clearance

Section 1 Overview

Goals

The following goals should be accomplished during the advanced planning and environmental documentation stages of project development:

- ◆ assessment of hazardous material concerns in the early planning stage of project development
- ◆ consideration of hazardous material concerns in alignment selection
- ◆ determination of any additional investigation, consideration and/or coordination required for subsequent stages of project development because of the known or possible presence of hazardous materials
- ◆ coordination of assessment and/or investigation findings, decisions, considerations and commitments with affected parties, entities, district functional areas, divisions and agencies
- ◆ documentation of the hazardous materials assessment, alignment selection decisions regarding hazardous materials, and preliminary commitments due to the known or possible presence of hazardous materials.

Procedure Overview

Although this manual focuses primarily on transportation projects, other types of right of way or property acquisition efforts may benefit from the information provided. These include, but are not limited to, advanced or hardship acquisition, corridor preservation, maintenance facility acquisition, enhancement projects and transit projects.

Hazardous material contamination may be encountered on any transportation project during construction. Contamination sources can be found in existing, adjacent and proposed right of way. The potential for contamination should be assessed as early as possible when developing transportation plans or during project programming and development. Often, if the danger is identified early, more options are available to avoid or minimize impact to the project and to implement a cost-effective approach for handling the hazardous material contamination. The findings of site assessments and investigations should be well documented.

During advanced planning, early participation is needed from the following:

- ◆ local entities such as city, county or metropolitan planning organizations
- ◆ other affected district functional areas, such as planning and programming, advanced project development, environmental, right-of-way, design and construction staff

- ◆ TxDOT divisions such as Environmental Affairs Division (ENV), Right of Way Division (ROW), Design Division (DES) and Construction Division (CST)
- ◆ the Federal Highway Administration (FHWA).

Information obtained during site assessments and investigations must be communicated from one functional area to another within districts and divisions, either in writing or orally (such as in project design concept meetings).

Known or possible hazardous materials concerns, including cost considerations, should be integrated into the project coordination, alignment selection and decision-making processes. The decision-making process requires experience and knowledge of procedures in hazardous materials, right-of-way negotiation and acquisition, property management, design and construction. Additional discussions and meetings may be required to determine the most cost-effective approach to handling known or potential hazardous material contamination. The financial impact of pursuing further investigation and/or preventive action should also be considered. Other environmental issues, health and safety concerns, design feasibility, liability and costs must be considered when rendering the decision to avoid, minimize redesign or properly handle the concern prior to or during construction.

Early coordination with potentially responsible parties (PRPs) and regulatory agencies is recommended. Preliminary or required commitments should be identified or outlined during advanced planning, prior to finalizing environmental documentation and the project decision-making process. Affected parties, entities, district functional areas, divisions and FHWA, as appropriate, must agree to commitments for further investigation, site closure, preventive action and/or waste management.

The documentation for state and federal environmental approvals or clearances should provide full and open disclosure of any environmental consequences that may result from the proposed project. The assessment and investigation findings, decisions, considerations and coordination should be documented in the project files and summarized in any required environmental documentation. Required permits, approvals and coordination should be specifically identified in the environmental document.

In addition to the environmental document, information about known or possible hazardous material contamination must be tracked in the Environmental Tracking System Database (ETS); through this database, the information can be incorporated into cover memos for environmental documentation, approvals or clearance letters, and preliminary design schematics. This information should be forwarded to the appropriate planning, advanced project development, environmental, right-of-way, design and construction staff to facilitate communication. Commitments will require continued coordination in all stages of project development to ensure that any concerns are properly handled prior to or during construction. Design changes should be reassessed for possible hazardous material concerns. In some cases, there may be property management requirements to consider during post-construction maintenance activities. Assessing the risks of hazardous material early

on, and communicating any resulting concerns to the appropriate district and division personnel throughout the various stages of project development, will help to avoid surprises and reduce costs.

Section 2

Site Assessments and Investigations

Definition and Purpose

A site assessment or investigation can be defined as the process of identifying the presence or likely presence of any hazardous materials on a property, where conditions indicate a release or threatened release of hazardous materials into structures on the property or into soils, groundwater or surface water on the property.

The purpose of a site assessment or investigation is to gather information about the project area and determine the potential for and/or extent of impacts to the project area from hazardous materials, for use in TxDOT's decision-making process.

Outside Guidance and Standard Practices

According to the Council on Environmental Quality (CEQ), which is responsible for implementing the National Environmental Policy Act (NEPA), the requirements of the NEPA should be integrated with other planning and environmental review procedures. Therefore, environmental studies established to meet appropriate inquiry or due diligence requirements under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), or to determine appropriate hazardous material management and disposal plans, should be combined with the NEPA process.

The FHWA, American Association of Highway Transportation Officials (AASHTO), National Highway Institute (NHI), National Cooperative Highway Research Program (NCHRP) and ASTM International provide guidance for conducting environmental studies and investigations for hazardous material contamination. FHWA Interim Guidance provides only general guidelines for identification or site assessment. A copy of this guide is provided in Chapter 1 of the web document [Hazardous Materials in Project Development: Additional Guidance](#). AASHTO also outlines a general procedure and terminology to identify and assess projects throughout project development. This policy and resolutions that are not copyrighted are outlined in Chapter 2 of Hazardous Materials in Project Development: Additional Guidance. The United States Department of Transportation (DOT) has provided preliminary information on brownfields. This information is provided in Chapter 3 of Hazardous Materials in Project Development: Additional Guidance.

The ASTM standard practices and guides include:

- ◆ ASTM E 1528-06 - Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (Transaction Screen)
- ◆ ASTM E 1527-05 - Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (Phase I ESA)

- ◆ ASTM E 1903-97 (2002) - Standard Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process (Phase II ESA).

The ASTM Standard Practices and Guide were developed for commercial real estate transactions to provide guidance on industry standards. To specifically address transportation or corridor projects, additional services or modifications to the ASTM Standard Practices are needed. During the advanced planning stage, the ASTM Transaction Screen is more practically used as a documentation tool for an individual site or parcel. The ASTM Transaction Screen is only sufficient when:

- ◆ interviews with the property owners and/or operators are practical
- ◆ right of entry can be obtained
- ◆ knowledge of the site and/or initial surveys do not indicate concerns.

A brief overview of the ASTM Standard Practices or Guide, including information on how to obtain the copyrighted practices, is provided in Chapter 4 of the web document [Hazardous Materials in Project Development: Additional Guidance](#).

Types of Site Assessments

TxDOT utilizes two types of site assessment standards:

- ◆ Phase I Environmental Site Assessment or Initial Site Assessment (ISA) – a non-intrusive assessment
- ◆ Phase II Environmental Site Assessment (ESA) – an intrusive assessment.

Phase I or Initial Site Assessment (ISA)

TxDOT uses the initial site assessment (ISA) to evaluate property that may be affected by contamination. The purpose of an ISA is to gather as much information about the possible presence of contamination within the proposed project limits. The project limits would include the existing or proposed right of way, including that stretching from surrounding or adjacent properties. The ISA is a non-intrusive assessment; the information can be gathered without actually collecting soil or groundwater samples to help determine the likelihood of encountering hazardous material contamination on the project. Information gathered from an initial site assessment should also be considered in alternative analysis and selection.

The components of the ISA include:

- ◆ reviewing project design and right-of-way requirements
- ◆ reviewing existing and previous land use
- ◆ reviewing regulatory agency databases and files
- ◆ performing project site visits or field surveys

- ◆ conducting interviews
- ◆ determining the need for further investigation, considerations and/or coordination.

Professional judgment should be used to determine the appropriate level of investigation for each component of an ISA. The appropriate level of investigation for an ISA will depend upon the project's design and right-of-way requirements.

The ISA should be performed as early as possible in project development, preferably prior to schematic development. Because the duties are similar, the ISA can be incorporated into the site visit, field surveys and land use research required for other environmental studies in the NEPA process. If design and right-of-way requirements change, the entire ISA or some individual components may require re-evaluation to determine whether the findings are still valid. Any new information or changes to the project requirements should be examined to determine if further assessment, research or investigation for hazardous materials is needed. To be cost effective, components of the assessment and investigations may be performed in phases as the design requirements are finalized during project development.

Similar to the ASTM Transaction Screen questionnaire, a checklist or worksheet can be completed to document the findings of the ISA. An example worksheet is presented in Chapter 1 of the web document [Hazardous Materials in Project Development: Environmental Site Assessments](#). Alternatively, a separate report can be generated. Documentation of the ISA should be forwarded to the district right-of-way, design and construction staff, as appropriate. Section 4 of this chapter and Chapter 1 of the web document [Hazardous Materials in Project Development: Environmental Site Assessments](#) provide information on how to summarize the findings of an ISA in the document required for environmental clearance.

Project Requirements: Information about the general, approximate or anticipated project design and right-of-way requirements should help when evaluating the chances of encountering hazardous material contamination. Design and right-of-way requirements may also be used to determine the appropriate level of inquiry for the ISA. The information can also be used to identify areas requiring additional research or consideration during the subsequent stages of project development. Priority can be assigned to the area(s) most likely to encounter hazardous material contamination.

Even though specific details may not be available during the early stages of project development, the following design and right-of-way requirements and information related to the limits of the entire project should be obtained and reviewed, if applicable:

- ◆ existing or proposed location of geotechnical borings or soil cores and associated drilling logs
- ◆ proposed location and depth of borings, columns, piers or drilled shafts
- ◆ locations and depths of excavations, such as vertical alignment or profile changes, cuts, trenches and/or storm sewers
- ◆ anticipated de-watering requirements and depth to groundwater level

- ◆ displacement, structure removal or structure modification requirements
- ◆ locations of proposed right-of-way acquisition and easement requirements
- ◆ locations and types of known encroachments
- ◆ locations, depths and types of proposed utility and pipeline adjustments
- ◆ timeframes and contracting decisions for any proposed utility adjustments (prior to construction, during construction, joint bids)
- ◆ documentation and/or findings of any related environmental assessments, testing or studies previously performed.

Generally, when additional right-of-way acquisition, easements, displacement, structure removal, structure modification, underground utility adjustments, pipeline adjustments, column, pier, drilled shafts and excavation are **not** required, the project should have a **low potential for encountering hazardous material contamination during construction**.

Although shallow, contaminated soil may require special considerations during typical grading practices, excavations are more likely to adversely impact the environment and human health and possibly delay construction. The following are examples of project requirements at the **highest risk of encountering hazardous material contamination during construction**:

- ◆ significant excavation or cuts greater than three (3) feet
- ◆ vertical alignment changes
- ◆ underpasses
- ◆ trenching
- ◆ tunneling
- ◆ storm sewers
- ◆ pipeline and underground utility installation or adjustments
- ◆ confined spaces
- ◆ de-watering.

Projects requiring excavation with confined spaces and/or limited means of entry may require investigation to identify any special considerations necessary to ensure worker health and safety during construction. It is especially important to determine the potential for encountering contamination on projects that require de-watering. Drainage or de-watering of contaminated groundwater can adversely impact human health and the environment, as well as off-site corrective action activities that may be underway, if not handled properly. Preliminary project requirements for de-watering should be determined as early as possible. If the project requires de-watering, then further research or investigation may be necessary to confirm whether the groundwater is contaminated.

Projects requiring the displacement of either commercial or industrial businesses, such as retail service stations with underground storage tanks, have a high potential for hazardous materials.

Projects requiring building or structure removal/modification may require asbestos or lead-based paint inspection surveys (sampling and analysis) to determine proper abatement, waste disposal and contractor safety considerations according to applicable regulations.

Existing and Previous Land Use Information: Review of existing and previous land use information helps to identify earlier uses or occupancies likely to have led to hazardous material contamination. The review of land use information should address not only potential sites within the proposed project limits (including sites within both the existing and proposed rights of way); they should also assess the potential for contamination migrating from adjacent or surrounding properties.

Concerns may exist from land uses that previously existed on the property. Incorporating ASTM standards, property uses should generally be identified from the present back to the first developed use or 1940, whichever is earlier. The year of 1940 reflects the increased levels of industrial development, chemical manufacturing and waste generation that occurred prior to and following World War II. Sources of contamination can exist from operations prior to 1940; therefore, research prior to 1940 may be necessary to reach a higher confidence level if the project requires significant excavation, de-watering or right-of-way acquisition.

In general, projects within or adjacent to undeveloped, agricultural cultivated fields, ranch, pasture and residential areas have a low potential for hazardous material contamination. Existing rights of way could have possible concerns not identified during earlier acquisition or corridor preservation. Many older roadway intersections may have abandoned gasoline stations and unregistered underground storage tanks. Previous land use of some existing rights of way may have also included previous chemical storage, manufacturing or industrial properties. A few examples of land uses that typically generate, treat, store or dispose of hazardous waste, hazardous substances, hazardous materials, petroleum products or solid waste include:

- ◆ automotive or engine salvage, repair and maintenance facilities
- ◆ manufacturing, industrial or processing facilities such as creosote plants, coal tar gas plants and electroplating facilities
- ◆ oil depots and refineries
- ◆ aboveground and underground petroleum storage tank facilities
- ◆ service industries such as oil and gas equipment service, dry-cleaning, laundry, photographic processing, printing and analytical laboratory operations
- ◆ rail or switching yards
- ◆ landfills, disposal and recycling facilities
- ◆ oil and gas exploration facilities such as wells, separation tanks and circulation pits

- ◆ military bases.

Visual evidence of previous land use may be difficult to identify from only site visits and field surveys. The **readily available TxDOT sources** of land use information listed below should be reviewed for all projects:

- ◆ United States Geological Survey (USGS) 7.5 minute topographic maps:
 - Sources of topographic maps include TxDOT, USGS and online at www.topozone.com.
- ◆ Past and present aerial photographs:
 - Sources of aerial photographs include TxDOT, municipal/county planning offices, soil conservation field offices and Council of Governments web sites.
- ◆ United States Department of Agriculture (USDA) Soil Conservation Surveys:
 - Sources of soil surveys include TxDOT and soil conservation field offices and web sites.
- ◆ Right-of-way maps and files:
 - Sources include TxDOT district right-of-way sections.
- ◆ TxDOT Temporary Use of Right-of-Way Agreements:
 - Sources of temporary use agreements include TxDOT district maintenance sections.
- ◆ Affected property owner notifications from the TxDOT district office, area office or maintenance sections, and/or district environmental coordinator.

Older TxDOT schematics developed for public meetings and hearings may identify former businesses, buildings and improvements in the proposed alignment. TxDOT aerial photograph archives should also be reviewed for photographs along or near the project limits. TxDOT right-of-way files and possibly local entity acquisition files may have listed purchased and retained items. This information may identify the type of business in operation at the time of acquisition. As built plans, which verify construction activities including fill, cuts and structure removal, may also provide information either identifying concerns or developing requirements for further investigation. Any temporary use agreements for monitoring well and remediation systems should be reviewed for the project limits to determine the level of contamination, potentially responsible parties and points of contact. Districts may also receive written notification from adjacent landowners or responsible parties of contamination on the existing right of way.

Reviewing additional land use resources may not be necessary, depending upon the project requirements and whether readily available sources (as discussed above) are sufficient. Additional research should be considered for commercial parcels that have been abandoned or appear undeveloped within urban, commercial and industrial areas; lending institutions or the private sector may have been wary of investing or developing potentially contaminated property.

Additional land use information may be found through the following sources:

- ◆ Fire insurance or fire hazard maps

- City atlases produced by private fire insurance companies (for example, Sanborn Maps) show potential fire or explosion concerns, including tanks or chemical vats. (Also available online through the Texas State Library and Archives Commission.)
- Sources include local libraries, historical societies, commercial services and fire insurance companies.
- ◆ Building department records
 - Local jurisdiction records show approvals to construct, alter or demolish improvements on the property.
 - Sources include municipal and county building departments.
- ◆ Local street or city directories
 - Directories published by private or governmental sources show ownership, occupancy and uses of sites referenced by street address.
 - Sources include libraries of local governments, historical societies, colleges and universities.
- ◆ Property tax files
 - Local jurisdiction files include records such as past ownership, appraisals, maps, sketches and photographs.
 - Sources include county appraisal offices.
- ◆ Recorded land title or deed records
 - Local jurisdiction records include information regarding fee ownership, leases, land contracts, easements, liens and other encumbrances on or of the property.
 - Sources include private title companies, municipal/county recorder and/or clerk offices.
- ◆ Zoning and land use maps or records
 - Local jurisdiction maps show use(s) permitted by the local government.
 - Sources include municipal and county planning departments.
- ◆ Site plans
 - Maps show locations of buildings, tanks, fill areas and monitoring wells.
 - Sources include regulatory agency files and property owners.

Sanborn fire insurance maps, which date from the mid-1800s to the 1950s, have been completed for most cities in Texas. Additional information on obtaining or reviewing Sanborn maps is provided in Chapter 5 of the web document [Hazardous Materials in Project Development: Environmental Site Assessments](#).

A title records search is generally not practical for an ISA in the advanced planning stage. However, if the prior land use at the site of the proposed project is dubious, then more research of the title records should be considered. Research on title records (chain of title) can provide valuable

information including environmental liens or deed recordation of contamination and closure requirements. Additionally, the names of previous property owners may suggest the types of land use or previous operations on the property. Any title searches should be discussed and coordinated with district right-of-way staff.

Regulatory Agency Databases and Files: The purpose of the regulatory agency database and file review is to identify known sources of contamination and involvement with registered or regulated sites. The Texas Commission on Environmental Quality (TCEQ) and the Environmental Protection Agency (EPA) provide regulatory database information under the Texas Public Information Act and Freedom of Information Act, respectively.

Table 2-1 identifies the federal and state regulatory agency databases and their minimum search distances based on requirements identified in the ASTM standards. Other databases also exist. Additional information about individual databases and obtaining databases directly from the regulatory agencies or list searches from commercial vendors is provided in Chapters 2, 3 and 4 of Hazardous Materials in Project Development: Additional Guidance.

Table 2-1: EPA and TCEQ Regulatory Databases and Minimum Search Distance

Database Abbreviation	Regulatory Database	Minimum Search Distance
EPA		
NPL	National Priorities List (Federal Superfund Sites)	1.6 km (1.0 mi)
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System	0.8 km (0.5 mi)
RCRA (TSDF)	Resource Conservation and Recovery Act [Treatment, Storage and/or Disposal (TSD) Facilities]	0.8 km (0.5 mi)
ERNS	Emergency Response Notification System	Proposed project limits (existing and proposed right of way)
RCRA (G)	Resource Conservation and Recovery Act (Generators)	Proposed project limits (existing and proposed right of way) and adjoining properties*
TCEQ		
Tx Superfund	State Superfund Sites (state equivalent to NPL)	1.6 km (1.0 mi)
LPST	Leaking Petroleum Storage Tanks	0.8 km (0.5 mi)
MSWLF	Municipal Solid Waste Landfills (Authorized and Unauthorized)	0.8 km (0.5 mi)

Table 2-1: EPA and TCEQ Regulatory Databases and Minimum Search Distance

Database Abbreviation	Regulatory Database	Minimum Search Distance
RPST	Registered Petroleum Storage Tanks (Aboveground and Under-ground Tanks)	Proposed project limits (existing and proposed right of way) and adjoining properties*
* Adjoining properties can typically use a minimum search distance of 0.4 km (0.25 mi) from proposed project limits.		

The database search should address the regulatory status of any site within the proposed project limits, both existing and proposed right of way, as well as potential sources of contamination from adjacent or surrounding properties. In general, emphasis should be on sites within or directly adjacent to the proposed project limits unless excavation, de-watering and/or utility adjustments have been proposed. The minimum search distance should be sufficient to evaluate alternatives, minor shifts in the alignment and other possible re-design options to avoid hazardous material involvement. For proposed project limits covering several miles and/or with a high density of commercial or industrial facilities, it is generally more cost effective or timely to plot the sites of a database search (list search) using geographic information system (GIS) mapping.

In some cases, the minimum search distance could change depending upon local geologic or hydrogeologic and land use conditions. However, there are problems with reducing the minimum search distance. Some larger facilities may have office addresses registered at the outer limits of the minimum search distance, although the hazardous material or chemical storage operations associated with these facilities may be within or adjacent to the proposed project limits. The minimum search distance should be reduced on a case-by-case basis. The justification for each reduction must be reasonable, well-documented and dependent upon project excavation and right-of-way acquisition requirements.

Caution should be used when interpreting the list search information. Even sites not listed as regulated or registered may be contaminated from improper hazardous material handling or disposal. Once obtained, the list search should be field-checked for possible unmapped data and incorrect addresses. If asked, most commercial vendors will provide additional services to reduce the number of unmapped sites. A single database should not be used as the sole source of information about a release or regulated site. Information in one database should be checked against as many sources as practical. Additionally, the information in regulatory databases is constantly updated and revised; therefore, the date of the database search is very important. A list search may need to be updated throughout project development.

The list search data should be compared with preliminary right-of-way and design requirements to determine involvement with registered or regulated sites. For example, proposed displacements, structure removal, tank removal and/or excavation requirements should be determined for each identified regulated site within the proposed project limits. If proper containment and waste management practices are followed, any site registered as RPST or RCRA Generator is not necessarily

contaminated. However, these sites may require additional considerations for tank removal or waste disposal if proposed right of way is required from them.

Caution should also be used when interpreting the reported status of a site. Sites with “case closed” status may still have contaminated soil or groundwater. Corrective action of contaminated areas underneath buildings may not have occurred due to safety or structural integrity concerns. Additionally, health-based or risk-based closures may allow some contamination to remain in place if contaminants are under certain levels or if proper deed record requirements are met. Unfortunately, risk-based closures performed by private parties may not have adequately addressed potential impacts due to highway construction or related construction worker exposure.

It should also be noted that the information contained in databases may be insufficient to determine the chances of encountering contamination. Additional information from regulatory agencies or property owners may be necessary to determine right-of-way acquisition, property management, design or construction considerations for registered or regulated sites. Investigation reports and correspondence contained in the case files can be reviewed at regulatory agency regional and/or central records offices. As discussed below, federal and state regulatory agencies can also provide details on site status and enforcement actions. To review regulatory files or discuss site status with a regulatory agency, identification numbers or facility information contained in the regulatory databases are often required.

Project Site Visit or Field Surveys: Some potential concerns may not be identified in the land use or regulatory database research. The purpose of a project site visit/field survey is to visually observe the existing and proposed right of way, the periphery of the project limits and structures located within the project limits for possible concerns. A project site visit/field survey should also include observations of surrounding and adjacent land use. A project site visit/field survey should be conducted following or in conjunction with a preliminary review of available project plans, topography maps, aerial photographs and regulatory database lists.

Windshield surveys, observations from public land or concerns about existing right of way on adjacent properties are typically not sufficient for the initial site assessment, especially if right-of way acquisition is required. However, an initial windshield survey can be helpful depending upon the project requirements, length of the proposed project limits, land use and right of entry. If right of entry cannot be obtained, then additional individual site surveys should be considered for subsequent stages of project development. A windshield survey one-quarter to one mile from the proposed project limits or corridors should also be performed to determine the potential of contamination migrating to the proposed project limits from surrounding properties.

Possible concerns to note during the project site visit or field survey include, but are not limited to, the following:

- ◆ Chemical or waste storage concerns including:
 - underground storage tanks, fill pipes and vent lines

- aboveground storage tanks
- electrical and transformer equipment
- injection wells, cisterns, sumps and dry wells
- vats, labeled/unlabeled drums, canisters, barrels and bottles
- spills, stockpiling, surface dumping such as trash, garbage, refuse or rubbish, or half exposed or buried debris
- ◆ Soil concerns including stained, discolored, barren, exposed or foreign soil (fill)
- ◆ Surface water or drainage area concerns including:
 - oil sheen or films on surface water, seeps, lagoons, ponds or drainage basins
 - changes in drainage patterns from possible fill areas
- ◆ Vegetation concerns including dead, damaged or stressed vegetation
- ◆ Biological concerns including dead animals, radioactive materials and medical waste
- ◆ Protected area concerns including security fencing, placarding or warning signs

Field notes should be taken during the project site visits/field surveys. Photographs should be taken of any suspected or potential environmental contamination. The locations, distances and compass orientations/directions of photographs and environmental concerns should be noted on available maps or site plans.

Interviews: The purpose of conducting interviews is to confirm any concerns about the existence of potential hazardous material contamination. Individuals to consider for interviews include:

- ◆ current/former property owners or operators of proposed right of way
- ◆ existing or former employees
- ◆ local residents
- ◆ regional and local regulatory agency staff
- ◆ regional or local emergency response staff.

Property owners, operators and/or employees can provide valuable information about operations and activities that may have involved hazardous materials. Local residents, including TxDOT area maintenance office staff, may be aware of current or former operations on a parcel of land and may be able to describe situations warranting further investigation. TxDOT staff may also know of contamination problems that have required ongoing maintenance.

Depending upon the length of the project and/or number of parcels, interviews with property owners, operators, employees and local residents may not always be practical during the advanced planning stage of project development. Interviews concerning specific sites of concern with TxDOT staff, local entities or regional regulatory agencies may be more feasible. Regional and local regulatory or emergency response agencies include local fire departments, city or county

environmental health departments and regional TCEQ offices. If railroads or oil and gas facilities exist along the proposed project limits, district offices of the Railroad Commission of Texas (RRC) offices can also be contacted. Following is a list of local and regional regulatory and emergency response agencies or planning departments and the types of information available from each:

- ◆ regional TCEQ offices
 - available correspondence, files and permit registration for listed or regulated sites
 - status or specific information about sites.
- ◆ district RRC offices
 - citations, enforcement actions and cleanup status of oil and gas fields and facilities
 - naturally occurring radioactive materials (NORM)
 - oil and gas pipeline spills.
- ◆ municipal and county environmental health departments
 - abandoned or unregistered landfills
 - public complaints
 - spills.
- ◆ municipal and local fire department administration
 - train accidents or derailments
 - spills.

Some caution should be taken when considering the information obtained during interviews. Memories fade and people interviewed may not always be forthright. Therefore, the initial site assessment should not rely solely upon information obtained from property owners, operators, employees or the public.

The names, addresses and phone numbers of all individuals interviewed should be documented with the dates and times of the interviews. Memoranda to the project file, completed records of communication forms and letters confirming the information discussed should also document conversations.

Determine Need for Further Investigation, Considerations, or Coordination: Usually, if no concerns are identified during the ISA, then no further research, coordination, investigations or considerations are necessary. However, for some projects an ISA may not be sufficient; evaluation of the preliminary information obtained during an ISA may indicate the need for further research or investigation. In general, additional research or regulatory file review should be completed before the next stages of project development begin to resolve whether investigation, additional considerations or coordination are needed.

Limitations occurring during the ISA may warrant more assessment or investigation in subsequent stages of project development. These limitations include, but are not limited to, structures not

entered, right-of-entry access denial by property owners and insufficient interviews of property owners or operators for appropriate inquiry.

The need for additional investigation will depend upon the project design and right-of-way requirements. For example, additional investigation may be required for projects with significant excavation or de-watering, structure removal or right-of-way acquisition of properties with past land uses at high risk of hazardous material concerns.

Phase II Environmental Site Assessments or Investigations (ESA)

Several terms for environmental site investigations include both non-intrusive geophysical surveys and intrusive sampling of surface water, soil vapor, soil and groundwater. AASHTO refers to environmental site investigations as “preliminary site investigations” and “detailed site investigations.” ASTM refers to sampling and analysis as a “Phase II Environmental Site Assessment (Phase II ESA).” Depending upon the type of contamination or regulated site involved, other terms for environmental site investigations may apply.

The main purpose of conducting an environmental site assessment (ESA) is to determine whether known or possible contamination might be encountered during construction. The information from an ESA may be useful in developing cost-effective preventive action plans or specifications to handle any contamination found. An ESA may also help to determine closure requirements of regulated facilities or contaminated areas. An ESA should include the following activities:

- ◆ develop a soil and/or groundwater sampling and analysis plan, such as locations of borings, depths of borings, locations of monitor wells, groundwater gradient, and hydrogeologic or hydraulic testing
- ◆ identify and characterize the contamination through sampling and analytical testing
- ◆ determine the horizontal and vertical extents of contamination that might be encountered prior to or during construction
- ◆ assess worker safety and public health exposure concerns
- ◆ determine the regulatory handling, reuse and/or disposal requirements for contaminated media
- ◆ recommend a cost-effective preventive action plan to ensure the contamination is not aggravated.

Sampling and analysis can be very expensive. The most cost-effective approaches will vary on a case-by-case basis. Several factors determine when and how to conduct a cost-effective environmental site investigation. For example, the sampling and analysis plan should limit the number of investigations or remobilization. However, multiple or phased investigations may be necessary for some projects or individual sites; detailed information about a project's proposed excavation and de-watering requirements may be needed to develop an adequate sampling and analysis plan. One option is to perform more detailed design activities during advanced planning to facilitate the

investigation. Another option is to postpone investigation until the project details are known later in the project development process. It may also be more cost-effective to combine geotechnical testing with environmental testing.

In general, sampling and analysis should occur prior to environmental clearance for any project that has only one feasible alternative and no proposed right-of-way acquisition. Since a preferred alternative or alignment could change during the environmental process, investigations should be performed after approval of the environmental documentation, public involvement or environmental clearance. To determine whether possible contamination exists on a proposed right of way, investigations depend on property owners providing access or right of entry. If right of entry is refused, the investigation may be postponed until the eminent domain process or until after acquisition.

FHWA has specific guidelines for projects requiring Environmental Impact Studies. Prior to selection of a project alternative, detailed design activities and additional investigations may be necessary to evaluate the impact and obtain sufficient information for the project decision-making process. Sufficient information is necessary to characterize the site, identify the type and extent of contamination, and estimate disposal, waste management or cleanup costs. It may also be necessary to determine alternative treatment, cleanup, disposal measures and associated costs. Assuming that right of entry can be obtained, the ESA should be completed and documented in the Final Environmental Impact Statement prior to circulation; however, it is not necessary to complete all investigations prior to environmental clearance. If a contaminated site cannot or will not be cleaned up prior to acquisition and it is decided to proceed with the project, then a more detailed site investigation can be performed after clearance. More detailed site investigations may include those to further determine waste characteristics, hydrogeologic conditions and/or extent of contamination.

For all projects, ESAs should be completed prior to finalizing the Plans, Specification and Estimates (PS&E). If the analytical testing does not reveal contamination, then there is added support that contingencies or special provisions are not required in the PS&E.

Section 3

Planning and Preliminary Engineering Considerations

Planning and Programming

Coordination with Local Entities: Local public agency or entity agreements with city and county agencies or a metropolitan planning organization (MPO) may often be developed prior to the ISA for off-system or enhancement projects. These agreements typically require local entities to be responsible for the remediation of any identified hazardous material concerns. These agreements should also delegate responsibilities for performing and funding site assessments, additional investigation, permits, site closure, preventive action, waste management, monitoring during construction and post-construction monitoring.

The potential liability and estimated costs for additional testing and analysis, site closure and/or waste management may create a need for additional approvals and/or funding from the local entity or MPO. If site assessments identify known or possible hazardous material contamination, then additional and continued coordination will be necessary between the district and the appropriate local entity.

Project Scheduling: Site assessments, investigations, coordination and handling of hazardous material contamination can increase the amount of time required to complete environmental documentation, environmental clearances, right-of-way acquisition and the PS&E. Additional time may be needed to cost effectively handle hazardous material contamination, during either the right-of-way acquisition process or construction.

Prior to development of transportation plans and project programming, FHWA Interim Guidance **strongly advises** consulting with regulatory agencies and reviewing regulatory lists of known hazardous waste sites scheduled for cleanup. Whenever possible, known or possible hazardous material contamination should be considered prior to project scheduling. Involvement with hazardous material contamination should also be considered when developing or changing funding and letting schedules. Planning and programming staff should be advised of potential concerns and warned that project scheduling might be affected.

Disclosure and Right of Entry

Disclosure of the purposes of site assessments and investigations for hazardous material contamination should be incorporated into right-of-entry agreements. ENV developed right-of-entry guidance including site assessments; this information is included in the web document Hazardous Materials in Project Development: Purchase of Service Specifications; ROW has developed right-of-entry guidance for more intrusive investigations. Any right-of-entry agreements required by the property owner other than the approved TxDOT form agreements should be reviewed by TxDOT's Office of General Counsel.

Due to potential hazardous materials liability and enforcement actions, right of entry may be denied or difficult to obtain from property owners. Under the Texas Public Information Act, any TxDOT information, assessment, file or environmental document must be available as a public record unless a related lawsuit is pending. Information may also be discussed with regulatory agencies during the early stages of project development. Therefore, confidentiality regarding any contamination found during site assessments and investigations cannot be guaranteed or implied. Other options to address property owner confidentiality concerns include allowing the property owner to review draft reports or oral reports prior to the preparation of final reports and separating recommendations from the assessment or investigation report findings. These alternate options should be considered on a case-by-case basis.

If a property owner denies access, then portions of the site assessments and investigations may have to be postponed until right of entry can be obtained in later stages of project development during the right-of-way negotiation, acquisition or eminent domain process.

Early Coordination with Property Owners/Regulatory Agencies

As stated in FHWA's Interim Guidance, further investigation and/or coordination may be necessary to confirm the presence or absence of contamination and to determine the extent and severity, appropriate methodology and preliminary costs of corrective or preventive action. Sites under investigation, corrective action, enforcement, permit plans and/or closure plans regulated by either EPA or TCEQ will require early coordination to determine site status, obtain approval for intrusive sampling and analysis plans, and determine design considerations that might be needed during construction. Coordination may occur with both the applicable regulatory agency(s) and the responsible property owner or operator of the site.

When appropriate, assistance from appropriate state and federal regulatory agencies should be sought to minimize involvement. Requests for assistance or coordination with federal, state and local agencies to assess the degree of contamination, scope of treatment and disposal measures should also be considered, initiated and documented during advanced planning and subsequent stages of project development. Coordination with regulatory agencies, property owners or local agencies may take place concurrently with project development.

Preliminary Design and Feasibility Studies

Early project planning should include conducting ISAs prior to or in conjunction with the preliminary design and feasibility study stages of project development. The potential for encountering hazardous material contamination should be considered and incorporated into the following:

- ◆ design concept
- ◆ preliminary design schematics
- ◆ preliminary route location, feasibility and investment studies

- ◆ preliminary right-of-way requirements
- ◆ preliminary utility requirements
- ◆ preliminary hydraulic or storm sewer design
- ◆ preliminary cost estimates.

Preliminary Design Concept Conference: The information gathered from site assessments and investigations should be discussed in design concept conference meetings for the project. The Preliminary Design Concept Conference (PDCC) form, developed by the TxDOT Task Force on Design Concepts, contains a section to include pertinent hazardous material information. Districts should contact DES for more information about the PDCC form.

Environmental Permits, Issues, and Commitments Sheets: An Environmental Permits, Issues and Commitments (EPIC) Sheet was developed by ENV to communicate information that should be considered in the PS&E. The EPIC sheet contains a section to include pertinent hazardous material information. Communicating EPIC information has also been incorporated into the Environmental Tracking System (ETS), also developed by ENV.

Preliminary Design Schematics and Right-of-Way Maps: If not avoided, hazardous material contamination concerns will need to be further addressed during later stages of project development. Copies of the preliminary schematics should include references to known or suspected hazardous material contamination or regulated sites. Additional surveying of known or possible hazardous material contamination concerns can be incorporated with either the preliminary schematic or right-of-way maps. Whether surveyed or hand-drawn, examples of possible concerns to note on preliminary schematics or maps include, but are not limited to, monitoring or exploration wells, contaminated fill, underground storage tanks, fill pipes, pump islands and above-ground storage tanks.

Alternative Analysis and Selection

U.S. Department of Transportation (USDOT) and EPA initiatives encouraging redevelopment of brownfields will likely support transportation-related brownfield redevelopment and may result in increased involvement with hazardous materials during construction. Due to the added costs and liability risks associated with hazardous materials involvement, known or possible hazardous material concerns should be integrated into the project coordination, alignment alternative, corridor/route selection and decision-making processes. The financial impact on transportation funds or budgets should be considered in the alternative analysis.

Experience and understanding of procedures in right-of-way negotiation and acquisition, property management, design and construction will be required in the decision-making process. Consideration of other environmental issues, health and safety concerns, design feasibility, liability and costs must also be part of the decision to either avoid, minimize the involvement (redesign) or properly handle the concern prior to or during construction. Preliminary or required commitments

should be identified or outlined during advanced planning and the project decision-making process. As appropriate, affected parties, local entities and affected district functional areas must agree to commitments for further investigation, regulatory agency coordination, approvals and permits, corrective action and site closure, preventive action and/or waste management.

Appropriate investigation levels for ISAs of each alternative should be comparable. In alternative analysis, known or possible hazardous material sites should be compared qualitatively rather than quantitatively. A comparison of the total number of regulated or registered sites for each alternative is not sufficient, because the costs and requirements for one type of regulated site or contamination problem cannot be compared directly with those of a different type of regulated site or contamination problem. However, similar sites with the same types of contamination, priority and status, with similar project involvement, could be compared.

As stated in the FHWA Interim Guidelines, a decision must be made as to whether the costs and delays of contamination involvement warrant the selection of an alternate route. Additional factors such as other environmental issues and right-of-way, utility, construction and maintenance costs should be considered. For example, engineering design and utility considerations are associated with constructing and maintaining a roadway built on a landfill. Those considerations include increased construction and maintenance costs due to possible bridge structures, post-closure requirements, health and safety monitoring, methane collection and monitoring, leachate filtration/monitoring systems and settling. Other factors include liability issues and responsibilities for possible groundwater contamination. The feasibility of avoiding the landfill entirely, minimizing involvement with minor alignment changes or constructing a bridge over the landfill requires evaluation of the costs and benefits.

Project Development Considerations

Geotechnical Soil Borings/Soil Core Hole Drilling Considerations: If hazardous material contamination is suspected, then any required soil core hole drilling for pavement, retaining walls, bridges and other structures can be combined with required environmental sampling and analysis to minimize costs.

Additional provisions or contingency language may be needed in the scope of services or proposals for geotechnical soil boring/soil core hole contracts on a project-specific basis if contaminated soil and/or groundwater might be encountered. For example, special considerations for health and safety monitoring, personal protective equipment, proper handling and disposal of soil cuttings, alternative drilling techniques to prevent migration and plugging may be required for soil core hole drilling.

Right-of-Way Considerations: Regardless of the potential for encountering contamination during construction, special considerations for hazardous material concerns during the right-of-way negotiation and acquisition process may be necessary. Regulatory agency and property owner coordination may still be required, depending upon the regulatory status of a site. For example,

plugging of groundwater monitoring or exploration wells may be required by applicable regulations. Other concerns can include asbestos, underground storage tank removal, permit status notifications and site closure.

Land use restrictions or post-closure care requirements may be recorded in the deeds of parcels to be acquired. Corrective action cases may need to be re-opened for sites or facilities due to proposed land use changes. The terminology and requirements for corrective action cases differ from those of a risk-based assessment for a facility according to the federal or state regulatory status. For example, requirements for a permitted landfill will differ from those for a petroleum storage tank facility. Additional information on asbestos-containing materials, petroleum storage tanks, leaking petroleum storage tank facilities and other permitted or regulated sites is provided in Chapter 3, [“Right of Way.”](#)

Utility or Pipeline Agreement and Adjustment Considerations: Abandoned utilities or pipelines containing crude oil, polychlorinated biphenyls (PCB) or asbestos-containing materials (ACM) may have to be removed during construction. TxDOT utility installation notices, joint use and standard utility agreements typically include general statements about following applicable regulations. The responsibilities for handling or disposing of hazardous materials must be determined. On a case-by-case basis, specific hazardous material or spill reporting requirements should be considered in the agreements. If unknown or unanticipated contamination is encountered during utility maintenance, adjustments or installation, the utility company should be required by the agreement to notify the district so that possible involvement during any proposed construction can be determined.

The potential for encountering contamination should be addressed early in project development to prevent or minimize delays in completing utility adjustments. Adjustments to utilities or pipelines that involve hazardous materials may impact construction projects. A district may decide that a particular project requires joint bids with the municipalities to handle utility adjustments during construction. Whether the utilities are adjusted prior to or during construction, the extra time needed to arrange for special handling of contamination may delay construction or impact construction scheduling. For example, installation or adjustment of telephone fiber optic cable within contaminated soil may require special protection, such as trench lining and/or soil disposal.

Hydraulic and Storm Sewer Design Considerations: If handled improperly, de-watering and storm sewer installation in contaminated soil or groundwater are at the greatest risk of worker exposure and further releases into the environment. If unanticipated contamination is encountered and special provisions or arrangements have not been made, then construction delays and/or contractor disputes or claims are likely. Areas needing significant excavation, trenching, tunneling and/or de-watering typically require more assessment and/or further investigation to determine if contamination will be encountered during construction. If de-watering of contaminated groundwater is necessary, then specialty contractors, engineering controls, monitoring and testing, temporary collection, filtration, approval from regulatory agencies and/or discharge permits may be required.

Design Changes and Re-Evaluations: The following steps should be performed for design changes and re-evaluations:

1. Review documentation for original and/or subsequent ISA(s). If an ISA has not already been performed, one is required for the portions of the project that have not already been constructed.
2. Review documentation for any investigations performed after the original environmental documentation, such as investigations to confirm the presence of, determine the extent of or determine proper handling requirements for contamination.
3. Determine if any changes, new information or circumstances require further assessment, research or investigation. Re-evaluate the original ISA to determine if assumptions based on preliminary design or right-of-way requirements are still valid.
4. Perform follow-up site visits and update regulatory database list searches.

Plans, Specifications and Estimates (PS&E) Considerations: If site remediation cannot meet regulatory closure requirements prior to construction or during the right-of-way acquisition process, then monitoring of remediation systems and their access may need to be integrated into the design of the proposed project. Coordination with regulatory agencies and the property owner/responsible parties may be necessary to ensure that the roadway construction does not adversely affect remediation, site closure and/or post-closure care of the site.

The management and disposal of contaminated soil, groundwater and waste must be conducted in accordance with applicable federal and state requirements and in a manner that will not adversely affect human health and/or the environment. A preventive action plan is similar to AASHTO's terminology for a Hazardous Waste Management Plan. If a hazardous material concern cannot be avoided prior to construction, a preventive action plan will serve to reduce the impact of contamination encountered during construction. A preventive action plan may include, but is not limited to, the following:

- ◆ construction phasing
- ◆ health and safety plans or considerations
- ◆ waste management reuse or disposal options
- ◆ permitting requirements
- ◆ monitoring
- ◆ sampling and analysis plans
- ◆ specifications for engineering controls
- ◆ filtration systems
- ◆ ventilation systems.

Special specifications, provisions or contingencies can be incorporated into the PS&E to reduce the potential for construction delays, claims, forced accounts or field change orders. Employed by the local entity, TxDOT or the prime highway contractor, specialty contractors or subcontractors can be used to implement the preventive action plan during construction. Incorporating special specifications, provisions or considerations into the development of the PS&E is further discussed in Chapter 4, [“Design.”](#)

Property Management or Maintenance Considerations: If a site cannot meet regulatory closure requirements prior to construction or during the right-of-way acquisition process, then closure may need to be obtained after project construction. Additionally, a site may have post-closure requirements for maintaining vegetation, caps or drainage after construction. Any post-closure responsibility must be communicated to the district maintenance staff.

Project Files

District and division project files are consulted at various stages of project development. A completed copy of the ISA checklist or report should be kept in the district project files. Due to possible cost recovery and right-of-way documentation requirements, incorporating or developing central hazardous material files or electronic databases for tracking information by project and/or parcel should be considered.

Supplemental documentation should be organized and catalogued in the project files. Supplemental documentation includes, but is not limited to, the following:

- ◆ detailed site observations
- ◆ photographs
- ◆ location(s) of identified concerns
- ◆ correspondence
- ◆ records of communications for all interviews
- ◆ copies of regulatory lists or file information reviewed
- ◆ copies of or references to aerial photographs
- ◆ maps
- ◆ field logbooks
- ◆ field data
- ◆ specialty contractor or subcontractor agreements
- ◆ chain-of-custody records
- ◆ analytical laboratory data
- ◆ quality assurance and quality control reports

- ◆ computer files
- ◆ reports.

Section 4

Environmental Documentation and Clearance

Overview

Environmental documentation for state or federal clearances should be customized to adequately address the nature, scope and complexity of the individual transportation project. The following are the CEQ's general guidelines for compiling NEPA environmental documentation. The text should:

- ◆ be analytical rather than encyclopedic
- ◆ show why more study is not warranted
- ◆ offer a brief discussion, except for significant issues
- ◆ offer concise and plain language, incorporating graphics and tables where appropriate
- ◆ reduce emphasis on background material
- ◆ emphasize decision-making issues and assess impact rather than justify decisions
- ◆ incorporate references to data or reports that are readily available into document
- ◆ combine environmental documentation with other documentation where appropriate.

It is inappropriate to include all information used to assess the potential for encountering hazardous material contamination and difficult to do so while maintaining a concise environmental document.

General Requirements for Hazardous Material Discussions

All projects should be assessed for possible hazardous materials involvement; any required environmental documentation should include a discussion about hazardous materials, even if no concerns are found. This discussion should provide sufficient evidence that the project was adequately investigated for known or possibly unknown hazardous material contamination within the proposed project limits. The following are general guidelines for hazardous material discussions:

- ◆ describe types and/or scopes of site assessments and/or investigations conducted
- ◆ state who performed the site assessments and/or investigations
- ◆ disclose any limitations of the site assessments or investigations
- ◆ discuss whether further investigation is needed
- ◆ provide justification for any postponement or dispensing of further investigation
- ◆ summarize the findings of the site assessments or investigations for each alternative considered

- ◆ discuss any early coordination or consultation with the regulatory agencies, local entity or property owners
- ◆ justify avoiding or not avoiding known or suspected hazardous material contamination within the preferred alternative or corridor alignment
- ◆ summarize efforts to avoid or minimize involvement with known or suspected hazardous material contamination sites during construction
- ◆ disclose known or suspected hazardous material contamination that is expected to be encountered during construction
- ◆ discuss any required special considerations, contingencies or provisions to handle known or suspected hazardous material contamination during right-of-way negotiation and acquisition, property management, design and/or construction
- ◆ discuss any required further coordination, approvals, permits and site closure with the regulatory agencies.

Example language for different scenarios to be used as guidance, but not as standard paragraphs, is provided in [Hazardous Materials in Project Development: Environmental Site Assessments](#).

Draft Environmental Impact Statement (DEIS)

In addition to the general requirements above, the following are the FHWA Interim Guidelines for documentation to be compiled for a DEIS:

- ◆ a map clearly delineating the extent of the site in relation to alternative project alignments
- ◆ the number and types of sites or structures, extent of contamination and alternative treatment or disposal measures
- ◆ the results of coordination with EPA, state/local agencies and the public
- ◆ a description of previous plans, if any, for cleanup of the sites
- ◆ sufficient information to allow a reasonable evaluation of alternatives
- ◆ justification for not avoiding the site.

Final Environmental Impact Statement (FEIS)

Additional investigations, called preliminary site investigations per AASHTO or Phase II ESA per ASTM, should be completed before circulating the FEIS. Results of these investigations may help to determine the impact on a project alternative and provide estimates of the extent of contamination and cost of preventive action during construction. The results of these investigations should be presented in the FEIS.

In addition to the general requirements discussed above, the following is a list of items required in FEIS documentation, according to FHWA Interim Guidelines for the preferred alternative:

- ◆ a description of the results of continuing coordination with EPA, state/local agencies and the public
- ◆ documentation of the resolution of hazardous material issues to the extent possible
- ◆ a detailed description of the site(s), contamination, agreed upon treatment or disposal measures and costs of the remedial plan to the extent possible.

Supplemental EIS and Re-Evaluation Documents

A DEIS or FEIS may be supplemented at any time. An EIS should be supplemented if changes to the project can result in significant environmental impacts not already evaluated in the EIS, or if new information or circumstances relevant to environmental concerns might result in significant environmental impacts not already evaluated in the EIS. Depending upon the length of time taken to complete project development, state and federal “findings of no significant impact (FONSI)” projects may also require re-evaluation documentation. Items to accompany any required supplemental EIS or re-evaluation documents include:

- ◆ a summary of new findings
- ◆ status of any further investigation
- ◆ coordination with regulatory agencies or property owners during right-of-way negotiation and acquisition
- ◆ facility or site closure
- ◆ corrective action
- ◆ any plans to handle contamination or hazardous materials during construction.

Environmental Review and Clearance

If contamination is identified prior to construction and provisions are made to handle the contamination according to applicable regulations and/or coordinated with applicable regulatory agencies, the project should not have a significant impact on the environment. However, due to high costs of hazardous material contamination involvement, possible or known concerns may affect the decision-making and alignment selection processes.

ENV reviews the environmental document to evaluate whether sufficient research or disclosure has been provided regarding the potential for encountering hazardous material contamination within the proposed project limits. Any required permits, coordination with regulatory agencies or special considerations for hazardous material contamination must be disclosed. If disclosure does not appear to be sufficient, revisions or clarifications must be made before the documentation can be submitted to FHWA or approved to proceed with the next stages of project development.

If the ISA does not reveal any involvement with hazardous materials, the document is approved and the project can proceed to the next stages of project development. If concerns are revealed, the project can still be approved with the understanding that commitments for the project will be followed throughout the next stages of project development and construction.

Commitments for further investigation, approvals, permits and coordination regarding hazardous materials should be summarized in approval and clearance letters. Copies of the environmental document and approval/clearance letters should be forwarded to appropriate right-of-way, design and construction staff.

Chapter 3

Right of Way

Contents:

Section 1 — Overview

Section 2 — Asbestos-Containing Materials

Section 3 — Petroleum Storage Tanks (PSTs) and Leaking Petroleum Storage Tank (LPST) Facilities

Section 4 — Other Permitted or Regulated Sites

Section 1

Overview

Goals

The following goals should be completed prior to or during the right-of-way stage of project development as it pertains to acquiring fee or easement rights for contaminated property or improvements:

- ◆ initiation, completion or updating of environmental site assessments and/or investigations, as needed
- ◆ coordination of decisions with district, affected divisions and FHWA staff to avoid or minimize involvement with previously unknown contamination that was not disclosed in the environmental document
- ◆ determination if preventive and/or corrective action can be performed prior to construction (Preventive action refers to cleanup and other activities required to effect the construction of the highway project. Corrective action refers to activities required by state or federal regulations and performed by a responsible party to protect human health and the environment.)
- ◆ negotiation and allocation of responsibility for any required corrective action, closure, post-closure care or future environmental liability among property owners, operators, jurisdictional regulatory agencies, local entities and TxDOT, as applicable
- ◆ determination of whether cost recovery from responsible parties is appropriate, taking into account the FHWA Interim Guidance
- ◆ coordination with the Right of Way Division (ROW) Legal Section, Office of General Counsel (OGC) and Texas Office of Attorney General, as appropriate, to determine if and how cost recovery should be pursued
- ◆ arrangement of asbestos-containing material (ACM) inspections, abatement project design, notification, abatement, air monitoring, and demolition, as needed
- ◆ monitoring of assessments, investigations, closure and corrective action, and communication of the status and findings to affected planning, environmental, design and construction staff
- ◆ coordination and transfer of any required post-closure responsibility to TxDOT district maintenance sections.

Procedure Overview

This chapter focuses on hazardous materials issues encountered prior to or during the right-of-way negotiation and acquisition process. Once the negotiation and acquisition process is complete, some of the following guidance may not apply. Information about right-of-way procedures is provided in the [ROW Procedures Preliminary to Project Release](#).

Asbestos and leaking petroleum storage tanks are the most common hazardous material concerns addressed during the right-of-way negotiation and acquisition process. The following sections provide guidance for ACM, petroleum storage tanks, and other contaminated sites; each is distinctly different with regard to cleanup procedures and governing regulations. For more information, contact the Environmental Affairs Division (ENV) Pollution Prevention and Abatement Branch (ENV-PPA).

Complete Assessments/Investigations

One of the first steps during the right-of-way negotiation and acquisition process is to determine if the initial site assessment (ISA) for hazardous materials should be updated or supplemented. New site conditions may exist or previous conditions may have become apparent since the ISA was performed during earlier planning stages of project development. TxDOT is not authorized to enter property without expressed written consent from the property owner through a right-of-entry agreement, easement or deed. In cases where right-of-entry was denied during earlier stages of project development, additional attempts to obtain right-of-entry should be considered. Interviews with the property owners or operators concerning possible contamination may not have been practical during advanced planning stages. These interviews should be conducted and documented during the right-of-way negotiation and acquisition process.

As environmental site assessments and investigations are completed, the findings should be communicated to the appropriate district planning, environmental, design and construction staff and affected divisions. If preventive or corrective action cannot be performed prior to construction, then the scope of any environmental site investigation should include providing data to prepare for any necessary preventive action during construction activities.

Advanced Acquisition of Right-of-way

Advanced acquisition may allow preventive or corrective action activities to be completed prior to construction in a more cost-effective manner. The advanced acquisition of a hazardous material site does not necessarily mean that TxDOT will assume responsibilities for corrective action or cleanup. In 1996, the TxDOT Corridor Preservation Task Force developed evaluation and acquisition policies specifically for abandoned railroad corridors. ENV-PPA should be contacted for site-specific guidance when the advanced acquisition of parcels with hazardous materials or contamination is considered. ENV and ROW can provide additional information regarding procedures for advanced acquisition and corridor preservation.

Postponing Acquisition

The acquisition of right of way or transfer of title may need to be postponed on a case-by-case basis, depending upon the potential for TxDOT becoming liable for corrective action. Eventually,

either acquisition or easements must be acquired prior to letting. The following agreements or instruments allow preliminary engineering and the project to proceed while postponing acquisition:

- ◆ right-of-entry agreements
- ◆ possession and use agreements
- ◆ easements.

Appraisals

Parcels are appraised "as if clean." Many appraisers are not qualified to detect the presence of contamination, so some sites may be appraised "as if clean" even though they are impacted by contamination. The value of contaminated real estate may not be accurately estimated by simply deducting the estimated remediation or compliance cost from the unaffected value; other factors may influence value, including a positive or negative perceived impact on marketability (stigma) and the possibility of change in the highest and best uses. After the original "as if clean" appraisal is obtained, an appraiser with contamination expertise should be considered for some parcels. Districts should contact ROW for information on obtaining appraisal experts. Additionally, expert witness services for estimating corrective action costs may be obtained through statewide environmental engineering contracts.

Agreements

Where possible, TxDOT should avoid or limit its liability for corrective action by negotiating agreements with responsible parties. Agreements should be negotiated when petroleum storage tank systems, permitted facilities, waste management units and contaminated soil or groundwater exist within the existing or proposed right-of-way or easement. The agreements with owners, operators or other responsible parties should address, but are not limited to, the following:

- ◆ delegation of responsibility for removal, disposal, corrective action, closure and/or post-closure care
- ◆ provisions for contingencies if contamination is encountered
- ◆ assurance that project-specific design requirements and construction worker safety are addressed in any risk assessment or corrective action plan
- ◆ consideration of TxDOT's input when making decisions related to corrective action, closure and post-closure care requirements
- ◆ allowance of TxDOT to recover costs, where appropriate.

ROW has developed tank removal and indemnity agreements to address responsible party corrective action, including provisions for cost recovery if the party does not fulfill its responsibilities under the agreement. Standard tank removal and indemnity agreements can be obtained from the ROW Engineering Section. Agreements should be reviewed and edited to meet site specific needs.

For a site that is not subject to a TCEQ order or permit, or where agency enforcement action is pending, TxDOT should consider negotiating an agreement whereby other responsible parties pursue the Voluntary Cleanup Program (VCP) with TCEQ. The VCP, created under HB 2296, was established on September 1, 1995 to provide administrative, technical and legal incentives for cleanup of contaminated sites in Texas. Under this program, site cleanups follow a streamlined approach to reduce future human and environmental risks to safe levels (See Texas Solid Waste Disposal Act, Subchapter S, Texas Health and Safety Code Chapter 361 and 30 Texas Administrative Code [TAC] Chapter 333). After a site cleanup has been concluded, the parties will receive a certificate of completion from the TCEQ stating that all lenders and future landowners who are not responsible parties are released from any liability to the State for cleanup of areas covered by the certificate. A separate agreement between TxDOT and the responsible party, independent of the VCP agreement with TCEQ, may be needed to ensure that the transportation project and cost recovery issues mentioned above are addressed.

Deed Recordation and Title Searches

Deed certifications and recordations regarding “Notice of [type of substance] Contaminated Site” are required in the following regulatory program regulations:

- ◆ Municipal Solid Waste - 30 TAC §330.7 Deed Recordation
- ◆ Voluntary Cleanup Program - 30 TAC §333.9 Deed Certification
- ◆ Underground and Aboveground Storage Tanks - 30 TAC §334.205 Institutional Control Requirements
- ◆ Industrial Solid Waste and Municipal Hazardous Waste - 30 TAC §335.5 Deed Recordation of Waste Disposal
- ◆ Industrial Solid Waste and Municipal Hazardous Waste, Subchapter S, Risk Reduction Standards - 30 TAC §335.551 thru §335.569 Risk Reduction Standards
- ◆ Texas Risk Reduction Program - 30 TAC §350.111 Institutional Controls.

Deed recordation is generally required when future land use is likely to become more environmentally sensitive. Deed recordation is also generally required when engineering or institutional control is necessary to prevent current or future exposure. Deed recordations are made on a case-by-case basis and are generally based on a combination of the remaining contaminant concentrations and the future anticipated use(s) of the site. For example, deed recordation may be needed when the site is to be closed under a commercial/industrial land use assumption. Typically, the site is not zoned as commercial/industrial, and is located in a predominantly residential setting. Deed recordation may also be required to eliminate a potential exposure pathway. For example, if groundwater is contaminated above health-protective levels, deed recordation may be used to ensure that the affected groundwater is not used. Deed recordation may also be used when an engineering control, such as a cap, must be maintained to prevent exposure to subsurface

contamination. Finally, deed recordation is necessary for land formerly used as a municipal solid waste landfill or dump.

During the appraisal stage, a preliminary title search may be performed. Preliminary and final title searches should be reviewed before closing for deed recordation or certification language related to contamination and closure requirements. If not previously addressed, an agreement may be amended to include responsibilities identified in the deed prior to acquisition.

Temporary Leases (Lease Backs)

The district should be cautious if the right-of-way will be leased back to owners or operators with permitted or regulated operations involving hazardous substances, waste or materials. TxDOT may be held liable if hazardous materials or wastes are not managed properly. To reduce liability to TxDOT, some operations may need to be discontinued or closed prior to or upon acquiring the property.

Local Public Agency Acquisition

A local public agency may acquire right-of-way and easements. Before transferring a title to the state, TxDOT should obtain confirmation that hazardous material concerns have been addressed from the acquiring agency. TxDOT should review documentation of appropriate inquiry, reports or checklists. The transfer of the title may need to be postponed until corrective action, closure and/or post-closure care issues are resolved. TxDOT may need to enter agreements with the local public agency and other parties regarding acquisition of ROW and easements. Additional information about local public agency acquisition should be obtained from ROW.

Cost Recovery

Issues related to the acquisition of contaminated property and cost recovery have become more complicated in recent years due to the promulgation of risk-based corrective action regulations. A risk-based closure of a site allows contamination to be left in place as long as the contaminants do not constitute environmental or health hazards to on-site or off-site receptors given the property uses. As a result, TxDOT is increasingly confronted with the acquisition of contaminated properties that may have already been, or are eligible to be, closed by the jurisdictional regulatory agency.

Even if the regulatory status of a site is closed, the remaining contamination may impact proposed construction, resulting in costs above and beyond those of normal project development. For example, additional costs may be associated with the use of hazardous material specialty contractors, air monitoring and management of the contaminated soil and groundwater encountered during construction.

The distinction between preventive action and corrective action should be considered when determining if cost recovery is appropriate. **Corrective action** refers to activities that state or federal regulations require to be performed by a responsible party to protect human health and the environment. Corrective action addresses the entire contaminated area without regard to property lines. **Preventive action** refers to cleanup and related activities that are required to affect the construction of the highway project. Preventive action activities may only include the excavation of contaminated soils or control of contaminated groundwater within project limits during construction.

Cost recovery and the allocation of corrective action responsibilities depend upon the purpose of the cleanup. If the purpose of the cleanup is solely to meet the transportation project's construction requirements, and otherwise would not have been required by regulation, then the cleanup costs should not be borne by the responsible party. On the other hand, if contaminated property constitutes a health risk to the general public above and beyond those incurred during the transportation project's construction activities, then cleanup costs should be borne by the responsible party. Cost recovery issues are complicated, especially when related to disposal. Negotiation with the property owner and/or responsible party may be necessary on a case-by-case basis.

In contrast, the demolition of the building due to the transportation project triggers the requirement for abatement. Cost recovery from the facility or building owner, for asbestos inspections or surveys, abatement or other activities, is generally not appropriate. For ACM, the purpose of the preventive action or abatement is to meet the transportation project requirements for removal of the improvement rather than a remedial action related to environmental impacts.

For cost recovery, the following can be considered on a case-by-case basis:

- ◆ negotiating removal and/or creating indemnity agreements to provide reimbursement from responsible parties and protect TxDOT against future claims
- ◆ negotiating escrow accounts
- ◆ acquiring contaminated value appraisal after obtaining the original "as if clean" appraisal for consideration during condemnation
- ◆ initiating legal action.

Negotiated agreements are the preferred option to recover costs while minimizing the State's potential for liability. It may be difficult to accurately estimate the costs of corrective action without detailed subsurface investigation. If the costs of corrective action are not accurately estimated, the amount of the escrow account or reduction of the offer may not be sufficient for TxDOT to recover all associated corrective action costs. Additionally, by reducing the offer or value, TxDOT may be held jointly responsible for the corrective action. However, legal action is costly, so it may not be feasible or practical to recover corrective action costs through legal action. The decision to recover costs through legal action should be coordinated with ROW Legal Section, OGC and Texas' Office of the Attorney General, as appropriate.

Section 2

Asbestos-Containing Materials

TxDOT's Perspective (Overview)

Proposed right-of-way or easements may include building or facility structures. Federal and state asbestos laws and regulations apply to the removal and disposal of obstructions including the remains of houses, foundations, floor slabs and basements. When required, asbestos inspections, notifications and abatement must be completed prior to demolition or renovation of structures within the right-of-way. Although TxDOT Standard Specification, Item 100, Preparing Right of Way requires removal and disposal of all obstructions from the right-of-way and from designated easements, asbestos-related activities are to be completed prior to letting of the transportation construction contract. Asbestos services and demolition typically occur after the right-of-way or easements have been acquired. If not accomplished prior to letting, then asbestos-related activities associated with preparing the right-of-way should be agreed upon in a contract separate from that of roadway construction.

Asbestos Regulation Summary

Renovations and demolitions of buildings are regulated by federal and state asbestos regulations. Major asbestos regulations include the National Emission Standards for Hazardous Air Pollutants (NESHAP), regulated by the Environmental Protection Agency (EPA), and Texas Asbestos Health Protection Rules (TAHPR), regulated by the Department of State Health Services (DSHS.) NESHAP 40 Code of Federal Register (CFR), Part 61, Subpart M regulates all facilities and exteriors of public buildings; TAHPR 25 TAC Chapter 295, §§295.31-295.73 regulates public building interiors and provides for TDH enforcement of NESHAP. In certain instances, TAHPR requirements are more stringent than NESHAP requirements. In accordance with applicable Occupational Safety and Health Act (OSHA) regulations, employers are also responsible for employee safety and health concerns due to asbestos.

Definitions

A **facility** is defined as "...any institutional, commercial, public, industrial, or residential structure, installation, or building (including any structure, installation, or building containing condominiums or individual dwelling units operated as a residential cooperative, but excluding residential buildings having four or fewer dwelling units); any ship; and any active or inactive waste disposal site. For purposes of this definition, any building, structure, or installation that contains a loft used as a dwelling is not considered a residential structure, installation or building. Any structure installation or building that was previously subject to this subpart is not excluded, regardless of its current use or function." 40 CFR §61.141.

Both NESHAP and TAHPR exclude private residences and apartment buildings with no more than four dwelling units. However, the EPA and TDH do not consider a residential structure to be exempt if it has been demolished or renovated as part of a commercial or public project. "The demolition of one or more houses as part of... a highway construction project... would be subject to the NESHAP" Federal Register, Volume 55, No. 224, Page 48412, Definition of Facility, Tuesday, November 20, 1990, Rules and Regulations.

A **public building** is defined as "The interior space of a building used or to be used for purposes that provide for public access or occupancy, including prisons and similar buildings. Interior space includes exterior hallways connecting buildings, porticos, and mechanical systems used to condition interior space. The term includes any building during a period of vacancy, including the period during preparations prior to actual demolition." The term does not include: "(A) an industrial facility to which access is limited principally to employees of the facility because of processes or functions that are hazardous to human safety or health; (B) a federal building or installation (civilian or military); (C) a private residence; (D) an apartment building with no more than four dwelling units; (E) a manufacturing facility or building that is limited to workers and invited guests under controlled conditions; or (F) a building, facility, or any portion of which has been determined to be structurally unsound and in danger of imminent collapse by a professional engineer, registered architect, or a city, county, or state government official." 25 TAC §295.32.

A **building owner** is defined as "the owner of record of any building or any person, such as a property manager, who exercises control over such building to the extent that said person contracts for or permits renovation to or demolition of said building. A general contractor hired by the building owner for the purpose of performing a renovation or demolition cannot act as the building owner." Similar in definition, a **facility owner** is defined as "the owner of record of any facility or public building or any person who exercises control over a facility or public building to the extent that said person contracts for or permits renovation to or demolition of said facility or public building." An **owner or operator of a demolition or renovation activity** is defined as "any person who owns, leases, operates, controls, or supervises the facility being demolished or renovated or any person who owns, leases, operates, controls, or supervises the demolition or renovation operation or both." 25 TAC §295.32.

Asbestos Management in Facilities and Public Buildings

Pursuant to 25 TAC §295.34, building owners are required to inform all persons in writing of the presence and location of asbestos-containing building materials (ACBM), or to document any related personal communication between the owner (or his/her authorized representative) and the person or persons who are to perform any type of maintenance, custodial, renovation or demolition work. The owner retains primary responsibility for the presence, condition, disturbance, renovation, demolition and disposal of any asbestos encountered in the construction, operations, maintenance or furnishing of that building or facility. The owner of a public building and any other person who contracts with or otherwise permits any person to perform any asbestos-related activity without the appropriate valid license, registration, accreditation or approved exemption is subject to

administrative or civil penalty under the Texas Health Protection Act, §§1954.351-402 of the Occupation Code, not to exceed \$10,000 a day for each violation, or criminal penalty not to exceed \$25,000, confinement in jail for no longer than two years or both.

Requirement Summary: Table 3-1 below presents a summary of the asbestos requirements for demolition depending upon whether the building or structure is defined as a public building under TAHPR or a non-public building under NESHAP. **Since improvements on the right-of-way may be TAHPR public buildings and/or NESHAP facilities, the use of licensed rather than the accredited asbestos inspectors, consultants, and abatement contractors for asbestos-related activities is recommended to ensure compliance.**

Table 3-1: Asbestos Management Requirements for Demolition

Requirement Determination	Public Buildings		Non-Public Buildings	
	Is building a "public building" as defined in TAHPR? What are the inspection requirements?	Yes. Asbestos inspection is to be performed by TDH Licensed Inspector.		No. Asbestos inspection is to be performed by either an Accredited or TDH Licensed Inspector.
Is friable asbestos or asbestos-containing material present in building that may become friable during demolition?	Yes. Friable ACM.	No. Non-friable ACM.	Yes. Friable ACM.	No. Non-friable ACM.
Abatement requirements?	Friable ACM must be removed prior to demolition.	Non-friable ACM must be removed prior to demolition (see notes 1 & 2).	Friable ACM must be removed prior to demolition.	Non-friable ACM does not require removal prior to demolition (see notes 1 & 2).
Is an asbestos abatement project design (specification) required?	Yes. Specification for friable ACM must be prepared by a TDH Licensed Consultant.	No. Specification for non-friable ACM is not required unless the quantities given in 25 TAC §295.34(g) are exceeded (see note 1).	Yes. Specification for friable ACM must be prepared by an accredited project designer.	No. Specification for non-friable ACM is not required, but must be treated in accordance with NESHAP.
What are the notification requirements?	For friable ACM, submit notification to TDH a minimum of 10 working days prior to the removal of the ACM.	For non-friable ACM, submit notification to TDH a minimum of 10 working days prior to the demolition start date.	For friable ACM, submit notification to TDH a minimum of 10 working days prior to the removal of the ACM.	For non-friable ACM, submit notification to TDH a minimum of 10 working days prior to the demolition start date.

Table 3-1: Asbestos Management Requirements for Demolition

Requirement Determination	Public Buildings		Non-Public Buildings	
What are the asbestos abatement contractor license requirements?	Friable ACM must be removed by a TDH Licensed Contractor prior to demolition.	Non-friable ACM must be removed by a TDH Licensed Contractor prior to demolition (see note 2).	Friable ACM must be removed prior to demolition by an EPA MAP (or equivalent) contractor (see notes 2 & 3).	Non-friable ACM must be removed by an EPA MAP (or equivalent) contractor prior to demolition (see notes 2 & 3).
Note 1	Asbestos abatement project design in public buildings with a combined amount of non-friable asbestos exceeding 25 TAC §295.34(g) quantities must be prepared by a TDH Licensed Asbestos Consultant.			
Note 2	Exemption (see 25 TAC §295.36). Non-friable resilient floor coverings removed according to "Recommended Work Practices for the Removal of Resilient Floor Coverings," Resilient Floor Covering Institute (RFCI), 1992, are exempt from the licensing and registration requirements. However, an eight-hour training course in RFCI methods is required.			
Note 3	EPA's Model Accreditation Plan (MAP) provides standards for initial training, examinations, refresher training courses, applicant qualifications, decertification, and reciprocity applicable to schools (40 CFR Chapter 753, Subpart E). However, MAP or equivalent is referenced by OSHA Standards 29 CFR §1926.1101. TDH Licensed Asbestos Abatement Supervisor is equivalent.			
Citation for Licenses	Asbestos Consulting: 25 TAC §295.47. Licensure: Individual Asbestos Consultant 25 TAC §295.48. Licensure: Asbestos Consultant Agency 25 TAC §295.49. Licensure: Asbestos Project Manager 25 TAC §295.50. Licensure: Asbestos Inspector 25 TAC §295.52. Licensure: Air Monitoring Technician Asbestos Abatement and Transportation: 25 TAC §295.42. Registration: Asbestos Abatement Workers 25 TAC §295.45. Licensure: Asbestos Abatement Contractor 25 TAC §295.46. Licensure: Asbestos Abatement Supervisor 25 TAC §295.56. Licensure: Asbestos Transporters Laboratory: 25 TAC §295.54. Licensure: Asbestos Laboratory 25 TAC §295.52. Licensure: Air Monitoring Technician			
Sources: Based on TDH APB #2 Flow Chart, 25 TAC Chapter 295, and 29 CFR §1926.1101.				

Inspection (Asbestos Survey): An asbestos inspection or survey is performed to determine the presence, location, condition and friability of ACM by visual or physical examination, or by collecting samples of such materials. Per 25 TAC §295.34, an owner must have a thorough inspection performed prior to any renovation or dismantling within a public building, commercial building or facility, including preparations for partial or complete demolition as required by 40 CFR §61.145. The work area and all immediately surrounding areas that might be disturbed by the actions neces-

sary to perform the project must be inspected and sampled, as applicable prior to renovations or demolition. Asbestos inspections or surveys must be performed by an asbestos consultant with an asbestos inspector working for the firm.

In a public building, inspections must conform to accepted standards such as the sampling protocol specified in 40 CFR Part 763 Subpart E, Asbestos Hazard Emergency Response Act (AHERA), which is the required method for schools. Per 25 TAC §295.34(c)(1), effective December 13, 1998, a minimum of three samples for each homogeneous area must be collected for public buildings. Other factors should also be taken into account when considering the best method to determine the location, extent and condition of the ACM in a non-school building. All suspected asbestos-containing materials (ACM), not just friable or potentially friable asbestos, are to be sampled. This will require a limited amount of destructive testing.

Typically, an asbestos inspector will base his/her estimate of the required number of samples on the square footage of a building or structure. However, the true number of samples will depend upon the actual number of homogeneous areas encountered during the survey.

Asbestos Abatement Project Design (Abatement Specification): Asbestos abatement project design includes: the inspection, evaluation and selection of appropriate asbestos abatement methods; project layout; the preparation of plans, specifications and contract documents; and the review of environmental controls, abatement procedures and personal protection equipment employed during the project. An asbestos abatement project design, specification for asbestos removal is typically required for most demolition.

Per 25 TAC §295.34, with respect to friable ACM, a project design must be prepared by either a licensed asbestos consultant for a school or public building or by an accredited project designer for a commercial building. As outlined in 25 TAC §295.34(g), an abatement project for a public building with a combined amount of non-friable asbestos exceeding 160 square feet (15 square meters) of surface area, 260 linear feet (80 linear meters) of pipe length or 35 cubic feet (1 cubic meter) of material to be removed must be designed by a licensed asbestos consultant. Floor tile removed in accordance with 25 TAC §295.36 (relating to Licensing and Registration: Exemptions, Emergency) is exempted from this design requirement. In a commercial building, non-friable material does not require a design but must be treated in accordance with NESHAP.

Per 25 TAC §295.47(a)(2): "If an asbestos abatement project includes alterations to a building's structure, its electrical, mechanical, safety systems, or their components, a licensed individual consultant in conjunction with or who is a licensed Professional Engineer (PE) in Texas must prepare the appropriate plans and specifications as required by the Texas Engineering Practice Act, Article 3271a and the rules of the Texas State Board for Registration for Professional Engineers..."

Ten (10) Day Notification: Notification is required for the demolition of any facility or public building, whether or not asbestos has been identified. In a facility, a notification to abate amounts described in NESHAP must be submitted to the TDH by the facility owner and/or operator. In a public building, a notification to abate any amount of asbestos must be submitted to the TDH by the

public building owner and/or operator and may be delegated to a licensed asbestos abatement contractor or consultant in writing. If a licensed abatement contractor or consultant is not required, the task may be delegated to the demolition contractor. The notification may only be signed by the legal owner, his designated legal representative, the operator of the site, the licensed abatement contractor or a licensed consultant.

The TDH Demolition/Renovation Form (APB #4) combines the notification requirements of NESHAP and TAHPR. The notification form must be postmarked at least 10 working days (not calendar days) prior to the abatement project start date, except in the case of an emergency or ordered demolition. If asbestos abatement prior to demolition is not required, then only the 10-day notification to TDH for demolition is required. A telephone facsimile (FAX) is not acceptable. Work must commence on the date shown on the notification. If there is a change in the start date, then an addendum must be sent to TDH at least 10 working days prior to the revised start of work. Notifications that do not meet the 10-day requirement or are incomplete are considered to be improper and may result in enforcement proceedings.

Abatement and Monitoring: Asbestos abatement is the removal, encapsulation or enclosure of asbestos to reduce or eliminate airborne concentrations of asbestos fibers or amounts of ACM. Once the specification, if required, and proper notification have been completed, abatement can occur before performing the demolition or renovation activity.

Per 25 TAC §295.34, facility owners are required to abate all friable ACBM or ACM which may become friable (regulated asbestos-containing material [RACM]) in accordance with NESHAP. Public building owners are required to abate friable and non-friable ACBM in accordance with NESHAP and TAHPR. Those removing resilient floor covering materials in public buildings are exempt from the licensing and registration requirements of these sections, provided that the requirements of 25 TAC §295.36(a) regarding Licensing and Registration: Exemptions, Emergency are met.

Stringent conflict of interest requirements are associated with asbestos abatement in public buildings. Per 25 TAC §295.37(a) regarding Licensing and Registration: Conflict of Interest, "...third-party area monitoring and project clearance monitoring for airborne concentrations of asbestos fibers during an abatement project shall be performed by a person under contract to the public building owner to collect samples by and for the owner of the public building being abated...Such persons must not be employed or subcontracted by the asbestos abatement contractor hired to conduct the asbestos abatement project...".

Any air monitoring technician (AMT) must be licensed to perform air monitoring services for an asbestos abatement project or related activity in a public building. An air monitoring technician may obtain baseline, area, personal and clearance samples. For purposes of asbestos abatement activities, a licensed air monitoring technician shall be an employee of an asbestos laboratory or an asbestos consultant agency when taking area or clearance samples, or an employee of or under contract to an asbestos abatement contractor when taking personal samples.

Per 25 TAC §295.37(b) Licensee Conflict of Interest, a licensed asbestos consultant who performs asbestos inspections or surveys, writes management plans or designs asbestos abatement projects shall not also engage in the removal of asbestos from those buildings.

The asbestos abatement contractor is responsible for providing the proper temporary storage and final disposal of waste asbestos. A person must be licensed as an asbestos transporter to engage in the transport of asbestos in the State of Texas. All asbestos-containing waste material is to be delivered to an approved TCEQ facility (permitted landfill) for disposal or follow the regulations of the receiving State.

Demolition: Once any required abatement has been performed and notification has occurred, the structure can be demolished.

Owner Retention, Acquisition and Sale of Improvements

Three typical scenarios in which asbestos must be considered are routinely encountered during the right-of-way acquisition process:

- ◆ owner retention of the improvement
- ◆ TxDOT acquisition of improvement
- ◆ TxDOT acquisition and sale of improvement.

Owner Retention of Improvement Option: The first scenario is unique in that the real property acquisition does not include the improvements, typically residential structures. TxDOT property acquisition policy allows for owner retention of an improvement in return for a credit of the retention value of that improvement. For example, a residential property owner may elect to retain a house or mobile home and remove it from the property acquired by TxDOT. Under these circumstances, ownership of the improvement never passes to the State.

When an owner retains the improvement and legal ownership, TxDOT does not have the authority or right-of-entry to test for ACBM. Owners of public buildings and facilities are still required to conform to applicable NESHAP and TAHP standards. Deeds and agreements should state that all such responsibility remains with the owner.

Demolition of residential structures may not be exempt from NESHAP once the land beneath the facility or structure is acquired by the State. TxDOT should notify the legal owner of the residential structure that demolition should not be performed on-site until it is confirmed that asbestos-related activities are performed by persons with the appropriate valid license, registration, accreditation or approved exemption. Due to the additional requirements, it is doubtful that the legal owner of a residential structure will want to demolish the structure on-site.

If an owner elects to retain an improvement and does not take appropriate steps to remove it, a standard deed provision, included with all TxDOT real property conveyances, provides for ownership

of the structure to convey to TxDOT. If this occurs, then TxDOT would become the owner of the improvement and must then remove the improvement in accordance with applicable regulations.

TxDOT Acquires and Retains Ownership of Improvement Option: This second scenario results from any combination of circumstances by which TxDOT comes into actual ownership of a structure and must then take action to remove and dispose of the improvement. When TxDOT acquires ownership of the improvement, explicit responsibility for ACM rests solely with TxDOT.

Generally, TxDOT sells the acquired improvement, discussed in the following option. However, if TxDOT does not sell or transfer the legal ownership of the improvement, the inspection, notification, specification, abatement and disposal of ACM in accordance with applicable requirements are incumbent upon TxDOT. When TxDOT decides to retain ownership of an improvement, a district should contract with an asbestos consultant to perform an asbestos inspection and/or survey. The same asbestos consultant can also be contracted to provide an abatement project design specification, if needed. It is generally more cost effective for a single consultant to conduct the asbestos survey, abatement project design, notification, independent third-party air monitoring and final report.

The entire asbestos inspection report and abatement project design should be attached to a purchase of service specification for abatement and/or demolition request for bids. This documentation discloses the presence and location of asbestos-containing materials, better ensures compliance with applicable regulations and facilitates the preparation of more informed competitive bids. To reduce photocopying expenses, a summary of the inspection report or project design can be attached to the abatement/demolition specification if it clearly states that the entire report is available from the district. Districts should ensure that the contractor received or receives a copy of the entire inspection report and abatement project design once the contract is awarded.

The abatement and/or demolition specification should address and specify requirements for the following:

- ◆ certificate of insurance and performance bonds
- ◆ proof of license and certification requirements
- ◆ third-party independent monitoring requirements
- ◆ notification and fee requirements
- ◆ transportation and disposal of ACM.

TxDOT should confirm that any contractor or consultant performing asbestos-related activity on the right-of-way has the appropriate valid license, registration, accreditation or approved exemption. TxDOT should also request a copy of the completed notification form, and documentation that the form was received by TDH, to confirm that notification requirements have been met.

TxDOT Acquires and Sells Ownership of Improvement Option: The third scenario results from circumstances similar to those of the earlier scenarios in which TxDOT becomes the owner of

improvements such as public buildings and/or facilities. TxDOT's surplus property procedures include transferring the title or ownership of improvements to a purchaser. In this scenario, TxDOT does not hire contractors but sells the improvement outright by issuing an Invitation for Bid (IFB) to conduct a sale of improvement through the competitive bid process. This type of sale is typically a sale by negative bid where the successful bidder or buyer may actually receive funds. The terms of the contract with the successful bidder usually include responsibilities for proper handling, disposal of asbestos and removal of the improvement. The purchaser can include in the formulation of the bid the costs of all required asbestos-related activities and any demolition costs.

In addition to the certificate of insurance and performance bond requirements, the terms and conditions of the IFB should address the transfer of responsibilities for the following requirements:

- ◆ license and certification
- ◆ inspection
- ◆ asbestos abatement project design
- ◆ abatement
- ◆ third-party independent monitoring (abatement contractor cannot contract, subcontract or employ the independent third-party air monitor)
- ◆ notification and fees
- ◆ transportation and disposal of improvement and/or ACM.

When TxDOT acquires and sells the improvement, the following choices related to asbestos inspection, abatement project design, notification, air monitoring, and final report are available:

1. **Attach Asbestos Inspection:** A **recommended approach** to provide information about the presence and location of asbestos-containing materials, ensure compliance with applicable regulations and obtain more informed competitive bids is to **attach the results of an asbestos inspection** (asbestos survey) to an IFB. The entire asbestos inspection report should be attached to obtain more informed competitive bids. To reduce photocopying expenses, a summary of the inspection report can be attached as long as the IFB states that the entire report is available from the district. The district should ensure that the successful bidder receives a copy of the entire inspection report.
2. **Attach Asbestos Inspection and Abatement Project Design:** Although it is not required, the purpose of attaching the asbestos inspection report and abatement project design to the IFB would be to obtain more informed competitive bids. It is also generally more cost effective to have the consultant who performed the asbestos inspection also conduct the asbestos abatement project design. However, TxDOT's terms and conditions in a Sale of Improvement make no warranties. The successful bidder would not be obligated to perform abatement in accordance with the terms of the asbestos abatement project design.
3. **Attach Asbestos Inspection and Abatement Project Design and Provide Additional Asbestos Consulting Services:** Although not required or recommended when TxDOT sells

the improvement, a district can procure or provide additional consultant services (notification, third-party air monitoring and/or final report) in addition to the asbestos inspection and abatement project design. The successful bidder would not be obligated to perform abatement in accordance with the terms of the abatement project design specification. Additionally, it may be difficult to coordinate the activities of the abatement contractor with those of the asbestos consultant if the firms are contracted by separate entities. Lastly, the transfer of responsibility under TAHPR and NESHAP may no longer apply if these additional asbestos-consulting services are provided to the successful bidder. If a district decides to provide these additional asbestos-consulting services, then the "TxDOT Acquires and Retains Ownership of Improvement Option," as discussed earlier, should be reconsidered.

In the IFB, TxDOT should request a copy of the completed notification form as well as documentation that the form was received by TDH prior to abatement or demolition. In addition, TxDOT should require any contractors or consultants performing asbestos-related activity on the right-of-way to have the appropriate valid license, registration, accreditation or approved exemption. Receipt of the completed 10-day notification form provides TxDOT with documentation that license requirements are met.

When TxDOT sells an improvement, the legal ownership or title of the building is transferred to the purchaser. As the building owner, the purchaser can contract the abatement and independent third-party air monitoring to separate entities. It is up to the purchaser to remove the improvement or demolish the improvement on-site. The purchaser is responsible for removal of the structure according to applicable regulations. Any on-site salvage or demolition activities should also follow applicable regulations.

Question three of the TDH Demolition/Renovation Notification Form requests information about the Facility Owner. The person completing the form is asked to "provide information on the legal owner of the facility." Although the State still owns the land beneath the facility or building, the legal owner of the facility or building is the purchaser. Therefore, TxDOT's name is not required on the notification form. TDH sends the invoice for the notification fee to this address.

Options for Obtaining Asbestos Services

Additional information on obtaining asbestos services from consultants and contractors is provided in Chapter 6 (Hazardous Materials Services Contracts).

Section 3

Petroleum Storage Tanks (PSTs) and Leaking Petroleum Storage Tank (LPST) Facilities

TxDOT's Perspective (Overview)

When encountered during construction, underground storage tank systems can cause delays and contractor downtime. Any tank system located in the existing or proposed right-of-way and easements should be removed prior to construction, if possible.

In the event that the identity of the tank system owner and/or operator is unclear, unknown or in dispute, the fee simple property owner may ultimately be held responsible for any contamination. If acquired parcels contain underground storage tanks or contamination, TxDOT may be held responsible for corrective action if the tank owner or operator becomes insolvent or does not fulfill his/her obligations. If the contamination is not discovered until after the property has been acquired, then it may be difficult to assign responsibility for the corrective action to the former owner or operator without a prior negotiated agreement.

TxDOT should avoid liability for corrective action where possible. Agreements for tank system removal and possible corrective action should be negotiated with the property owner or tank owner/operator. Known contamination should also be accounted for during the appraisal and negotiation and acquisition process. However, it may be necessary for TxDOT to perform corrective action for an LPST site in the following situations:

- ◆ the tank system owner or operator is unclear, unknown or in dispute
- ◆ the property owner provides innocent landowner documentation in accordance with Section 361.752 of the Texas Health and Safety Code
- ◆ the transportation project would significantly interfere with the responsible party's ability to perform corrective action
- ◆ the responsible party, property owner or tank owner/operator becomes or is likely to become insolvent (bankrupt) or abandon his/her financial obligations.

Situations in which it is likely that TxDOT will be held responsible for corrective action include those where a tank owner/operator is displaced due to the transportation project and subsequently abandons his/her obligations. Although TxDOT may conduct corrective action, attempts for cost recovery or compensation from responsible parties should be pursued when appropriate. **Districts should contact ENV, ROW and OGC when deciding if performing corrective action is in the best interest of TxDOT or the State.**

If possible, TxDOT should confirm that the tanks have been removed and required corrective action has been completed as required by TCEQ prior to finalizing the Plans, Specification & Estimates (PS&E). Often, cleanup or remediation cannot or does not occur prior to acquisition or even

to construction. Additionally, regulatory agencies may allow contamination under a risk-based closure. Therefore, any necessary preventive action during construction activities should be communicated and coordinated with district planning, environmental, design and construction staff, and affected divisions. Any post-closure responsibility should be communicated and transferred to the district maintenance sections.

Regulation and Liability Summary

Underground and aboveground petroleum storage tanks (PST) are regulated by 30 TAC Chapter 334. Per 30 TAC §334.7, relating to Registration for Underground Storage Tanks (USTs) and UST Systems on or after September 1, 1987, no person shall own or operate an underground storage tank which contains or has contained a regulated substance unless it has been properly registered. There are statutory and TCEQ exemptions in 30 TAC §334.3 and 30 TAC §334.4 for certain tanks or types of storage. Also exempt from registration are underground storage tanks that:

- ◆ are permanently out of service and were removed from the ground before May 8, 1986
- ◆ remain in the ground, but were emptied, cleaned and filled with solid inert materials on or before January 1, 1974, in accordance with accepted industry practices in effect at the time the underground storage tank was taken out of operation.

Registration is not required of underground storage tanks that are out of operation and empty of regulated substances at the time of their discovery, provided that the facility owner can reasonably demonstrate no prior knowledge and the underground storage tanks are permanently removed from service within 60 days of their discovery (see 30 TAC §334.6(a)(1)(E)). Removal of underground PST systems is to be performed in accordance with 30 TAC §334.55 (Permanent Removal from Service).

The Texas Water Code (TWC) §26.351 and 30 TAC §334.12 assign liability for corrective action for a LPST to the entity that owned or operated the tank system at the time the release occurred. Per 30 TAC §334.2 (definitions), an **operator** is "any person in day-to-day control of, and having responsibility for the daily operation of the UST system or the AST system, as applicable." An **owner** is "any person who holds legal possession or ownership of an interest in an UST system or an AST if the actual ownership of an UST system or an AST is uncertain, unknown, or in dispute, the fee simple owner of the surface estate of the tract on which the UST system or AST is located is considered the UST system or AST owner unless that person can demonstrate by appropriate documentation, including a deed reservation, invoice, bill of sale, or by other legally-acceptable means that the UST system or AST is owned by another person. A person that has registered as an owner of an UST system or AST with the commission under §334.7 of this title (relating to Registration for Underground Storage Tanks (USTs) and UST Systems) (or a preceding rule section concerning tank registration) after September 1, 1987, shall be considered the UST system owner and/or AST owner until such time as documentation demonstrates to the executive director's satisfaction that the legal interest in the UST system or AST was transferred to a different person subsequent to the date of the tank registration

The purchaser does not automatically become the responsible party for tank compliance at a site; he/she must willingly accept that responsibility. However, according to guidance from the TCEQ, the purchaser of the property could become responsible for the cleanup should the previous owner of the tanks become insolvent or disappear.

The Petroleum Storage Tank Remediation (PSTR) Fund will cease to exist after August 31, 2008. Also, no expenses for corrective action performed after September 1, 2007 will be reimbursed. Filings for reimbursement must be received by the TCEQ on or before March 1, 2008. Regulated tanks not registered by December 31, 1995 and all releases discovered on or after December 23, 1998 are no longer covered under the PSTR Fund. Owners and operators of registered tanks who discovered and reported their releases prior to the December 23, 1998 date may be able to access the PSTR Fund for reimbursement of expenses until the final sunset date. With these deadlines it will be increasingly difficult, if not impossible, for right-of-way LPST sites to qualify for reimbursement from the PSTR fund.

Per 30 TAC §334.84(a), TCEQ may undertake corrective action in response to a release or a threatened release if the owner or operator of the underground storage tank is unwilling, cannot be found, or is unable to take the corrective action. The TCEQ may also undertake corrective action if more expeditious corrective action is necessary to protect the public's health and safety or the environment.

PST System or LPST Facility Acquisition

Appraisal: The majority of right-of-way acquisitions that involve PST systems located partially or wholly within additional right of way or in close proximity to the needed right of way include the value of the system as real property. Declaring PST systems as personal property is not recommended since there is a greater potential for the tank system and related responsibilities to be abandoned.

The condition of any underground storage tank should be evaluated in the appraisal. A real estate appraiser determines the value of the PST system based upon an inspection of the property, disclosure of information from the tank owner, and the current compliance status of the system. To accurately determine the value, on-site access to verify the regulatory status is required.

Acquisition of real property for highway purposes is addressed within three scenarios including negotiation, donation and eminent domain proceedings. The following discussion will provide guidance and options for each scenario.

Negotiation: Once an approved value has been determined for the real property and improvements located on a right-of-way parcel, the owner and/or operator of the property is presented with an offer of just compensation. The amount of compensation is based upon an unimpaired or "as if clean" valuation. TxDOT's offer also includes the value of the tank system, if any.

In order to appraise and value a site "as if clean" without testing, the offer to purchase must be conditioned upon execution of a Petroleum Storage Tank Removal Agreement (PSTRA). The PSTRA allows the owner to retain the title to the PST system and be reimbursed certain expenses for performing the removal. All reasonable and necessary costs of tank removal and backfill may be reimbursable by TxDOT upon completion. In the past, the TCEQ's PSTR fund deductibles were also reimbursed. With the sunset of the PSTR fund, these deductibles have increased and will probably not apply to a current site. TxDOT can continue to consider reimbursement of any deductibles in the negotiation. For active systems, the tank owner or operator should have insurance policies that cover underground storage tank liability for taking corrective action and compensating third parties for bodily injury and/or property damage caused by accidental releases per 30 TAC §37.801-37.895, Financial Assurance for Petroleum Underground Storage Tank Systems. It is not necessary for these insurance deductibles to be reimbursed by TxDOT. However, any insurance deductibles related to tank removal may be reimbursed. The reasonable deductible amount should be negotiated on a case-by-case basis.

With the PSTRA, the title to the PST system will not pass to the State; responsibility for corrective action, if necessary, remains with the tank owner/operator or displacee. The agreement should include not only the removal of the system, but contingencies if contamination is encountered. The PSTRA should do the following:

- ◆ delegate responsibility for tank removal
- ◆ provide for contingencies if contamination is encountered and delegate responsibility for release reporting, assessment, corrective action, closure and/or post-closure care.

If the site is an LPST facility with corrective action activities being pursued by the responsible party or is thought to be contaminated, an indemnification agreement can be offered that outlines responsibilities and obligations after acquisition of the right of way. This would be a valuable tool in ensuring that TxDOT is not the responsible party for all or any part of the site. If not previously addressed in a PSTRA, the indemnity agreement should do the following:

- ◆ delegate responsibility for assessment, corrective action, closure and/or post-closure care
- ◆ ensure that TxDOT's project-specific design requirements and construction worker safety are addressed in the risk assessment and corrective action plan
- ◆ allow TxDOT's involvement in decisions regarding corrective action, closure and post-closure care requirements
- ◆ allow TxDOT to recover costs, where appropriate.

If the offer of compensation is accepted and the agreement is executed, normal closing of the transaction can occur. The owner removes the PST system in accordance with the terms, conditions and time allowance stated in the agreement. The remaining issue of payment from TxDOT is based upon the site status. The TCEQ requires a tank removal report to be submitted after removal has been completed. If the report proves that no release occurred and no further action is required by

the TCEQ, then the case is closed. Payment for tank removal is made and TxDOT's involvement and obligation are considered complete.

Before finalizing the PS&E, TxDOT should confirm that the tank system has been removed and corrective action as required by the TCEQ has been satisfactorily completed. The district should monitor the statuses of any assessment, investigation, corrective action and/or closure. If corrective action activities do not progress, then TxDOT should notify the TCEQ. The district must also monitor the site to determine whether preventive or corrective action is feasible prior to construction. Affected planning, environmental, design, and construction staff should be kept up-to-date on the status of corrective action. If a site's corrective action includes long-term controls, then additional coordination is required. For example, post-closure responsibility may need to be transferred to the TxDOT district maintenance section.

Donation: It is not in TxDOT's best interest to accept donated land without first conducting an assessment, possibly an investigation, to determine the condition of the property. Many cases have revealed that property owners donate land to the State in an effort to end their potential liability because TxDOT is seen as having deep pockets. Minimizing the risks associated with prior land usage will reduce the potential costs of cleanup to accommodate roadway construction. Removal and indemnity agreements can also be used in donation cases.

Eminent Domain/Condemnation: Although negotiation of the right-of-way parcel may be contingent upon the execution of the PSTRA or indemnity agreement, the owner is not obligated to execute such an agreement. Rejection of the agreement may constitute rejection of the offer. If rejected, TxDOT should consider acquiring an easement until the tank system is removed or corrective action is accomplished.

At this stage, TxDOT may decide to re-evaluate the property to determine if it is contaminated. For confirmed or possible contaminated sites, an intrusive investigation is necessary to re-evaluate the property. The environmental condition of the property may not be determined definitively until an underground tank system has been removed. Right-of-entry is typically denied if the PSTRA or indemnity agreement is rejected. If the property owner refuses to execute a PSTRA, the department shall use as the basis for condemnation the "unknown environmental condition of the property." There have been instances where the owner has executed the PSTRA, but rejected the offer of just compensation. In these very rare cases, the reason for filing an objection to the Award of Special Commissioners has related to the value given to the land and improvements--not the known or possible contamination.

If the negotiation process fails because the owner of the proposed right-of-way declines the offer of just compensation or rejects an agreement, then condemnation or eminent domain proceedings are initiated. The eminent domain proceedings are processed through ROW with appropriate notation to the Attorney General. The Attorney General's Office files a Petition or Statement of Condemnation in the court with jurisdiction in the county where the property is located. After the Special Commissioners are appointed, a hearing over the issue of value for the acquisition takes place. At

this stage, the property is discussed as if unimpaired or "as if clean," unless adequate information is available to the appraiser to support an impacted value. If adequate suspicion exists that the property is impaired and should be reduced in value, or if a PST system needs to be removed, then an objection to the Award of the Special Commissioners can be filed to investigate the property. Responsibility for corrective action may be addressed at this stage. After the funds have been deposited into the registry of the court, the State takes possession of the property. At this time, an assessment or removal of the PST system can be performed to provide technical data, cost estimates and testimony for trial purposes. Additional information about eminent domain proceedings should be obtained from ROW.

It is possible that unknown contamination may be encountered after the State acquires the property. If an indemnity agreement that assigns responsibility to a property owner or tank owner or operator is rejected, the original condemnation award to the District Court may be appealed. A jury then decides how much the property is worth. If the Jury decides that the property is worth less than the award, then the property owner must pay back the excess.

PST Removal Steps

TxDOT staff, the acquiring agency and/or the appraiser should initiate most of the following steps as early as possible in project development.

Conducting a non-intrusive assessment of property with USTs:

1. Determine if one or more underground storage tank systems or partial systems exist within the existing and proposed right of way or easements by conducting an initial site assessment (interviews, land use research, regulatory database list search, site visit, etc.).
2. Identify the tank owner or operator through interviews, land use research, chain of title, registration or other legal documents.
3. Determine the number of tanks, tank capacity, construction, volume of fluid remaining and product(s) stored in the tanks.
4. Determine and/or confirm tank compliance including status of tank upgrades, registration and fees. For example, to determine registration requirements, obtain documentation of the tank system being emptied, cleaned and filled with solid inert materials on or before January 1, 1974, in accordance with accepted industry practices.
5. Determine the potential for contamination, such as tank compliance, violations, enforcement, reported releases or LPST status.
6. Determine whether the tank owner or operator is known and willing or financially able to remove tanks and obtain closure of the site. Obtain information on insurance or financial responsibility from 30 TAC §37.801-37.895, Financial Assurance for Petroleum Underground Storage Tank Systems. Insurance information includes, but is not limited to, policy number, period of coverage (current policy period), effective date of coverage, deductible amount, com-

pany name (insurer or risk retention group), company address (insurer or risk retention group), and name and address of insured.

The procedure to acquire real property with USTs is as follows:

1. Appraise the site "as if clean."
2. Negotiate a PSTRA with contingencies for contamination, corrective action and post-closure care. If the PSTRA is rejected, proceed with condemnation. If the PSTRA and offer are accepted, then proceed with normal acquisition.
3. Monitor terms, conditions and deadlines of the PSTRA.
4. Ensure that the tank owner or operator does not register the tank system in TxDOT's or the acquiring agency's name. In addition, neither TxDOT nor the acquiring agency's name should be identified as the owner on the construction notification form required for removal.
5. The tank owner or operator should amend registrations of all removed tanks to avoid paying annual registration fees.
6. Once the tank owner or operator obtains and forwards an amended registration and closure letter from TCEQ stating that no further action is required, the district or acquiring agency releases funds for removal of the tank and/or escrow account as negotiated in the PSTRA. If the tank system is closed with no further action, then TxDOT's responsibility ends.
7. If contamination is encountered, the tank owner or operator should report the release or LPST as required in the PSTRA. Confirm that neither the acquiring agency nor TxDOT is listed as the owner. If not already incorporated into a PSTRA agreement, a separate indemnity agreement should be negotiated. Once the indemnity agreement is signed and an amended registration is forwarded, the district or acquiring agency releases funds and/or escrow accounts for removal of the tank as negotiated in the PSTRA.

LPST Facility Steps

The following steps for LPSTs may need to be incorporated with the above steps for petroleum storage tank removal.

To perform a non-intrusive assessment of a known or possible LPST Facility:

1. Determine the party responsible for corrective action as listed with TCEQ.
2. Determine or confirm the site's eligibility for TCEQ's PSTR fund.
3. Determine if the property owner or tank owner or operator is willing or financially able to obtain site closure. Obtain information on insurance or financial responsibility from 30 TAC §37.801-37.895, Financial Assurance for Petroleum Underground Storage Tank Systems. Insurance information includes, but is not limited to, policy number, period of coverage (current policy period), effective date of coverage, deductible amount, company name (insurer or

risk retention group), company address (insurer or risk retention group), and name and address of insured.

4. Through file review and/or interviews, determine: the extent of contamination; affected adjacent property owners or receivers; status of investigation, risk-based assessment, corrective action, monitoring and closure; and post-closure care requirements.
5. Determine the impact to proposed adjustments of subsurface utilities or proposed excavation for the construction project.
6. Determine the potential for corrective action, monitoring and closure to be completed prior to acquisition, prior to finalization of PS&E, and prior to letting.
7. Determine any preventive action required prior to or during construction.
8. Determine monitoring or post-closure care required after acquisition or construction.
9. Evaluate whether avoidance or minimization is feasible or practical at this stage of project development.

The procedures to acquire property containing an LPST Facility:

1. Appraise the site "as if clean," contingent upon a negotiated indemnity agreement.
2. Consider acquiring an easement until the tank system is removed or corrective action is accomplished. If the indemnity agreement is rejected, proceed with condemnation. If the indemnity agreement and offer are accepted, then proceed with normal acquisition.
3. Monitor agreement terms, activity deadlines and corrective action status. If corrective action activities do not progress, then TxDOT should notify the party and copy correspondence to the TCEQ. Periodically confirm that the acquiring agency or TxDOT is not listed as the tank owner or operator on TCEQ LPST lists.
4. Any post-closure responsibility should be communicated and transferred to the district maintenance section.
5. Any requests for deed recordation should be coordinated with ENV and OGC.
6. Coordinate any required preventive action or construction activities with the party performing corrective action.
7. Any prior negotiated escrow accounts are released once the tank owner or operator obtains proof of closure, a copy of the closure report and a letter from the TCEQ stating that no further action is required.

UST System Encroachments

If a UST or partial system is in the existing right-of-way without authorization (encroachment) and no acquisition is required, then the following steps apply for removal of the encroachment:

1. Determine if the tank system may impact a proposed transportation, maintenance or utility adjustment project.
2. Identify the adjacent property owner.
3. Attempt to determine the tank owner or operator through interviews, land use research, chain-of-title, TCEQ registrations, TxDOT right-of-way files or other legal documents. There may be tank owners or operators (i.e., responsible parties) other than the property owner. Ownership may be disputed if a tank owner or operator abandoned the tanks and is not the current property owner. Any previous right-of-way acquisition files should be carefully reviewed to determine if TxDOT was aware of or assumed responsibility for the tank system.
4. Initially contact and notify the tank owner or operator or adjacent property owner of the encroachment. It is recommended that the District Engineer follow up with a written letter requesting tank removal. The letter should state that the tank system was not authorized to be on state right of way. Additionally, regulatory citations for tank owner/operator obligations under 30 TAC §334.7: Registration for Underground Storage Tanks (USTs) and UST Systems, 30 TAC §334.6: Construction Notification for Underground Storage Tanks (USTs) and UST Systems, and 30 TAC §334.5: General Prohibitions for Underground Storage Tanks (USTs) and UST Systems should be provided. The letter should provide information about obtaining a temporary use agreement from the district to remove the tank system. Pertinent information acquired during the review of right-of-way acquisition files, or TCEQ registrations related to the tanks or tank system, may also be summarized. A signature block should be provided for the party to accept responsibility for removal and corrective action. The party should be asked to return a signed letter within 30 days. A copy of the letter should be sent to the state and regional TCEQ offices.
5. If the tank owner or operator or adjacent property owner accepts responsibility, a standard temporary use agreement including both PSTRA and indemnity agreement issues should be presented to the party to sign.
6. The terms of the agreement should be monitored and documentation of the closure should be obtained. If the site becomes an LPST site, the district should monitor its corrective action status and periodically re-evaluate the possibility of contamination impacting any proposed transportation project prior to finalization of the PS&E and letting.
7. If no response is made or action taken to remove an abandoned tank system within 30 days of the request, then the district may arrange for the removal of any product in an abandoned tank to reduce the potential for releases. If the abandoned tank system may adversely impact a proposed project and the tank owner or operator, or property owner does not accept responsibility within a reasonable time frame, the district can arrange tank removal.
8. If the tank owner or operator or property owner is unknown, unwilling or financially unable to remove tanks or perform corrective action, TxDOT should notify the TCEQ. If TCEQ directs TxDOT to perform the removal or corrective action, then TxDOT should pursue other responsible parties or the TCEQ State Lead Program before accepting full responsibility for corrective action. TxDOT should consider whether responsibility should be contested.

TxDOT may only be able to perform corrective action within the existing right of way or easements. The district should coordinate these decisions with ENV and OGC.

Underground Storage Tank Removal or Corrective Action Performed by TxDOT

If TxDOT removes a UST system, the following steps should be performed:

1. Attempt to obtain information about the tanks, such as the number, size and contents, for a removal specification.
2. Arrange for a purchase of service contract for tank removal. Some districts have pre-arranged blanket purchase order contracts in place. Professional engineering services are typically not needed. Districts can contact ENV-PPA if additional assistance is needed in editing a tank removal specification.
3. If a portion of the tank system exists outside the existing right of way or if removal activities require access to adjacent properties, then the District should obtain written right of entry from the property owner(s). The district should notify the TCEQ in writing if right of entry is denied.
4. If possible, avoid registering tanks by permanently removing them from service within 60 days of the date of acquisition or the date TxDOT became aware of the tanks on the existing right of way. 30 TAC §334.7(a)(1).
5. Confirm that TxDOT is not identified as the tank owner on the construction notification form required prior to tank removal. The consultant and/or contractor can indicate on the form that TxDOT contracted them to monitor and/or remove the tank system.
6. TxDOT should monitor the terms and conditions of the tank removal contract.
7. The district should send a copy of the invoice for tank removal to the tank owner or operator or property owner for cost recovery. A decision about whether or not to pursue legal action for cost recovery should be coordinated with ENV and OGC.
8. If the tank system is closed with no further action, then TxDOT's responsibility ends.

If TxDOT performs corrective action on right of way or easements, the following steps should be performed:

1. Procure the services of a statewide environmental engineering consultant. The district can contact ENV-PPA for assistance in determining the scope of services or developing requests for estimates. Additional information about work authorization management and statewide environmental engineering consultants is provided in Chapter 6, [“Hazardous Materials Services Contracts.”](#)
2. Coordinate any required preventive action for construction activities with corrective action. Costs for preventive action and corrective action should be individually tracked to facilitate management decisions and possible cost recovery.

3. Any requirements for deed recordation should be coordinated with ENV and OGC.
4. Any post-closure responsibility should be communicated and transferred to the district maintenance sections.

Section 4

Other Permitted or Regulated Sites

Overview

Other permitted or regulated sites include, but are not limited to:

- ◆ federal and state Superfund sites
- ◆ industrial and hazardous waste generators, transporters, and treatment, storage and disposal facilities
- ◆ municipal solid waste landfills
- ◆ abandoned hazardous substance or waste sites
- ◆ voluntary cleanup
- ◆ oil and gas exploration sites.

To a much greater extent than LPST sites, the acquisition of permitted, hazardous substances or waste-contaminated property requires special consideration during the right-of-way negotiation and acquisition process on a case-by-case basis. Depending upon the regulatory status of a site, additional regulatory agency coordination, permit modifications, closure and post-closure care may be need. For example, the plugging of groundwater monitoring or exploration wells may be required according to applicable regulations.

The names and contacts of the potentially responsible parties must be determined. The Texas Health and Safety Code, §361.751- §361.754, provides for Innocent Owner Operator Certificates from the TCEQ in certain situations. If a landowner meets the requirements and provides proof of these certificates, TxDOT should identify other potentially responsible parties, previous owners and former operators. TxDOT should consider negotiating agreements with parties other than the current landowner.

To minimize or avoid liability for corrective action, TxDOT may need to exercise the power of eminent domain through condemnation for state-regulated sites or through purchase or condemnation for federal-regulated sites. For federal Superfund sites, Protective Purchaser Agreements with EPA should be pursued.

The terminology and requirements associated with corrective action and risk-based assessments for a facility differ according the federal or state regulatory status. Further discussion is outside the scope of this guidance. For more information, districts should contact ENV-PPA.

Chapter 4

Design

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Section 1

Overview

Goals

As discussed in the FHWA Interim Guidance Summary, the following goals should be considered during design:

- ◆ avoid contamination, if possible
- ◆ minimize construction activity and costs
- ◆ recover costs.

One of the main goals of the design process is to provide as much information as possible to consultants and the district's advanced project development, environmental and right-of-way staff regarding design details (such as locations of excavations and de-watering requirements). This disclosure will allow the most thorough environmental site assessment possible. As preliminary design requirements are finalized, assumptions made during project planning for the initial site assessment may need to be re-evaluated.

Due to the increased costs associated with hazardous materials management, known or possible hazardous material concerns should be integrated into the project coordination, alignment selection and decision-making processes.

If contamination cannot be cleaned up prior to construction, the project designer should develop procedures, plan notes, specifications and plan details to address contamination concurrent with construction.

Procedure Overview

This chapter provides guidance for those rare cases when contamination cannot be avoided or cleaned up prior to construction. For example, in situations where soil and groundwater contamination is widespread, cleanup could potentially take years; it may not be feasible to delay construction until cleanup is complete. Also, in some situations it may be cost-prohibitive to clean an area to non-contaminated levels. In such a case the corrective action plan may call for a risk-based closure, which allows contaminated soil and groundwater to remain in place. However, special handling considerations may be necessary if the contamination is encountered during construction.

For the most part, TxDOT's preparation and work activities regarding contamination issues during construction are preventive, not corrective, actions.

The following are some terms relevant to design, and their definitions:

- ◆ **Corrective Action:** Cleanup, removal or stabilization of contaminated soil and/or groundwater as required by environmental regulations. The goal of corrective action is typically to obtain regulatory closure of the affected site.
- ◆ **Preventive Action:** Cleanup, removal or stabilization of contaminated soil and/or groundwater as required prior to or during construction or maintenance projects. In contrast with corrective action, preventive action is concerned primarily with worker safety, as well as with ensuring that the existing contamination problem is not aggravated by the project.
- ◆ **Aggravate:** To contribute to or cause further releases into the environment, resulting in exacerbation of existing soil or groundwater pollution by:
 - removing contaminated soil or groundwater by excavation or pumping and improperly handling, storing or discharging the soil or groundwater
 - creating pathways for contaminant migration
 - obstructing ongoing or impending corrective actions.
- ◆ **Specialty Contractor:** A TCEQ-licensed contractor with the training, experience and equipment necessary to perform construction-related services within contamination zones. Specialty contractors perform work in areas where OSHA training requirements and/or pollution liability concerns prevent the general contractor from performing such work. Underground storage tank removal contractors comprise a large statewide pool of potential specialty contractors.

Environmental regulatory considerations drive many decisions during the design of a project within a contaminated area. Work involving contamination during construction is usually concerned with preventive action, rather than corrective action. Examples include installation of migration-proof pipe/utility trenches within contamination zones, as well as removal of a petroleum storage tank during construction in compliance with TCEQ regulations.

This guidance provides the framework around which effective and economic measures for dealing with hazardous materials contamination during project design can be established. If contaminated or potentially contaminated areas cannot be avoided within a proposed construction site, several options for handling construction are available to project designers. These options should be carefully considered to make the most appropriate decision early in the project development stage. Preventive action of contaminated areas should only be incorporated into the PS&E when justification can be provided for not avoiding the site, or when preventive action of the contaminated material cannot reasonably be accomplished in a separate contract prior to the roadway construction contract.

Petroleum-contaminated soils are the most widespread form of contamination encountered by TxDOT in highway construction activities. The ability to resolve problems associated with petroleum contamination quickly and at relatively low cost is a significant factor in the feasibility of many projects. The standard procedures presented in this section are best suited to this type of contamination, although they may also be used to address other contaminant types. The reuse of

petroleum-contaminated soils is allowable under certain conditions and is encouraged on most affected projects. This reuse is regulated by the TCEQ (*30 TAC Chapter 334 - Subchapter K*, relating to Storage, Treatment and Reuse Procedures for Petroleum-Substance Contaminated Soil).

The procedures outlined below should be followed to determine how to proceed on projects with potential hazardous material contamination.

- ◆ Environmental site assessments and investigations should provide enough detail and adequate information to determine how to avoid or minimize work in contaminated areas.
- ◆ Many design and construction considerations/factors must be analyzed to determine the most efficient and cost-effective way to develop and implement a preventive action plan.
- ◆ Once a method for preventive action has been chosen, the PS&E can be developed to incorporate any necessary contract provisions.

Section 2

Environmental Site Assessment and Investigations

When hazardous material contamination is discovered, it is likely to delay project development or stop construction until a lengthy, complex and costly investigation and analysis can be completed to determine proper procedures for handling the site. Keys to success in dealing with potentially contaminated sites are:

- ◆ early identification and assessment
- ◆ early coordination with:
 - Design Division (DES)
 - Environmental Affairs Division (ENV)
 - Right of Way (ROW)
 - Construction Division (CST)
 - General Services Division (GSD)
 - Contract Services Section (CSS)
 - Federal Highway Administration (FHWA)
 - responsible parties, local entities and regulatory agencies
- ◆ early determination and use of measures to avoid or minimize involvement during construction activities at the site.

Environmental site assessments should be performed to identify potentially contaminated sites. The findings of an initial site assessment or investigations performed by the district may indicate the need for more detailed assessment. Environmental consultants may be called in, depending upon the training and experience level of the district's staff. Some of the services a consultant may provide include:

- ◆ comprehensive site investigations to fully characterize the type, concentration and location of the hazardous materials likely to be encountered during construction
- ◆ development of a preventive action plan
- ◆ development of plans and specifications
- ◆ monitoring/testing during design and construction.

The district staff's level of direct experience with the type of contamination encountered will also help determine the responsibilities of TxDOT and any environmental consultants. The district should determine which services should be provided by a consultant and which ones can be performed by in-house staff.

It is necessary to coordinate with TxDOT divisions, FHWA, TCEQ and other agencies to ensure timely and efficient project development. The results of the environmental site assessment and

investigations are the basis for design and construction considerations. Right-of-way acquisition and utility adjustments should also be analyzed as part of the project development phase.

The environmental site assessment and investigations should provide adequate information so that all design considerations and factors can be examined and analyzed with regard to possible contamination within the proposed project limits. This information should focus on identifying, quantifying and delineating the vertical and horizontal extents of soil and groundwater contamination that will be affected during construction.

Section 3

Design Considerations and Factors

Avoidance and Minimization

TxDOT should analyze each alternative carefully; the goal is to select the most cost-effective option that is least likely to impact the environment and best serves the purpose of the project. Several factors must be considered in the decision to avoid or minimize involvement with hazardous materials including health and safety concerns, design feasibility, maintenance after construction, liability, costs and other environmental issues.

If contamination is encountered and cannot be avoided, TxDOT should make every effort to have the owner, operator and/or responsible party investigate and clean up the contamination prior to acquisition. If it cannot be cleaned up prior to construction, the project designer should find ways to minimize involvement or impacts with hazardous materials by redesigning the project or properly handling the concern prior to or during construction. It may be necessary to develop procedures, plan notes, specifications and/or plan details to address contamination concurrently with construction. In some cases, requirements for proper management of hazardous materials or special considerations for post-construction maintenance activities may also apply.

Design Considerations

When there is a strong degree of certainty that hazardous material contamination exists within the project limits, coordination with affected divisions should begin early in the project development process. Each TxDOT district should develop its own procedures based on the information in this document and designate responsible persons for determining and coordinating project development activities when there is a possibility of encountering hazardous material contamination during construction. Project designers should coordinate with TxDOT divisions through designated district personnel. If needed, Chapter 6: Hazardous Materials Services Contracts provides detailed instructions to acquire consultant and contractor services with the assistance of ENV and the Purchasing Section of GSD.

All design and construction activities involving hazardous material contamination should comply with state and federal rules and regulations. Coordination with the TCEQ throughout project development and construction may be necessary. Consultants may be needed to develop the preventive action plan and provide coordination with other agencies, depending upon the district staff's level of training and experience. The preventive action plan details the plans and specifications for monitoring and testing, health and safety plans, waste management and other items that may be needed. The cost-effective project design should also:

- ◆ determine who will accomplish the work activities in the contaminated areas
- ◆ determine how and when construction sequencing should occur

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- ◆ determine how costs associated with contamination will be taken into account
 - ◆ assign responsibilities to the parties involved in the construction contract.

If possible, preventive action should be accomplished prior to construction on the roadway project. When contamination is located within the proposed right-of-way limits, the best way to minimize traffic flow interruption is to coordinate the preventive action and construction plans. When preventive action and roadway construction plans are let as separate contracts, the designs should be coordinated to eliminate redundant excavation.

Design Factors: When contaminated materials or wastes are involved, analyzing the following and other factors will help determine the most efficient and cost effective procedures for handling preventive action activities:

- ◆ type of contamination
- ◆ severity of contamination
- ◆ location of contamination
- ◆ design, construction and traffic delays
- ◆ right-of-way acquisition
- ◆ utility adjustments
- ◆ design requirements (for example: reconsider storm sewer placement to avoid or minimize excavation in contaminated areas, elevated rather than depressed roadway sections, and dewatering requirements)
- ◆ costs associated with preventive action.

Section 4

Contamination Factors and Considerations during Construction

During the design phase, it is necessary to determine how preventive action will be accomplished during construction and delegate responsibility for the various activities. Many construction-related considerations and factors should be analyzed to determine the most efficient and cost-effective design.

Contamination Factors during Construction

When the preventive action for the contaminated materials cannot reasonably be accomplished by a separate contract prior to construction, several factors should be analyzed to determine the best method for incorporating the preventive action into the PS&E. These factors include:

- ◆ type and severity of contamination
- ◆ area of contamination as related to project size and sequencing
- ◆ time and traffic constraints
- ◆ reuse of contaminated soil
- ◆ estimated cost of preventive action.

Contamination Considerations during the Construction Design Phase

During the design phase, several construction considerations should be addressed in areas where the environmental site assessment and/or investigations indicate the possibility of contamination. The district should work closely with the divisions to determine the most cost-effective, efficient manner of handling contamination on a project. The following options for handling contamination are available; **any one or a combination thereof** may be used:

1. **Prior to Construction:** Preventive action occurs prior to roadway construction by the owner, operator or party responsible for causing the contamination, or by a state specialty contractor via contract or prearranged purchase order
2. **Emergency Contract:** Preventive action occurs during construction after an emergency contract is issued for a state specialty contractor
3. **Prearranged Purchase Order:** Preventive action occurs during construction via a prearranged purchase order for a state specialty contractor
4. **Change Order:** Preventive action is performed during construction by the prime construction contractor or subcontractor using a change order
5. **Prime Construction Contractor:** Preventive action occurs during construction when the prime construction contractor or specialty subcontractor is required to perform work;

6. **Responsible Party:** Preventive action occurs during construction by those responsible for causing the contamination.

Option 1 - Prior to Construction: Option 1 is the preferred choice for sites known to be contaminated. This provides for cleanup prior to roadway construction and allows normal construction activities to be conducted by the prime construction contractor without delay or additional costs. Option 1 is best suited to contaminated sites within the proposed right of way that can be cleaned up with little or no disruption to traffic. However, if redundant excavation will occur when using two separate contracts, other options may need to be considered.

Table 4-1: Option 1 - Prior to Construction

Advantages	Disadvantages
Does not increase construction costs Avoids/minimizes contractor downtime and costs Avoids/minimizes contractor disputes/claims	Increases preliminary engineering costs May delay letting/construction schedules May not be feasible May unnecessarily duplicate excavation

Option 2 - Emergency Contract: Option 2 requires TxDOT to suspend construction in the area of the contamination so the emergency contractor may perform preventive action activities. To reduce delays and associated costs, coordination with CST and the Purchasing Section of GSD to provide an emergency contract is essential. Working with GSD early in project development and construction when an emergency contract is needed will help to ensure a smooth transition from the prime construction contractor's work to the specialty contractor's work with minimal delays. The disadvantage of Option 2 is the inherent conflict of having two firms, both on contract to TxDOT, working on the same job site at the same time.

Table 4-2: Option 1 - Emergency Contract

Advantages	Disadvantages
Does not increase construction costs Avoids termination of contract	Increases operating budgets Possible construction delays Increase potential for contractor downtime and costs Increase potential for contractor disputes/claims

Option 3 - Prearranged Purchase Order: Option 3 can be useful for certain types of recurring contamination, such as those encountered by large urban districts. District blanket purchase orders may also be useful when advance notification of known contamination is made. This option allows a specialty contractor to be available on short notice when contamination is encountered; prices for different work activities have already been competitively bid and are charged for each project as needed. Option 3 may still require TxDOT to suspend construction activities in the area of contamination so the specialty contractor may perform preventive action activities. However, delays should be minimized since a contract already has been approved for the preventive action work. Option 3 is especially useful in addressing LPST contamination that may have migrated into the

project limits from an off-site source. For many LPST sites, the construction activity may be viewed as an extension of a site investigation. As long as the prime construction contractor knows to discontinue work if/when contamination is encountered, the transition back and forth between the prime construction contractor and specialty contractor can proceed smoothly and efficiently without the need for an expensive preconstruction environmental site investigation.

Table 4-3: Option 3 - Prearranged Purchase Order

Advantages	Disadvantages
Does not increase construction costs Avoids termination of contract May minimize construction delays	Increases operating budgets Potential for contractor downtime and costs Potential for contractor disputes/claims

Option 4 – Change Order: Option 4 may be used in accordance with Item 4 (4.3, Scope of Work) of the *Standard Specifications for Construction of Highways, Streets and Bridges*. Option 4 may be useful when a reasonable cost can be negotiated with the prime construction contractor to perform the preventive action work. In most cases, the prime construction contractor must subcontract for this work; it may be more cost-effective to use Options 2 or 3. However, there are advantages to this method. The prime construction contractor has more control of the work activities, delays are reduced and reduction in work conflicts due to outside contractors is avoided. The prime construction contractor can also employ an industrial hygienist to monitor permissible exposure limits (PELs) on the project site. The district should coordinate with the Purchasing Section of GSD when negotiating for change to ensure the cost effectiveness of the prime construction contractor's offer.

Table 4-4: Option 4 - Change Order

Advantages	Disadvantages
Avoids termination of contract May minimize construction delays Reduces potential for contractor downtime and costs Reduces potential for contractor disputes/claims	Increases construction costs May not be cost effective Costs are not by competitive bid Contractor may not be willing or able

Option 5 - Prime Construction Contractor: When requiring the prime construction contractor to perform preventive action, Option 5 should be used only in exceptional cases. Option 5 may be necessary when it is not feasible to clean up contamination independent from the roadway project. Option 5 also minimizes the number of independent contractors working in the same location, reducing the potential for conflicts. When contamination is located under the proposed roadway, an effective way to minimize traffic flow interruption is to coordinate the preventive action and construction schedules. The designs should also be coordinated to eliminate redundant excavation. For example, the standard preventive action philosophy is to return a contaminated area to its original condition. Without coordination, the possibility exists that the preventive action contractor will excavate and dispose of the contaminated soil and replace it with clean soil. If the site is in a cut section, the prime construction contractor would then haul away the fill that had just been

brought to the site. When the prime construction contractor is responsible for performing the preventive action or by subcontracting with a specialty contractor, this coordination is easier to ensure.

While in some situations it may be necessary for the prime construction contractor to be responsible for all aspects of the preventive action, in other situations it may be appropriate to limit the prime construction contractor's responsibility to on-site activities only. For instance, the prime construction contractor would be responsible for conducting (either with his own forces or those of a specialty subcontractor) on-site work in contaminated areas of a project, including moving materials to a department-designated storage area or incorporating the materials into the project. In this case, the prime construction contractor would not be responsible for any off-site related work. TxDOT or the local entity would procure the services of a specialty contractor to load, haul and dispose of materials at an off-site disposal facility.

Approval from the Administration through DES is necessary before preventive action work can be incorporated into the PS&E. The district should work closely with ENV and DES during the early stages of project development when Option 5 is considered. The district is encouraged to consult with DES for development and review of plans, requirements and specifications.

Table 4-5: Option 5 - Prime Construction Contractor

Advantages	Disadvantages
May be only feasible option Avoids redundant excavations Costs are by competitive bid May avoid contractor downtime costs May avoid contractor disputes/claims	Increases construction costs May not be cost effective May limit number of contractors bidding

Option 6 - Responsible Party: During construction, Option 6 is feasible only when the responsible party is willing and able to perform the preventive action. In some industrial or commercial areas it may be difficult to identify the responsible party, or there may be several contamination plumes which have commingled. Prior to finalizing the PS&E, arrangements with the responsible parties should be made. These arrangements can be incorporated into the acquisition process when additional right of way is required. This option may also be used when unanticipated contamination is encountered during construction. With this option, the need for cost recovery is avoided or minimized. Significant coordination between the prime construction contractor and the responsible party's specialty contractors will be necessary to prevent or limit the prime contractor's downtime.

Table 4-6: Option 6 - Responsible Party

Advantages	Disadvantages
Does not increase construction costs Does not require cost recovery Avoids termination of contract	Possible construction delays Increase potential for contractor downtime and costs Increase potential for contractor disputes/claims Possible construction requirement conflicts

Section 5

Plans, Specifications & Estimates (PS&E) Requirements

After determining the best option(s) from Section 4 for the project, PS&E requirements should be addressed to provide the prime construction contractor with adequate information to perform work activities in the most safe and efficient manner possible.

The PS&E should integrate all the pieces together to provide the basis for the construction contract(s). Details explaining the activities that must be provided (if any), how they will be accomplished and who will be responsible should be included in the PS&E.

Again, early coordination with the divisions and FHWA is important when incorporating hazardous material contamination activities into the PS&E. DES field coordination personnel can help districts develop plans, specifications and estimate requirements based on the method chosen for preventive action during construction. ENV personnel can help to determine monitoring and testing requirements and to coordinate preventive action plans with TCEQ. The GSD can assist in the preparation of an emergency contract or purchase order. These contracts may be prepared in advance, so they are ready to execute if there is a strong certainty of encountering contamination. ENV can assist in obtaining environmental engineering services.

Emergency contracts, pre-arranged purchase orders or change orders to perform preventive action (Options 2, 3 or 4, respectively) can be used for known contamination sites and when unanticipated contamination is encountered during construction. If an investigation or the environmental site assessment indicates there is a chance of encountering contamination, the provisions of Item 6.10 – Control of Materials of the *Standard Specifications for Construction of Highways, Streets and Bridges* would apply. If contamination is encountered during construction, preventive action can be accomplished by issuing an emergency purchase order for a specialty contractor, a purchase order for a state specialty contractor already under contract to the district, or a change order allowing the prime construction contractor to perform the work or hire a subcontractor. In any case, TxDOT must hire an environmental consultant to perform tests, develop preventive action plans and coordinate with regulatory agencies. If there is a strong likelihood that contamination will be encountered, these services should be coordinated with ENV early to ensure consultant availability, avoid costly delays and allow the consultant to monitor for PELs while the prime construction contractor works in potentially contaminated areas.

If Option 2 (emergency contracts), 3 (pre-arranged purchase orders), 4 (change orders) or 6 (the responsible party option) is chosen, it may only be necessary to include plan notes to inform the construction contractor that contamination is possible. Environmental site assessment and investigation reports can be made available to prospective bidders. If known contamination exists, the plans should include as much information as possible about the location/nature of the contamination and reiterate the provisions of Item 6 for encountering contamination. The plans should minimize interruption to the prime construction contractor's operations. If possible, work sequenc-

ing should be developed, allowing the prime construction contractor to work simultaneously in other areas while the specialty contractor performs preventive action at the contaminated site.

For all of the options discussed above, monitoring of PELs can be performed by TxDOT's environmental consultant, or plan notes can be added to supplement Item 6 provisions and require the prime construction contractor to monitor PELs in accordance with OSHA requirements. A note can require the prime construction contractor to employ an industrial hygienist to monitor PELs in areas suspected or known to be contaminated; this allows the prime construction contractor to work until the need arises for a specialty contractor. With respect to monitoring PELs, consideration should be given to the responsibilities of TxDOT's environmental consultant. It may not be economical to employ a consultant during construction activities when there is only a slight chance of encountering contamination or where contamination amounts/levels are minimal.

When conditions require the use of a TxDOT specialty contractor to perform any preventive action activities — as opposed to the prime construction contractor — plan notes or details may be added to the PS&E alerting the contractor of potential contamination. Any information provided in the PS&E will allow the prime construction contractor to better prepare an accurate bid based upon possible delays and areas excluded from work.

Option 5 should be used only in exceptional cases. If chosen, justification must be provided to DES during the project development phase. Approval from the Administration through DES is required to allow preventive action work to be incorporated into the PS&E. When Option 5 is chosen, it is necessary to add provisions to the PS&E requiring the prime construction contractor to perform preventive action activities. The level of detail needed in the plans will increase substantially.

Plans

The plans should show contamination location(s) and handling requirements. Detailed information that may be provided as part of the plan includes:

- ◆ **Project Layout Sheets** indicating the locations of potentially contaminated sites and the preferred locations of stockpiles that may be needed within the project limits
- ◆ **Contamination Layout Sheets** that may be used to show the contaminated sites in greater detail than the project layout sheets, if needed
- ◆ **Sequence of Work Sheets** developed to minimize impact to construction and traffic and clearly delineate potentially contaminated sites
- ◆ **Quantity Sheets** developed to separate construction items involving special description codes for work in contaminated areas; this aids in cost accounting and recovery efforts.

Specifications

Several special provisions may be required to allow the prime construction contractor to work with contaminated materials. General notes can be added to supplement the information provided in the special provisions and special specifications. TxDOT's environmental consultant will be instrumental in developing plan specifications for the preventive action work. Some of these specifications are explained as follows:

- ◆ **Special Provision “Important Notice to Contractors (Contamination Information)”**: This special provision provides information concerning location, monitoring and testing requirements and responsibilities, excavation and de-watering procedures, as well as general preventive action information.
- ◆ **Special Provision to Item 7 – “Legal Relations and Responsibilities to the Public”**: Item 7 should be supplemented by a special provision providing for any additional insurance that may be required and for the prime construction contractor’s Health and Safety Plan. This special provision should indicate that a portion of the work is located within a contaminated area. The Health and Safety Plan should conform to all federal and state requirements for contractor personnel involved in construction activities within contaminated sites. Compliance with this plan is required for all contractors' onsite personnel. Additionally, a special provision to Item 7 should be included requiring the prime construction contractor to obtain a minimum amount of insurance, based on the limitations of amount of liability in the *Civil Practice and Remedies Code - Section 101.023*, to protect TxDOT. The prime construction contractor could include additional coverage, but it would be subject to competitive bids as overhead (special provision to Item 7). It is assumed that the bonding company would require pollution liability insurance for the contractor's bond for the project.
- ◆ **Special Provision “Control of Materials”**: 6.10 - “*Hazardous Materials*” should be amended to require the prime construction contractor to be responsible for removal or disposition of hazardous materials on any site owned or controlled by the State.
- ◆ **Special Provision to Item 110, “Excavation”**: 110.2 - “*Construction*” should be supplemented to provide information for handling contaminated excavation. 110.4 - “*Payment*” should be supplemented to provide special bid item descriptions to separate out the costs that are actually attributable to the contamination.
- ◆ **Special Provision to Item 400 – “Excavation and Backfill for Structures”**: 400.3A - “*Excavation*” should be supplemented to provide information for disposal of contaminated excavation and de-watering activities. 400.5 - “*Payment*” should be supplemented to provide special bid item descriptions itemizing the costs actually attributable to the contamination.
- ◆ **Special Specification “Impermeable Liner”**: This specification may be needed to prevent contaminants from re-entering newly constructed storm sewers.
- ◆ **Other**: Special provisions should be provided for other items of work involving excavation of contaminated materials, such as drilled shafts and retaining walls.

Estimates

The estimate should provide special bid item description codes for all items involving excavation of contaminated materials. This provides accountability for possible cost recovery actions.

Section 6

Cost Recovery and Accounting

Cost recovery is a very important consideration in design. Early coordination with the potentially responsible parties (PRPs) is encouraged. When an investigation identifies contamination, the responsible parties should be notified of the results. The appropriate regulatory agency should also be notified of the results in accordance with applicable regulations.

Prior to construction, TxDOT should attempt to negotiate with known PRPs to have them assume financial responsibility for contamination. The PRPs should be notified of their obligations for corrective action or closure of the site. This prior notification is a prerequisite to litigation for recovery of costs.

Accurate cost accounting during the project is important; it distinguishes the costs actually attributable to the contamination from those that would have been incurred in the construction project without contamination. Thorough records and documentation should be kept for potential use in cost recovery actions.

Chapter 5

Construction

Contents:

Section 1 — Overview

Section 2 — TxDOT Standard Specifications

Section 3 — Anticipated Hazardous Materials Encountered during Construction

Section 4 — Unanticipated Hazardous Materials Encountered during Construction

Section 5 — Cost Recovery and Accounting

Section 1

Overview

Goals

The goals for the construction stage of project development include:

- ◆ implementation of the preventive action plan that was developed in the design stage for any contamination anticipated to be encountered during construction
- ◆ development and implementation of procedures to handle or manage unanticipated contamination encountered during construction
- ◆ documentation of implemented preventive provisions and actions.

Procedure Overview

One benefit of performing environmental site assessments early in project development is that unanticipated contamination encountered during construction is minimized. When contamination is unexpectedly encountered in a construction project, potential negative consequences include injury to workers and the public, damage to equipment and property, delays in construction, damage claims by the contractor and additional costs for the procurement of consultant services, specialty contractors and field changes. If hazardous materials are discovered, project construction may be delayed until a lengthy, complex process of investigation produces acceptable measures to handle the contamination. Also, if the unanticipated encounter with hazardous material contamination aggravates the problem, such as causing a further release of contaminants, then TxDOT may become partially liable for the environmental consequences and required cleanup of the release.

When hazardous materials are identified during earlier phases of the project development and it is determined that cleanup is not feasible prior to construction, then preventive action may be incorporated into the construction project. Preventive action refers to cleanup and related activities required to affect the construction of the highway project. Corrective action refers to activities required by state or federal regulations to be performed by a responsible party to protect human health and the environment.

See Chapter 4, Section 4, [“Contamination Factors and Considerations during Construction.”](#) for a cost effective and efficient manner to handle contamination on a project.

TxDOT Standard Specifications do not provide for the inclusion of analytical testing, preventive action or management of contaminants in the construction contracts, since these are outside the scope of "Highway Construction." If such preventive measures are required of the prime construction contractor or specialty subcontractor (Option 5), they should be included by special provision. See Chapter 4, Section 4, [“Contamination Factors and Considerations during Construction.”](#) regarding special provisions. Otherwise, refer to Options 2, 3, 4 and 6 in Chapter 4: Design, Sec-

tion 4. Even if the prime construction contractor will not carry out preventive measures, the PS&E may include general notes or notifications designed to avoid or minimize contractor downtime.

Construction-related responsibilities for preparation to manage anticipated hazardous materials include:

- ◆ coordinating between the prime construction contractor, specialty contractors, consultant(s) and other subcontractors
- ◆ implementing provisions for worker and public safety and handling/disposal of hazardous materials or waste
- ◆ implementing oversight provisions for preventive action aspects of the contract
- ◆ documenting the actions taken for sub-items related to preventive action.

For unanticipated hazardous materials/waste encountered during construction, the major steps to follow after discovery are:

1. identify the unanticipated site or structure
2. secure the site to protect workers and the public
3. notify the proper authorities and responsible parties
4. determine the worker safety and public exposure concerns
5. characterize the contaminant(s)
6. develop and implement hazardous materials/waste management measures
7. document the event starting with discovery.

FHWA may choose not to contribute to additional costs related to hazardous materials if "due diligence" was not used in assessing the project limits during the planning stages of the project. If unanticipated contamination is encountered during construction, it may be necessary to defend any actions taken with thorough documentation for federal participation.

Section 2

TxDOT Standard Specifications

Item 1.58. Definition of Hazardous Materials or Waste

The term hazardous materials/waste is defined in *TxDOT Standard Specifications* (Item 1.58. Hazardous Materials or Waste). Hazardous materials or waste include, but are not limited to, "explosives, compressed gas, flammable liquids, flammable solids, combustible liquids, oxidizers, poisons, radioactive materials, corrosives, etiologic agents and other materials classified as hazardous by 40 CFR 261, or applicable state and federal regulations." This definition is very broad and the requirements for handling, testing, removal and disposal may differ depending upon the applicable regulations.

Item 7.1. Laws to be Observed

Per *TxDOT Standard Specifications* (Item 7.1. Laws to be Observed), the contractor shall observe and comply with all federal, state and local laws, ordinances and regulations. It is important to note that under the Occupational Safety and Health Act (OSHA), the contractor (employer) is still responsible for the health and safety of his/her employees.

Item 6.10. Hazardous Materials

TxDOT Standard Specifications (Item 6.10. Hazardous Materials) addresses hazardous materials discovered on sites that are owned or controlled by the state. Per Item 6.10, materials used in the project shall be free of any hazardous materials. The engineer should be notified immediately if any materials are suspected of containing hazardous materials.

Item 6.10 also discusses the responsibilities for existing materials and materials delivered to the project containing hazardous materials. For existing materials, the State is responsible for testing and removal and the engineer may suspend work. For materials delivered, the contractor is responsible for testing and removal.

Section 3

Anticipated Hazardous Materials Encountered during Construction

This section covers hazardous materials identified during earlier phases of the project development process, where preventive action has been incorporated into the project and/or provided for in the PS&E.

Coordination

Coordination is necessary between the prime construction contractor and specialty contractors, consultant(s) and other subcontractors, to avoid duplicated activities or unnecessary downtime. Typically, a specialty contractor or subcontractor under the guidance of an environmental consultant will execute preventive action while working with the prime construction contractor under the overall control of the engineer. Effective coordination between these parties and their work is important. A Pre-Bid Conference and Partnering should be considered. The engineer should also consider phasing (whether part of the original contract or not) to minimize scheduling conflicts between the prime construction contractor and specialty contractors.

Implement Provisions and Oversight

During construction, the provisions for worker and public safety, as well as handling and disposal of hazardous materials or waste, must be implemented. The contract may provide special compliance requirements for the handling, treatment or transportation of hazardous materials, worker qualifications and safety practices. These special provisions should be highlighted so the contractor and inspectors are aware of them from the beginning. Specialized oversight provisions will require the participation of consultants or environmental agencies.

Documentation

The District Construction Office and the engineer are primarily responsible for generating and maintaining a thorough record. During construction, any actions taken for the sub-items related to preventive action must be documented. Appropriate reports conclude the preventive action phase of the project.

Section 4

Unanticipated Hazardous Materials Encountered during Construction

This section covers unanticipated hazardous materials that may be encountered during construction activities, after the contract has been awarded.

Discovery

Identifying and recognizing existing hazardous materials is the first act to trigger action. During excavation, indicators of possible contamination include, but are not limited to:

- ◆ rusted barrels and containers
- ◆ stained or discolored earth, as contrasted to adjoining soil
- ◆ fill material containing debris other than construction-related items
- ◆ household trash covered by earth or other material that appears to be interspersed with industrial debris
- ◆ gasoline smells or other odors that emanate when the earth is disturbed
- ◆ oily residue intermixed with earth
- ◆ sheen on groundwater
- ◆ cinders and other combustion products like ash.

Structures such as abandoned oil & gas lines, asbestos cement (transite) pipe and underground storage tanks also require special handling when disturbed.

Notification and Coordination

The contractor usually discovers unanticipated hazardous materials/waste. When the contractor or TxDOT staff member encounters materials that, upon visual observation or smell, seem likely or possible to contain hazardous materials, he/she must notify the project/area engineer immediately.

The engineer must take the following notification and coordination steps to deal with hazardous materials after discovery:

1. Once notification is received, confirm or evaluate whether special provisions are needed. The engineer may contact ENV for assistance in contracting for statewide environmental engineering consultant services.
2. Develop requirements and secure the suspected area for worker and public safety as needed. If possible, relocate the contractor on the project to avoid or minimize construction downtime.
3. Notify ENV-PPA and the District Construction Office.

4. Determine applicable regulations; ENV-PPA can assist. If notification is required or additional regulatory assistance desired, the District Construction Office should notify the local office of the TCEQ. ENV-PPA is available to facilitate communication and coordination with the TCEQ.
5. If possible or practical, identify and notify the responsible parties for preventive action and/or cost recovery.

When hazardous materials are discovered, TxDOT assumes responsibility for testing, removal or disposition. The standard provisions of the contract address compensation to the contractor for delays and work stoppages. In accordance with Item 4.2 of the *TxDOT Standard Specifications*, the contractor should be given the option to perform the testing, removal and/or disposition as "extra work" by a Change Order(s). The engineer may need to obtain proposals and estimated costs for "extra work" from consultants and/or specialty contractors to compare with the estimate from the contractor. If the "extra work" is not an option, work should be suspended wholly or in part through proper notice to the contractor. If possible, re-deploy the contractor on the construction project to avoid or minimize construction downtime.

Another option is to arrange for an emergency contract for a specialty contractor. Some districts may have prearranged purchase orders for specialty contractors and/or laboratories. An environmental consultant may be necessary for testing or developing preventive action plans. ENV-PPA can provide statewide environmental engineering consultants and further assistance as needed.

Coordinate between CST, DES, ENV-PPA, the prime construction contractor, specialty subcontractor, environmental consultant, responsible parties and other agencies. At this time, consider "partnering" to reduce the possibility of future claims.

Coordinate the implementation of preventive action with the construction activities of the project. This may involve concurrent activities by consultants, specialty contractors and the prime construction contractor/subcontractors.

If work is suspended, then the District Construction Office and engineer will issue a "notice of resumption of suspended work" to the prime construction contractor when preventive action is completed.

Characterize the Contaminant and Develop Preventive Action Plan

It may be necessary for the prime construction contractor or TxDOT to hire a consultant to identify and characterize the contamination through sampling and analytical testing. The objectives of the consultant's investigation include:

- ◆ determining characteristics of the soil, groundwater and vapor, including groundwater recovery rates, vertical/horizontal extent of contamination and chemicals of concern
- ◆ assessing worker safety and public exposure concerns

- ◆ determining handling and/or disposal requirements for any contaminated media unearthed during the construction process
- ◆ recommending a preventive action plan to ensure the problem is not aggravated and to avoid or minimize department liability
- ◆ determining necessary requirements to allow the prime construction contractor to resume work following suspension.

Consultants may also develop specifications to complete portions of the construction within contaminated environments. Data obtained from the investigation will enable the consultant to develop specifications related to groundwater treatment or filtration systems, ventilation systems, ongoing site monitoring, contaminated material disposal/reuse options and permitting. Environmental consultants can be procured through the statewide engineering and environmental consultant program administered by the CSS, with technical oversight provided by ENV-PPA.

Documentation

As discussed earlier, the District Construction Office and the engineer are primarily responsible for generating and maintaining a thorough record. Appropriate reports close out the preventive action part of the work; a proper resumption order restarts the construction. The engineer completes the records by carefully noting all the actions taken from the time the initial notification was received up to closure with regulatory agencies.

Section 5

Cost Recovery and Accounting

Federal Participation

FHWA may choose not to contribute to the additional costs related to hazardous materials if due diligence was not observed in assessing potential impacts within the project limits during the planning stages of a federal-aid project. Federal participation in preventive action costs depends upon a solid defense of the actions taken when unanticipated contamination has been encountered. This defense includes a thorough record of all circumstances and actions taken, including coordination with regulatory authorities, worker/public safety plan actions and step-by-step preventive action measures. Once generated, this record will serve as a valuable management tool and may be useful for a variety of accounting issues.

Cost Accounting

Claims, litigation and expectations of cost recovery from affected parties are all possible results when a contaminated site is discovered. For these reasons, and also to make management decisions related to statistical data collection, it is essential to track the costs that can be attributed to hazardous material issues on a site. One effective method is to assign a unique numbering system for paying items related to the hazardous material on site.

Responsible Parties

In some past cases, TxDOT has successfully identified, contacted and made arrangements with responsible parties for cost recovery or handling hazardous materials without litigation. These arrangements have a greater chance of success if negotiated prior to letting. Arrangements can still be initiated when unanticipated contamination is encountered during construction.

If possible or practical, identified responsible parties should be contacted before costs are incurred. The responsible parties may be more willing to make arrangements if allowed to participate in developing preventive action measures. Additionally, if the responsible parties are undergoing other corrective action, they may have the resources to handle the contamination within an acceptable time frame.

Chapter 6

Hazardous Materials Services Contracts

Contents:

Section 1 — Overview

Section 2 — Architectural and Engineering Contracts

Section 3 — Statewide Environmental Engineering Services Contracts

Section 4 — Purchase of Service

Section 1 Overview

Procedure Overview

The following chapter provides direction for obtaining environmental services related to hazardous materials by following one of three types of contracting or work authorization procedures:

- ◆ Architectural and Engineering Contracts, as described in the *Architectural and Engineering Services Volume* of the *Contract Management Manual*, with manual oversight provided by DES
- ◆ Statewide Environmental Engineering Services Contracts, with contract administration provided and technical oversight provided by ENV-PPA
- ◆ Purchase of Service Contracts, with assistance provided by GSD.

In addition, TxDOT has the option of using codified procurement procedures for Scientific Services (43 Texas Administrative Code (TAC) §9.80-9.88 adopted rules). ENV-PPA should be contacted for more information on scientific services contracting procedures.

This overview does not provide specific procurement or contracting procedures. The district should contact its purchasing staff before coordinating financial assistance from affected divisions.

Statute and Regulation Overview

TxDOT Architectural and Engineering Contracts, which include Statewide Environmental Engineering Services Contracts, are entered in accordance with 43 TAC 1 §9.38 – Contract Management.

It is unlawful for the State to engage in the construction of any public work that involves professional engineering related to public health, welfare or safety, unless the engineering plans, specifications and estimates have been prepared by, and the engineering construction will be executed under, the direct supervision of a licensed professional engineer (*Occupations Code, Chapter 1001*). The Texas Engineering Practice Act does not apply to a public work project that involves structural, electrical or mechanical engineering with an estimated cost under \$8,000. The Act applies to public work projects involving professional engineering estimates exceeding \$20,000 even if no structural, electrical or mechanical engineering is involved.

Public work is exempt from this requirement if it involves electrical or mechanical engineering and the estimated cost is at or less than \$8,000, or if it does not involve electrical or mechanical engineering and has an estimated cost of \$20,000 or less.

Professional and consulting services should be procured according to Subchapters A and B of the Texas Government Code, Chapter 2254 - Professional and Consulting Services Act. Professional services include architecture, land surveying, professional engineering and real estate appraising, among others. A "consulting service" is defined as the "service of studying or advising a state agency under a contract that does not involve the traditional relationship of employer and employee." Under the Texas Government Code, "consultant" means a person who provides or proposes to provide a consulting service. Section 2254.022 does not require or prohibit the use of competitive bidding procedures to purchase consulting services.

Some activities related to hazardous materials may not require the services of a professional engineer or consultant. Hazardous material activities that do not require professional or consulting services (as defined under Texas Government Code, Chapter 2254) can be provided by vendors or specialty contractors by competitive bid. Competitive bid purchasing procedures are governed by Texas Government Code, Chapters 2151-2158. Texas Building and Procurement Commission (formerly the General Services Commission) Rules are located in 1 TAC 113; TxDOT's purchasing policies and procedures are defined in the *GSD Manual of Procedures*.

Specific Hazardous Material Services

Petroleum Storage Tank Removal: In accordance with the rules discussed in 30 TAC 30 (Subchapter I) and 30 TAC 334 (Subchapter I), any entity engaging in the business of underground storage tank installation, repair or removal in the State of Texas must be registered with the TCEQ as an Underground Storage Tank Contractor. Additionally, any individual supervising the permanent removal of an underground storage tank system from service in the State of Texas must be licensed by the TCEQ as a type B (B License) Underground Storage Tank Remover On-Site Supervisor. Age, experience, training, education and examination requirements are provided in 30 TAC §30.310 (Qualifications for Initial License). TxDOT has a standard purchase of service specification for petroleum storage tank removal that may require editing to incorporate project-specific information.

There are no requirements for the oversight of a Registered UST Contractor performing an underground storage tank removal. However, oversight and additional monitoring of tank removal by an engineering or consulting firm may be acceptable under some circumstances. In general, removal of underground storage tanks should not be performed or subcontracted by the same firm that wrote the specification for removal of the tank. There may be some emergency or project-specific reasons for combining these services into the same contract or work authorization, but the district would need to justify this decision on a case-by-case basis.

Corrective and Preventive Action Services: Remedial or corrective action is defined as activities to protect human health, safety and the environment to comply with state or federal regulations. Corrective action services include measures to determine and report the extent of a release in progress, measures to halt and prevent future releases of regulated substances, cleanup of surface and subsurface contamination, site closure and post-remediation monitoring, or any other action

reasonably necessary to protect public health, safety and the environment. Preventive action refers to cleanup and other related activities required to affect the construction of the highway project. In general, the same staffing guidance recommended for corrective action should be used for preventive action.

In accordance with 30 TAC 30, Subchapter E and 30 TAC 334, Subchapter J, any entity performing or coordinating regulated leaking petroleum storage tank (LPST) corrective action services in the State of Texas must be registered with the TCEQ as a Leaking Petroleum Storage Tank Corrective Action Specialist. Additionally, any individual who supervises any corrective action required on an LPST site in the State of Texas must be registered with the TCEQ as a LPST Corrective Action Project Manager. Additional information on personnel qualifications and task descriptions is provided in TCEQ's Reimbursable Cost Guidelines approved in 30 TAC Chapter 334, Subchapter M.

Both the TCEQ and the Texas State Board of Registration of Professional Engineers offer staffing guidance for a situation requiring an engineer for LPST Corrective Action and Superfund Pollution Cleanup activities. The Texas State Board of Registration for Professional Engineers sent a letter to TNRCC dated July 11, 1996; the letter identified activities that must be performed personally or under direct supervision of a licensed Texas professional engineer. For corrective action, engineering services include engineered wellhead protection, remedial action plan design (selection and evaluation of corrective action technologies and preparation of plans and specifications) and remedial action plan oversight and evaluation.

ENV-PPA, Statewide Environmental Engineering Consultants or other professional engineering consultants can assist districts in developing hazardous material plans, specification & estimates (PS&E) for preventive action required during the construction of transportation projects. As discussed in Chapter 4, [“Design.”](#) approval from the Administration through DES must be secured before preventive action work can be incorporated into the PS&E.

For an individual project, it may be beneficial and cost effective to involve professional engineers or engineering firms in non-engineering hazardous material services. OGC-CSS and ENV-PPA can help a district or division determine if the services of a professional engineer should be procured for activities related to hazardous materials.

Developing Specifications or Requests for Estimates

Past experience with hazardous materials will help when determining the appropriate scope of work for a specific project. Contact ENV-PPA for technical information on engineering and consulting requirements, non-engineering staffing requirements, scope of services, estimate requests and specifications for hazardous materials services.

TxDOT has developed standard specifications for some competitive bid services. Additions may be made to these specifications to incorporate project-specific information or needs. ENV-PPA can

help a district develop these additional requirements. ENV-PPA can also help develop estimate requests for professional engineering or statewide environmental engineering services.

Additionally, Statewide Environmental Engineering Consultants or other professional engineering consultants can help districts develop or modify specifications and determine the appropriate scope of work for assessments, investigations or other hazardous material services.

Communication

Consultants or contractors should not have to duplicate previous assessments or investigations if initial findings or results were sufficiently documented. Information obtained from district staff or previous assessments/investigations should be transferred to the environmental consultant or contractor. For example, the preliminary information gathered from a district's initial site assessments can help when developing the scope of work for environmental site investigations. However, some cases may require consultants to update the information or obtain more details to develop safety and sampling plans.

Section 2

Architectural and Engineering Contracts

Category 2.13.1 Hazardous Materials Initial Site Assessment

As described in Precertified, Category 2.13.1 applies to the identification of hazardous material concerns to support a transportation project's advanced planning, preliminary design and environmental documentation requirements under the National Environmental Policy Act (NEPA) or state equivalent. Category 2.13.1 - Hazardous Materials Initial Site Assessment reads as follows:

“Category 2.13.1 - Hazardous materials initial site assessment. This category includes the performance of an initial site assessment to identify known or possible hazardous materials and determine the potential for encountering them during project development. The assessment shall be in general accordance with the American Society for Testing and Materials Environmental Site Assessment standard practices, ASTM 1528 and ASTM 1527, or satisfy due diligence and appropriate inquiry requirements under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The appropriate level of inquiry for assessing existing and previous land use is to perform a list search of regulatory databases and files, site visit and/or field surveys, and interviews shall be made with consideration of project design and right-of-way requirements. This category also includes the determination of whether additional research or investigation is necessary during subsequent stages of project development. The firm must employ one person with: (i) a minimum of one year of experience, performing Phase I environmental site assessments/hazardous material assessments; and (ii) working knowledge of pertinent federal, state and local environmental laws and regulations, ASTM standard practices for environmental site assessments, and hazardous material assessments/investigations.”

Limitations of Category

The description/requirements set forth in Category 2.13.1 do not apply to many other types of services related to hazardous materials. For example, sampling and analysis, LPST corrective action, remedial action design, hazardous material/waste management plans or asbestos consulting services for transportation project or facility management are not listed in the description of Category 2.13.1. Districts should request additional information for services other than initial site assessments. ENV-PPA can help districts develop non-listed category descriptions and requirements for hazardous material services.

Services Provided by the Engineer

The TxDOT Architectural and Engineering Services *Volume of Contracting Management Manual* includes services to be provided by the engineer, typically referred to as Attachment or Exhibit B.

For a hazardous materials initial site assessment, the engineer should provide the services in Table 6-1.

Table 6-1: Services to be Provided by the Engineer

Exhibit B - Services to be Provided by the Engineer Social, Economic and Environmental Studies and Public Involvement (Function Code 120) Hazardous Materials Initial Site Assessment	
a.	The Engineer shall perform an initial site assessment to identify and determine the potential for encountering known or possible hazardous materials during project development and construction including possible environmental liability, increased handling requirements and costs, and construction worker safety in accordance with TxDOT Hazardous Materials Guidelines. The initial site assessment shall also be in general accordance with the American Society for Testing and Materials Environmental Site Assessment standard practices (ASTM E 1527 and ASTM E 1528) or equivalent [i.e., satisfies "due diligence" and "appropriate inquiry" requirements under the Comprehensive Environmental Response and Compensation Liability Act (CERCLA)].
b.	The Engineer shall determine the appropriate project-specific level of inquiry on each of the following components of an initial site assessment to be reviewed, assessed and/or documented: 1) project design and right-of-way-requirements 2) existing and previous land use 3) regulatory agency databases (list search) and files 4) site visit/field surveys 5) interviews.
c.	The Engineer shall determine, based on results of the initial site assessment, the need for additional investigation, considerations or coordination during project development and construction.
d.	When directed by the State, a project-specific proposal for an initial site assessment shall be prepared for approval prior to initiating work. When directed by the State, a separate, initial site assessment report shall be prepared. When directed by the State, a separate proposal for further assessment and/or environmental site investigation (Phase II Environmental Site Assessment) shall be prepared.
e.	A summary of the initial site assessment shall be included in the environmental document for the project.
f.	All appropriate supporting information shall be documented and furnished to the State.

Section 3

Statewide Environmental Engineering Services Contracts

Introduction to Contracts

Under TxDOT's Statewide Environmental Engineering Services Contract (SEESC) program, statewide consultants are available to perform a wide range of environmental services related to hazardous materials for facilities management and transportation projects. Each statewide consultant is awarded a 2-year work authorization contract; ENV-PPA selects qualified consultants. Services that can be provided include, but are not limited to, environmental site assessments, investigations (drilling, sampling, testing and analysis), preventative and remedial action plans, industrial hygiene and developing specifications related to hazardous materials.

The SEESC program is designed to be very responsive to district or division needs. Where possible, procedures have been streamlined or expedited. Assuming that there are no delays, no proposal revisions are required, and faxes, email and overnight shipping are used, the entire process, from receipt of the statewide consultant's proposal to execution of the work authorization, should be completed within 5 business days.

Any situation that poses an immediate threat to human health and/or the environment requires an immediate response. Contractor delays or downtime due to contaminated soil or groundwater encountered during construction comprise one reason why the statewide consultant program was established. The emergency work authorization procedures discussed in this document make it possible to get a statewide consultant at the site the same day, thus reducing the roadway contractor's downtime and claims.

The primary benefit of these contracts is that they are already approved, in place and ready to use. Contract administration and technical oversight are centralized and do not need to be duplicated at the district level. When a district anticipates the need for project-specific environmental services and has adequate lead time, procurement of the services at the district level should be considered. The cost of the needed work is another factor that should be considered in the decision to use these contracts. For example, it may be more economical to use these contracts for certain lower cost environmental engineering services rather than preparing a separate request for proposals and completing the consultant selection process at the district level.

The contract administration of the SEESC program conforms to the *Environmental Work Authorization* chapter of the *Contract Management Manual*. ENV-PPA provides technical oversight regarding the administration of statewide contracts, as well as technical assistance to districts and divisions requesting services. This guidance is focused on individual work authorization and not contract administration.

Division/District Responsibilities

Environmental Affairs Division Pollution Prevention and Abatement Branch (ENV-PPA):

After selecting and awarding the contracts, ENV-PPA performs the following:

1. provides technical oversight in the administration of the contract
2. assigns statewide consultants for each work authorization
3. assigns proposal numbers and issues work authorization numbers
4. reviews each proposal for technical and regulatory sufficiency
5. reviews each proposed cost estimate to ensure the costs are reasonable and consistent with current industry standards
6. provides comments for project management and suggests revisions
7. authorizes the proposal for further processing
8. executes (signs) the approved work authorizations and supplemental work authorizations
9. enters work authorizations in FIMS Segment 41 for payment setup
10. reviews draft reports and suggests revisions
11. assists divisions or districts as requested
12. processes invoices for payment
13. closes out the individual work authorizations
14. monitors the contract balances expenditures
15. evaluates and processes contract extensions, amendments and terminations
16. closes out the contracts.

Contract Services Section (OGC-CSS): In coordination with ENV-PPA, OGC-CSS maintains the contract file of record.

Right of Way Division (ROW): When statewide consultant services are paid with real property acquisition funds, the Right of Way Division Acquisition Section performs the following:

- ◆ provides guidance or assistance to districts on the appropriate use of right-of-way funds
- ◆ verifies whether the proposed statewide consultant services are an appropriate use of right-of-way funds.

District or Division Requesting Statewide Consultant Services: The district or division requesting and budgeting for statewide consultant services is responsible for project management of individual work authorizations. The district or division:

- ◆ identifies need and develops a statement of work

- ◆ monitors the work authorized for the individual project
- ◆ reviews invoices for submission to ENV-PPA for payment.

A work authorization project manager is assigned from the district or division requesting services for each individual project. The use of the term "work authorization project manager" is not meant to imply that an additional Full Time Employee (FTE) or functional title is needed. Actual contracting and accounting responsibilities may differ by district or division. The work authorization project manager must coordinate with the appropriate district or division staff to fund and process billing statements for payment. This person:

- ◆ acts as the project-specific point of contact for statewide consultants
- ◆ negotiates individual project proposals with the consultant
- ◆ reviews and approves the proposal
- ◆ assists in the coordination of field activities
- ◆ monitors or inspects the statewide consultant's work
- ◆ monitors the work authorization expiration date and amount
- ◆ anticipates and initiates a supplemental work authorization, as needed
- ◆ reviews and accepts reports and other project deliverables
- ◆ communicates findings, recommendations and decisions with appropriate district and division staff
- ◆ reviews and verifies deliverables and approving monthly billing statements (invoices)
- ◆ submits invoices to ENV-PPA for payment
- ◆ completes and submitting work authorization closeout
- ◆ evaluates the statewide consultant's performance.

Statewide Consultant Responsibilities

Services to be provided by the State and the statewide consultant are listed in the contract. The statewide consultant does the following:

- ◆ develops proposals to address the needs of TxDOT
- ◆ communicates the project status to the work authorization project manager
- ◆ manages and/or performs the work authorized
- ◆ manages, monitors and/or coordinates subcontractors
- ◆ monitors the work authorization amount and expiration date

- ◆ anticipates and communicates the need for supplemental work authorizations to the work authorization project manager
- ◆ submits monthly billing statements (invoices) of previously authorized work
- ◆ submits Progress Assessment Reports to report payments to Disadvantaged Business Enterprises (DBE) or Historically Underutilized Businesses (HUB)
- ◆ submits a Final Report prior to contract closeout, reporting the total payments made to DBEs and HUBs.

Assigning a Statewide Consultant

Table 6-2 briefly lists the steps required when a statewide consultant is assigned to a project.

Table 6-2: Assigning a Statewide Consultant

Step	Procedure
1.	District or division identifies need.
2.	District or division assigns a work authorization project manager and funding source.
3.	Work authorization project manager contacts ENV-PPA.
4.	ENV-PPA assigns statewide consultant and proposal tracking number.
5.	Work authorization project manager contacts statewide consultant to discuss project and request a proposal.
6.	Statewide consultant develops proposal.

Assigning a Statewide Consultant - Steps 1, 2 and 3: ENV-PPA can help a district or division identify the need for environmental engineering services. Once a need for service has been established, a work authorization project manager should be designated.

Prior to requesting a statewide consultant, the district should determine if the funding source will be a right-of-way account. In general, costs associated with assessments conducted prior to right-of-way acquisition to determine contamination of properties are appropriate uses of right-of-way funds. Services identified in the appraisal or acquisition process (such as a Phase II investigation at a UST facility) are appropriate right-of-way costs. If district staff members have any questions about appropriate right-of-way costs, they can contact the ROW Acquisition Section.

The work authorization project manager should contact ENV-PPA for assistance in securing these services for the project.

Assigning a Statewide Consultant - Step 4: ENV-PPA will evaluate the requirements of the project and assign a statewide consultant. The assignment of a statewide consultant is influenced by the following technical and administrative factors:

- ◆ contract services to be provided within the limits of the contract
- ◆ statewide consultant's previous involvement with the project
- ◆ district or division's request for time frames
- ◆ location of project relative to the statewide consultant's main and branch offices
- ◆ statewide consultant availability
- ◆ previous distribution of work
- ◆ remaining contract amount
- ◆ previous cost effectiveness or evaluated performance of the statewide consultant.

ENV-PPA will provide to the work authorization project manager the statewide consultant's point of contact name and telephone number, and a proposal number used in tracking. The work authorization project manager can contact ENV-PPA to discuss the project before contacting the consultant, if needed.

Assigning a Statewide Consultant, Steps 5 and 6: The work authorization project manager will contact the statewide consultant's point of contact to discuss specific project needs.

To increase the quality of the proposal, it is important to give the statewide consultant as much individual site or project information as possible. Project design, excavation, utility adjustments and right-of-way requirements, as well as any extenuating circumstances or previous work performed on the project, must be communicated. It may also be necessary to provide copies of any information on file at the district or division office, including aerial photographs or file information previously obtained from the TCEQ.

Examples of requests for estimates that require editing to incorporate project-specific needs are provided in Chapter 1 of the Web document [Hazardous Materials in Project Development: Statewide Consultant Contracts](#). The following information should be provided to the statewide consultant, when applicable:

- ◆ work authorization project manager's name, title, district or division, address, telephone and fax number
- ◆ TxDOT proposal number assigned by ENV-PPA
- ◆ type of service requested
- ◆ completion time frame
- ◆ transportation project identification (TxDOT Control Section Job [CSJ] number)
- ◆ right-of-way account information, if applicable (right-of-way account number, parcel number and square footage of buildings)
- ◆ project location (city, county, highway facility, limits, existing right-of-way width and proposed right-of-way width)

- ◆ available TxDOT highway or street maps
- ◆ available aerial photographs
- ◆ available schematics, preliminary plans and right-of-way parcel maps
- ◆ individual site information (owner/operator contact name, telephone, etc.)
- ◆ right-of-entry information, such as whether the proposed right of way is physically accessible, or whether the state or the engineer is responsible for right-of-entry agreements).

The work authorization project manager should ask the statewide consultant to prepare a project-specific proposal. The proposal review process is discussed in more detail below.

Proposal Requirements

The proposal, which will be attached to the work authorization as “Exhibit A - Engineer's Proposal,” is supporting documentation and should clarify the intent of the work authorization. The proposal should include, but is not limited to, the following items:

- ◆ TxDOT proposal number
- ◆ project location
- ◆ TxDOT project description
- ◆ purpose and scope of services
- ◆ rates and cost estimate
- ◆ work schedule
- ◆ special conditions related to the site
- ◆ statement of intent to use professional sub-providers as evaluated during the selection process.

Purpose, Scope of Services and Tasks: The purpose and scope of work will depend on many factors and should reflect project-specific information/requirements. The scope of services should include descriptions of individual tasks and summaries of sampling and quality assurance/quality control (QA/QC) plans.

The proposed scope of services should be broken down into major tasks. For example, tasks may include preparation, sampling, analysis and report preparation. For projects that will generate several monthly billing statements (invoices), the tasks should be in chronological order to facilitate the monitoring of costs and time frames. It is possible that some tasks may overlap chronologically.

Proposed Fees and Rates: Statewide contracts contain a fee schedule negotiated by TxDOT with a schedule of rates for labor, equipment, materials, per diem and mileage costs.

Costs for proposal or work authorization preparation should not be included in the proposed cost estimate or invoice, because a signed (fully executed) work authorization is required prior to incurring any costs on the project. Any work performed prior to approval of the work authorization is not eligible for payment under the terms of the contract.

Proposed Staffing: For all services, several levels of personnel (such as technician and drafts person) are listed to account for varying levels of expertise and experience. In general, project staffing should reflect the requirements of the task at hand. A higher-level staff member should not be assigned to a task that could be competently accomplished in the same amount of time by lower-level staff. Additional staffing guidance is provided in Chapter 2 of [Hazardous Materials in Project Development: Statewide Consultant Contracts](#).

Proposed Cost Estimate: The proposed cost estimate should be keyed to the specific task items listed in the proposed scope of services. To expedite the review of proposals, statewide consultants are asked to organize proposed cost estimates by proposed tasks and rates. An example of a proposed cost estimate spreadsheet is provided in Chapter 3 of Hazardous Materials in Project Development: Statewide Consultant Contracts.

Proposal Review Process

Table 6-3 briefly presents the steps for the proposal review process performed by both the work authorization project manager and ENV-PPA.

Table 6-3: Proposal Review Process

Step	Procedure
1.	The statewide consultant emails or faxes the proposal to the work authorization project manager. The work authorization project manager sends the proposal to ENV-PPA. OGC-CSS distributes the proposal to the affected divisions.
2.	The work authorization project manager and ENV-PPA review the proposal. The work authorization project manager should obtain ENV-PPA's review memo and/or verbal comments before asking the statewide consultant to submit any revisions.
3.	ENV-PPA emails a review memo as discussed below. The review memo may include recommended revisions and/or comments for the district or division. Procedures for processing proposals differ depending on the significance of the revisions required
3a	No Revisions, Approved for Further Processing: If no revisions are recommended, then the proposal is approved for further processing. ENV-PPA will contact the work authorization project manager to make sure that the district or division approves. Once approved, ENV-PPA will email the work authorization to the consultant.
3b	Minor Revisions: If only minor revisions are necessary, ENV-PPA will email the review memo to the work authorization project manager and OGC-CSS. The work authorization project manager then contacts the statewide consultant to make revisions. The statewide consultant emails or faxes a copy of the revised proposal to the work authorization project manager. The work authorization project manager will forward the final approved proposal to ENV-PPA.

Table 6-3: Proposal Review Process

Step	Procedure
3c	Significant Revisions: If the review memo states that significant revisions are recommended, then ENV-PPA emails the review memo to the work authorization project manager. The work authorization project manager contacts the statewide consultant to make revisions. The statewide consultant emails or faxes the revised proposal to the work authorization project manager and ENV-PPA to expedite the concurrent review. Once revisions are no longer required and the proposal is approved for further processing, ENV-PPA will email the work authorization to the consultant.

Proposal Review Process - Step 1: To facilitate tracking, the assigned TxDOT proposal number should appear on all cover memos and documentation. The statewide consultant should email or fax the proposal to the work authorization project manager. The work authorization project manager should then send the proposal to ENV-PPA. To expedite the proposal, the work authorization project manager should ask the statewide consultant to email or fax a copy, including draft proposals, to the work authorization project manager and ENV-PPA for concurrent review. If right-of-way funds are to be used, the work authorization project manager should ask the statewide consultant to email or fax a copy of the proposal directly to the ROW Acquisition Section to expedite verification.

Proposal Review Process - Step 2: ENV-PPA and the work authorization project manager review the proposal. The work authorization project manager is primarily responsible for reviewing and confirming project information and the purpose of the scope of services. To expedite the review process, ENV-PPA may need to contact the work authorization project manager and/or statewide consultant to discuss the proposal or to confirm that he/she generally approves of it. If the review is expected to exceed 3 business days, ENV-PPA will contact the work authorization project manager.

The ROW Acquisition Section will review the proposal to verify that the services are appropriate uses of right-of-way funds. If the services described in the proposal do not appear to be appropriate right-of-way fund expenditures, the ROW Acquisition Section will contact the work authorization project manager by telephone or email to discuss. The ROW Acquisition Section strives to contact the district within 3 working days of receiving the proposal. The ROW Acquisition Section will email information to ENV-PPA indicating whether the services are appropriate right-of-way fund expenditures. If not appropriate, the district may need to identify another funding source prior to authorization.

The cost estimate will be based on unit rates tabulated in the fee schedule of the contract. For specialty services not anticipated or included in the fee schedule, unit or lump sum pricing will be negotiated on a case-by-case basis. As a baseline review, rates in the cost breakdown should be compared to approved rates in the contract’s schedule of rates. Rates in the proposal should be equal to or less than those approved.

Any proposal that includes an "at cost" item exceeding recognized industry rates should be re-negotiated to reflect the lower rate. For example, a prime proposing to use in-house labor to per-

form a regulatory list search in fulfilling a task item for an initial site assessment or Phase I environmental site assessment will not be allowed to exceed well-documented industry lump sum rates for such work.

Revisions to the scope of services or cost breakdown may occur, as required, at any time during this review. The work authorization project manager should obtain ENV-PPA's review memo (discussed below) and/or verbal comments before requesting that the statewide consultant submit revisions. This will save time by incorporating ENV-PPA's comments earlier in the process and eliminating the need for additional revisions.

Proposal Review Process - Step 3: ENV-PPA will email a review memo to the district or division with any recommended revisions and/or comments. The comments should help the work authorization project manager monitor the progress of work, verify deliverables and process invoices. For example, the review memo may identify the conditions under which a particular contingency task may be warranted. The work authorization project manager should contact ENV-PPA with any questions about the recommended revisions and/or comments. When the work authorization project manager concurs with the suggested revisions, the statewide consultant should be contacted to make the changes.

If no revisions are recommended, the proposal is approved for further processing. ENV-PPA will contact the work authorization project manager to make sure the district or division approves. If so, ENV-PPA will email the work authorization to the consultant.

If the review memo states that only minor revisions are necessary, then ENV-PPA will email the review to the work authorization project manager. The work authorization project manager then contacts the statewide consultant to make revisions. The statewide consultant emails or faxes a copy of the revised proposal to the work authorization project manager. The work authorization project manager should forward the approved final proposal to ENV-PPA. He/she should also send a cover memo or email stating that the minor suggested revisions were incorporated and the proposal is approved for further processing.

If the review memo states that significant revisions are recommended, ENV-PPA will email the review memo to the work authorization project manager. The work authorization project manager should contact the statewide consultant to make revisions. The statewide consultant will then email or fax the revised proposal to the work authorization project manager and ENV-PPA to expedite the concurrent review. ENV-PPA will contact the work authorization project manager to make sure that the district or division approves. If approved, ENV-PPA will email the work authorization to the consultant.

Work Authorization

The work authorization of the contract is a binding agreement; it accepts the statewide consultant's proposal and any amendments agreed upon by the parties. The work authorization shall include:

- ◆ the contract number
- ◆ the statewide consultant’s name
- ◆ the project location
- ◆ a brief scope of services
- ◆ the maximum amount payable
- ◆ payment terms as they are indicated in the contract
- ◆ the work authorization termination date
- ◆ the statewide consultant engineer's signature, name, title and date
- ◆ signature and date from appropriate person in ENV with signature authority (or higher).

Procedures for obtaining an executed work authorization are presented in Table 6-4.

Table 6-4: Executing the Work Authorization

Step	Procedure
1.	After receiving a copy of the final approved proposal, ENV-PPA will generate the work authorization and assign a unique work authorization number that incorporates the original proposal number. This unique work authorization number replaces the proposal number for all future tracking on correspondence, reports and invoices. ENV-PPA will also set up the payment record in TxDOT's automated financial account systems with the work authorization number and source of funds.
2.	ENV-PPA will send two counterparts of the work authorization using an overnight delivery service to the statewide consultant for signatures.
3.	The statewide consultant signs and overnights each counterpart of the work authorization including the final approved proposal (labeled as Exhibit A, Engineer's Proposal) to ENV.
4.	After receiving the signed work authorization, ENV will verify that Exhibit A is the final approved proposal. ENV will execute by signing the work authorization.
5.	ENV will send either an original counterpart or a copy of the executed work authorization and the attached approved proposal to the statewide consultant. A copy will be sent to the work authorization project manager. A copy will be sent to CSS.

Executing the Work Authorization - Step 1: After receiving a copy of the final approved proposal, ENV will initiate and complete the work authorization. ENV will also assign a unique work authorization number that incorporates the original proposal number. This unique work authorization number replaces the proposal number for all future tracking on correspondence, reports and invoices.

ENV will establish the payment record with the work authorization number and source of funds in the Miscellaneous Contract Information System (MCIS) within TxDOT's Financial Information Management System (FIMS). MCIS, administered by OGC-CSS, establishes payment records for all contracts not traced in another automated system for construction and maintenance contracts.

Executing the Work Authorization - Step 2: ENV is responsible for obtaining the statewide consultant engineer's signature prior to authorization. ENV will send two counterparts of the work authorization via overnight delivery to the statewide consultant for signatures.

Executing the Work Authorization - Step 3: Upon receipt, the statewide consultant is to sign and overnight each counterpart of the work authorization including the final approved proposal (labeled as Exhibit A, Engineer's Proposal) to ENV.

Executing the Work Authorization - Step 4: After receiving the signed work authorization, ENV will verify that Exhibit A is the final approved proposal by checking it against the copy that was forwarded from the proposal review process. ENV will sign the work authorization to execute. ENV has signatory authority for individual work authorization under the statewide contracts. If the statewide consultant only returns one counterpart, the work authorization execution process will not be delayed; OGC-CSS can process one counterpart of the work authorization.

Executing the Work Authorization - Step 5: ENV will send a counterpart or copy of the executed work authorization, with the approved proposal attached, to the statewide consultant. ENV will also send copies to the work authorization project manager and OGC-CSS. The work, as authorized, can proceed.

Supplemental Work Authorization Requirements

Supplemental work authorizations are used to:

- ◆ extend the work authorization period expiration date
- ◆ modify the scope of the work authorized
- ◆ modify (or increase or decrease) the work authorization maximum amount payable.

The contract states that both ENV and the statewide consultant must execute any supplemental work authorization within the period specified in the work authorization.

Supplemental work authorizations can be used for staged or phased work since additional services should be identified prior to the expiration dates of the original and each subsequent supplemental work authorization. Additionally, the scope of work for a phased project should be re-evaluated after each phase of an assessment or investigation. The statewide consultant should provide a revised proposal after the scope of work has been finalized. A supplemental work authorization is needed to modify or extend the original work authorization.

If the supplemental work authorization period has expired, then a new work authorization and tracking number will be required. Review and approval for further processing procedures follow the same proposal review process discussed above.

Emergency Work Authorization

Procedures are in place to expedite the review and approval of an emergency work authorization if an emergency situation arises. At its discretion and in the interest of minimizing delay, the state may accept the statewide consultant engineer's signature on a faxed copy of a work authorization as satisfying the requirements for executing the work authorization, provided that the signed originals are received within 5 business days from the date of the faxed copy. An emergency situation is defined as one in which the state acknowledges that an immediate response by the Engineer is required. Examples of emergencies include, but are not limited to, the following:

- ◆ contamination is encountered during construction which may cause contractor downtime or a release of contamination into the environment
- ◆ hazardous materials pose potential health and safety concerns to TxDOT employees, contractor employees and/or the public.

ENV-PPA should be contacted as soon as possible if an emergency situation occurs. ENV-PPA can assist in the review and formulating the appropriate response.

Table 6-5 provides a brief description of the steps required for emergency work authorization.

Table 6-5: Emergency Work Authorization

Procedure
The district or division requesting statewide consultant services should designate a work authorization project manager or interim work authorization project manager. The work authorization project manager calls ENV-PPA for assignment of a statewide consultant. The time frame and emergency should be communicated to ENV-PPA.
The work authorization project manager calls the assigned statewide consultant to discuss the project, scope of work for services and to get a verbal cost estimate for "emergency services" for the project. If acceptable, the consultant faxes or emails the estimate to the work authorization project manager and ENV-PPA.
After receiving a copy of the proposal, ENV-PPA will generate the work authorization and fax or email the work authorization to the statewide consultant for signature.
The statewide consultant signs and faxes a copy of the signed work authorization to ENV-PPA. ENV will immediately execute the faxed copy of the work authorization and sends a copy to both the statewide consultant and the work authorization project manager.
The statewide consultant performs a site visit as soon as possible. The statewide consultant is to determine the scope of work and submit a proposal for a supplemental work authorization, as needed. The supplemental work authorization proposal is to be submitted preferably no later than 48 hours after initial site visit and before exceeding the work authorization amount or expiration date.
The statewide consultant sends the signed original proposal and work authorization to ENV within 5 business days from the date of the faxed copy.
After receiving the supplemental work authorization proposal, the work authorization project manager initiates the proposal review process with ENV-PPA as previously discussed in this guidance (see Table 6-3).

Work Authorization Project Management

Monitoring Services and Verifying Deliverables: The district or division can contact ENV-PPA for assistance in the technical management of the work authorized, if needed. For example, a district or division can ask ENV-PPA to attend scoping meetings and/or to review and comment on report findings, conclusions and recommendations.

It is the responsibility of the work authorization project manager to monitor the services of and verify deliverables provided by the statewide consultant. The work authorization project manager is also responsible for monitoring the work authorization expiration date and amount. Any work that is performed after the work authorization expiration date or that exceeds the work authorization's maximum amount payable is not eligible for payment. Both the work authorization project manager and statewide consultant must determine whether the work being performed can be accomplished within the time frame and amounts specified in the work authorization.

If necessary, the work authorization project manager should initiate a supplemental work authorization before the work authorization terms expire. ENV-PPA should be contacted when supplemental work authorizations or extensions are needed. If additional services not identified in the original proposal are required, the same proposal review process discussed above is initiated.

Billing Statements: Payment for services provided while fulfilling a work authorization is based solely on the actual work completed during execution of the project. It is not based on the lump sum cost authorized in the original work authorization or estimated in the proposal.

The statewide consultant should submit one original and one copy of an itemized billing statement (in a form approved by the state) to ENV-PPA and/or the district or division in which the work was performed. Each billing statement must be supported by separate documentation that specifies the individual charge in accordance with the rates specified in the fee schedule and the units of work identified in the work authorization. The statewide consultant is authorized to submit requests for reimbursement no more than once per month.

The billing statement (invoice) should be addressed to the work authorization project manager. It should include, but is not limited to, the following items:

- ◆ contract number
- ◆ work authorization number
- ◆ work location (TxDOT Control Section Job (CSJ) number, TxDOT facility or highway, project limits, right-of-way account, project or parcel numbers)
- ◆ total amount earned to the date of submission
- ◆ amount previously paid under the work authorization
- ◆ amount due and payable as of the billing date.

When the invoice is received, the work authorization project manager should review the invoice to verify costs and deliverables or progress acceptability, then forward the invoice, with comments, to ENV-PPA for payment. If the invoice or deliverables are not acceptable, the work authorization project manager or ENV-PPA will notify the consultant to rectify the problem. Invoices should be forwarded to ENV-PPA within seven days of receipt.

Supporting Documentation: TxDOT does not require a statewide consultant to alter existing internal invoicing or accounting systems. However, it is strongly suggested that either the monthly billing statement or supporting documentation be organized in fashion similar to that of the proposed cost estimate provided in the proposal. This will assist in the verification of deliverables and expedite the approval of monthly billing statements for payment. An example of either an invoice or supplemental documentation to the monthly billing statement that directly corresponds to the proposed cost estimate in the proposal is presented in Chapter 4 of [Hazardous Materials in Project Development: Statewide Consultant Contracts](#).

Progress Assessment Reports: The contract requires the statewide consultant to submit Progress Assessment Reports to report actual payments made to Disadvantaged Business Enterprises or Historically Underutilized Businesses. One copy should be submitted with the monthly billing statement and one copy submitted directly to the TxDOT Business Opportunity Program Office.

Work Authorization Closeout

After the services provided in the work authorization are complete, costs incurred by the statewide consultant may be less than the approved estimated project cost. To assist ENV in monitoring the maximum amount payable (actual expenditures) of the contract, the work authorization project manager must complete a Work Authorization Closeout to return the unused portion of the authorized project costs to the available contract balance. The Work Authorization Closeout form documents actual expenditures and the amount returned to the available balance of the contract. See Chapter 5 of [Hazardous Materials in Project Development: Statewide Consultant Contracts](#).

Statewide Consultant Evaluation

Work authorization project managers are encouraged to offer constructive criticism directly to the statewide consultant during the course of the work authorized. Any deficiencies that cannot be resolved should be communicated to both ENV-PPA and OGC-CSS to determine if contract termination, as provided in the contract, should be considered.

When the work authorized has been accepted and final payment is made, the work authorization project manager must evaluate the statewide consultant's performance. For consistency, an Individual Work Authorization Evaluation form should be used. A copy is presented in Chapter 6 of [Hazardous Materials in Project Development: Statewide Consultant Contracts](#). Copies of the evaluation should be sent to both ENV-PPA and OGC-CSS. A completed work authorization evaluation form should be attached to the Work Authorization Closeout and sent to ENV-PPA.

Documented work authorization evaluations will be considered in the assignment of consultants under the existing contracts and selection process of future contracts under the SEESC program.

Section 4

Purchase of Service

Hazardous Material Services

Hazardous material services that do not require professional engineering or consulting services can be provided by various vendors or specialty contractors. A district should first contact its purchasing staff before coordinating assistance from affected divisions. Table 6-6 lists available hazardous material service specifications. The web document [Hazardous Materials in Project Development: Purchase of Service Specifications](#) provides additional information on how to obtain copies of purchase of service specifications.

Table 6-6: Purchase of Service Specifications (Hazardous Material Services)

Type of Contract	Point of Contact	TxDOT Specification/Latest Revision
Inspect, Sample and Test for Asbestos Containing Materials and Monitor Abatement Projects	General Services Division	Standard Specification No. TxDOT-910-38-06 Revised: October 2003
Emergency Response Systems Attachment A - References Attachment B - Disposal Facilities Attachment C - Laboratories Bid Schedule	General Services Division	Standard Specification No. TxDOT-926-45-40 Revised: February 2004
Excavate, Test, Backfill, Transport and Dispose of Petroleum Contaminated Soils	General Services Division	Standard Specification No. TxDOT-926-30-40 Revised: September 2002
Removal of Petroleum Storage Tank System(s)	General Services Division	Standard Specification No. TxDOT- 968-78-65 Revised: June 2005

Asbestos Services: The TAHPR, 25 TAC §295.31 et seq, set stringent requirements for licensing asbestos inspectors, asbestos consultants, abatement planners and air monitors. Licensed asbestos consultants are not required to be professional engineers. However, per 25 TAC §295.47(a)(2), in some instances where a building’s structure, electrical, mechanical, safety or other components need alteration, an individual consultant who is a licensed Professional Engineer (PE), or who is acting in conjunction with one, must prepare the appropriate specifications.

The district can obtain asbestos consulting services for right-of-way improvements by district-wide architectural and engineering contracts, consulting services contracts, scientific services contracts and/or purchase of services contracts (most common).

A licensed asbestos inspector must conduct a detailed inspection prior to any demolition or renovation project. Any regulated asbestos containing material (RACM) found in homogenous areas must be abated prior to demolition or renovation.

TxDOT's surplus and salvage procedures require the title to the building or improvements to be transferred to the demolition contractor. However, the Texas Department of Health (TDH) does not recognize the severability of the structure from the land. TxDOT may still be held liable for any violation incurred by the demolition contractor pertaining to asbestos issues. To reduce the chance of liability, TxDOT must perform asbestos management for any abatement of asbestos prior to demolition or renovation. This will include asbestos inspections, asbestos project design, abatement oversight, estimates, notifications and independent third-party air monitoring.

Additional information on asbestos-containing materials is provided in Chapter 3, [“Right of Way.”](#)

Chapter 7

Training and Certifications

Contents:

Section 1 — Hazardous Materials Tasks and Minimum Qualifications

Section 2 — Hazardous Materials Training

Section 1

Hazardous Materials Tasks and Minimum Qualifications

As a result of the Continuous Improvement Intra-Departmental Agreements, the Environmental Continuous Improvement Team (ECIT) has developed the following recommended minimum qualifications for persons performing specific tasks. See Table 7-1 below.

Hazardous Materials Qualifications

Table 7-1: Hazardous Materials Qualifications

Specific Tasks	Minimum Qualifications (Recommended)
Tasks 14.0 and 14.1: Based on results of property transfer screen, determine whether Phase I ESA or further investigation should be performed.	Completion of "Environment in Project Development" or equivalent training that not only considers environmental liability concerns, but also addresses the anticipation of potential construction worker safety problems and impacts to underground utilities. Understanding of OSHA requirements for construction in contaminated zones. Prefer training in ASTM 1527, or equivalent ESA protocol (equivalent implies that the protocol satisfies "due diligence" requirements under CERCLA).
Task 14.2: Perform Phase I ESA (in-house)	Completion of training in conducting ASTM 1527 (Phase I ESA) or equivalent ESA protocol (equivalent implies that the protocol satisfies "due diligence" requirements under CERCLA). Experience as project manager in conducting Phase I ESA needed.
Task 14.3: Coordinate, manage and monitor consultant services for Phase I, including verifying quantities/deliverables as part of invoice review.	Completion of training in conducting ASTM 1527 (Phase I ESA) or equivalent ESA protocol (equivalent implies that the protocol satisfies "due diligence" requirements under CERCLA). Alternatively, experience as project manager in conducting Phase I ESA needed.
Task 14.4: Coordinate, manage and monitor consultant services for further investigation including verifying quantities/deliverables as part of invoice review. Further investigation includes: phased ESA, PST removal/closure, intrusive sampling/remedial investigation, feasibility studies, risk assessment/closure and remedial action design/implementation.	Working knowledge of state and federal laws, rules and regulations regarding the use, storage and disposal of hazardous waste. Working knowledge of industry standards for data collection and data reduction relating to the evaluation of subsurface impacts of hazardous materials. Prefer B.S. in environmental science, environmental engineering or related field.
Task 14.5: Review internal and consultant derived reports and facilitate, coordinate and communicate the need for special considerations throughout the project development process including environmental clearance, right-of-way acquisition and construction planning.	Considerable knowledge of right-of-way acquisition procedures, TxDOT design, construction practices and PS&E development process. Knowledge of hazardous materials impacts.

Section 2

Hazardous Materials Training

The ECIT also obtained training, policy, procedural and guidance needs from the districts and identified training sources for each task. See Table 7-2 below.

Hazardous Materials Recommended Training

Table 7-2: Hazardous Materials Recommended Training (as of August 2007)

Task	Course Title (#)		Description		
	Provider Information Point of Contact	Location	Schedule Availability	Costs to Districts	Enrollment Procedures
14.0 and 14.1	The Environment in Project Development (ENV101)		Introduction. Designed to provide an overview of environmental issues addressed during project development which include environmental regulations, public involvement, environmental documentation, community impacts, hazardous materials, habitat and protected species, air quality, traffic noise analysis, water resources, cultural resources and environmental permits, issues and commitments (EPIC).		
	Roland Limon, TxDOT ENV 512-416-2691	Training Center Austin, TX	Published annually (2 days)	Travel and per diem	Request enroll- ment through district training coordinator
"	American Society of Testing and Materials (ASTM) Transaction Screen Process		Application. ASTM 1528 standards. No formal course currently available. Available as written guidelines from ASTM and/or as part of courses for Phase I Environmental Site Assessment (ESA). Some information included in EPD.		
	TxDOT ENV-PPA 512- 416-3001 ASTM 610-832-9686	N/A or varies with specific course	N/A or varies with specific course	N/A or varies with specific course. May include tuition, travel and per diem	Out-of-agency request through training provider
	Notes: - Standard practice guidance document available through ASTM. - Telephone coaching accomplished by Environmental Affairs Division Pollution Prevention and Abatement Branch (ENV-PPA) personnel for specific projects.				

Table 7-2: Hazardous Materials Recommended Training (as of August 2007)

Task	Course Title (#)		Description		
	Provider Information Point of Contact	Location	Schedule Availability	Costs to Districts	Enrollment Procedures
"	Phase I Environmental Site Assessment (ESA) Phase I Assessment for Property Transfer		Application. ASTM 1527 standards; how to complete the assessment process, including database list searches, interpretation of fire insurance maps, conducting a site visit, recognizing environmental conditions, property owner interviews, etc.		
	TEEX 1-800-824-7303 ASTM 610-832-9686 TxDOT's Initial Site Assessment (ENV114 EPD- Hazardous Materials Management)	Varies Varies Varies	(3.5 days) (2 days) (2 days)	Varies Varies Travel and per diem	Out-of-agency request through training provider Request enrollment through district training coordinator
	Notes: - Other providers (see endnotes 1, 2 and 3) - Standard practice guidance document available through ASTM. - TEEEX course may be modified to specifically address TxDOT and/or transportation project issues.				
"	Hazardous Materials Communication Act (SFH420) and Refresher Program (SFH421)		Introduction/Refresher. Hazardous materials in the workplace; required for all TxDOT employees as per the Texas Hazardous Communication Standards under Texas Dept. of Health jurisdiction.		
	District course coordinator	Varies	N/A	(refresher required every 2 years)	Request through district training coordinator
"	On-the-job training		N/A		
	N/A	N/A	N/A	N/A	N/A
14.2	Same as All-of-the-Above, plus experience as Hazardous Materials Project Manager to meet all of the minimum qualifications.				
"	On-the-job training		N/A		
	N/A	N/A	N/A	N/A	N/A
14.3	Same as All-of-the-Above, plus the following:				

Table 7-2: Hazardous Materials Recommended Training (as of August 2007)

Task	Course Title (#)		Description		
	Provider Information Point of Contact	Location	Schedule Availability	Costs to Districts	Enrollment Procedures
"	Statewide Environmental Engineering Consultant Work Authorization Management Training		Introduction/Application. Effective management of the services provided by TxDOT's statewide environmental engineering consultants from development of the proposal (intent) to verification of deliverables.		
	TxDOT ENV PPA 512-416-3001	In Progress	In Progress	N/A	When available, request through district training coordinator
	Note: - Draft guidance document is available. Contact ENV Pollution Prevention and Abatement Branch at 512-416-3001. - Telephone coaching accomplished by ENV PPA and Contract Services Section personnel (CSS). - ENV/CSS is developing training video instead of training course.				
"	On-the-job training		N/A		
	N/A	N/A	N/A	N/A	N/A
14.4	Same as All-of-the-Above, plus the following:				
"	Hazardous Materials Management Survey ENV209		Application. Obtain an intense review of EH&S topics designed to prepare you to take the Certified Hazardous Materials Manager (CHMM) or Registered Environmental Manager (REM) exam.		
	TEEX 1-800-824-7303 Other providers possible.	Varies	Varies (4 days)	Varies, plus travel and per diem	Out-of-agency request through training provider
	Note: TEEX's course provides a review for students taking the professional certification exams from the Institute of Hazardous Materials Management (IHMM) for Certified Hazardous Materials Manager (CHMM) and from National Registry of Environmental Professionals for Registered Environmental Manager (REM), Certified Environmental Auditor (CEA) and/or Registered Environmental Property Assessor (REPA).				

Table 7-2: Hazardous Materials Recommended Training (as of August 2007)

Task	Course Title (#)		Description		
	Provider Information Point of Contact	Location	Schedule Availability	Costs to Districts	Enrollment Procedures
"	Environmental Site Assessment (Phase I and II), ENV220		Application. Learn the significant concepts and skills associated with conducting Phase I and Phase II Site Assessments. The Phase I portion of the course covers the four components of the ASTM 1527 practice. The Phase II portion addresses the planning and procedures for conducting investigative sampling in the evaluation of potential environmental contamination.		
	TEEX 1-800-824-7303	Varies	Varies (4 days)	Varies, plus travel and per diem	Out-of-agency request through training provider
	Note: Other providers (see endnotes 1 and 6).				
"	Soil and Groundwater Remediation ENV221		Application. This course covers theory and practical application of various on and off-site remediation technologies for contaminated soil and groundwater. Presentations emphasize elements governing the selection of the most effective technology for a specific site.		
	TEEX 1-800-824-7303 Other provider (see end-note 1)	Varies	Varies (3 days)	Varies, plus travel and per diem	Out-of-agency request through training provider
"	OSHA 24-hour First Responder Awareness and Operations Level Response		Application. Emphasizes the mechanisms for protecting persons, property or the environment from the effects of hazardous materials release. No prior hazardous materials experience or training required.		
	TEEX 1-800-824-7303 Other providers available	Varies	Varies (3 days)	Varies, plus travel and per diem	Out-of-agency request through training provider
	Note: There are also 40-hour HAZWOPER courses plus additional 8-hour refreshers for personnel involved in actually cleaning up contaminated sites.				
"	On-the-job training		N/A		
	N/A	N/A	N/A	N/A	N/A
14.5	Same as ALL of the ABOVE plus the following: (Note: The following are only a few TxDOT introductory courses that may help someone meet the minimum qualifications of considerable knowledge.)				

Table 7-2: Hazardous Materials Recommended Training (as of August 2007)

Task	Course Title (#)		Description		
	Provider Information Point of Contact	Location	Schedule Availability	Costs to Districts	Enrollment Procedures
"	Introduction to Highway Project Design (DES116)		Introduction. Design process required in the development of a set of plans, specifications and estimates; highway design terminology; environmental concerns will also be included.		
	Course Coordinator TxDOT	Training Center Austin, TX	Published annually (28 hrs)	Travel and per diem	Request enrollment through district training coordinator
"	Right of Way (ROW) Considerations (DES110)		Introduction. Provides a comprehensive overview of the right-of-way issues the engineering staff should consider when planning and developing a transportation project. Other areas covered in the course: important considerations of right-of-way acquisition as it relates to project design, roadway design and project scheduling to assist with recognizing and avoiding potential right-of-way problems.		
	Course Coordinator TxDOT	Training Center Austin, TX	Published annually (24 hrs)	Travel and per diem	Request enrollment through district training coordinator
"	Introduction to Construction/Maintenance Inspection (CON105)		Introduction. Prepares new construction inspectors for their duties as inspectors, plus aids maintenance personnel in monitoring contract compliance.		
	Course Coordinator TxDOT	Training Center Austin, TX	Published annually (36 hrs)	Travel and per diem	Request enrollment through district training coordinator
"	On-the-job training		N/A		
	N/A	N/A	N/A	N/A	N/A

Out-of-Agency Training Providers

Out-of-Agency Training Providers (Hazardous Materials)	
1.	ASTM International: general telephone (610)832-9585; web page http://www.astm.org
2.	Environmental Assessment Association (EAA): telephone (302)763-4320; web page http://www.iami.org/ea.html

Out-of-Agency Training Providers (Hazardous Materials)	
3.	Environmental Options, Inc.: telephone (540)483-3920; web site http://www.environmentaloptions.com
4.	National Ground Water Association (NGWA) Education Department: telephone (800)551-7379; web page http://www.ngwa.org
5.	Nielsen Environmental Field School: telephone (704)965-5026; web page http://envirofieldschool.com
6.	Texas Engineering Extension Service (TEEX) Texas A&M: toll-free telephone (800)824-7303; web page http://www.teex.com
Additional Hazardous Materials Options	
Environmental Training Center: NEPA and Transportation Decision Making (Course #142005A) - Offered by National Highway Institute (NHI)	
Asbestos	
Lead-based Paint	
Petroleum Storage Tanks (PST)	
Professional Certification	
Institute of Hazardous Materials Management (IHMM): by telephone (301-984-8969)	
National Registry of Environmental Professionals (NREP): by fax (847-724-6631)	
For more information, contact the TxDOT Environmental Affairs Division Pollution Prevention and Abatement Branch (ENV-PPA) at (512) 416-3001.	