



**Municipal Setting Designation Closure Strategy**  
**Houston, Harris County, Texas**  
**1/27/09**

**Background:**

ESE has prepared the following project closure strategy discussion for the purposes of explaining a Municipal Setting Designation (MSD) closure strategy. The MSD closure strategy presented in this document presents an alternative to a Plume Management Zone (PMZ) closure strategy. Recently, the City of Houston has made progress in the implementation of MSD applications and approvals. As a result, this document is intended to provide a basic comparison of the MSD and PMZ closure strategies.

**Summary Description of MSD Process:**

The basic approach to the MSD closure strategy is the elimination of the groundwater ingestion exposure pathway through implementation of the MSD. In general, implementation of a MSD includes a city ordinance or restrictive covenant that restricts use of the impacted groundwater resource on the subject Site and potentially off-Site properties. Under the MSD strategy, response actions would not be required to address contaminant concentrations in groundwater in excess of the ingestion PCLs. Similarly, response actions would not be required to address contaminant concentrations in soil in excess of the soil-to-groundwater ingestion PCLs.

In order to be implemented and accepted by TCEQ, the MSD for the subject Site must be supported by the City of Houston and applicable retail public utilities (RPU). Although the City of Houston has established an ordinance and application process for MSDs, there are certain notification criteria which must be met in order for the city to provide the support or approval required by TCEQ. Notification criteria set by the City of Houston include, but are not limited to, the following:

- Municipalities in which the property is located, within 1 mile of the property, and which own or operate a water supply well within 5 miles of the property;
- Owners of private water wells registered with the commission within 5 miles of the property; and
- Retail Public Utilities that own or operate a groundwater supply well within 5 miles of the property.

Additionally, the City of Houston requires applicants for the MSD to attend the following in order to discuss or explain their application for an MSD ordinance:

- Public meeting; and
- City Council Public Hearing.



In addition to notification requirements, the City of Houston MSD application requests certain Site information be provided which includes, but is not limited to, the following:

- Evidence of drinking water supply within one-half mile of Site;
- Area of soil and groundwater contamination;
- Areas of groundwater PCL exceedence (for both ingestion and non-ingestion PCLs);
- A statement as to whether the plume of contamination is stable, expanding, or contracting;
- A statement as to whether off-site properties have been impacted and to what extent; and
- A statement as to whether the designated property has been admitted to the TCEQ Voluntary Cleanup Program (VCP) or similar state or federal program.

**Objectives:**

The components or steps required to achieve closure are prescribed by TRRP (30 TAC 350) and would be applicable under both the PMZ and MSD closure strategies. These components or steps include the following:

1. Affected Property Assessment Report (APAR);
2. Response Action Plan (RAP);
3. Response Action Effectiveness Report (RAER) – may not be required if project completed within 2 years;
4. Response Action Completion Report (RACR); and
5. Post Closure Care.

**Strategy and Approach:**

In general, the municipal setting designation process prescribed by the TCEQ reduces the level and extent to which impacted soil and groundwater must be investigated and remediated. With the elimination of the groundwater ingestion pathway, the TRRP PCLs associated with groundwater ingestion and soil-to-groundwater, are similarly eliminated. In most cases, these PCLs represent the most stringent criteria with which assessment and remediation activities must comply. Following acceptance of the MSD strategy, assessment and remediation PCLs can increase in allowable concentrations by one to two orders of magnitude (or more) depending on the nature of the contamination.

However, as part of the MSD process, local municipalities are provided the flexibility of determining if they will or will not support a MSD and establishing the criteria, conditions, and procedures a MSD applicant must satisfy. The City of Houston adopted an ordinance (Section 5 of Ord. No. 07-959) effective November 1, 2007 providing a process for establishing MSD ordinances to prohibit certain contaminated groundwater from potable use. To the knowledge of ESE, only two Sites have been approved for MSD by the City of Houston to date. Although the assessment requirements for MSD established by the City of Houston are not specifically defined (as with TRRP), recent MSD approvals suggest that the general approach of the City is to require



assessment and delineation of contaminated soil and groundwater to be substantially complete. As a result, the benefits and advantages of the MSD closure strategy would likely be realized following completion of assessment activities and prior to initiation of remediation activities.

In order to obtain regulatory closure to residential standards under a MSD closure strategy, identified soil and groundwater impacts would likely be addressed in the following manner.

#### Soil

Based on our experience, the likelihood of COCs reported in on-site soils above the  $^{Tot}Soil_{Comb}$  PCL without an option for engineering control is rare, therefore; it is assumed that remediation and/or risk based modeling would not be required to meet closure criteria under the MSD strategy. However, the City of Houston application requests identification of the points of origin of the contamination. Therefore, it may be necessary to conduct further assessment activities in order to identify the soil source areas for a Site. In the event source area soils are found to contain contaminant concentrations in exceedence of the critical Protective Concentration Level (PCL), some degree of soil remediation may be warranted or required.

#### Groundwater

When the reported COC concentrations do not exceed the non-ingestion PCLs it is unlikely that any form of remediation or corrective action would be necessary to satisfy the requirements of the MSD.

Based on the contents of the City of Houston MSD Application and recent trends of the city in review of the applications, further groundwater assessment to confirm or deny off-site impacts would likely be required in the event groundwater impacts exceed critical PCLs at the Site boundary. Although, results of these assessment activities (whether off-site impacts are confirmed or denied) would not necessarily cause the application to be denied.

#### MSD Advantages and Disadvantages

Based on the criteria and requirements of both the TCEQ and the City of Houston with respect to the application and approval of a MSD, ESE has identified the following advantages and disadvantages of the MSD closure strategy relative to previously proposed PMZ closure strategies.

The **advantages** of the MSD closure strategy include the following:

- No requirements for groundwater or soil remediation assuming COC concentrations are below the critical PCL in soils;
- No requirements for off-site institutional controls or restrictions (in the event off-site impacts are identified);
- No requirements for off-site property owner consent (in the event off-site impacts are identified); and
- Reduced schedule and cost of implementation.



The **disadvantages** of the MSD closure strategy include the following:

- Must demonstrate support of MSD from City of Houston and RPUs; and
- Requirement for notifications and public meetings.

**Next Steps:**

In an effort to achieve approval of a MSD application, ESE recommends completing soil and groundwater investigation activities necessary to satisfy the requirements of the City of Houston. The proposed next steps include the following:

1. Soil Investigation – Make good faith effort to locate source area soil impacts or obtain sufficient data to demonstrate none exist;
2. Groundwater Investigation – confirm or deny impacts to off-site properties and deeper groundwater bearing units; and
3. Preliminary Drinking Water Survey – Assess surrounding public water supply system relative to the requirements of the MSD.

Based on review of the processes and procedures for the MSD established by the TCEQ and the City of Houston, the order of events is to first obtain support and approval of the MSD from the City of Houston and applicable RPU's and then submit the required MSD application to TCEQ. Additionally, the approach and level of assessment required for the APAR is dependent on the closure strategy implemented. As a result, the APAR would not be completed and submitted to TCEQ until after the City of Houston approves the MSD application through the City Council. Due to the fact that approval of the MSD application by the City of Houston is subject to debate and public opinion, ESE would propose to collect assessment data in a manner which would satisfy both the MSD as well as the PMZ closure strategies.

**Summary:**

In general, the MSD closure strategy appears to be a feasible option for many of the contaminated sites within the City of Houston. The level of effort, cost and schedule relative to assessment and investigation activities would be comparable to that required for the PMZ closure strategy option. However, Site closure under the MSD would likely result in significant reduction in the level of effort, cost and schedule associated with required remediation, monitoring, and closure related activities.