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March 19, 2012

Mr. Charles R. Hoppin, Chair  
State Water Resources Control Board  
1001 I Street, 24<sup>th</sup> Floor  
Sacramento, CA 95814

Attn: Jeanine Townsend, Clerk to the Board

**Re: Comment re: Draft Water Quality Control Policy for Low-Threat Underground Storage Tank UST) Case Closure (Policy)**

Dear Mr. Hoppin,

In response to the financial situation in the Underground Storage Tank Cleanup Fund (USTCF) and to protect the State of California Federal RCRA status (among other drivers), the State Water Resources Control Board (SWRCB) authorized several activities including formation of a Stakeholder's Group which was tasked with producing a Policy, the currently proposed Low-Threat UST Case Closure Policy ('Policy'), including the associated Draft SED. This is also a response to the three Technical Justification papers which are a part and fundamental to the Policy. Throughout this comment, the 'Policy' will refer to the Jan. 31, 2012 version of the document.

Driven by the specter of utilizing the text and graphics furnished in this 'Policy' to close (or not close) underground fuel storage tank release sites, I have completed seven tasks, as follows, within the constraints of the time available:

- 1) Diagrammed the 'Policy' (see section 1);
- 2) Identified the 'grey areas' of the 'Policy';
- 3) Identified Policy Shortcomings and drafted Suggested Modifications;
- 4) Projected the implications of the Policy;
- 5) Identified Policy Players;
- 6) Considered the failures of the USTCF and some solutions to same; and
- 7) Collaborated on a public web page specifically on this 'Policy' to further the public conversation with an end goal of resolving this and related issues.

### **Introduction**

The SWRCB has produced a draft Policy to address budgetary shortfalls in its USTCF program. This Policy brings to the fore the SWRCB's two significant conflicting functions: 1)



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Responsibility for protecting the waters of the State and setting the threshold for the cleanup of contamination releases and 2) managing a reimbursement fund (USTCF) which pays for fuel (hydrocarbon) release cleanups. Where the USTCF mission includes the following tasks: a) clean up legacy petroleum contamination, b) restore groundwater, c) create environmental industry jobs and d) reduce litigation, there are elements in this Policy which prevent that core mission from being accomplished. In order to meet budgets, costs spent on fuel release cleanups must be curtailed. To curtail the costs, the standard for cleanup and consequently environmental protection is being lowered so that the funding mechanism doesn't fail.

Standards for cleanups have evolved, being developed by many agencies within the CalEPA. Historically, the SWCRB has delegated cleanup oversight to local Regional Boards or Local Oversight Programs. These agencies were tasked with developing their own standards (based on their regional constraints) the enforcement of which now conflicts with the SWRCB's mission to relax the standards. To complicate the underlying conflict, the authority of the SWRCB is strengthened by the recent (2011) passage of a bill which continues the level of the fees, which fund the USTCF, but confirm SWRCB's authority over the RWQCBs.

Relaxing the standards (as articulated in the Policy) has included these elements:

- Residual Petroleum would be allowed;
- Not all groundwater will be deemed to have beneficial use; and
- A 'period of impairment' of water quality could be decades, centuries or some other unspecified time period.

A byproduct of this mission-conflict and redefining of standards is the reduction in service to the People of California. Specifically, these planned changes neglect a missing piece which is the lack of hazard communication to the public. Mapping of the residual petroleum plumes has not been refined to the point that the general public is aware of the location of contamination or the risk to them of living above a plume or using the groundwater in which desorbed contaminant is present. While there are many outcomes, the hazards to the uninformed public include, but are not limited to, the following: a) Exposure to breathing migrating contaminated soil vapor in residential or work settings, b) Nuisance of construction work stoppage when subsurface contamination is encountered, and c) Private groundwater consumption from wells which are located in a plume.

## **CONSIDERATION OF POLICY**

### **Section 1. Diagram of the Policy**



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Please see **Attachment 1**. Diagrammed procedure should be a ‘de rigueur’ regulatory-issue product for complicated standards for a large audience of users on projects with wide variance of conditions.

## **Section 2. Policy ‘Gray Areas’**

This list is not an exhaustive list of the gray areas. Vague guidelines invite misinterpretation and misuse and lead to arbitrary decision making. At the very least, a Technical Manual with a Glossary is required to cover Policy-specific concepts or terms which are either new to the industry or contradict previous directives.

- i) Method for Plume evaluations (best practices), descriptions, types, mobility and sampling (proximity of points, soil types, etc.) must be explained.
- ii) What is a defined plume boundary? What level of contamination would be anticipated at the boundary?
- iii) It is important to use "good science" to draw a line of demarcation on the levels of contamination that are being proposed to be left on-site to naturally attenuate. The following issues are not clear in the Policy: (a) verification of the rate of natural attenuation and (b) definition of what constitutes a "reasonable" time period to allow for natural attenuation to occur. Natural attenuation only works well when all environmental conditions are optimal, for example; when, for example, oxygen has been consumed from the subsurface, aerobic microbial processes do not occur, and slower processes of degradation predominate. Sometimes, contaminant degradation rates stall because of environmental conditions.
- iv) Public supply wells, which are in the plume, should be either reinstalled to prevent use of contaminated groundwater or the property owner should be reimbursed the cost of the use of the well so that they can install a replacement elsewhere.
- v) There is no Responsible Party certification to keep/maintain wells: what is lacking is guidance in the form of a manual to explain what this requires.
- vi) Free product removal to “extent practicable.” Needs to be defined.
- vii) What is the policy definition of a groundwater plume that fails the trigger test?
- viii) Requirement to test for methyl tertiary-butyl ether (MTBE) and tertiary-butyl alcohol (TBA) is unclear. The fuel system could have historically only contained diesel or jet fuel and yet still be a source of MTBE if the history is not correct. In addition, reporting an MTBE test to the RWQCB has no follow



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- up in the policy. If the test is positive, is the case shut out of the Policy? This decision loop is not clear.
- ix) “Baseline,” as used in this Policy as ‘the current extent of residual in place’ and a term new to the environmental cleanup industry, has been a term used in a real estate transaction context. In the real estate context, the “Baseline” establishes a line of demarcation between "old or existing" contamination and "new" contamination. One complication to the previous uses, and it will apply to the Policy as well, is that MTBE, discovered after a real estate transaction has been completed, is "impossible" to charge to the new property owner’s account because MTBE has not been used in motor fuel for a number of years; thus, any MTBE is technically "old" contamination. This issue is not constructively addressed in this new Policy.
  - x) Adjacent property impact is considered, but not adjacent utility trenches.
  - xi) Un-weathered LNAPL is chosen for the criteria. What about weathered LNAPL? Most sites do not have fresh product.
  - xii) Assumes that specific fuel constituents represent all fuel compounds.
  - xiii) Assumes that fuel components will degrade.
  - xiv) Cumulative impacts of clusters of residual sites all located in one groundwater basin and all contributing to the pollution load are not considered. Cumulative effect of continued residual from multiples of sites is not considered.
  - xv) Current fuel formulation is assumed.
  - xvi) LNAPL in soil is quantitated for TPH as what amount or based on what physical criteria?
  - xvii) Composites of contaminants – most sites have a variety of compounds. Guidelines must be issued.
  - xviii) Uses human toxicity, not aquatic toxicity.
  - xix) Period of Impairment. Please define as this is a new term and concept and specific definition to this industry. Impairment of cognition has some bearing on driving ability and in this context, driving does not resume until the period of impairment has passed. Other industries using this term include the financial sector; impairment testing relates to asset valuation. Inability to drive suggests that function is recoverable while asset devaluation suggests some element of permanent handicap.
  - xx) Beneficial groundwater use (Basin Area). Please define, since all groundwater basin quality, except areas of non-attainment, are considered beneficial use.
  - xxi) What is an “Alternative Level of Water Quality?”
  - xxii) Data needs/collection techniques are not well defined. Sample protocol for investigations is needed, and specifically sampling plan guidelines need to be defined. There is so much uncertainty, for example, with sample location



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proximity. There should be some guideline on how many locations would you sample 'x' (soil or water or oxygen) levels for in 'y' lithology with 'z' contaminant?

- xxiii) Water Quality Objectives need to be defined clearly within these 'Policy' documents.
- xxiv) Does not clarify whether Policy applies to non-UST petroleum sites.
- xxv) Reasonable time frame. This concept needs very clear definition within a risk-assumption framework.

### **Section 3. Policy Shortcomings and Suggested Modifications**

Here are some of the shortcomings of the Policy and needed modifications.

- 1) The Policy does not significantly unify closure conditions. Over the State of California. The variety of site variations is so broad that a one-size fits-all Policy with a caveat that any deviation is resolved by the agency in authority means that most cases will need to be evaluated individually.
- 2) The Policy includes technical parts, which did not go through a peer review process during their formulation. Parts of the documents depend on other non-peer reviewed documents, which should be reviewed by peer reviewers. The Policy lacks guidance descriptions and lacks technical references. While the formal Peer Review process did request that the reviewers include a broad as well as a narrow review of the Policy, the reviewers mainly addressed the foundation of the Policy, the Technical Justification papers.
- 3) The SWRCB Policy (author) **Stakeholder Group**. The members of the Group must be upgraded to not only include all key stakeholders, representing all the involved disciplines, but also include those able to assess and accept responsibility for setting risk levels. This would include but not be limited to: Property owners, Realtors, Public Health professionals, Government Regulators, Toxicologists, Environmental Consultants, Agencies (Health), Water Districts and Purveyors, Planners (Land as well as Financial), and Contractors, including but not limited to Drillers, Trenchers and Excavation Experts.
- 4) **Department of Water Resources** has a standard for the distance between a sewer line or a septic field and supply well installation. They must develop a contaminant distance standard. This standard must also address contaminant plume distances from wells.



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- 5) Since the DWR has not developed a standard to address these issues of distance, and the environmental industry has not developed a 'best practices' technical guidance manual covering plumes (geometries, rates of migration, constituents, zones impacted), and plume distance to receptors, the lack of guidance in the Policy is a driver to develop this **plume distance guidance**.
- 6) **Policy Legality.** Legally inaccurate parts must be corrected and addressed; Current standards and Policy standards must be true and match. Professionals in the industry are left to choose between the law, which they have been operating under, and the Policy. This Policy adds the burden and duress of conflicting directives.
- 7) **Delegated Authority to Agencies.** Certification of LOPs and LIAs; LOP regulators and USTCF reviewers to 'pass' a standard of practice or not have authority to manage release evaluations and cleanups. This action is currently in the pipeline for legislative review. The State of Massachusetts already has a staff/agency to deal with this issue. See <http://www.mass.gov/dep/cleanup/laws/regulati.htm>.
- 8) There is a need for an 'A team' to arbitrate/direct work; an authoritative team whose mission is to efficiently clean and close sites. A 'court of appeals' which promptly mediates the conflicts and addresses the costly issues. This mediation would look like an Executive Public-private government **consumer protection entity** with authority and expertise to mediate conflict and resolve the DRAT loops. All of the DRAT areas of the Folios need to be defined so that the rules are clear. This would expressly reduce or eliminate the expense and time consumed by the DRAT loops. Through mediation an agreed-upon plan is developed. The A-team would include well seasoned non-affiliated consultant/regulators who have successfully overseen many cases.
- 9) Hazard Communication. An upgrade to SWRCB's **Geotracker** is long overdue in order to reflect current plumes. Only staff used to working on Geotracker know where to look for contaminant contours, for example. The un-schooled public has no way to evaluate the current hazards, like contamination plumes, let alone the hazard of installing a well on their property or find information that will tell them that a plume will arrive at their property line in 20 years (identification and contact information for the Responsible Party should be posted on Geotracker and periodically verified and updated).



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- 10) Future changed conditions are not considered nor is the potential for a change in use in the future. For example, a plume is assumed not to be changed by earth movement, climate change, sea level rise, groundwater dewatering, and future development with piers, shafts or other conduits. Any large changes, like rising sea levels, would impact the migration of contaminants left in place. Any or all of these factors provide new or modified preferential pathways for migration of the contaminants.
- 11) There should be a **Civil Penalty** outline for misleading and inaccurate use of the Policy
- 12) A 'user-friendly' public user **manual** is mandatory. The public should be a player instead of a target and part of the process. Individuals are sent or handed Unauthorized Release Form(s) and the information that goes along with this is probably incomplete, based on the kind of questions we get from Responsible Parties. There should be a traffic school format for persons receiving a URF. At this point, there is no or very little instruction. Since each case is specific, this is the point at which the general overview should be given. Also, the case scope should be laid out at this time. Is the regulator's job to line it out? It is the Consultant's job to propose fixes. If you have a diagram which outlines all tasks needed for closure, then the owner/Responsible Party would clearly see the entire path. They never get the whole mission presented to them. They need a visual so they know where they are. In addition, the site should be carefully mapped out, based on the beginning information, as soon as the case is started up.
- 13) Concept of nuisance as a standard for water quality needs to be considered and addressed.
- 14) Likely and meaningful actual impacts of this policy are not presented or evaluated.
- 15) Assumes each release site has excellent 'Site Conceptual Model.'
- 16) The rate of attenuation of contaminants is assumed to be standard.
- 17) Change in use of property is not anticipated nor scenario for the need for future re-evaluation. There is a higher likelihood of direct contact (human) during redevelopment of land. If land use restrictions were lifted, the case would need to be reopened. It is anticipated that land use planning could change.



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- 18) Resource Valuation is ignored. Potential aquifer contamination should be valued and loss of future uses of local water (developing new groundwater resources) and water basin storage capacity should be evaluated
- 19) The concept of Well Head Protection Area/well field capture zone is violated.
- 20) Exercising of water rights will be damaged.
- 21) Natural resource impacts were not explored.
- 22) Duty for Hazard Communication/hazard management migrates from the Responsible Party to the Agencies (various), adjacent property owners, groundwater management agencies, developers and others and includes the following:
  - a) Duty to track migrating plume, since release site monitoring wells will be destroyed;
  - b) Duty to identify the Primary Responsible Party when a plume is encountered;
  - c) Duty to inform every occupant or every at-risk property near the 'closure site' and a vast array of public agencies including the water purveyors, utilities in a non-validated notification process which has a high risk of being ineffectual;
  - d) Duty for Local Oversight Program to use SCM to prove why site specific conditions prevent application of the new Policy;
  - e) Duty of litigation will rebound on land owners and will increase the burden of the State Courts; and
  - f) Duty to re-open cases, without clear directive as to how that will happen and address the lack of funding if USTCF sunset occurs or how to get back in line if USTCF does not sunset.

#### **Section 4. Implications of the Policy**

- 1) Legitimize recent decisions - Passage of the Policy would legitimize site closures which the SWRCB has already done (in the past couple of years) by petition. The reason the vetting of the policy is being expedited is that the SWRCB has exposed itself [to legal liability] by not basing site closures on appropriate risk-based, scientifically valid criteria established by agencies but by its own directives.
- 2) Establish Directive-Based Closures - Establishing the SWRCB as the controlling agency will legitimize the directive-based closure of sites which the USTCF 5-year-review team has summarily chosen for closure. For USTCF claim sites, the USTCF 5-year team has ended up becoming the regulator who directs when a site should be closed. Thus the USTCF 5-year team is operating by directive and does not legislatively have the



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regulatory authority but does have funding authority. Ergo, the SWRCB regulators are over-ruling the local regulators. Recently the 5-Year-Review Team has directed actions less stringent than the proposed Policy. There are an abundance of gray areas in the Policy which invite taking the route of less site cleanup work. It remains to be seen whether the SWRCB will use its control to close sites which the Local Agencies consider a major risk. Local agencies can issue a finding/justification for not closing cases that otherwise meet the Low Threat criteria (e.g., high concentrations of sites in a sensitive area). If the State wants closure, the State can use its authority and over-ride local agencies. The State will pressure local agencies to close cases. It remains to be seen what political and liability purposes will provide an over-ride to prevent that pressure. It remains to be seen whether this policy is considered 'good government' and whether local agencies will therefore keep functioning as they have, with more case closures than before.

- 3) Reverse Prior Standard Operating Procedures - Through this policy, the SWRCB is rejecting Criteria-Based Closure protocol (toxicology and science-based risk assessments) which it had formerly requested (risk assessments and Environmental Screening Levels [ESLs]) and used to train its employees on for the past two decades.
- 4) Set Precedence for Non-UST Releases and Non-Petroleum Releases - The SWRCB is using an approach for fuel release cleanups (instead of doing risk assessments and toxicology evaluations) which will likely be applied to other non-UST and non-USTCF sites as well as sites with other sorts of releases. The incorrect logic will be that risk assessment is not needed for fuel sites, so it shouldn't be needed for other sites.
- 5) Legitimize Control - The USTCF 5-Year Review team directing work at the USTCF sites reinforces the concept that the SWRCB can take control from the local agencies.
- 6) Legitimize Failure to Enforce Laws - For the SWRCB to operate by Directive and not to exercise its mandate of protecting resources and providing environmental protections legitimizes the SWRCB in its diversion from its original purpose of controlling and regulating water resources. The policy confirms that the SWRCB is not focused on enforcing the Porter Cologne Act (as well as Prop 65), but rather re-interpreting its responsibility for protecting beneficial uses of groundwater.
- 7) Failure to Address Closure Conflicts - The Policy fails to provide ready recourse (an administrative process) for difficult sites over which conflict on closure was already in place. The Policy derives from a need to reduce expenditures and yet fails to address the inherent problem of these sites, which were costing money because there was no unity of purpose. Money was wasted while options were discussed, and no one would authorize movement. By setting the standard of closure at a higher level of contamination, that ready recourse (and cheap closure) and unity of purpose, remains elusive, since the local agencies will be more resistant to agreeing with closure.



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- 8) Development of Policy and stepping through the CEQA process without adequate input - The manner in which the policy was developed did not follow an adequate vetting process. The CEQA process recognized various affected entities. The following burdens, such as "social," "economic," and "cumulative," from a policy change were not including the CEQA process. Others have provided comments which addressed this.
- 9) Lack of Specific Technical Guidelines - There are no guidelines for contaminant plume-to-resource (well) distances. The Department of Water Resources (DWR) has a guideline about sewer pipe to well, or septic field to well, but the DWR has not provided guidelines to address this question regarding safe distances between a contaminant plume and a nearby resource. The DWR guidelines were written to reflect safe distances from bacteria to drinking water. In this environment in which we are allowing chemicals into the groundwater as well as into leach fields and sewer pipes, we really have no plan to keep the drinking water safe. For those USTCF sites at which a drinking water well is at hazard to being a recipient of the plume contaminants, the 5-year team has recommended destroying the well.

## **Section 5. Identification of the Players**

**Local Agencies** – The passage of this Policy would continue the setting of precedent regarding State versus Local Control. Currently, the local (or Regional) agencies are tasked with overseeing the local assessment and remediation process for underground storage tanks (USTs). The State Water Resources Control Board (SWRCB) is an agency under CalEPA which includes the Underground Storage Tank Cleanup Fund (USTCF). Recent State activity by the SWRCB, includes the following: passage of State bill 2009-042 without substantive changes (despite public input), closing sites in response to a ‘Petition’ to the SWRCB, developing this Policy (which appears to be a directive not a policy) which sources from the USTCF need to reduce cases, summarily closing USTCF sites via the USTCF 5-year Review Team’s letter and overruling local decisions when they do not agree with the 5-Year Review Letter conclusions. These examples provide evidence that a smaller regulatory footprint, controlled at the State level, is could be the overarching plan at the State level. Note that the USTCF was set up as a funding—not a regulatory or policy setting—agency.

**Environmental Industry Businesses** – service providers – litigation support, equipment and meter sales, rentals, and maintenance, tools, supplies, consulting, contracting and all the vendors to these service providers. This industry is crippled by hugely fluctuating budgets and uncertainty of policy. Professional multi-disciplinary businesses without continuity cannot be efficient and high quality and well trained environmental professionals leave the industry to find more stable employment. The loss of this talent is significant.



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**Real Property Owners/Stakeholders** of contaminated property include major oil companies, service stations (former and current), bulk facilities, pipelines, and refineries. Examples are current property owners who want the property cleaned, but for whom the 5-Year Review Team has requested closure, as well as persons who will become the future property owners. (The rights of these stakeholders are defended by attorneys.)

**Financial Institutions and the Real Estate industry** – The USTCF provided certainty that at sites with claims the properties would be cleaned up. Sales of uncleaned properties will slow as there is a disincentive to provide loans to owners of contaminated properties or for new owners to assume the burden of becoming the Responsible Party for the contamination or for third-party liability.

**Responsible Parties** for contamination of real property. Where higher levels of contamination are acceptable, less expenditure will be required of responsible parties to clean up properties and prevent contamination from further migration. However, closure of a site (and the ensuing closing of the USTCF claim, i.e. funding) will not ensure that the site's case will remain closed, should the plume change its rate or path of migration. This exposes the Responsible Party to possible future financial liability, since the site will remain contaminated. For example if the site is reopened there is a cost of re-implementing a monitoring network.

**Sensitive Receptors** – There are exposure issues for sensitive receptors, including wells (in use) in or near the plume, natural habitat, workers in trenches, persons exposed to vapor intrusion, etc. State laws, such as Proposition 65, were written so that human health would be protected. Agencies have been directing Criteria-based closures based on current laws. Passage of the Low-Threat UST Case Closure Policy would reflect a shift towards a Directive-based Closure Policy, not a closure approach based on science, toxicology, and exposure issues. The closure of a site, without the benefit of the full risk-based subsurface decision-making process, would act to **shift the burden** of contamination liability from the Responsible Party to the Sensitive Receptor (well owner, employer of a worker digging a trench, affected employee, etc.). And the burden of advising the Sensitive Receptor of the hazard would fall on the local agency.

**State Agency – First Responsibility** – The Policy would act to reduce the responsibility to enforce water resource protection. State groundwater laws (Porter Cologne) were written so that the water resource would be protected. Relaxing the standards would cause less work for the implementing agency (the SWRCB) but would not protect the resource per State laws. Shifting the focus, from abating the hazard (to the resource) to treating the contaminated resource prior to consumption or use, changes the implementing agent from the government to the sensitive receptor (the entity needing to use the resource). Parties needing the resource could then be



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required to use attorneys and the legal system to implement point-of-use treatment paid for by the Responsible Party.

**State Agency – Second Responsibility** – The USTCF is part of the SWRCB. If 30% of the claims are closed, then the SWRCB will have more money to pay for work on the remaining sites and provide money to new claims, which remain un-funded.

## **Section 6. Core USTCF shortcomings and some solutions**

There are several core failures of the USTCF program which either lead directly to financial failure or are contributory. Solutions are offered in conjunction, as possible:

- 1) USTCF financial rules or crises are not relayed in a timely manner. This delay causes huge disruption to the industry. There are several solutions to correct these issues: 1) timely financial reporting in a transparent manner; 2) introduction to the USTCF management of MBA-quality executives and planners; 3) clear rule making and resulting rules available on the webpage; 4) executive management team which processes USTCF-wide requests in a transparent and timely fashion; 5) USCTF led program with certificates of capability awarded to individuals to perform work on sites; 6) USTCF hiring of MBA/contract experts in this field to coach and mentor current staff.
- 2) Low cost rates provide for poor advice. When using the lowest cost advice, cases are run inefficiently and can take longer than if they are managed by more experienced consultants. If one pays at consultant fee levels (professional rates) one gets efficient cleanup of sites. Currently, the available money is not used wisely.
- 3) Add financial and project management experts to guide the money/work process because the decision making loop process on the investigation, reporting and cleanup is broken. Objective would be to identify status of project and agree on cost effective next 6 months of work. The mission should be to intensely devise solutions, and constantly monitor progress based on data acquired.
- 4) Best practices should dictate which diagnostic tool should be used at the sites. With poor diagnostics, time and money are wasted.



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- 5) Caliber of USTCF reviewers is not consistent; and a high caliber is needed. The 5-Year reviewers and budget reviewers should be licensed professionals (PE or PG) or work under the direction of licensed professionals.
- 6) **LOP/RWQCB/USTCF** 5-Year Review staff must write reports or comments which are certified by their professional stamp; any work produced should be professional quality and should put that reviewer's stamp at stake. No government shield should be afforded for individuals with authority who are not practicing to the standard of the day.
- 7) Pay for performance provides incentive to reach the case closure target within the allotted cost.
- 8) Mediated budget making group; A-plus technical (Einerson, Cherry, rep from OEHHA and DTSC, Business person contract administration); Make the team assigned ad hoc for each case and make this team a combination of the regulatory case manager and the case claim reviewer.

#### **Section 7. Website for Transparent Venue for a Public Discussion**

Please see the following public website for information and comments about the Policy.  
[www.lowthreatustclosure.com](http://www.lowthreatustclosure.com).

Thank you for the opportunity to provide comment on this significant topic.

Sincerely,

Olivia Jacobs

REA #3219, NEM #1465

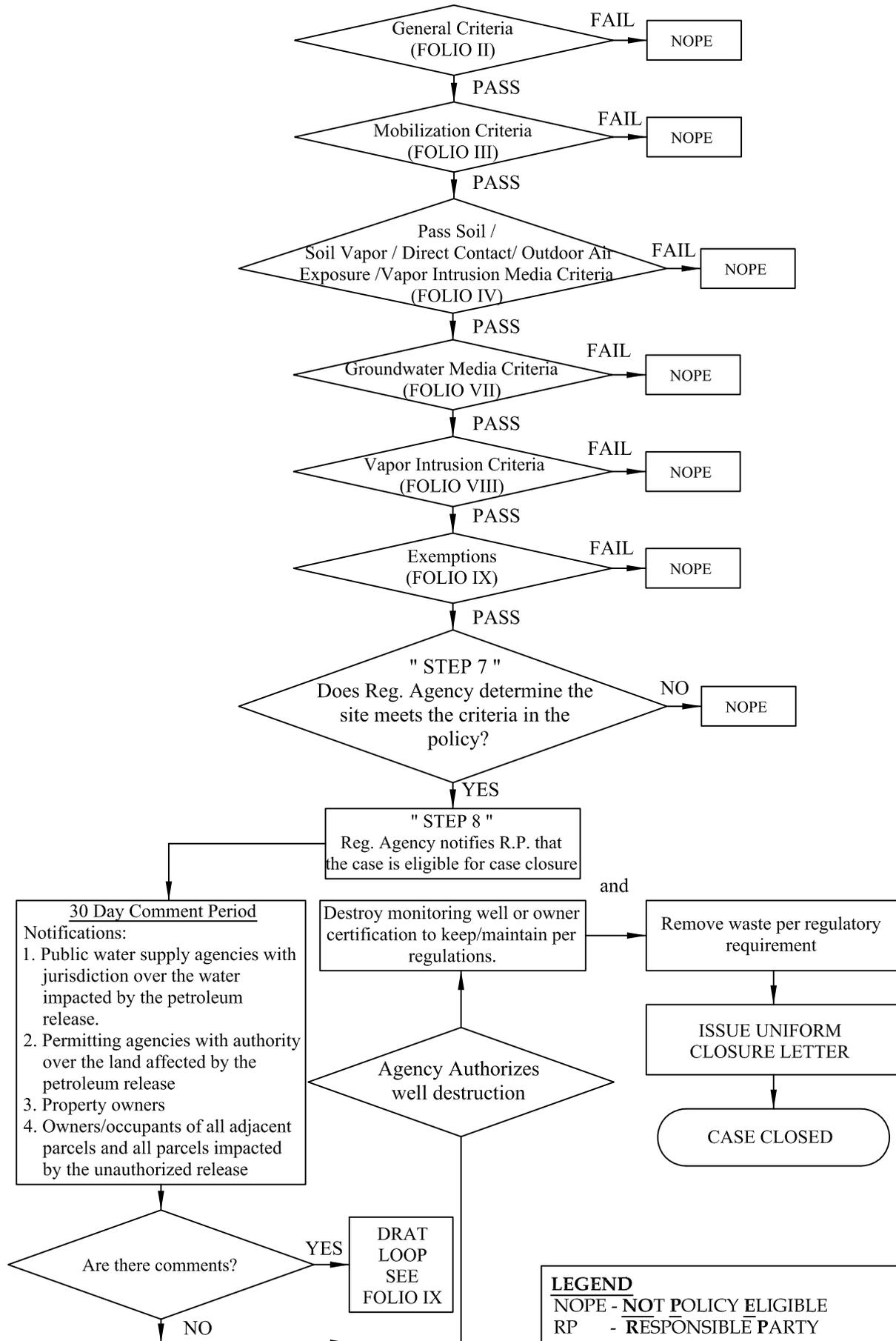
CEO, Clearwater Group

Attachments



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## **SECTION 1**

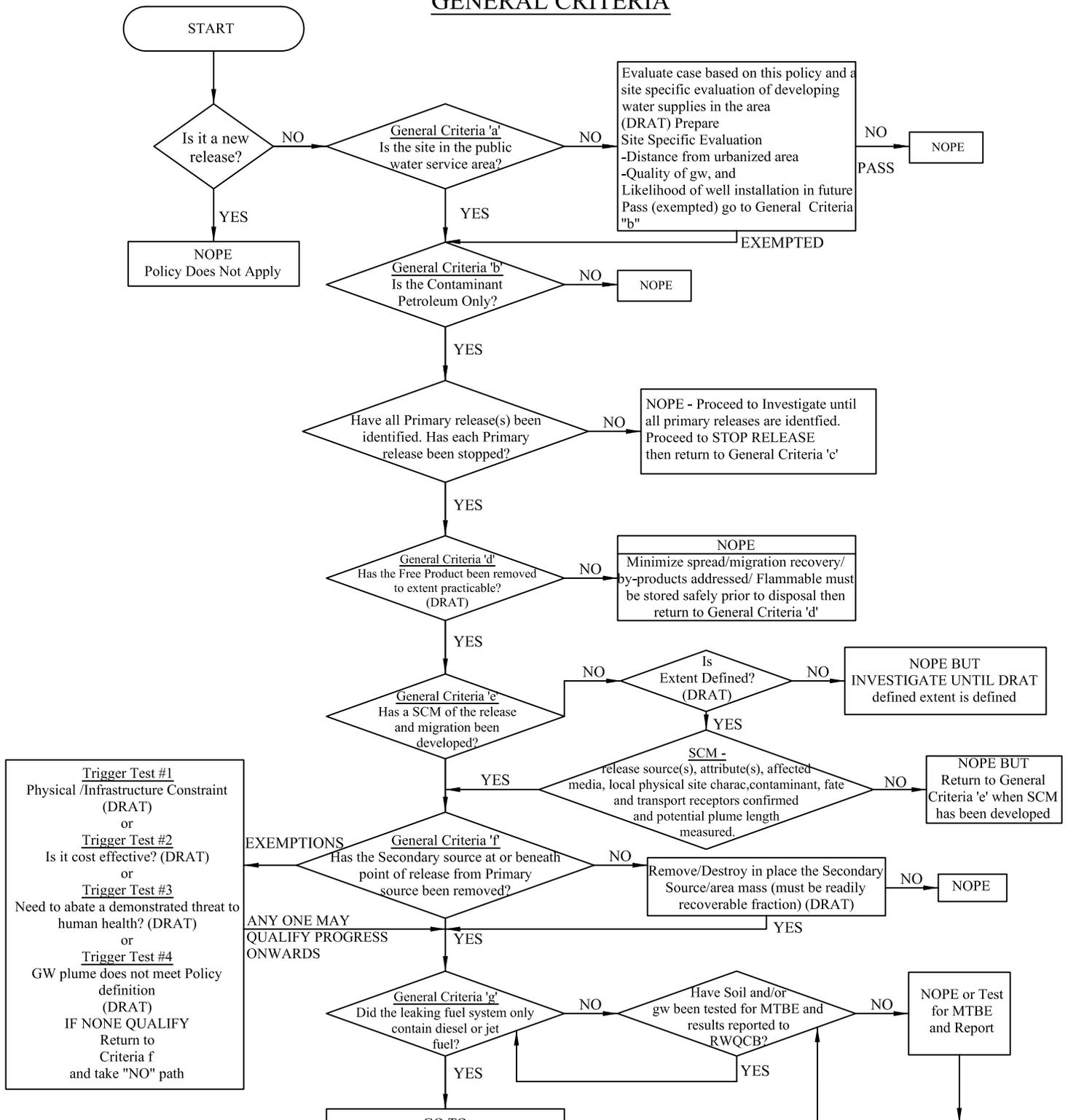


**LEGEND**  
 NOPE - NOT POLICY ELIGIBLE  
 RP - RESPONSIBLE PARTY

## Low-Threat UST Case Closure Criteria

### Site Evaluation of Closure Readiness for Mature Stable Petroleum UST unauthorized release sites

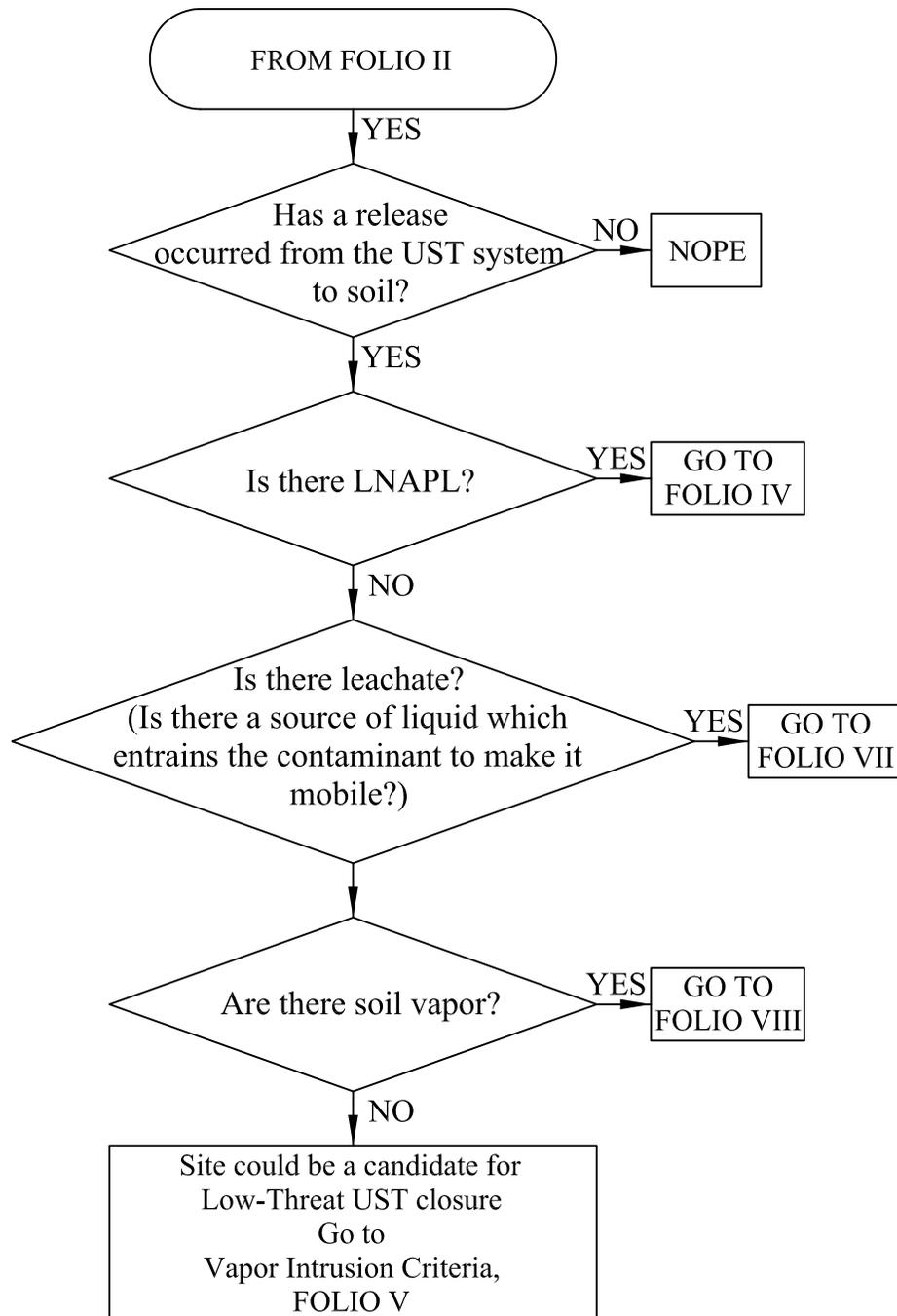
#### GENERAL CRITERIA



**LEGEND**  
 NOPE - NOT POLICY ELIGIBLE  
 DRAT - DEPENDS ON REGULATORY, AGENCY AND TECHNOLOGY AS WELL AS PUBLIC INPUT; WHICH IS AN ITERATIVE PROCESS  
 GW - GROUNDWATER

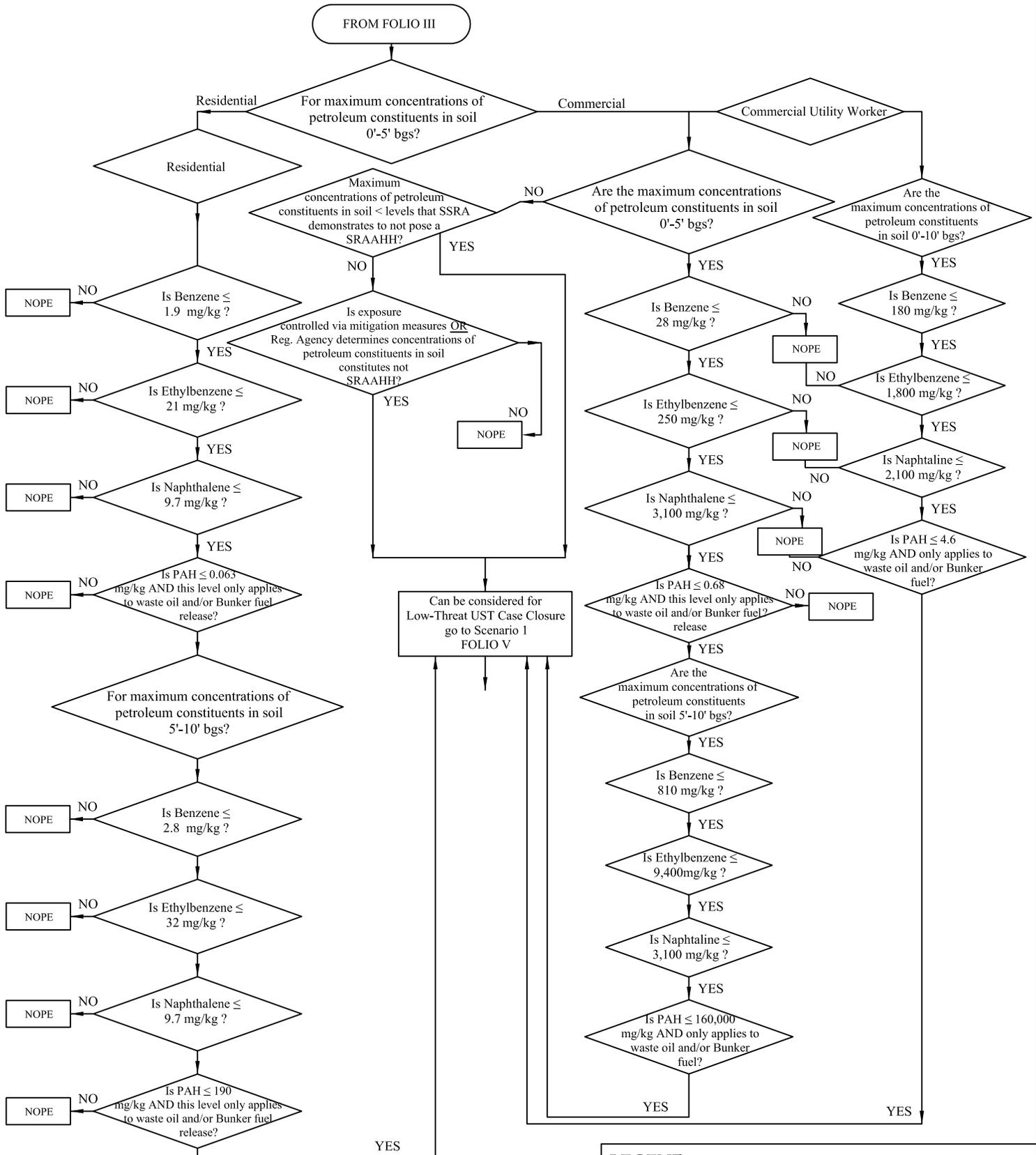
# Low-Threat UST Case Closure Criteria

## MOBILITY OF RELEASE CRITERIA



**LEGEND**  
 LNAPL - LIGHT NON-AQUAEUS PHASE LIQUID

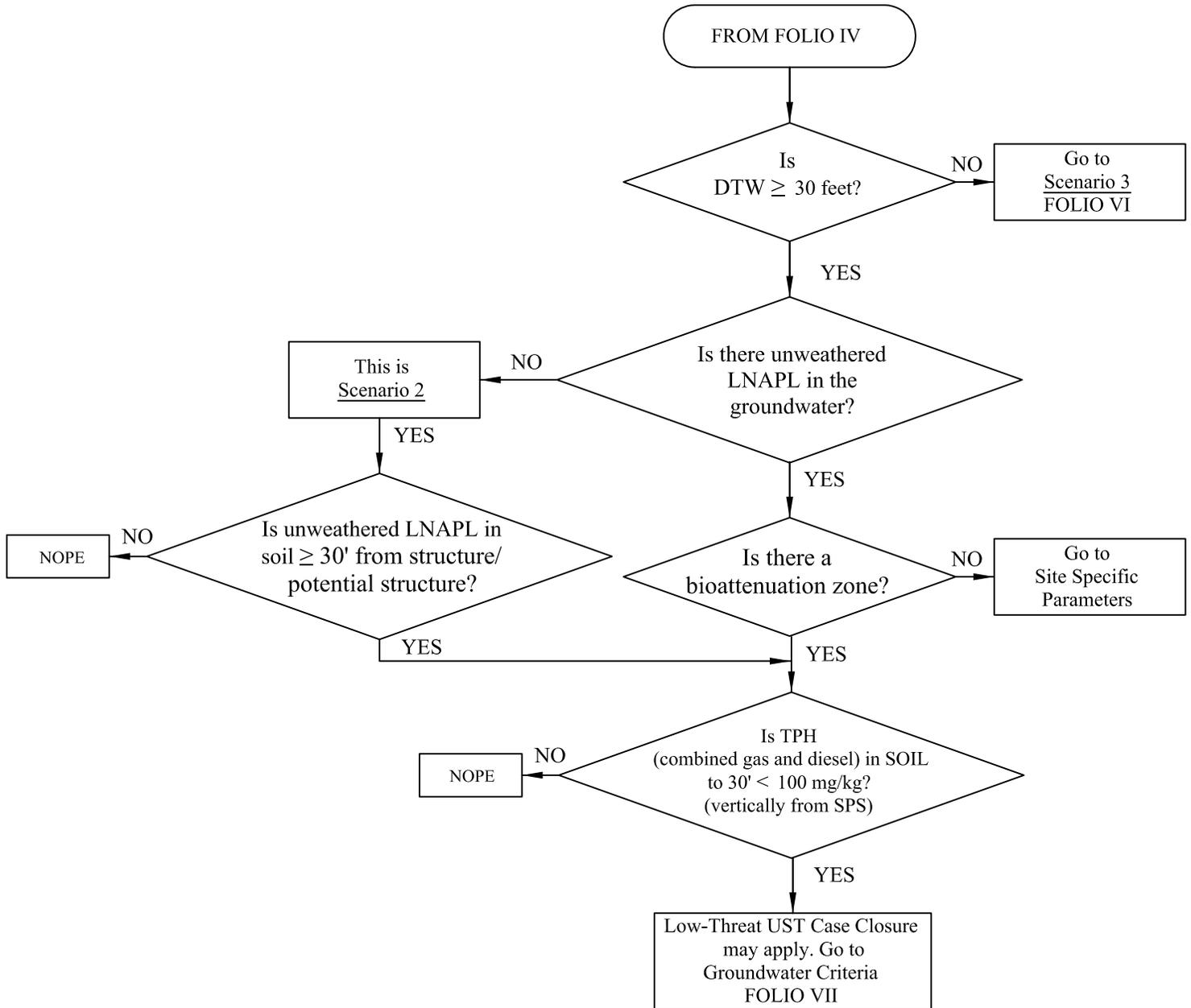
**Low-Threat UST Case Closure Criteria**  
**Media Specific Criteria -**  
**Soil/Soil Vapor /Direct Contact/Outdoor Air Exposure Criteria**



**LEGEND**  
 SSRA - SITE SPECIFIC RISK ASSESSMENT  
 SSRAAHH - SIGNIFICANT RISK OF ADVERSELY AFFECTING HUMAN HEALTH

## Low-Threat UST Case Closure Criteria Vapor Intrusion Criteria

Scenario 1

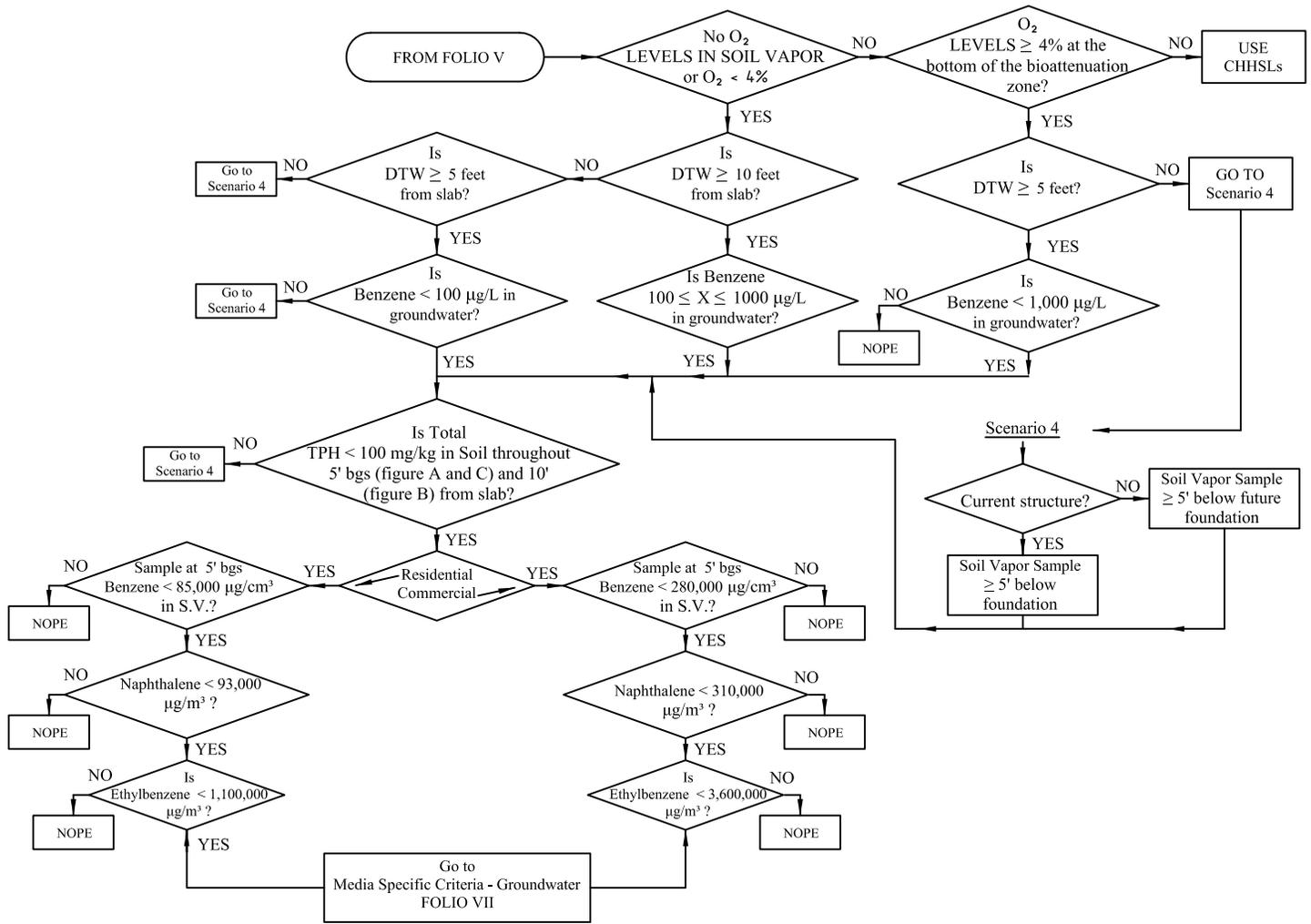


**LEGEND**

SPS - STRUCTURE / POTENTIAL STRUCTURE  
 DTW - DEPTH TO WATER  
 LNAPL - LIGHT NON-AQUAEIOUS PHASE LIQUID  
 BIOATTENUATION ZONE IS A CONTINUOUU ZONE

Low-Threat UST Case Closure Criteria  
VAPOR INTRUSION CRITERIA

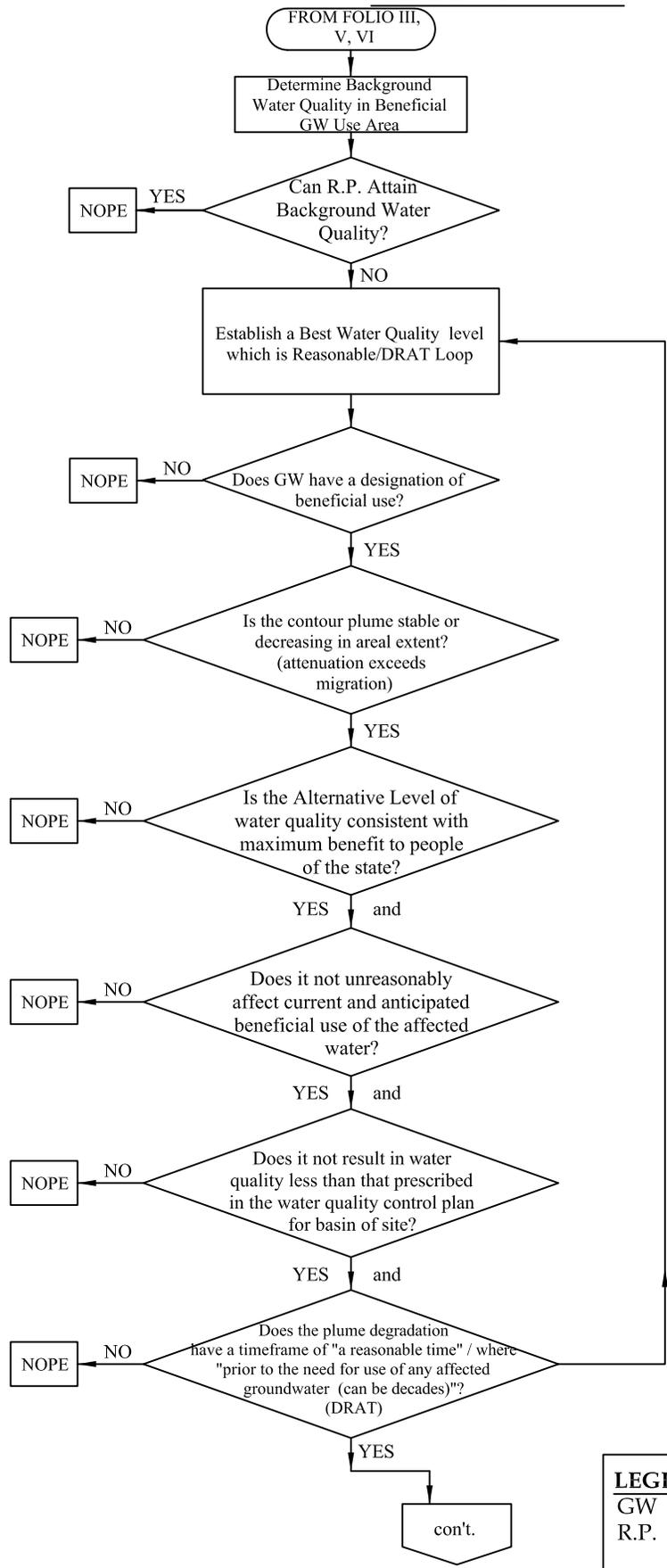
Scenario 3



**LEGEND**

- SPS - STRUCTURE / POTENTIAL STRUCTURE
- CHHSLs - CALIFORNIA HEALTH HAZARD SCREENING LEVELS
- S.V. - SOIL VAPOR

**Low-Threat UST Case Closure Criteria**  
 Site Evaluation of Readiness for Closure for Mature Stable  
 Petroleum UST Unauthorized Release Sites  
MEDIA SPECIFIC CRITERIA  
GROUNDWATER



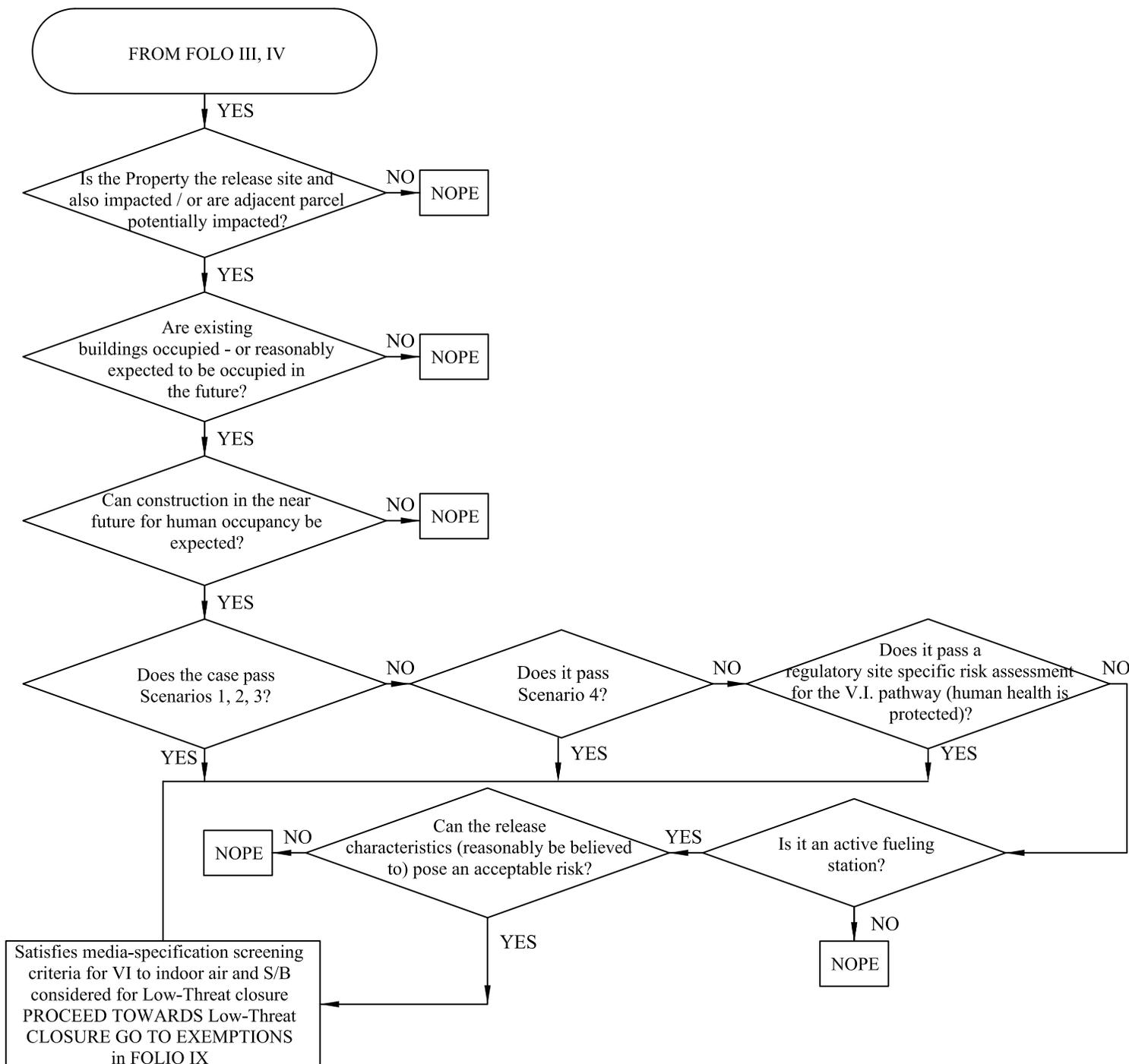
**LEGEND**  
 GW - GROUNDWATER  
 R.P. - RESPONSIBLE PARTY



# Low-Threat UST Case Closure Criteria

## Site Evaluation of Closure Readiness for Mature Stable Petroleum UST unauthorized release sites

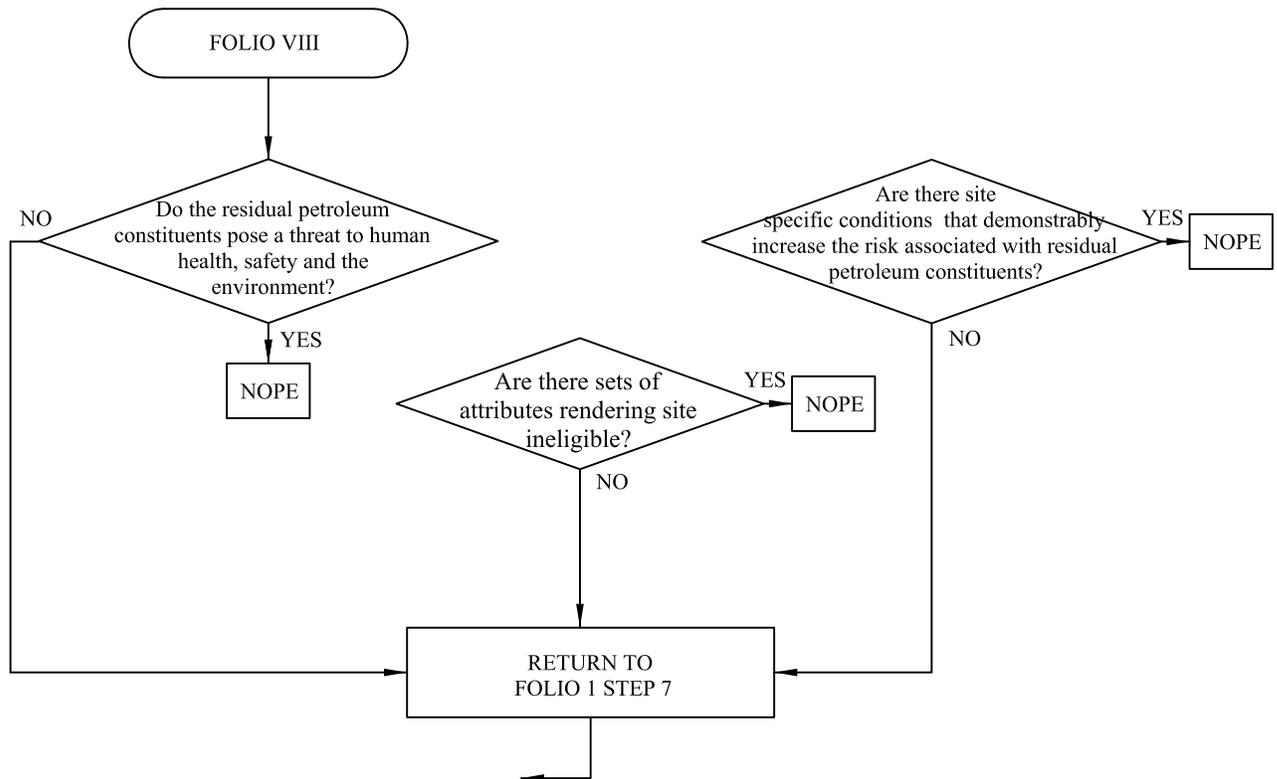
### Vapor-Intrusion (VI) Criteria



**LEGEND**  
 S/B - Should Be  
 L.T. - Low-Threat  
 V.I. - Vapor Intrusion

## Low-Threat UST Case Closure Criteria

### EXEMPTIONS



**NOTE: IF YOU GET TO NOPE, BACK TRACK TO LAST YES AND IDENTIFY HOW TO REMOVE (REMEDiate) OR MODIFY PARAMETERS.**