



HRS SsI Addition Frequently Asked Questions

1. **What does this addition to the Hazard Ranking System do?**

By adding a subsurface intrusion (SsI) component to the Hazard Ranking System (HRS), sites previously not eligible for the Superfund National Priorities List (NPL) based on other exposure/migration pathways may be eligible for NPL listing after evaluation of the threat posed by intrusion of contaminants into occupied structures from the subsurface. The proposed SsI component will add the subsurface intrusion threat evaluation to a restructured and renamed soil exposure and subsurface intrusion pathway.

The current HRS (40 CFR 300, Appendix A), promulgated December 14, 1990 (current HRS), does not consider the threat posed by subsurface intrusion in its evaluation of relative risk posed by a site. When the HRS was revised in 1990 the available science and sampling methods were not considered sufficient to evaluate SsI threats for scoring purposes. Therefore, the current HRS does not provide a complete assessment of the relative risk that a site may pose to the public.

2. **Why Subsurface Intrusion (SsI) and not Vapor Intrusion (VI)?**

SsI is the comprehensive term used to define the migration of hazardous substances, pollutants, or contaminants from the subsurface environment—or more specifically, the unsaturated zone and/or the shallow, unconfined ground water—into overlying structures. Subsurface intrusion can occur either through vapor intrusion (VI) or by contaminated ground water intrusion. VI is the most common form of SsI and generally occurs when there is a migration of volatile chemicals from contaminated ground water or soil into overlying structures. VI is of particular concern because contaminant concentrations in the vapors can rise to a point where the health of residents or workers in affected structures is at risk.

SsI can also occur through the migration of hazardous substances, pollutants, or contaminants from contaminated ground water directly into overlying structures, such as when basements become flooded due to high ground water elevations. Contaminants can then vaporize from the flood waters directly into indoor air, or when the water recedes or evaporates, contaminants may remain in the structure. Ground water intrusion is likely to be less common than VI but has been documented to result in health risks, and is an emerging issue only now being comprehensively investigated.

3. **There are already SsI sites on the NPL, why is this needed?**

Sites with SsI issues that are already on the NPL were not listed because of the threat posed by SsI. Instead, these sites were listed because the threats other pathways posed were sufficient to qualify for placement on the NPL. Under the Superfund remedial program for NPL sites, SsI threats are only addressed after they are placed on the NPL. Therefore, considering SsI information within the HRS may lead to remediation at sites where SsI is of concern but not eligible for further evaluation under the current HRS.

Furthermore, sites with SsI issues that have insufficient threats from pathways evaluated

using the current HRS may not be addressed because the site may not qualify for placement on the NPL based on an evaluation of only the current pathways. Additionally, no other regulatory programs are available that consistently investigate and permanently remediate the source of the threat when SsI is the sole exposure route. In fact, a 2010 Government Accountability Office (GAO) report found that EPA does not assess the relative risks posed by vapor intrusion when deciding which sites to include on the NPL and recommended that EPA consider VI as part of the NPL process.

4. **Why can't EPA just install vapor mitigation systems using removal authority?**

Using the Superfund Removal Program exclusively to cover sites with subsurface intrusion contamination threats would not fully address the scope of the environmental problems that often accompany a subsurface intrusion situation. EPA presently uses the removal program authorized in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to address the imminent public health threat associated with subsurface intrusion mainly by interrupting the migration of contaminant vapors, such as by installing vapor mitigation systems for the most contaminated structures. However, because there may be limitations on the extent and cost of an individual removal action, EPA is often not able to permanently address the source of the subsurface contamination, which usually is extensive subsurface soil or ground water contamination. Without addressing the source of contamination, a vapor mitigation system would typically be a temporary solution for most sites, not a permanent remedy.

5. **Who is affected by this revision?**

The HRS addition will affect how EPA and its federal, state and tribal partners conduct CERCLA site assessments and HRS scoring. This revision will afford more opportunities for investigation and potential future remediation of SsI threats. There will be no direct regulatory impact to nongovernmental entities. The HRS addition may increase the costs to government agencies conducting assessments at SsI sites. However, these costs should be minimal because federal agencies should already be identifying and addressing SsI as part of their environmental remediation programs.

6. **How extensive is this revision?**

EPA is proposing an addition of one new component to one part of the current HRS. No major structural changes to other parts of the HRS are proposed. SsI scoring will be integrated into the existing HRS; it will not be a separate scoring mechanism and will be similar to the existing HRS scoring structure. The score will be additive to existing pathways and the current HRS site cutoff score of 28.50 will remain the same.

7. **Does this revision affect sites that are already on the NPL?**

No. This proposed regulatory change does not affect the status of sites currently on, or proposed to be added to, the NPL. This modification only augments criteria for applying the HRS to sites being evaluated in the future. Sites on the NPL are evaluated during the remedial process to determine whether an SsI threat exists.

8. **Does this change the 28.50 cut-off score?**

No. The addition of a subsurface intrusion component to the HRS evaluation will not

change the 28.50 cut-off score for a site to qualify for listing on the NPL. That is, the same level of relative risk posed by a site score prior to the addition will still qualify the site for listing on the NPL.

9. **Will more weight be given to an Ssl threat than threats posed by other pathways?**

No. Each pathway is given the same weight in an HRS evaluation. The HRS is designed to be applied uniformly to each site, enabling sites to be ranked relative to each other with respect to actual or potential hazards regardless of pathway (or pathways) being evaluated at each site.

10. **How many more sites will this revision add to the NPL?**

The HRS addition is not expected to result in either an increase in the number of site assessments per year or in the placement of more sites on the NPL per year. Rather, given current budget levels and the possibility of increased costs for an Ssl site assessment, EPA may conduct fewer assessments per year. The pipeline of sites in each EPA region of the country will be reviewed and prioritized to identify those sites that pose the highest risk. This addition will not change how EPA currently evaluates and prioritizes sites for the NPL; EPA will now have an additional mechanism to address sites that pose the greatest risk.

11. **Will EPA re-score sites that had previously not met the 28.50 cutoff?**

EPA does not plan to systematically re-evaluate sites that had previously not met the HRS 28.50 cut-off. EPA will continue to follow its current policy regarding legacy sites which typically is re-scoring only those sites for which new information becomes available or additional sampling has been performed due to evidence of changing site circumstances (e.g., a municipal well downstream of a ground water plume becomes contaminated). However, it is not EPA policy to routinely re-score sites not meeting the HRS cut-off score.

12. **Did the science supporting this revision undergo external peer review?**

Yes. EPA determined during development of the HRS addition that multiple subsurface intrusion-specific issues warranted external independent scientific peer review. The proposed addition reflects modifications made as a result of the peer review process. The results of the 2011 peer review are available in the public docket (docket number EPA-HQ-SFUND-2010-1086) at <http://www.regulations.gov>

13. **How does this relate to EPA's 2015 OSWER VI Guide?**

The June 2015 *OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air* (VI Guide) and the HRS addition have different purposes, statutory authority, scope and applicability, but both are based on the same scientific understanding of subsurface migration of volatile contaminants. The VI Guide advises the investigation and assessment of the VI threat in structures from all sources, particularly actions taken under CERCLA and the Resource Conservation and Recovery Act (RCRA). The HRS addition is an amendment to the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), under CERCLA, to support placement of sites on the NPL based on a subsurface intrusion

threat. The HRS addition uses data collected from VI investigations to rank the relative threat posed by sites.

This guide and this proposed addition to the HRS would further the agency's efforts to establish national consistency in evaluating vapor intrusion threats.

14. **Are all sites that score 28.50 or greater added to the NPL?**

No. A site may be included on the NPL if it scores sufficiently high on the HRS, which EPA published as Appendix A of the NCP, but that is not the only consideration when placing sites on the NPL. The HRS is a mathematical formula that serves as a screening device to evaluate a site's relative threat to human health or the environment. As a matter of EPA policy, those sites that score 28.50, or greater, on the HRS are eligible for inclusion on the NPL. This scoring process is the most common way a site becomes eligible for the NPL. EPA evaluates a number of options before determining the most effective approach for site cleanup. Alternatives to NPL listing may include: Superfund Alternative Approach, state cleanup, cleanup by other federal agencies, EPA removal, or deferral to the RCRA program and various enforcement mechanisms.

15. **Does NPL listing mean that cleanup is required?**

Not necessarily. Placement on the NPL indicates that further investigation is warranted; there is no assumption of a need for remedial action. As noted in the Federal Register (FR) notice of the proposed rule for the original HRS (47 FR 31220, July 16, 1982), "the HRS is a means for applying uniform technical judgment regarding the potential hazards presented by a facility relative to other facilities. It does not address the feasibility, desirability, or degree of cleanup required." Further, a site's listing neither imposes a financial obligation on EPA nor assigns liability to any party.

16. **How much additional money per year will this revision cost the taxpayers?**

Conducting an HRS evaluation and placing a site on the NPL imposes no direct costs on any private entity and the addition of an SsI component to the HRS evaluation will not alter that. However, there is the potential for an increase in the cost to conduct an individual SsI investigation for EPA and other federal agencies. Because EPA does not expect an increase in its site assessment budget, EPA expects that there will be a realignment and reprioritization of its site assessment funds to address sites with SsI. Therefore, this proposed addition may result in less site assessments being conducted at those sites that pose a lower risk in order to free resources to use for SsI evaluations. The HRS addition, which could lead to the inclusion of a site on the NPL, also does not itself establish that EPA will necessarily undertake response actions, nor does it determine liability or require any action by a private party.

17. **Does this addition also address VI from petroleum products?**

No. CERCLA specifically excludes petroleum from its statutory definition of hazardous substances and pollutants and contaminants (CERCLA sections 101(14) and 101(33)). Therefore, a Superfund HRS evaluation cannot consider intrusion of vapors resulting from petroleum releases.

18. **Why aren't VI sites covered under the air pathway?**

EPA considered adding an SSI component to the air migration pathway. However, EPA determined that adding SSI to this pathway was not appropriate for several reasons. For example, consistent with CERCLA, the air migration pathway can only consider outdoor air. Therefore, exposure to hazardous substances, pollutants, and contaminants through indoor air cannot be considered through the air migration pathway. Also, adding the SSI component to the air migration pathway would not allow for the evaluation of other types of subsurface intrusion, such as ground water intrusion.
