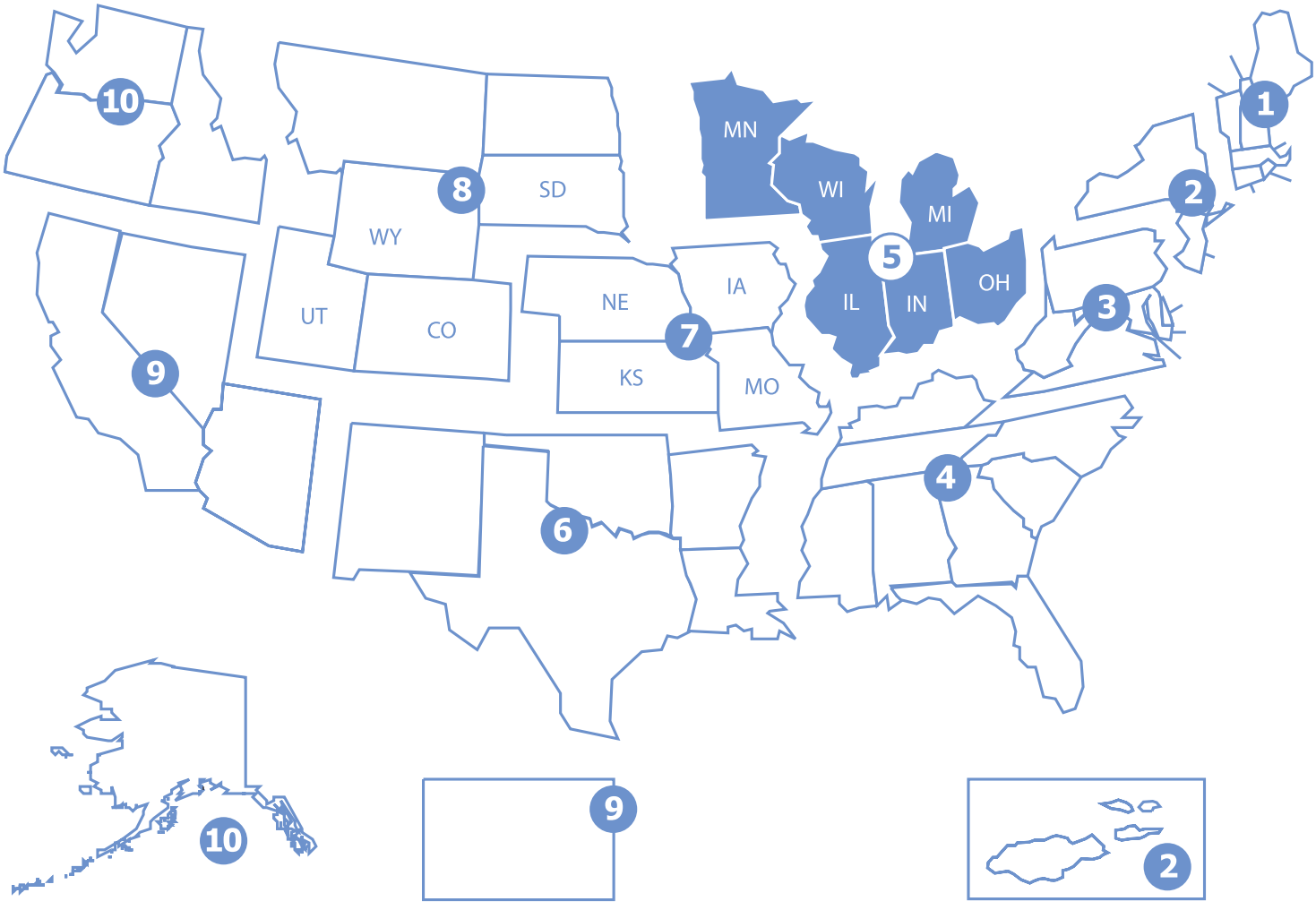
United States
Environmental Protection
Agency

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May 2018

Office of Land and Emergency Management

Support Document for the Revised National Priorities List Final Rule – Franklin Street Groundwater Contamination



Support Document for the Revised National Priorities List Final Rule

Franklin Street Groundwater Contamination

May 2018

Site Assessment and Remedy Decisions Branch
Office of Superfund Remediation and Technology Innovation
Office of Land and Emergency Management
U.S. Environmental Protection Agency
Washington, DC 20460

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Attachment 1: Indiana Department of Environmental Management. Email correspondence. Subject: Franklin Street GW – Obtaining a Reference Citation for Well #4. April 10, 2018.

Executive Summary

Section 105(a)(8)(B) of CERCLA, as amended by SARA, requires that the EPA prepare a list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States. An original National Priorities List (NPL) was promulgated on September 8, 1983 (48 FR 40658). CERCLA requires that EPA update the list at least annually.

This document provides responses to public comments received on the Franklin Street Groundwater Contamination site, proposed on January 18, 2018 (83 FR 2576). This site is being added to the NPL based on an evaluation under EPA's Hazard Ranking System (HRS) in a final rule published in the *Federal Register* in May 2018.

Introduction

This document explains the rationale for adding the Franklin Street Groundwater Contamination site in Spencer, Indiana to the National Priorities List (NPL) of uncontrolled hazardous waste sites and provides responses to public comments received on this site listing proposal. The EPA proposed this site to the NPL on January 18, 2018 (83 FR 2576). This site is being added to the NPL based on an evaluation under the Hazard Ranking System (HRS) in a final rule published in the *Federal Register* in May 2018.

Background of the NPL

In 1980, Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. Sections 9601 *et seq*. in response to the dangers of uncontrolled hazardous waste sites. CERCLA was amended on October 17, 1986, by the Superfund Amendments and Reauthorization Act (SARA), Public Law No. 99-499, stat., 1613 *et seq.* To implement CERCLA, EPA promulgated the revised National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300, on July 16, 1982 (47 FR 31180), pursuant to CERCLA Section 105 and Executive Order 12316 (46 FR 42237, August 20, 1981). The NCP, further revised by EPA on September 16, 1985 (50 FR 37624) and November 20, 1985 (50 FR 47912), sets forth guidelines and procedures needed to respond under CERCLA to releases and threatened releases of hazardous substances, pollutants, or contaminants. On March 8, 1990 (55 FR 8666), EPA further revised the NCP in response to SARA.

Section 105(a)(8)(A) of CERCLA, as amended by SARA, requires that the NCP include

> criteria for determining priorities among releases or threatened releases throughout the United States for the purpose of taking remedial action and, to the extent practicable, take into account the potential urgency of such action, for the purpose of taking removal action.

Removal action involves cleanup or other actions that are taken in response to emergency conditions or on a short-term or temporary basis (CERCLA Section 101). Remedial action is generally long-term in nature and involves response actions that are consistent with a permanent remedy for a release (CERCLA Section 101). Criteria for placing sites on the NPL, which makes them eligible for remedial actions financed by the Trust Fund established under CERCLA, were included in the HRS. EPA promulgated the HRS as Appendix A of the NCP (47 FR 31219, July 16, 1982). On December 14, 1990 (56 FR 51532), EPA promulgated revisions to the HRS in response to SARA, and established the effective date for the HRS revisions as March 15, 1991. On January 9, 2017, EPA promulgated a further revision to the HRS that added a component for evaluating the threats posed by the intrusion of subsurface contamination into regularly occupied structures. These changes are consistent with, and comply with, the statutory requirements of SARA.

Section 105(a)(8)(B) of CERCLA, as amended, requires that the statutory criteria provided by the HRS be used to prepare a list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States. The list, which is Appendix B of the NCP, is the NPL.

An original NPL of 406 sites was promulgated on September 8, 1983 (48 FR 40658). At that time, an HRS score of 28.5 was established as the cutoff for listing because it yielded an initial NPL of at least 400 sites, as suggested by CERCLA. The NPL has been expanded several times since then, most recently on January 18, 2018 (83 FR 2549). The Agency also has published a number of proposed rulemakings to add sites to the NPL. The most recent proposal was on January 18, 2018 (83 FR 2576).

Development of the NPL

The primary purpose of the NPL is stated in the legislative history of CERCLA (Report of the Committee on Environment and Public Works, Senate Report No. 96-848, 96th Cong., 2d Sess. 60 [1980]).

> The priority list serves primarily informational purposes, identifying for the States and the public those facilities and sites or other releases which appear to warrant remedial actions. Inclusion of a facility or site on the list does not in itself reflect a judgment of the activities of its owner or operator, it does not require those persons to undertake any action, nor does it assign liability to any person. Subsequent government actions will be necessary in order to do so, and these actions will be attended by all appropriate procedural safeguards.

The NPL, therefore, is primarily an informational and management tool. The identification of a site for the NPL is intended primarily to guide EPA in determining which sites warrant further investigation to assess the nature and extent of the human health and environmental risks associated with the site and to determine what CERCLA-financed remedial action(s), if any, may be appropriate. The NPL also serves to notify the public of sites EPA believes warrant further investigation. Finally, listing a site may, to the extent potentially responsible parties are identifiable at the time of listing, serve as notice to such parties that the Agency may initiate CERCLA-financed remedial action.

CERCLA Section 105(a)(8)(B) directs EPA to list priority sites among the known releases or threatened release of hazardous substances, pollutants, or contaminants, and Section 105(a)(8)(A) directs EPA to consider certain enumerated and other appropriate factors in doing so. Thus, as a matter of policy, EPA has the discretion not to use CERCLA to respond to certain types of releases. Where other authorities exist, placing sites on the NPL for possible remedial action under CERCLA may not be appropriate. Therefore, EPA has chosen not to place certain types of sites on the NPL even though CERCLA does not exclude such action. If, however, the Agency later determines that sites not listed as a matter of policy are not being properly responded to, the Agency may consider placing them on the NPL.

Hazard Ranking System

The HRS is the principle mechanism EPA uses to place uncontrolled waste sites on the NPL. It is a numerically based screening system that uses information from initial, limited investigations -- the preliminary assessment and site inspection -- to assess the relative potential of sites to pose a threat to human health or the environment. HRS scores, however, do not determine the sequence in which EPA funds remedial response actions, because the information collected to develop HRS scores is not sufficient in itself to determine either the extent of contamination or the appropriate response for a particular site. Moreover, the sites with the highest scores do not necessarily come to the Agency's attention first, so that addressing sites strictly on the basis of ranking would in some cases require stopping work at sites where it was already underway. Thus, EPA relies on further, more detailed studies in the remedial investigation/feasibility study that typically follows listing.

The HRS uses a structured value analysis approach to scoring sites. This approach assigns numerical values to factors that relate to or indicate risk, based on conditions at the site. The factors are grouped into three categories. Each category has a maximum value. The categories are:

- likelihood that a site has released or has the potential to release hazardous substances into the environment;
- characteristics of the waste (e.g., toxicity and waste quantity); and
- targets (e.g., people or sensitive environments) affected by the release.

Under the HRS, four pathways can be scored for one or more components and threats as identified below:

- Ground Water Migration (S_{gw})
  - population

- Surface Water Migration (S_{sw})
  The following threats are evaluated for two separate migration components, overland/flood migration and ground water to surface water.
  - drinking water
  - human food chain
  - sensitive environments

- Soil Exposure and Subsurface Intrusion (S_{sessi})
  - Soil Exposure Component:
    - resident population
    - nearby population
  - Subsurface Intrusion Component
    - population

- Air Migration (S_a)
  - population

After scores are calculated for one or more pathways according to prescribed guidelines, they are combined using the following root-mean-square equation to determine the overall site score (S), which ranges from 0 to 100**:**

$$S = \sqrt{\frac{S_{gw}^2 + S_{sw}^2 + S_{sessi}^2 + S_a^2}{4}}$$

If all pathway scores are low, the HRS score is low. However, the HRS score can be relatively high even if only one pathway score is high. This is an important requirement for HRS scoring because some extremely dangerous sites pose threats through only one pathway. For example, buried leaking drums of hazardous substances can contaminate drinking water wells, but -- if the drums are buried deep enough and the substances not very volatile -- not surface water or air.

Other Mechanisms for Listing

There are two mechanisms other than the HRS by which sites can be placed on the NPL. The first of these mechanisms, authorized by the NCP at 40 CFR 300.425(c)(2), allows each State and Territory to designate one site as its highest priority regardless of score. The last mechanism, authorized by the NCP at 40 CFR 300.425(c)(3), allows listing a site if it meets the following three requirements:

- Agency for Toxic Substances and Disease Registry (ATSDR) of the U.S. Public Health Service has issued a health advisory that recommends dissociation of individuals from the release;
- EPA determines the site poses a significant threat to public health; and
- EPA anticipates it will be more cost-effective to use its remedial authority than to use its emergency removal authority to respond to the site.

Organization of this Document

The following section contains EPA responses to site-specific public comments received on the proposal of the Franklin Street Groundwater Contamination site on January 18, 2018 (83 FR 2576). The site discussion begins with a list of commenters, followed by a site description, a summary of comments, and Agency responses to each comment. A concluding statement indicates the effect of the comments on the HRS score for the site.

Glossary

The following acronyms and abbreviations are used throughout the text:

Agency	U.S. Environmental Protection Agency
ATSDR	Agency for Toxic Substances and Disease Registry
BBP	BBP Water Corporation
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. Sections 9601 *et seq*., also known as Superfund
CFR	Code of Federal Regulations
CLP	EPA Contract Laboratory Program
CRQL	Contract-required quantitation limit
DL	Detection limit
EPA	U.S. Environmental Protection Agency
FR	Federal Register
gpm	Gallons per minute
HRS	Hazard Ranking System, Appendix A of the NCP
HRS score	Overall site score calculated using the Hazard Ranking System; ranges from 0 to 100
HWQ	Hazardous waste quantity
IDEM	Indiana Department of Environmental Management
MCL	Maximum contaminant level
MDL	Method detection limit
MW	Monitoring well
NCP	National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300
NPL	National Priorities List, Appendix B of the NCP
PCE	Tetrachloroethylene
PRP	Potentially responsible party
RI	Remedial investigation
RI/FS	Remedial Investigation/feasibility study
SARA	Superfund Amendments and Reauthorization Act
SCDM	Superfund Chemical Data Matrix
SQL	Sample quantitation limit

TCE	Trichloroethylene
VC	Vinyl chloride
VOC	Volatile organic compounds

1. List of Commenters and Correspondence

EPA-HQ-OLEM-2017-0606-0004	Correspondence, dated June 19, 2017, from Bruno L. Pigott, Commissioner of Indiana Department of Environmental Management on behalf of Indiana Governor Eric Holcomb.
EPA-HQ-OLEM-2017-0606-0005	Comment, submitted March 12, 2018, by an Anonymous Public Commenter.
EPA-HQ-OLEM-2017-0606-0006	Comment, submitted March 13, 2018, by Margaret and Steve Castorani.
EPA-HQ-OLEM-2017-0606-0007	Comment, submitted March 19, 2018, by Michael Spinks, Dean Bruce, and Jon Stantz of the Town of Spencer, Indiana with concurrence by Philip E. Bastin of BBP Water Corporation.

2. Site Description

The Franklin Street Groundwater Contamination site (the Site) consists of a contaminated groundwater plume with no identified source located in Spencer, Owen County, Indiana. The source at this site is identified as a contaminated groundwater plume because the contamination could not be attributed to any of the possible sources identified. All of the released contamination identified by groundwater sampling discussed in the HRS documentation record is located in the same unconsolidated, undifferentiated outwash valley aquifer. The total acreage of the plume, as delineated by samples that meet the criteria for an observed release, is 66.54 acres; however, because the vertical extent of the contamination could not be determined the volume of hazardous waste quantity is unknown, but greater than zero.

BBP Water Corp. (BBP) operates the groundwater wells and treatment plant that supplies drinking water to the Town of Spencer, Stinesville, Patricksburg, and Bowling Green, which include portions of rural Owen, Monroe, and Clay Counties in Indiana. These BBP municipal wells supply drinking water to approximately 9,903 people. At the time the HRS evaluation was performed BBP operated three wells; however, by the time of proposal (January 2018), BBP began operating, or maintaining, a total of four wells in one well field that are all located between ¼ and ½ miles from the center of the groundwater plume. The four wells in BBP's main well field are known as Well 1, Well 2, Well 3, and Well 4. Three of the four wells (Well 1, Well 2, and Well 3) have been contaminated by chlorinated solvents, principally PCE, associated with the groundwater plume.

3. Summary of Comments

Bruno L. Pigott, IDEM Commissioner, as authorized by Indiana Governor Eric J. Holcomb, expressed support for the designation of the Franklin Street Groundwater Contamination site on the NPL. Mr. Pigott stated that the Site requires a long-term response action and that the NPL would allow for proper and timely investigation into the nature and extent of contamination.

The Town of Spencer (the Town) commented that there is no reason to list the Site on the NPL, that the groundwater is already being treated for VOC contamination before delivery as finished drinking water, and that no additional CERCLA remedy is required at the Site. The Town stated that the BBP Water Corp. (BBP) installed new water treatment equipment in April 2017 that removes all VOCs from the water before being delivered to customers and that this treatment ensures that the water meets all federal drinking water standards and therefore there is no risk to human health or the environment.

Additionally, the Town commented that the information in the HRS documentation record at proposal was outdated and incorrect, and stated that the HRS documentation record does not account for all of the wells in operation at the time of proposal. In its comments, the Town identified a new well that was put in operation prior to the time of proposal and asserted that two of the other wells are now used as standby wells. Finally, the Town of Spencer asserted that the recipients of the drinking water sourced from BBP wells #1-4 are not drinking "raw water" (water directly pumped from the aquifer) and asserted that those individuals drinking the BBP-supplied water should not be considered as the HRS target population at the Site.

3.1 Support for Listing and Other Non-opposition Comments

Comment: Bruno L. Pigott, IDEM Commissioner, as authorized by Indiana Governor Eric J. Holcomb, expressed support for the designation of the Franklin Street Groundwater Contamination site on the NPL. In his letter to Robert Kaplan, Acting Regional Administrator, EPA Region 5, he stated that he recommends "inclusion of the Franklin Street Ground Water Contamination Site on the National Priorities List (NPL) of hazardous waste sites" adding that the Site requires a long-term response action and that the NPL would allow for proper and timely investigation into the nature and extent of contamination.

Response: EPA is adding the Franklin Street Groundwater Contamination site to the NPL. Listing makes a site eligible for remedial action funding under CERCLA, and EPA will examine the site to determine what response, if any, is appropriate. EPA will determine the need for using Superfund monies for remedial activities on a site-by-site basis, taking into account the NPL ranking, state priorities, further site investigation, other response alternatives, and other factors as appropriate.

3.2 Purpose of Listing

Comment: The Town of Spencer (the Town) commented that there is no reason to list the site on the NPL, that the raw groundwater is already being treated for VOC contamination before delivery as finished drinking water, and that no additional CERCLA remedy is required at the Site.

Response: Placing the Site on the NPL is the appropriate initial step in the multi-step CERCLA Superfund process. The Town appears to be incorrectly assuming that placing a site on the NPL means that the EPA considers that the site poses sufficient risk to warrant remedial action. However, listing a site reflects the EPA's decision to inform the public of the possible priority threat posed by the site and at a later stage in the Superfund process the EPA will determine what, or if, remedial action is warranted. An HRS site score above 28.50 represents the EPA's determination that the Site poses a significant risk relative to other sites evaluated under the HRS and warrants further investigation to determine if remedial action is needed.

As the Courts have confirmed, the HRS is intended to be a "rough list" of prioritized hazardous sites; a "first step in a process—nothing more, nothing less." Eagle Picher Indus. v. EPA, 759 F.2d 922, 932 (D.C. Cir. 1985) (Eagle Picher II). The HRS is the mechanism used to evaluate the relative risk of a site. If a site scores a 28.50 or greater using the HRS, then it may be added to the NPL.

The purpose of NPL listing is explained in the Federal Register Notice of February 21, 1990 (Volume 55, Number 35) excerpted below.

> The purpose of the NPL, therefore, is primarily to serve as an informational and management tool. The initial identification of a site for the NPL is intended primarily to guide EPA in determining which sites warrant further investigation to assess the nature and extent of the public health and environmental risks associated with the site and to determine what CERCLA-financed remedial action(s), if any, may be appropriate. The NPL also serves to notify the public of sites EPA believes warrant further investigation.

The Franklin Street Groundwater Contamination site qualifies for addition to the NPL because it has achieved an HRS score of 28.50 or greater, as is demonstrated in the HRS documentation record at promulgation. Achieving a site score of greater than 28.50 indicates that the site is eligible for inclusion on the NPL and therefore may warrant further investigation. Placing a site on the NPL allows EPA to more effectively prioritize sites, manage possible future site investigations, and notifies the public that the release at a site is of concern to the Agency. The addition of the Site to the NPL is an appropriate next step and this determination was made consistent with the purpose of the NPL and is supported by the HRS evaluation. All remediation decisions are determined at a later stage in the Superfund process and are not considered during the NPL evaluation.

Regarding the Town's assertions that there is no purpose for listing the Site because raw water is being treated prior to delivery and no additional remedy is needed, not listing the Site for those reasons would be inconsistent with the purpose of listing, which is to inform the public of the threat posed to the community and to begin further investigation of the contamination. Placement of a site on the NPL is not an evaluation of the effectiveness of any remedy currently in place. Further, the HRS evaluation is based on the quality of the water in the aquifer, not at the point of delivery to the public. Review of the effectiveness of any remedy occurs at a later stage of the Superfund site evaluation process, after a more thorough evaluation of the conditions at the Site, including the effectiveness of any in-place remedies to address all risks related to the release at the Site. (Please see sections 3.3, Need for CERCLA Remedy, 3.5, Risk to Human Health and the Environment, and 3.6.1, Target Identification of this support document for further explanation regarding the HRS scoring process and the risk associated with the quality of the water in the aquifer.)

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.3 Need for CERCLA Remedy

Comment: The Town of Spencer commented that there was no need to place the site on the NPL as no further remedy is required. It commented that no CERCLA remedy is required to protect human health or the environment at the Site because the BBP is already treating the water before it is delivered to residents and that this is the only remedy that makes sense.

Response: The EPA determined that placing the Site on the NPL is an appropriate approach to address the release of contamination to the drinking water aquifer scored during the HRS evaluation at this Site. The State also supports placement of the site on the NPL. As noted above in section 3.2, Purpose of Listing, of this support document, the current water treatment does not address the need for permanent treatment of contamination in the aquifer. Additionally, the current treatment does not address the threat posed by this contamination to wells that could be contaminated in the future due to further migration of the contaminant plume. The Site qualifies for placement on the NPL and placing the Site on the NPL is the appropriate step in the Superfund process. During further steps in the Superfund process the EPA will work closely with the State, Town of Spencer, and other interested stakeholders to determine the appropriate remedy decisions at the Site.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.4 Economic Impact/Stigma of Listing

Comment: The Town of Spencer expressed concern that listing this site would have an economic impact on the area and stigmatize the City. The Town commented that since the EPA failed to find a specific source of contamination and instead identified the "entire aquifer (and practically the entire Town of Spencer)" as the source it needlessly alarms the citizens and stigmatizes the town of Spencer. Additionally, the Town of Spencer commented that identifying the entire town will "damage business reputations, affect property values, and require us to incur unnecessary costs."

Response: Inclusion of a site on the NPL does not in itself reflect a judgment on the activities of a company or a town, but rather reflects the EPA's judgment that a significant release or threat of release has occurred and that the site is a priority for further investigation under CERCLA. Any stigma that may be associated with the placement of a site on the NPL or economic factors, such as those raised by the commenter, are generally not considered in the assessment of whether a site belongs on the NPL based on an HRS evaluation. Even if indirect economic factors (i.e., business reputations and property values) were considered at this stage of the Superfund process, any alleged negative impacts noted by the commenter would be caused by the contamination in the area, not by placing the Site on the NPL. Regarding the stigma of listing "practically the entire Town of Spencer" as the Town asserted, the listing of the Site on the NPL does not impose any liability or economic hardship to anyone living or operating above a contaminated groundwater plume unless they have performed an action to increase, or alter, the contamination at the Site.

The EPA notes that there are both costs and benefits that can be associated with listing a site. Among the benefits are increased health and environmental protection as a result of increased public awareness of potential hazards. In addition to the potential for Federally financed remedial actions, the addition of a site to the NPL could accelerate privately financed, voluntary cleanup efforts. Listing sites as national priority targets also may give States increased support for funding responses at particular sites. As a result of the additional CERCLA remedies, there will be lower human exposure to high-risk chemicals and higher quality surface water, groundwater, soil, and air. Therefore, it is possible that any perceived or actual negative fluctuations in property values or development opportunities that may result from contamination may also be countered by positive fluctuations when a CERCLA investigation and any necessary cleanup are completed.

Regarding commenters' concerns that listing the Site on the NPL would require the incurrence of unnecessary costs, the discussion of costs in NPL rules in the Federal Register clearly states that including a site on the NPL does not cause the EPA necessarily to undertake additional action; it does not require any action by a private party, nor does it assign liability for site response costs (56 FR 21462, May 9, 1991). Therefore, the potential costs cited by the commenter are associated with events that generally follow listing a site, not with the listing itself.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.5 Risk to Human Health and the Environment

Comment: The Town asserted that the groundwater contamination described in the HRS documentation record does not present a significant risk. The Town commented that the PCE contamination referenced in the HRS documentation record was found in the raw water and is not in the drinking water delivered to residents. The Town stated that the BBP installed new water treatment equipment in April 2017 that removes all VOCs from the water before water is delivered to customers. This treatment of the raw water ensures that the water is clean and meets all federal drinking water standards and thus there is no risk to human health or the environment at the Site.

Regarding the specific wells, the Town commented that Well #3 only shows trace amounts of PCE and that Wells #1 and #2 are rarely used. The Town of Spencer asserts that since Wells #1 and #2 are rarely used, they should not be included in the HRS evaluation of the Site.

Response: EPA considers that there is a threat to human health posed by the groundwater contamination and that this threat warrants further investigation before determining the site-specific risk. As explained above, consistent with CERCLA and the NCP, the Site has been placed on the NPL based on an HRS evaluation of the relative risk posed by a release of VOCs to groundwater and the threat that the releases may pose to drinking water in the area. Placing a site on the NPL is not based on a site-specific risk assessment, nor does listing require that a site-specific risk assessment be performed prior to the listing. A site-specific risk assessment is performed later in the Superfund process, following more extensive sampling.

The HRS documentation record at proposal establishes that the Franklin Street Groundwater Contamination site poses sufficient risk to human health or the environment to warrant inclusion on the NPL. The known source of site-specific risk at this site is the contamination in the aquifer underlying the Town; while this contamination may not be currently reaching municipal drinking water customers at levels above safe drinking water standards, the Town's actions may not permanently address the current and future threat posed by the contamination in the aquifer and the actions do not address any local population not using municipally supplied water or further risk posed by future migration of the contamination plume. The actual determination of site-specific risk that this site poses to human health or the environment is determined at a later stage of the Superfund process following listing.

The NPL is intended primarily to guide EPA in determining which sites warrant further investigation to assess the nature and extent of public health and environmental risks associated with a release of hazardous substances, pollutants or contaminants. See 83 FR 2576 (Proposed Rule, Franklin Street Groundwater Contamination, January 18, 2018); see also 55 FR 51532 (Final Rule, Hazard Ranking System, December 14, 1990). CERCLA § 105(a)(8)(a) requires EPA to determine NPL priorities among sites based on the "relative risk or danger to public health or welfare, or the environment." The criteria EPA applies to determine this relative risk or danger is codified in the HRS, and is the Agency's primary tool for deriving a site score based on the factors identified in CERCLA. The HRS evaluation and score above 28.50 represents EPA's determination that the Site may pose a significant threat to human health and the environment relative to other sites evaluated and warrants further investigation under CERCLA. (Regarding the specific scoring and eligibility of targets using "raw water," please see section 3.6.1, Targets Identified, below in this support document.) As part of the standard Superfund process, after listing on the NPL, the investigations performed to date to characterize the Site will be evaluated for completeness, further information will be collected if deemed necessary to adequately characterize the risks posed by the Site, and based on this information a risk assessment decision will be made determining what, if any, remedial action is necessary to protect human health and the environment.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.6 Ground Water Pathway Analysis – Targets

Comment: The Town commented that the information in the HRS documentation record at proposal was outdated and incorrect, and stated that the HRS documentation record does not account for all of the wells in operation at the time of proposal. Additionally, the Town of Spencer asserted that the recipients of the drinking water sourced from wells #1-4 are not drinking "raw water" and asserted that those individuals should not be considered targets at the Site.

Response: All target wells and their apportioned populations at the Site were appropriately evaluated in the HRS documentation record at the time it was prepared. However, the HRS documentation record at promulgation is updated to include a new well (Well #4) that began production prior to proposal, and the target changes associated with the addition of Well #4 to the scoring of the Site. The following subsections contain a detailed response to the Town of Spencer's specific comments on identifying the target population and the population apportionment:

- 3.6.1 Target Population Identification
- 3.6.2 Water Supply System Evaluation

3.6.1 Target Population Identification

Comment: The Town questioned the scoring of people using the Town water system as the target population in the HRS evaluation. The Town asserted that the recipients of the drinking water sourced from the Town's water supply system are not drinking "raw water" (water withdrawn directly from the contaminated aquifer) and asserted that those individuals should not be considered as part of the population factor in the HRS evaluation of the Site.

Response: All drinking water wells and the populations served by these wells included in the HRS documentation record at proposal were appropriately identified as eligible according to the HRS. The HRS directs that all drinking water wells withdrawing water from the aquifer within 4 miles of the center of the groundwater plume be included in the evaluation and that the level of contamination be assigned based on the contamination in the water at the point of withdrawal. Therefore, while the "raw water" from the BBP Wells is not being served to the BBP drinking water customers, the population was appropriately assigned for scoring in an HRS evaluation (BBP Wells #1-4 all supply raw water to the system; the current contributions from each of these wells to the system are further discussed in section 3.6.2, below).

HRS Section 3.3.2, *Population*, states to count "those persons served by wells in **that aquifer** and those persons served by wells in overlying aquifers…" [Emphasis added] Finally, in directing how to assign the level of contamination in a well, HRS Section 3.3.2.1, *Level of contamination*, states to "Evaluate the population served by water from a **point of withdrawal** based on the level of contamination for that **point of withdrawal**." [Emphasis added] Therefore, as documented below, the EPA correctly scored the contamination in the water at the point of withdrawal from a well and not at a point of delivery.

The population evaluation at the Site appropriately assigned the population value for each well and the level of contamination in that well prior to treatment. Pages 35 and 36 of the HRS documentation record at proposal provide the following calculations for the BBP wells:

> BBP Wells #1, #2, and #3 serve drinking water to a total of 9,903 individuals (Ref. 5, p.2; 42, p. 1; 51, p.1). BBP supplies drinking water to the Town of Spencer, Stinesville, Patricksburg, and Bowling Green which include portions of rural Owen, Monroe, and Clay Counties (Ref. 4, p. 2). Since BBP Well #[3] supplies greater than 40 percent of the water supply, the population served is calculated based on well capacity (Ref. 1, Section 3.3.2). Table 5 below shows the population that was apportioned to each well along with other pertinent information needed for the calculation.
>
> The following documents the level of contamination (Level I or Level II) in each BBP well, well capacities, the calculations used to determine the total population served by each well based on their respective well capacities, and subsequently the total population served by each well.

Table 5.

Population Per Well Calculations

Well ID	Well Capacity (gpm)[1]	Calculation (well capacity / total capacity of all wells)	% of Total Capacity	Total Population Served by BBP	Population per Well Calculation (based on capacity)	Population per Well (based on capacity)	Level I or Level II Contamination
BBP Well 1	700[1]	=700 / 2,800	25%	9,903[2, 5]	=9,903 x 25%	2,475.75	Level II[3]
BBP Well 2	700[1]	=700 / 2,800	25%	9,903[2, 5]	=9,903 x 25%	2,475.75	Level I[4]
BBP Well 3	1,400[1]	=1,400 / 2,800	50%	9,903[2, 5]	=9,903 x 50%	4,951.50	Level II[3]
Total	2,800	-	100%	9,903[2, 5]	-	9,903	-

[1] Ref. 34

[2] Ref. 5

[3] Table 4 of this HRS Documentation Record (references cited in each table)

[4] Table 3 of this HRS Documentation Record (references cited in each table)

[5] Ref. 51

The populations included in the HRS documentation record at proposal were appropriately evaluated according to the HRS[1]. The HRS directs that the drinking water should be considered from the point of withdrawal when assigning the population factor and level of contamination. As quoted directly above, BBP Wells #1-3 were evaluated using the level of contamination documented in each well as consistent with the HRS; therefore, all of the targets were appropriately identified and evaluated in the HRS Site score.

Regarding the Town's comment that the population served by its system should not be considered because a water treatment plan has been implemented; the treatment of water prior to delivery is not considered in an HRS evaluation. Remediation actions such as water treatment do not impact the eligibility of identified target populations. As noted in the preamble to the 1990 HRS (55 FR 51532 Final Rule, Hazard Ranking System, December 14, 1990) page 51568:

> HRS scoring will not consider the effects of responses that do not reduce waste quantities such as providing alternate drinking water supplies to populations with drinking water supplies contaminated by the site. In such cases, EPA believes that the initial targets factor should be used to reflect the adverse impacts caused by contamination of drinking water supplies; otherwise, a contaminated aquifer could be artificially shielded from further remediation.

Therefore, regardless of the water treatment that is currently in place on Wells #1-4, the EPA appropriately identified the target population eligible for inclusion in the HRS evaluation.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.6.2 Water Supply System Evaluation

Comment: The Town commented that the information on the water supply system used in the HRS documentation record at proposal to evaluate the Site was outdated and incorrect. The Town stated that the HRS documentation record did not account for all of the wells in operation at the time the Site was proposed to the NPL. The Town stated that BBP draws the "vast majority" of its water from Wells #3 and #4 and only rarely uses Wells #1 and #2 to supply water to customers. The Town commented that Well #1 is used approximately once per month and that Well #2 has only been used once in the past year upon emergency.

Response: The HRS documentation record has been revised at promulgation to account for the information supplied by the Town regarding the number and use of the wells that make up the current water supply system. The EPA has included BBP Well #4 in the HRS scoring of the site; however, as fully explained below, this results in no change to the overall Ground Water Migration Pathway score, the HRS site score, or the decision to place the Site on the NPL. According to the Town's comments, BBP Well #4 is an active well in the system, Wells #3 and #4 now provide the "vast majority" of the water to the system, and BBP Wells #1 and #2 are now operated as standby wells. Because insufficient information is available on the usage of the standby wells when in use, the standby wells are no longer assigned a population value in the HRS scoring[2]. As fully described in this response below, after accounting for the inclusion of BBP Well #4 in the HRS Site evaluation, the resulting Ground Water Migration Pathway Site score remains unchanged at 100.00 (HRS Site score of 50.00) and the Site remains eligible for inclusion on the NPL.

[1] The EPA notes that the HRS documentation record has been revised at promulgation to include a new well (Well #4) that came online prior to the proposal of the Site to the NPL; however, the addition of this new well to the site evaluation does not impact the eligibility of any target population included in the evaluation. For comments regarding the number of people apportioned to each well, or comments on the changes to the HRS evaluation due to inclusion of Well #4, please see section 3.6.2, Water Supply System Evaluation, in this support document.

[2] The EPA notes that since assigning any portion of the Site's population to either of the standby wells, in accordance with the HRS, could **only** result in a **higher** HRS site score, obtaining additional information to determine the relative well contributions while in operation was not prioritized and such information is not available at promulgation.

The explanation for this rescoring is summarized in the following subheadings:

- Apportionment of Populations to Drinking Water Wells
- Assignment of the Nearest Well Factor Value
- Assignment of the Population Factor Values
- Assignment of Pathway Score

Apportionment of Populations to Drinking Water Wells

To calculate the targets in the BBP water supply system, the HRS directs that the targets factor category values for an aquifer be based on four factors: nearest well, population, resources, and wellhead protection areas[3].

To evaluate the population, HRS Section 3.3.2, Population, states the following:

> [I]nclude those persons served by drinking water wells within the target distance limit specified in section 3.0.1.1. … Evaluate the population based on the location of the water supply wells, not on the location of residences, work places, etc. When a standby well is maintained on a regular basis so that water can be withdrawn, include it in evaluating the population factor.
>
> In estimating residential population, when the estimate is based on the number of residences, multiply each residence by the average number of persons per residence for the county in which the residence is located.
>
> In determining the population served by a well, if the water from the well is blended with other water (for example, water from other ground water wells or surface water intakes), apportion the total population regularly served by the blended system to the well based on the well's relative contribution to the total blended system. In estimating the well's relative contribution, assume each well and intake contributes equally and apportion the population accordingly, except: if the relative contribution of any one well or intake exceeds 40 percent based on average annual pumpage or capacity, estimate the relative contribution of the wells and intakes considering the following data, if available:
>
> • Average annual pumpage from the ground water wells and surface water intakes in the blended system.
> • Capacities of the wells and intakes in the blended system.

The HRS explains how standby wells are considered in an HRS evaluation and how the population should be apportioned if standby wells are considered. HRS Section 3.3.2, *Population,* states:

> For systems with standby ground water wells or standby surface water intakes, apportion the total population regularly served by the blended system as described above, except:
>
> • Exclude standby surface water intakes in apportioning the population.
> • When using pumpage data for a standby ground water well, use average pumpage for the period during which the standby well is used rather than average annual pumpage.
> • For that portion of the total population that could be apportioned to a standby ground water well, assign that portion of the population either to that standby well or to the other ground water well(s) and surface water intake(s) that serve that population; do not assign that

[3] EPA notes that there were no resources evaluated at this site, and the Town did not challenge the identification of a wellhead protection area at this site.

> portion of the population both to the standby well and to the other well(s) and intake(s) in the blended system. **Use the apportioning that results in the highest population factor value**. [emphasis added] (Either include all standby well(s) or exclude some or all of the standby well(s) as appropriate to obtain this highest value.) Note that the specific standby well(s) included or excluded and, thus, the specific apportioning may vary in evaluating different aquifers and in evaluating the surface water pathway.

The HRS documentation record is revised at promulgation to include BBP Well #4 in the HRS evaluation, as this well became a production well before proposal of the Site to the NPL. As a result of BBP Well #4 being included in the HRS evaluation, the population apportionment to all four of the BBP wells has changed at promulgation to reflect their current usage in the system. While the population apportionment is recalculated at promulgation to account for BBP Well #4, the EPA notes that the Town did not challenge the level of contamination in any of the existing wells identified. Please also see pages 34-37 in the HRS documentation record at promulgation for all of the changes resulting from the inclusion of BBP Well #4 to the municipal drinking water system.

Wells #1 and #2:

Since Well #4 came online, the Town asserted that BBP Wells #3 and #4 provide the system with the water necessary to supply the system and asserted that Wells #1 and #2 are only used as standby wells to provide water to the system on an as-needed basis. The Town, it its comments, stated that Well #1 is used on average once per month and Well #2 is used annually as necessary to provide the system with water; therefore, both of these wells are "maintained on a regular basis so that water can be withdrawn" and qualify as standby wells for HRS purposes. However, not enough data is available to determine the standby wells' relative contributions to the system when they are in operation; therefore, for the purposes of the HRS evaluation these wells are not included at promulgation as providing drinking water to the system. The EPA notes that standby Well #1 remains subject to Level II contamination and standby Well #2 remains subject to Level I contamination as identified in the HRS at proposal. If either of these wells were to be included as standby wells in the HRS evaluation, it could only result in an increase of the population factor value since both wells are subject to actual contamination. Therefore, their inclusion could only increase, not reduce, the HRS score.

Wells #3 and #4:

The HRS has been revised at promulgation to include BBP Well #4 in the HRS evaluation of the Site. The Town commented that Wells #3 and #4 are now providing the system as the primary wells. This confirms that BBP Well #3 should be included as a target well (as it was in the HRS documentation record at proposal); however, due to a new distribution of water supplying the system, the apportioned population to BBP Well #3 is revised at promulgation to reflect the current well contributions to the system. As noted by the Town, only Wells #3 and #4 are providing the system with water on a regular basis, so the relative well contributions of either Well #3, Well #4, or both wells must be providing 40% or more of the water to the system. According to the HRS, if any well supplies over 40% of the water to the system, then the population apportioned to each BBP well is assigned according to the pumping capacity of each well relative to the total contribution of all of the wells in the blended system. As stated in the HRS documentation record at proposal, and unchallenged by the Town, the capacity of BBP Well #3 is 1,400 gallons per minute (gpm). Attachment 1 of this Support Document identifies that BBP Well #4 also operates at 1,400 gpm. Therefore, in accordance with the HRS, since the capacity of each well provides 50% of the system total (combined Wells #3 and #4 provide 100%), BBP Wells #3 and BBP Well #4 are each assigned 50% of the population supplied by the blended system. The EPA identified that the system provides water to 9,903 individuals and therefore, BBP Well #3 and Well #4 are each assigned a population of 4,951.5.

Assignment of the Nearest Well Factor Value:

HRS Section 3.3.1, *Nearest well*, states how to assign the factor value for the nearest well, it states:

> [I]nclude both the drinking water wells drawing from the aquifer being evaluated and those drawing from overlying aquifers as specified in section 3.0. ...
>
> If there is an observed release by direct observation for a drinking water well within the target distance limit, assign Level II concentrations to that well. However, if one or more samples meet the criteria for an observed release for that well, determine if that well is subject to Level I or Level II concentrations as specified in sections 2.5.1 and 2.5.2. Use the health-based benchmarks from table 3–10 in determining the level of contamination.
>
> Assign a value for the nearest well factor as follows:
>
> • If one or more drinking water wells is subject to Level I concentrations, assign a value of 50.
> • If not, but if one or more drinking water wells is subject to Level II concentrations, assign a value of 45.
> …

As a result of BBP Wells #1 and #2 being changed from active wells contributing to the blended system to standby wells that are, for the purposes of this HRS evaluation, not included in the Site score, the nearest well factor value has been revised from 50 at proposal (based on BBP Well #2 subject to Level I concentrations) to 45 at promulgation, as BBP Well #3 remains subject to Level II concentrations of contamination.

Assignment of the Population Factor Values:

Regarding the contamination in Wells #3 and #4, the Town did not challenge the Level II contamination identified in BBP Well #3 (i.e., an observed release of PCE at concentrations below a health-based benchmark), but the Town stated that BBP Well #4 has not had a detection of VOCs in the raw water. Therefore, BBP Well #3 remains subject to Level II contamination and BBP Well #4 is subject to potential contamination as explained below.

Level I
The HRS documentation record at promulgation does not identify any wells as subject to Level I concentrations therefore, the Level I concentration population factor value is 0.

Level II
As BBP Well #3 remains subject to Level II contamination, it receives a Level II concentration population factor value of 4,951.5.

Potential Contamination
As BBP Well #4 has not been documented to contain VOCs and therefore the well, and associated population, is considered in the potential contamination population factor value in the HRS documentation record at promulgation. As shown in Figure 7 of the HRS documentation record at promulgation, BBP Well #4 is located between ¼ and ½ miles from the center of the groundwater plume and the population associated with this well has been added to the 59.04 other individuals identified at proposal in the ¼ to ½ mile distance category. As shown in Table 6 of the HRS documentation record at promulgation, this results in a total population of 5,010.54 identified in the ¼ to ½ mile radius as subject to potential contamination. This population change also results in a change to the distance- weighted population value (as assigned by HRS Table 3-12 on page 51604 of HRS Reference 1); the assigned value in Table 6 of the HRS documentation record at promulgation is changed from a value of 33 at

proposal to 3,233 at promulgation. This change in the ¼ to ½ distance category value further results in a change to the total sum of all distance-weighted population values in Table 6 of the HRS documentation record; the sum of the population values is changed from 289 at proposal to 3,489 at promulgation and the resulting potential contamination factor value is changed from 29 at proposal to 349 at promulgation.

Assignment of Pathway Score:

This comment results in the nearest well factor value changing from 50 at proposal to 45 at promulgation; the Level I concentration factor value changing from 24,757.50 at proposal to 0 at promulgation; the Level II concentration factor value changing from 7,427.25 at proposal to 4,951.50 at promulgation; and the potential contamination factor value changing from 29 at proposal to 349 at promulgation. These population factor value changes result in an uncapped Ground Water Migration Pathway score of 342.90 that is subsequently capped to 100.00 for the pathway. Therefore, the overall HRS site score remains unchanged at 50.00 and the Site remains eligible for placement on the NPL.

4. Conclusion

The original HRS score for the Franklin Street Groundwater Contamination site was 50.00. Based on the responses to public comments contained in this support document, the HRS documentation record has been revised at promulgation but the HRS score remains unchanged. The final scores for the Franklin Street Groundwater Contamination site are:

Ground Water:	100.00
Surface Water:	NS
Soil Exposure:	NS
Air Pathway:	NS
HRS Score:	50.00

Attachment 1: Indiana Department of Environmental Management. Email correspondence. Subject: Franklin Street GW – Obtaining a Reference Citation for Well #4. April 10, 2018.

JAWORSKI, MARK

From: Goodwin, Travis
Sent: Tuesday, April 10, 2018 8:46 AM
To: JAWORSKI, MARK
Cc: Hollingsworth, Mary; MELVIN, LIZ; TERNIEDEN, LUCIO; SULLIVAN, JAMES
Subject: Franklin Street GW - Obtaining a Reference Citation for Well #4

Hello Mark, I was on site perform a sanitary survey at BBP on September 14, 2016. During the site visit well #4 pump capacity was reported to me by the BBP operator as 1400 gpm. At that time, the new well was not yet in use.

Travis Goodwin
Indiana Department of Environmental Management
Drinking Water Branch – Security and Counter Terrorism Coordinator
100 N. Senate Avenue - Indianapolis, IN 46204
Tgoodwin1@idem.IN.gov
Mobile: 317-775-5473

When this inspection was completed, I was the IDEM Owen County Drinking Water Field Inspector.

4/10/18