UNITED STATES ENVIROMENTAL PROTECTION AGENCY
Region 2
New York, New York

Addendum to the Combe Fill North Superfund Site Fifth Five Year Review Report
Dated September 30, 2019

A Five-Year Review addendum is generally completed for remedies where the protectiveness determination is deferred until further information is obtained. When deferring protectiveness in the Five-Year Review report, EPA typically provides a timeframe for when the information will be obtained, and a protectiveness statement can be made. This document provides progress since the Five-Year Review and protectiveness determinations for the remedies where the statement was deferred in the September 30, 2019, Fifth Five-Year Review.

The Five-Year Review report (Report) for the Combe Fill North Superfund site (CFN) located in Mount Olive Township, New Jersey, was signed by Pat Evangelista, Director, Superfund and Emergency Management Division, on September 30, 2019. The protectiveness statement outlined in the Report was as follows:

Operable Unit 1 (OU1)

"A protectiveness determination cannot be made until further information is obtained. Further information will be obtained by sampling additional potable wells in the vicinity of the landfill. It is expected that these actions will take approximately 18 months to complete, at which time a protectiveness determination will be made."

Progress Since the Five-Year Review Completion Date

The fifth five-year review identified four issues and made recommendations to address them. This document will discuss the activities conducted for each issue, with a focus on issue number three, which is the reason the FYR was deferred and was estimated to take 18 months to resolve. Three of the issues are related to delineation of contamination and, while progress has been made, have not been resolved fully and will be reported on in the next FYR, which is due in September 2024. EPA continues to work with DEP to address the issues highlighted below. The status of each issue and recommendation is discussed below.

Issue #1: The groundwater contaminant plume has not been fully delineated. In addition, hydraulic information regarding the directional flow of groundwater is lacking.

Recommendation: Fully delineate the groundwater contaminant plume emanating from the Combe Fill North landfill by installing new monitoring wells and conducting regular sampling of these wells, updating the groundwater flow map, and analyzing and summarizing all data from all sampling events in a report format.

Activities conducted to date: The New Jersey Department of Environmental Protection (NJDEP) is currently coordinating efforts to procure a driller to install perimeter monitoring wells to

delineate the plume. NJDEP estimates that in June 2024 well installation and one round of sampling will be completed. Based upon the data collected, additional wells would be planned if delineation is not achieved. A site monitoring well plan is provided in Figure 1.

Issue #2: A Classification Exception Area (CEA) and deed notice need to be implemented to restrict landfill disturbance, and to assure the protectiveness of the remedy.

Recommendation: When there is sufficient data from newly installed perimeter monitoring wells to sufficiently delineate the plume, a CEA should be established.

Activities conducted to date: EPA intends to issue an Explanation of Significant Differences (ESD) by September 30, 2023, which incorporates a CEA and deed notice into the remedy.

A Currently Known Extent of Groundwater Contamination (CKE) determination for groundwater contamination from the CFN Landfill is in place. A CKE designates a geographic area and indicates that unless precautionary measures are taken to protect potable users, well installation should be avoided. CKEs are used by NJDEP staff, water purveyors, and local officials to make decisions concerning appropriate treatment and/or replacement of contaminated drinking water supplies. The CKE will be converted to a CEA, which prevents installation of groundwater wells within the area designated from being used for drinking water, once delineation wells have been installed and sampled. Although NJDEP has not yet installed perimeter monitoring wells to more fully delineate the groundwater plume associated with the CFN site, the CKE in place provides protection against well installation in the area expected to be contaminated.

Issue #3: The extent of groundwater contamination is unknown and additional residential wells may be impacted by the landfill.

Recommendation: Conduct additional tap water sampling of potable wells located within the landfill vicinity.

Activities conducted to date: After identifying site-related contamination in private wells to the north/northwest of the landfill, from 2017 to 2019, NJDEP connected 37 residences to public water. After a delay related to the COVID pandemic, in 2021, NJDEP expanded the sampling of private drinking water wells to the northeast of the landfill. Elevated concentrations of 1,4-dioxane and/or Per- and polyfluoroalkyl substances (PFAS) (see map and Table 1 below) were identified at three properties. NJDEP offered bottled water to each of the affected properties, and only one accepted. In 2021, two commercial facilities to the south of the landfill were also sampled. Each of the facilities were associated with PFAS exceedances. The facility owners subsequently installed treatment systems, thus interrupting exposure. In June 2022, NJDEP sampled three additional residential drinking water wells in the northeast direction. One property had an exceedance of 1,4-dioxane while the other had an elevated detection of perfluorooctane sulfonate (PFOS). Both residents accepted bottled water. NJDEP has continued to contact the homeowners who declined sampling or bottled water. At this time, all properties known to have been impacted by 1,4-dioxane and/or PFAS contamination from the landfill have been connected to a water supply, provided bottled water, or offered bottled water and declined. DEP anticipates

that a new waterline will be extended down Netcong-Flanders Rd, where two of the property owners declined bottled water, in the near future and discussions are ongoing about a waterline extension for Old Ledgewood Rd as well. Through the private well testing program, the state will continue to interact with impacted homeowners to ensure protection if property ownership changes and the previous resident has either declined bottled water and/or connection to the public supply.

NJDEP has determined, based on review of their data, that impacted drinking water wells north-east of CFN are impacted by sources other than CFN. NJDEP is conducting drinking water well sampling throughout northern New Jersey, including in the Mount Olive area and other adjacent towns for PFAS contamination found during Private Well Testing Act sampling actions. When Maximum Contaminant Level (MCL) exceedances are found, bottled water, point-of-entry treatment systems (POETS) and water line hook-ups are offered as appropriate. Investigations to identify sources are often conducted as well. As part of these investigations, NJDEP has evaluated other non-community and community public water supply data for PFAS and 1,4-dioxane, as well as other potentially landfill-related contaminants of concern. PFAS contamination is widespread in northern New Jersey and sporadically found throughout Mount Olive from numerous unknown sources. In August 2022, NJDEP collected three samples for 1,4-dioxane from municipal wells near the Site. The three samples were located at Mount Olive Township Water Department, Netcong Water Department, and NJ American International Trade Center System. 1,4-Dioxane and PFAS were not detected.

Issue #4: Need to monitor surface water.

Recommendation: Update monitoring activities to include semiannual surface water sampling events.

Activities conducted to date: Surface water sampling was conducted at eight locations in March 2021, and few site-related contaminants were detected. The result of 1.1 micrograms per liter (ug/l) at SW-7 exceeded the screening level of 0.4 ug/l for 1,4-dioxane.

Issues and Recommendations

Based on the information above, the following issues remain at the site.

OU(s): OU1	**Issue Category: Remedy Performance**
	Issue: The groundwater contaminant plume has not been fully delineated. Hydraulic data regarding directional flow direction needs to be updated.
	Recommendation: Fully delineate the groundwater contaminant plume emanating from the Combe Fill North landfill by installing new monitoring wells and conducting regular sampling of these wells, updating the groundwater flow map, and analyzing and summarizing all data from all sampling events in a report format.

Affect Current Protectiveness	Affect Future Protectiveness	Implementing Party	Oversight Party	Milestone Date
No	Yes	State	EPA	September 2024
OU(s): OU1	**Issue Category: Institutional Controls**			
	Issue: A CEA needs to be implemented to prevent the installation of drinking water wells and a deed notice needs to be implemented to restrict landfill disturbance. The CEA and deed notice will assure the protectiveness of the remedy.			
	Recommendation: A CEA will be established from the existing CKE after the planned delineation wells are installed and sampled. A deed notice will be placed on the property.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	State	EPA	September 2029
OU(s): OU1	**Issue Category: Monitoring**			
	Issue: Surface water monitoring data indicates low levels of 1,4-dioxane contamination.			
	Recommendation: Surface water monitoring should continue.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	State	EPA	September 2029

Protectiveness Statement

Based on new information and/or actions taken since the Five-Year Review completion date, the protectiveness statement(s) for OU1 is being revised as follows:

Protectiveness Statement(s)	
Operable Unit: OU1	*Protectiveness Determination:* Short-term Protective
Protectiveness Statement: The remedy at OU1 is protective in the short term because homes known to have been impacted by 1,4-dioxane and/or PFAS contamination have been connected to a water supply, provided bottled water, or offered bottled water and declined. NJDEP will continue to characterize additional homes in this area with private wells through sampling and review of the Private Well Testing Act data and take appropriate actions to address exposure. In order to be protective in the long term, the plume needs to be fully delineated, institutional controls need to be established and surface water monitoring should continue.	

Sitewide Protectiveness Statement
Protectiveness Determination: Short-term Protective
Protectiveness Statement: The remedy at the Combe Fill North Landfill is protective in the short term because homes known to have been impacted by 1,4-dioxane and/or PFAS contamination have been connected to a water supply, provided bottled water, or offered bottled water and declined. NJDEP will continue to characterize additional homes in this area with private wells through sampling and review of the Private Well Testing Act data and take appropriate actions to address exposure. In order to be protective in the long term, the plume needs to be fully delineated, institutional controls need to be established and surface water monitoring should continue.

Next Five-Year Review

The next five-year review for the Combe Fill North Superfund site will be completed in September 2024, five years after the signature of the last five-year review report.

Pat Evangelista Digitally signed by Pat Evangelista Date: 2023.09.25 14:58:11 -04'00'

Pat Evangelista, Director
Superfund and Emergency Management Divison

September 25, 2023
Date

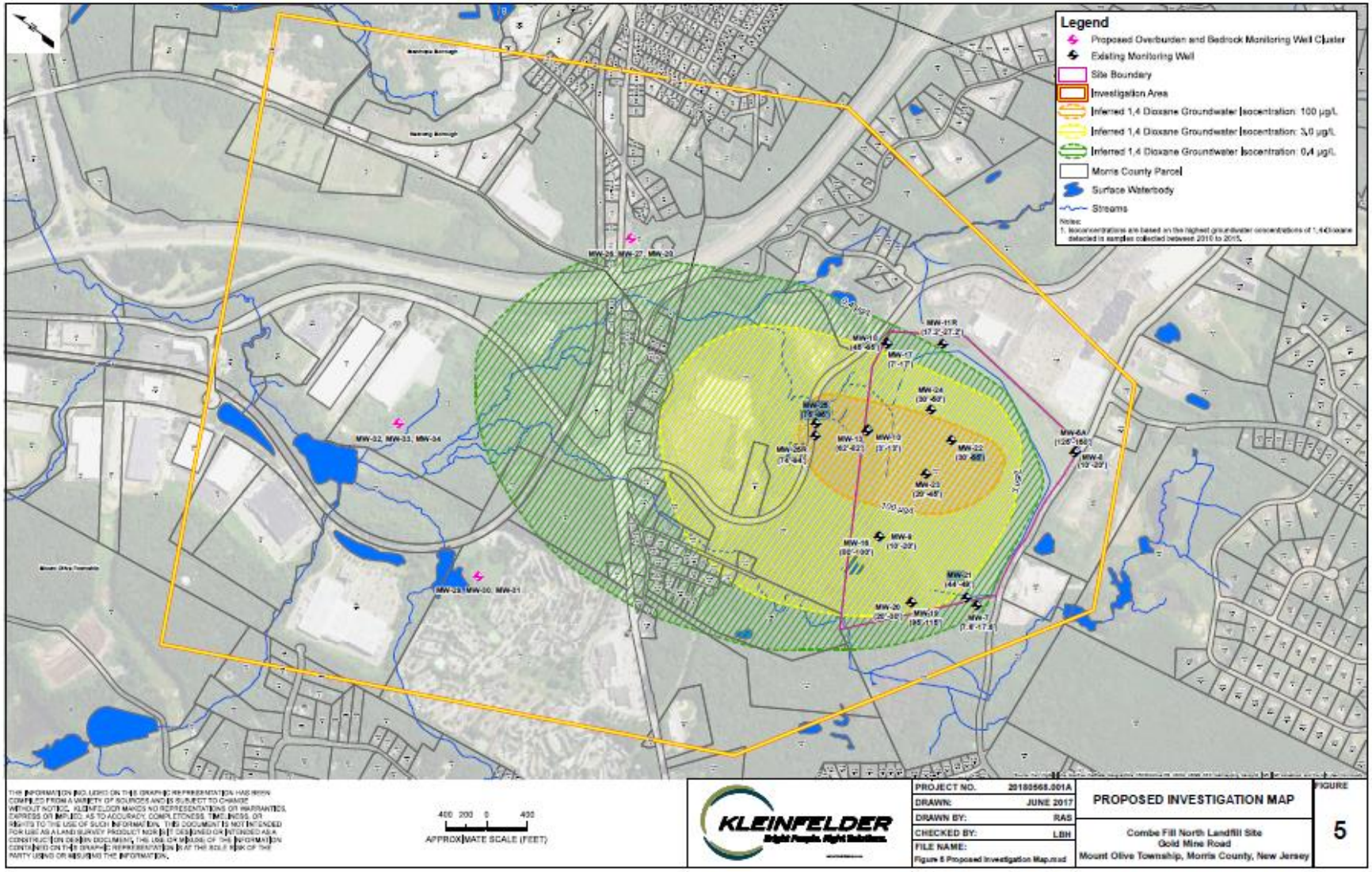

Figure 1 – Monitoring Well Network and Proposed Well Configuration

Table 1: Combe Fill North Potable Well Sampling Results

2021 Sampling Results											Bottled Water/ Treatment
Property	**Type**	**1,4-Dioxane**	**PFOA**	**PFOS**	**PFNA**	**PFBS**	**PFHxA**	**PFHpA**	**PFHxS**	**Total PFAS**	
Resident 1	Campground	0.38	NS	NS	NS	NS	NS	NS	NS	N/A	N/A
Resident 2	Campground	**0.47**	NS	NS	NS	NS	NS	NS	NS	N/A	Yes
Resident 3	Residential	0.087J	7.1	**13.2**	ND	2.78	6.36	2.78	19.9	52.12	No*
Resident 4	Residential	ND	10.8	11.4	ND	2.62	4.4	2.73	18.6	50.55	N/A
Resident 5	Residential	0.088	9.62	12.6	ND	3.45	8.36	3.6	24	61.63	N/A
Resident 6	Residential	**0.46**	**15.8**	**25**	ND	4.13	8.86	5.4	16.4	75.59	No*
Resident 7	Residential	ND	2.97	4.21	ND	3.24	ND	ND	9.62	20.04	N/A
Commercial 8	Commercial	ND	8.27	**44.8**	ND	5.58	8	3.43	31.9	101.98	Yes
Commercial 9	Commercial	ND	NS	NS	NS	NS	NS	NS	NS	N/A	N/A
Commercial 10	Commercial	ND	3.56	4.24	ND	2.5	20.2	4.77	3.86	39.13	N/A
2022 Sampling Results											
Resident 11	Residential	**4.5**	13.9	11.8	ND	4.14	3.63	2.19	11.3	46.96	Yes
Resident 12	Residential	ND	**21.7**	8.94	1.12 J	3.08	4.89	5.36	5.2	50.29	Yes
Resident 13	Residential	ND	10.8	10.7	ND	2.36	3.11	2.36	6.95	36.28	N/A

J - estimated
N/A - Not applicable
ND – Not detected
NS - No sample collected
Notes:
1) 1,4-Dioxane results are in micrograms per liter (ug/L) and PFAS results are in nanograms per liter (ng/L).
2) Bolded values indicate an exceedance of the NJDEP drinking water standard (14 ng/L for PFOA, 13 ng/L for PFOS and 0.4 ug/L for 1,4-dioxane).
3) *The owners of properties 3 and 6 declined bottled water service from NJDEP.