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December 3, 2021

Mr. Jeffrey Nettesheim
S.C. Johnson & Son, Inc.
1525 Howe Street, MS 221
Racine, WI 53403

Subject: Review of Site Investigation Report and Request for Additional Information
S.C. Johnson & Son, Inc. - Waxdale Facility
8311 16th Street, Sturtevant, WI 53177
BRRTS Activity #: 02-52-552979; FID #: 252006370

Dear Mr. Nettesheim:

The Wisconsin Department of Natural Resources (DNR) has reviewed the submittal, *Site Investigation Report, S.C. Johnson & Son, Inc. - Waxdale Facility, BRRTS #: 02-52-552979*, (Report), dated June 30, 2021, and prepared by AECOM Technical Services, Inc. (AECOM). The Report was prepared in response to a request from the DNR to submit a comprehensive site investigation report for the Waxdale Facility.

Site Background

A dual-phase groundwater extraction system (pump and treat system) has been operating at S.C. Johnson & Son (SCJ), Waxdale Facility since 1998 and removes groundwater and soil vapor for treatment prior to discharge. This system was selected as a remedy following multiple investigations and currently serves to provide hydraulic control of groundwater on site with little or no removal of contaminants. The Report compares historic data for soil and groundwater to current day Wis. Adm. Code chs. NR 720 and NR 140 standards, and Background Threshold Values (BTVs). Recent groundwater data from extraction wells is also compared to Wis. Adm. Code ch. NR 140 standards and if mapped on an iso-concentration figure represent the concentration gradient under the force of the extraction system.

The SCJ Waxdale Facility is located in Sturtevant, Wisconsin. The Facility is about 230 acres in size. Manufacturing activities are conducted on the southern 125 acres. SCJ acquired the property in the mid-1950s. Prior to construction, the land use was agricultural. The Facility is bordered on the north by 16th Street, on the east by Willow Road, to the south by Waxdale Creek and to the west by a mixture of undeveloped land and light industrial development. Wetland areas are located along the west side and in the north eastern corner of the Facility (see attached Figure 1-2: SCJ - Waxdale Facility, Site Layout, dated October 22, 2019).

In 1984, there were 17 water supply wells utilizing the dolomite aquifer and 40 water supply wells using the sand and gravel aquifer located between 2000 feet and 5280 feet of the Facility. It appears municipal water supplies have been greatly expanded since then. In addition, the pump and treat system that was installed in 1998 and expanded in 1999 and 2001 has restricted off-site migration of impacted groundwater.

SCJ conducted a series of site investigations at the Facility, implemented remedial actions and received closures for many areas. Three areas at the Facility remain open as follows: 1) the Building 51 Tank Farm Area; 2) the Parking Lot Landfill; and 3) the Building 55 Tank Farm Area (see attached Figure 1-3: SCJ - Waxdale Facility Recovery and Monitoring Well Network, dated May 6, 2021). Groundwater impacts in each of the open areas

appear to be controlled by a pump and treat system which provides hydraulic containment that was installed in 1998 and expanded in 1999 and 2001.

The DNR requested that the Report be compiled for areas not previously closed under Wis. Admin. Code ch. NR 726 and in accordance with Wis. Admin. Code ch. NR 716. The Report should summarize the historical work that has been done to date in the areas that have not been "closed." SCJ understands that if data from other closed activities relates to the current open activities, this data should be discussed as well since it may aid in the discussion and understanding of current site conditions. In addition, if during the report preparation and reviewing the SI checklist, data gaps are found in the current investigations, further scoping and a Site Investigation Workplan need to be submitted (Wis. Admin. Code chs. NR 716.07 & 716.09).

Discussion of Three Open Areas (AECOM)
According to the Report, between 1985 and 2001, a series of assessments, investigations and remedial actions were conducted in the three open areas. The following submittals were used in compiling the Report (the reports used in the compilation were prepared by CH2M Hill unless otherwise indicated):

1) Building 51 (B51) Tank Farm Area
   B51 Tank Farm Investigation (1987)
   RCRA Facility Investigation (1990) and Corrective Measures Study (1995)

2) Parking Lot Landfill (PLL)
   Supplemental RCRA Site Assessment (1987)
   RCRA Facility Investigation (1990) and Corrective Measures Study (1995)

3) Building 55 (B55) Tank Farm Area
   Supplemental RCRA Assessment (1987)
   RCRA Facility Investigation and Corrective Measures Study (1995)
   B55 Hazardous Waste Storage AST Assessment (AECOM for SCJ, 2020)

Corrective Action Monitoring Program - CAMP (1999 to Present)
The Report indicates that Corrective Action at the Facility began in 1998 with the installation of the B51 area pump and treat system. Installation of pump and treat systems for the PLL and B55 areas followed in 1999. Additional recovery wells were installed during Summer of 2001 to provide hydraulic control in the Monomer Tank Farm (MTF) Area and to complete a continuous network of recovery wells along the southern and western boundaries of the Facility. A total of 22 recovery wells were installed: eleven at the B51 area, four at the B55 area, three at the PLL area, and four at the MTF area (see attached Figure 3-1: Waxdale Facility Recovery and Monitoring Well Network, dated May 6, 2021).

The pump and treat system simultaneously extract groundwater and soil vapor by applying a high vacuum through the recovery well network. Extracted groundwater and vapors are directed to the remediation buildings where they are treated using granular activated carbon prior to being discharged.

Regular groundwater monitoring for B1 and B55 Tank Farm Areas and the PLL began in 1996 with the pre-CAMP and sampling conducted on a quarterly basis. The CAMP monitoring began in 1996 and quarterly sampling continued until 2001, when the DNR approved reduction to semi-annual monitoring. From 2004 through the present, sampling has been conducted on an annual basis.

AECOM made the following conclusions and recommendations, based on the information presented in the Report:

1. The dual-phase hydraulic containment system installed in 1998 and expanded in 1999 and 2001 operates to effectively prevent migration of contaminated groundwater from the Facility.

2. Building 51. The soil and groundwater impact in this area have been sufficiently delineated.

3. The Parking Lot Landfill. The soil and groundwater impact in this area have been sufficiently delineated.

4. Building 55 Tank Farm Area. Soil and groundwater impact in this area were sufficiently delineated with the exception of the area to the north and northwest of the Tank Farm. Additional investigation (soil and groundwater) is needed in this area.

DNR Comments
Based on the review of the Report, the DNR concurs with the conclusion and recommendation by AECOM to conduct additional investigation in the Building 55 Tank Farm Area. The DNR also requests copies of the following historic documents referenced in the Report:

- RCRA Facility Assessment (WDNR for USEPA, 1985)
- Supplemental RCRA Facility Assessment (1987)
- Building 51 Tank Farm Area Investigation (1988)
- RCRA Facility Investigation (RFI, 1990)
- Corrective Measures Study (CMS, 1995)

The DNR has also determined that additional information/documentation is necessary for compliance with Wis. Adm. Code ch. NR 716. The findings and interpretations by DNR regarding the incomplete site investigation are summarized below:

Soil

A. <u>Degree and Extent of Soil Contamination</u>
Degree and extent of contamination (Wis. Admin. Code § NR 716.11(3)(a))
Extent of contamination (Wis. Admin. Code § NR 716.11(5)(e))

- The vertical degree and extent of contamination appears to be undefined as data below water table were not considered. Data at all depths need to be considered to evaluate the degree and extent of contamination in accordance with Wis. Admin. Code § NR 716.15(3)(h)).

B. <u>Soil data Tables</u>
Visual aids: Tables - Environmental Standards (Wis. Admin. Code § NR 716.15(4)(e)(4)
Visual aids: Tables - Sample Depth and Soil Type (Wis. Admin. Code § NR 716.15(4)(e)(5)

- Soil data tables included all three residual contaminant levels - RCLs: industrial & non-industrial direct contact (data were collected at depths above 4 feet below ground surface (bgs)) and

groundwater pathway RCLs (data were collected at depths of up to 6 feet bgs) to indicate which results equal or exceed environmental standards. All direct contact RCL exceedances must be documented whether above or below 4 feet bgs. The soil data tables should also indicate the type of soil collected, clearly indicating if material is fill or native material; saturated or not.

C. Soil Figures
Visual aids - Isoconcentration Maps (Wis. Admin. Code § NR 716.15(4)(c))
Visual aids - Cross sections (Wis. Admin. Code § NR 716.15(4)(d))

- Provide Isoconcentration maps for each of the Contaminants of Concerns (COCs) that exceed applicable standards.
- The horizontal and vertical extent of soil contamination must be shown on isoconcentration maps and cross sections (include water table elevation on cross sections). Include monitoring wells/geoprobe locations and sample results/data at all depths to support the placement of isoconcentration lines and interpretation of extent of contamination. Consideration can be given to the use of background threshold (BTV) in lieu of RCLs, if the COCs are not related to the discharge.
- On soil maps, show all groundwater pathway RCLs exceedance areas.
- Location of cross sections need to be added to a master figure for ease of reference (Figures 2.2 - 2.4 (cross sections), and 4.1 - 4.3 (plan views)).

Groundwater

D. Degree and Extent of Groundwater Contamination
Degree and extent of contamination (Wis. Admin. Code § NR 716.11(3)(a))
Extent of contamination (Wis. Admin. Code § NR 716.11(5)(e))
Extent of groundwater contamination (Wis. Admin. Code § NR 716.11(5)(f))
Visual aids - Isoconcentration Maps (Wis. Admin. Code § NR 716.15(4)(c))
Visual aids - Cross sections (Wis. Admin. Code § NR 716.15(4)(d))

- Provide Isoconcentration maps for each of the COCs that exceed applicable standards.
- The degree and extent of contaminant concentrations in groundwater need to be depicted on isoconcentration maps; include current groundwater analytical results.
- The cross sections should also indicate the extent of groundwater contamination
- Location of cross sections should be added to a master figure for ease of reference (Figures 2.2 - 2.4 (cross sections), and 4.1 - 4.3 (plan views).
- Superimpose the three-area (B51, PLL and B55) groundwater impact extent maps on the Facility Site layout map (Figure 1-2: SCJ - Waxdale Facility, Site Layout, dated October 22, 2019).
- Provide the current status of water supply wells within one mile of the Facility.
- If there are water supply wells currently operating within 1 mile of the facility, discuss the effect of the two-phase extraction system on them.

Vapor

E. Vapor Impacts
Degree and extent of contamination (Wis. Admin. Code § NR 716.11(3)(a))
Extent of contamination (Wis. Admin. Code § NR 716.11(5)(e))

- The Report needs to include evaluation of the potential for current or future on-site vapor intrusion impacts (see RR-800: "Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin", January 2018).

Receptors

F. Utilities
Potential or known impacts to receptors - Utilities (Wis. Admin. Code § NR 716.07(7))
Potential hazardous substance migration pathways - Utilities (Wis. Admin. Code § NR 716.09(2)(e)6)
Potential pathways for migration - Utilities (Wis. Admin. Code § NR 716.11(5)(a))

- The Report needs to include assessment of on-site or adjacent utilities as receptors of or migration pathways for the contamination (See, *Guidance for Documenting the Investigation of Human-made Preferential Pathways Including Utility Corridors:* RR-649, June 2021).

Assessment of Wetlands/Surface Water

G. Wetlands/Surface Water
Potential or known impacts - Wetlands (Wis. Admin. Code § NR 716.07(8)(b))
Impacts upon receptors - Wetlands (Wis. Admin. Code § NR 716.11(5)(b))

- The Report needs to include evaluation and/or discussions of impacts to wetlands and surface water. Also show clearly on the maps the areas of wetlands and surface water.

Emerging Contaminants

H. Assessment of Emerging Contaminants
The Report needs to include assessment of the presence and potential impact of emerging contaminants including per- and polyfluoroalkyl substances (PFAS), and 1,4-dioxane. Refer to: https://sp.dnr.enterprise.wistate.us/org/em/Team-RR/PFAS/PSE%20Scoping%20Evaluations.pdf and "scoping statements", NR 716.07.

Other Comments

Conduct an NR 716.07 scoping process to identify the potential COCs, evaluating all past land use activities in the subject areas. Confirm that all potential COCs have been assessed and provide a summary of the COCs that have been confirmed to be present at the site in concentrations that exceed standards.

The site investigation is an iterative process. Future documentation may indicate that further assessment is needed to define the degree and extent of contamination in all media.

Next Steps

Please submit a revised Report that addresses the comments in this letter and any other applicable criteria. The DNR appreciates the actions you are taking to restore the environment at this site. If you have any questions regarding this letter, please contact me, Eric Amadi, the DNR Project Manager, at 414.405.0752, or at eric.amadi@wisconsin.gov,

Sincerely,

Eric Amadi

Eric Amadi - Hydrogeologist
Remediation & Redevelopment Program
Southeast Region - Milwaukee Service Center
Milwaukee, WI 53212

Attachments:

Figure 1-2:	Site S.C. Johnson & Son, Inc., Waxdale Facility, Sturtevant, WI, Site Layout, prepared by AECOM, October 22, 2019.
Figure 1-3:	S.C. Johnson & Son, Inc., Waxdale Facility, Sturtevant, WI, Recovery and Monitoring Well Network, May 6, 2021.

cc: Paul Sklar - AECOM, 1555 North RiverCenter Drive, Suite 214, Milwaukee, WI 53212 (electronic)
Tracy Pellicori - S.C. Johnson & Son, Inc. (electronic)
SER Case File FID #: 252006370; BRRTS #: 02-52-552979

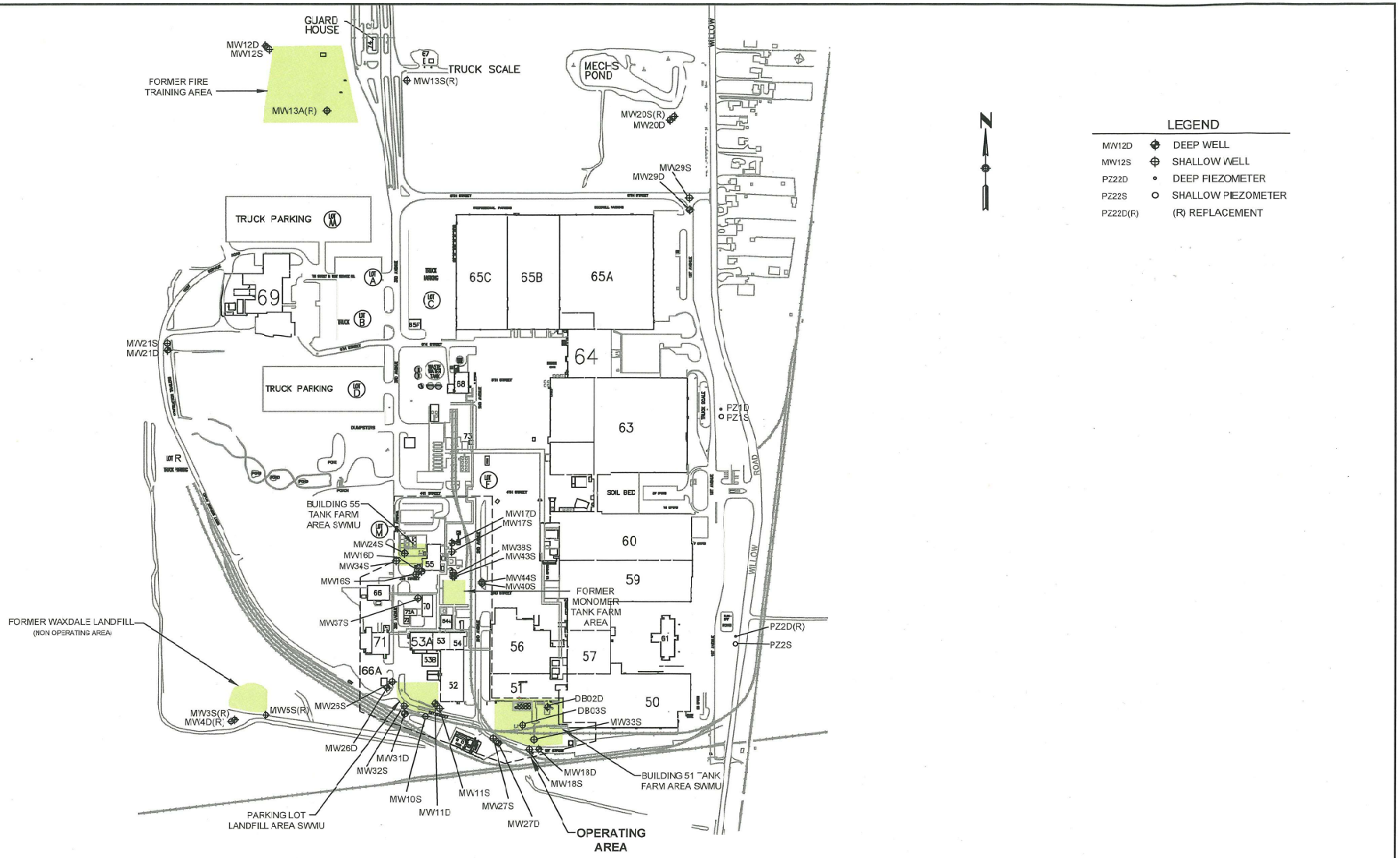

FIGURE 1-2

PREPARED FOR

SC Johnson
A FAMILY COMPANY

AECOM
MILWAUKEE, WISCONSIN

0 440
SCALE IN FEET

DRAWING TITLE
S.C. JOHNSON & SON, INC.
WAXDALE FACILITY SITE
LAYOUT
Oct. 22, 2019

CONTRACT NO.
60608405

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FIGURE 1-3

PREPARED FOR

SC Johnson
A FAMILY COMPANY

PREPARED BY

AECOM
MILWAUKEE, WISCONSIN

0 120
SCALE IN FEET

DRAWING TITLE

RECOVERY AND MONITORING WELL NETWORK

May 6, 2021

PROJECT NO.

60652944