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August 12, 2024

Mr. Jeffrey Nettesheim
S.C. Johnson & Son, Inc.
1525 Howe Street, MS 221
Racine, WI 53403
Via Electronic Mail to: jjnettes@scj.com

Subject: Review of Response to WDNR Revised Site Investigation Report Review
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, *Response to WDNR Revised Site Investigation Report Review, S.C. Johnson & Son, Inc. - Waxdale Facility, BRRTS #: 02-52-552979,* (Report), dated April 11, 2024, and prepared by AECOM Technical Services, Inc. (AECOM). The Report was prepared in response to the continued Department's objective to document a comprehensive site investigation report addressing the following areas: (1) the Building 51 Area; (2) the Parking Lot landfill (PLL) and (3) the Building 55 Area; and to address comments provided in the letter dated November 9, 2023, to SCJ regarding the revised Site Investigation Report, dated January 17, 2023.

Based on the review of the Report, the DNR has 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 in the comments provided below.

The DNR comments are provided in *italics* followed by SCJ's responses and then followed by DNR's additional comments in **bold** fonts, to address SCJ's responses:

Soil

DNR Comment: A. Degree and Extent of Soil Contamination

- *The degree and extent of soil contamination is not defined. Soil data tables show concentrations that have not yet been delineated to the full extent, including Naphtha compounds (Isopars K, L and H), and/or other compounds that do not have standards.*
- *Provide any available information that demonstrates full delineation of contamination or develop a sampling workplan to address areas where the degree and extent remain undefined.*

SCJ Response - Building 51 Area:
The extent of soil and groundwater impacts have been delineated to the extent practicable during three separate investigation efforts: (1) the Building 51 Investigation (1987); (2) RCRA Facility Investigation (1990); and (3) Corrective Measure Study (1994). The naphtha compounds detected during these historical investigations were believed to primarily be the result of two known spills: (a) a July 9, 1983, spill of approximately 3,000 gallons of a naphtha product (Isopar M), and (b) a March 19, 1987, spill of 250 gallons of a naphtha product (Isopar K), of which approximately 200 gallons were recovered.

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The Building 51 Investigation Report (Hill, 1990) concluded that the spill residuals were concentrated under the tank farm and truck unloading area. Table 1 below provides a summary of sampling locations where data substantially delineates the extent of soil impacts around Building 51 Area, based on a comparison of historical analytical data against current DNR residual contaminant levels (RCLs). The approximate extent of impacts was shown on Figure 4-5a that was submitted with the SIR and revised SIR. We have included this figure in this submittal for your convenience. As we discussed in the SIR and Revised SIR, some soil samples from historical investigations were located beneath the groundwater surface (including utility trenches) and as such were not compared to current RCLs, since saturated media is not considered soil under NR 700.03(58).

Table 1
SC Johnson & Son, Inc. - Waxdale Plant
Building 51 Area Boring/Test Pit Locations Defining
Approximate Horizontal Extent of Historical Soil Contaminants.

Direction	Building 51 Investigation (1990)	RCRA Facility Investigation (1990)	Corrective Measures Study (1994)	Comments
West	SB05	RFI34; RFI35	---	RFI34/35; only metals > RCL
East	TP12	RFI28	---	RFI28: nickel, silver > S-GW RCL
South	TP01	RFI32; RFI33	CMSSB07; 08; 09	CMSSB08 data from below water table but near CAMP well MW33 (no NR 140 exceedances); RFI32: arsenic and chrysene RCL exceedances only; RFI33: arsenic RCL exceedance only.
North	TP10, DB01	---	---	DB01 PCE only detection (5 ug/kg) (2022 and 2024 soil vapor sampling results for al COCs below Vapor Risk Screening levels; Table 4-18)

Some migration from Building 51 area was occurring via a storm sewer which connected to Outfall 2 at Waxdale Creek. Therefore, in June 2003, extraction well 51R11 was installed and screened in the backfill surrounding the storm sewer to provide hydraulic control within the sewer excavation corridor. In November 2004, extraction well 51R11 was removed when the storm sewer that conveys water through the Building 51 area to Waxdale Creek was replaced.

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Replacement well 51R11(R) was installed on January 2005, and continues to be part of the groundwater hydraulic containment system. Similar to 51R11, 51R11(R) is screened in backfill surrounding the storm sewer corridor. Although contaminant mass removal is not the primary function of the hydraulic control system, the two-phase system removes vapor phase contaminants during operation. Petroleum volatile organic compounds (VOCs) have not been detected in groundwater samples over multiple years of CAMP groundwater monitoring in the Building 51 Area, indicating that the naphtha-related VOCs are no longer present at significant concentrations. This is not unexpected since petroleum constituents such as naphtha are readily degradable under aerobic conditions. Aerobic conditions would be present in the subsurface, including the utility trench backfill, as a result of the airflow induced by operation of the two-phase system.

DNR Additional Comment - Building 51 Area:
Post the soil data on Figure 4-5a to confirm that the isoconcentration lines are accurate; use dashed lines where the contamination extent is inferred.

SCJ Response - Parking Lot Landfill (PLL) Area:
The extent of soil impacts was shown on SIR and Revised SIR Figure 4-7 (included with this submittal again for convenience), based on historical investigation (cross-hatched gray area) and based on comparison of historical data to current RCLs (blue and red lines). Table 2 below provides a summary of sampling locations where data substantially delineates the extent of soil impacts around the PLL area, based on comparison of historical analytical data against current DNR RCLs.

Table 2
SC Johnson & Son, Inc. - Waxdale Plant
PLL Area Boring/Test Pit Locations Defining
Approximate Horizontal Extent of Historical Soil Contaminants

Direction	Supplemental RFA Boring (1987)	RCRA Facility Investigation (1990)	Corrective Measures study (1994)	Comments
West	---	---	CMSSB05	Arsenic exceeds S-GW RCL in shallow sample only
East	---	RFI08	CMSSB13	
South	B12	---	CMSSB06	B12 samples have minor exceedances of S-GW RCLs
North	---	RFI04; RFI11	---	RFI04 has some metals slightly above S-GW RCL

DNR Additional Comment - Parking Lot Landfill (PLL) Area:
Post the soil data on Figure 4-7 to confirm that the isoconcentration lines are accurate; use dashed lines where the contamination extent is inferred. We also noticed that the isoconcentration line for industrial direct contact exceedances extends beyond the limits of isoconcentration line for groundwater pathway RCLs. Please provide clarification.

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SCJ Response - Building 55 Area:
The extent of impacts was fairly well defined by samples collected during the RFI and CMS (Table 3). Additional sampling on the north side of the tank farm was conducted in 2020 and 2022 which delineated petroleum VOCs (including MTBE) impacts in soil in this area. Table 3 below provides a summary of sampling locations where data substantially delineates the extent of soil impacts around the B55 area, based on comparison of historical analytical data against current DNR RCLs. Figure 4-9 from SIR and Revised SIR, showing the extent of soil impacts, is provided for convenience.

Table 3
SC Johnson & Son, Inc. - Waxdale Plant
Building 55 Area Borings Defining
Approximate Horizontal Extent of Historical Soil Contaminants

Direction	RCRA Facility Investigation (1990)	Corrective Measures Study (1994)	B55 Area Sampling (2020; 2022)	Comments
West	---	CMSSB01	---	
East	---	CMSSB11; RFI17A	SB-3; SB-4	Ethylbenzene in RFI17A > S-GW in shallow sample; silver > S-GW RCL
South	---	CMSSB12	---	
North	---	---	SB-5; SB-8; SB-9	

DNR Additional Comment - Building 55 Area:
Soil data need to be posted on Figure 4-9 to confirm that the iso-concentration lines are accurate; use dashed lines where the contamination extent is inferred.

DNR Comment: B. Soil Figures

- *The horizontal and vertical extent of soil contamination must be shown on iso-concentration maps and cross sections (include water table elevation/depth of groundwater 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, include lines for all RCL exceedance areas including industrial direct contact, non-industrial direct contact and groundwater pathway RCLs.*

SCJ Response
We have presented data that exceeds current RCLs only. Given the amount of data that has been generated for this site, we have not included data that doesn't exceed current RCLs. Figures 2-2a through 2-2c (Building 51 area-cross sections), that were included in the SIR and Revised SIR include the requested information and are enclosed here for your convenience.

As previously noted, a number of samples were collected from below the groundwater surface. Soil data from below the water table was considered but not used for vertical delineation purposes because it is not appropriate to apply RCL to saturated soil per NR 700.03(58).

For samples collected from above the groundwater surface, the sample distribution and range of historical contaminant concentrations are such that drawing iso-concentration lines for individual contaminants is of limited value, in AECOM's opinion, for both cross-sectional and plan views. Soil contaminant concentrations in some instances vary greatly between sample locations and contaminants are not evenly distributed in soil. A line depicting the extent of impacts as provided on previously submitted cross-sections, is more appropriate. However, iso-concentration figures for the primary Building 51 Area contaminants (1,1,1-TCA and PCE) were submitted with the SIR and Revised SIR. Copies of the iso-concentration (Figs. 4-5e and f) and cross-section figures (Figs. 2-2a through 2-2c) for Building 51 have been provided again for convenience.

DNR Additional Comment - Soil Figures:
On soil maps, include lines for all RCL exceedance areas including industrial direct contact, non-industrial direct contact and groundwater pathway RCLs. This item was not addressed in your response.

Groundwater

DNR Comment: C. Degree and Extent of Groundwater Contamination

- *Include groundwater analytical results and depict the degree and extent of contaminant concentrations on iso-concentration maps.*

SCJ Response
Iso-concentration and groundwater analytical results figures were provided with SIR and Revised SIR (Figures 4-6, 4-8a through 4-8c, 4-10a, 4-10b). All these figures depict the extent of groundwater impacts either by the position of the lowest iso-concentration line, or a blue or red line depicting the extent of NR 140 PAL and ES exceedances, respectively. Historical (1999) iso-concentration figures are also provided each year in the CAMP report for the major VOCs in groundwater at the Building 51 and Building 55 Areas. These can be included in the SIR if requested.

DNR Additional Comment:
Provide all historic groundwater data to determine site conditions. The historic groundwater data needs to be posted on Figure 4-6 (for Building 51 Tank Farm Area); Figure 4-8a (for Parking Lot Landfill Area) and Figure 4-10a (for Building 55 Tank Farm Area).

If historic groundwater data doesn't exist, then provide current groundwater data collected at all wells that are not part of the extraction system (unless these wells are being sampled and have current or historic data). The current groundwater data needs to be posted on figures to determine site conditions.

Are there sampling ports along the extraction lines so that each different extraction area could have a sample collected?

It's the understanding of the DNR that 1,4-dioxane is not delineated. Thus, include 1,4-dioxane data in the SIR. Also, confirm that the treatment system is effectively removing 1,4-dioxane and if not, notify the Racine POTW or other authorities that handle the discharge.

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DNR Comment: C. Degree and Extent of Groundwater Contamination

- *The cross sections should also indicate the depth and extent of groundwater contamination.*

SCJ Response
Cross-section figures (2-2a, 2-2b, 2-2c, 2-3a, 2-3b, 2-3c, 2-4a, 2-4b) which were submitted with SIR and Revised SIR, have been modified to depict the estimated extent which historical data indicates potential NR 140 exceedances. Copies of these modified figures are included with this submittal. The vertical extent of potential exceedances at the Building 51 Area is defined by data from several deeper wells (i.e. DB02D, DB03D) where concentrations of contaminants were generally below the MDL or did not exceed NR 140 standards (SIR Table 4-5). The vertical extent at PLL is defined by MW10D and MW11D where concentrations of contaminants were generally below MDLs or did not exceed NR 140 standards (Table 4-1). Significant vertical migration of contaminants did occur at the Building 51, PLL and Building 55 Areas due to low permeability stiff clay present in the subsurface, and presence of upward gradients confirmed by water elevation data and presence of artesian conditions, as documented during CAMP monitoring.

DNR Additional Comments:
Include additional groundwater data to determine if the cross-sections show the accurate depth and extent of groundwater contamination.

Vapor

DNR Comment: D

- *Provide a description of how the soil vapor probes were sealed during construction and a description of how they were leak tested prior to sampling.*

SCJ Response
The probes were installed adjacent to subsurface utilities and were constructed with a 6-inch long slotted implanted connected to HDPE tubing. The depth of each probe varied depending on the depth to the adjacent utility but ranged generally from 2 to 5 feet below grade. Clean silica sand was placed around the implant to a depth of approximately 6-inches above the top of the implant. A bentonite seal was placed above the sand to the ground surface and hydrated. The sampling train was leak checked by including a vacuum within the sample train and monitoring for changes in pressure within the tubing for several minutes. Leak testing was not performed on the surface seal since it consists of several feet of bentonite and the inlet (slotted implant) is several feet below ground surface.

DNR Additional Comment
Thank you for addressing our concern.

DNR Comment: D

- *Provide the current status of the soil vapor probes*.

SCJ Response:
The vapor probes are operational.

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DNR Additional Comment
Thank you for providing the requested update.

DNR Comment: Building 51 Tank Farm Area SWMU (CVOC area):

- *If the probes still exist, collect a confirmation round of sampling from the vapor probes.*

SCJ Response
One additional round of vapor samples was collected from vapor probes 51SV2, 51SV3 and 51SV4 on February 19, 2024 (due to lab error only 3 samples could be collected). Vapor probe 51SV1 was sampled on March 13, 2024. The 2024 results are consistent with data collected in 2022 in that none of the contaminants of concern in the Building 51 Area were detected at concentrations above the vapor risk screening levels (VRSLs). Only one CVOC in one sample (1,1-dichloroethane, 51SV3) was detected above laboratory method detection limit in the February 2024 samples (table 4-18). Four CVOCs were detected in the March 2024 sample from vapor probe 51SV1 (Table 4-18).

DNR Additional Comment
Thank you for addressing our concern.

DNR Comment: Building 51 Tank Farm Area SWMU (CVOC area):

- *If the probes no longer exist AND the sealing/leak testing description is adequate, we may consider the soil vapor probe data acceptable, and no more vapor sampling may be necessary at this time.*

SCJ Response
See above response. We believe the sealing and leak testing description addresses the DNR comment.

DNR Additional Comment
Thank you for addressing our concern.

DNR Comment: Building 55 Tank Farm Area SWMU (PVOC area):

- *No additional vapor sampling is necessary at this time.*

SCJ Response
Acknowledged

DNR Additional Comment
Thank you for the acknowledgement.

Emerging Contaminants

DNR Comment: E. Assessment of Emerging Contaminants

It's our understanding that SCJ plans to submit a scoping statement prior to closure request. However, the DNR believes a scoping statement should be submitted well in advance of closure to avoid delays and otherwise avoidable expenses related to site investigation activities.

Please submit a scoping statement that considers activities or land use in <u>areas with open investigations</u> (Bldg. 51 Tank Farm Area; Bldg. 55 Tank Farm Area; and Parking Lot Landfill) that may have involved the use of PFAS and confirm that 1,4-dioxane has been included in SVOC analyses

and that detection limits for the method used are low enough for comparison with state standards. The department recommends using EPA method 8270 SIM IDA to achieve these low detections limits. This information can be confirmed in the scoping statement.

- *Provide a statement or assessment on the risk of potential or known impacts to the stream and wetlands.*
- *The closed BRRTS activity for the Fire Training Area should be identified as a potential future issue that the RP may wish to investigate proactively.*

SCJ Response
1,4-dioxane analyses have been added to annual CAMP sampling. Analyses are performed using EPA method 8260SIM and detection limits are achieved which allow comparison of results to NR 140 standards. In addition, SCJ acknowledges that the DNR currently requests PFAS sampling prior to closure of any open sites.

DNR Additional Comment
As indicated earlier, the 1,4-dioxane data needs to be included in the SIR. We acknowledge that you are using EPA method 8260SIM which achieves our standards. Scoping statement regarding PFAS is required as part of the site investigation activities.

Other Comments
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, under Wis. Admin. Code ch. NR 716.

Next Steps
Please submit a revised Report that addresses the comments in this letter and any other applicable criteria. If data gaps are still identified, then include a workplan.

A site investigation that is adequate will need to be submitted with the new groundwater data for our review.

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 - Hydrogeologist
Remediation & Redevelopment Program
Southeast Region - Milwaukee Service Center
Milwaukee, WI 53233

cc: Paul Sklar - AECOM paul.sklar@aecom.com
SER Case File FID #: 252006370; BRRTS #: 02-52-552979