

REVIEW COMMENTS

DOCUMENT: Agency Review Draft Remedial Investigation Work Plan, Georgia-Pacific Consumer Operations LLC
Camas Pulp and Paper Mill DATE: February 22, 2022

REVIEWER: Downtown Camas Association Community Advisory Group PAGE: 1 of 11

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1	General	Existing environmental data and monitoring well logs are not included with the remedial investigation (RI) work plan. - Recommended the existing environmental data be provided as an attachment to the RI work plan as outlined in Exhibit B of the agreed order. In addition, also include well logs for all existing monitoring wells as an attachment to this work plan.	Work Plan Completeness
2	4/313 Table of Contents	There is no Acronyms and Abbreviations page in the work plan. - Including an Acronyms and Abbreviations page in the work plan may be beneficial to clearly define term use.	General Formatting or Grammar Issue
3	5/313 (Section 1) & 84/313 (Figure 1)	Figure 1 identifies Site location. However, site appears limited to mill property boundary, not the Model Toxics Control Act (MTCA) 173-340-200 definition of <i>any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, vessel, or aircraft; or any site or area where a hazardous substance, other than a consumer product in consumer use, has been deposited, stored, disposed of, or placed, or otherwise come to be located.</i> - It seems premature to define the extent of the Site with limited characterization. As data is collected for the RI to evaluate the nature and extent of contamination, the boundary of the Site will be defined and may extend beyond the property boundary.	MTCA Regulations
4	5/313 (Section 1) & 85/313 (Figure 2)	Text indicates Figure 2 shows areas of the Site included in the RI scope of work (including Lady Island); however, extent of Figure 2 doesn't show Lady Island. - Recommend extending the view of Figure 2 to include Lady Island.	General Formatting or Grammar Issue
5	6/313 (Section 1.1)	The work plan and agreed order states that specific areas may be inaccessible and not allow for complete investigation/characterization/cleanup actions to occur at this time. The cleanup actions described shall be deferred for such locations until they become accessible through demolition or lack of activity. - Several references are made in the report about areas being inaccessible due to the density of structures and below-grade features (e.g., basements). Note that there are methods like air knife and limited access drilling rigs that assist with assessment in areas with access limitations. Conducting assessment activities in these areas early on in the RI process will help further the objective of defining the nature and extent of contamination at the Site. - Can a timeline of planned demolition activities anticipated for the Site be included in the work plan to provide an understanding of the assessment timeline.	Extent of Site

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6	7/313 (Section 1.1.2)	<p>A statement is made that this work plan focuses on upland media (e.g., soil and groundwater). Other media (e.g., surface water and sediment) will be considered in the RI process, as appropriate, once upland conditions and associated potential migration pathways to these media are better understood. In addition, soil sampling is proposed for non-soluble chemicals of potential concern (COPCs) and groundwater monitoring is proposed for soluble COPC.</p> <ul style="list-style-type: none"> - As the nature and extent of the COPCs have not been defined for the Site analysis of soil and groundwater should include all COPCs and not segregate based on solubility. For example, per- and polyfluoroalkyl substances (PFAS) are not identified for any analyses in soil. If identified in groundwater, soil samples may help identify potential sources of groundwater impacts. The health and safety plan (HASp) in Appendix A also recognizes that non-soluble compounds may be present in groundwater (e.g., polychlorinated dibenzodioxin and polychlorinated dibenzofuran compounds [dioxins] and polychlorinated biphenyls [PCBs]). - Section 3 describes the potential for historical spills or stormwater discharge to the Camas Slough and Columbia River that may have discharged COPCs. Current national pollutant discharge elimination system monitoring will evaluate current conditions. It is recommended that sediment sampling is completed to evaluate nature and extent of COPCs and wood waste in sediment adjacent to the property. It is unclear from the RI work plan if wood waste could have accumulated in the Camas Slough, and if it has then it the extent should be characterized.¹ - The recommendation is made for deposition of contaminants related to air emissions to be considered during the RI in areas beyond the property boundary, in order to define the nature and extent of the Site. Common contaminants of concern related to air emissions from pulp and paper mills includes multiple COPCs. The dispersion of these contaminants is dependent on many factors, including emission stack heights and weather patterns. Air modeling and surface soil sampling would be beneficial to understand the potential extent of the site beyond the facility boundary. 	Extent of Site
7	13/313 (Section 3.1) 72/313 (Table 1)	<p>Two laboratory buildings were constructed in the 1950s at the Camas Business Center (CBC). These facilities became known as the Central Research Division in 1960. Research involved pesticides, energy production, crop yields, and synthetic pulp production. However, Table 1 (Summary of Operational Areas) does not list pesticides as a chemical of potential concern for the CBC area.</p> <ul style="list-style-type: none"> - Recommend researching types of pesticides researched as well as any other compounds used in these operations that should be COPCs and add those compounds for analyses to proposed sampling matrix for soil and groundwater samples collected in the vicinity of the CBC area. 	Consideration of COPCs

¹ Wood Water Cleanup, Guidance for implementing the cleanup provisions of the Sediment Management Standards, Chapter 173-204 WAC. Prepared by Washington State Department of Ecology. Publication 09-09-044. September 2013.

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8	13/313 (Section 3.1)	<p>The operational history is noted as the following: In 1885, mill operations at the Site were recognized as the first in the Pacific Northwest to produce wood pulp. Following a fire in 1886, the mill was rebuilt 2 years later with two paper machines. By 1906, the mill produced paper bags in the northern portion of the mill known as the Bag Factory. The mill expanded operations and by 1914 became one of the largest paper producers in the world.</p> <ul style="list-style-type: none"> - According to anecdotal information by a former employee, the history should reflect the following: The 1883 mill produced 4 tons per day of newsprint and a crude butcher paper from groundwood and rag stock. It was the first paper mill in the Washington Territory (<i>there were previous mills in what would become Oregon</i>). In 1888, the new mill (after the fire) pulped 2,000 cords of wood, 1,000 tons of straw, and burned 5,000 cords of wood to provide steam to heat the dryer drums. Over time the mill evolved into one of the largest specialty paper mills. At its peak, it could manufacture more than a thousand different grades of paper. 	Operations Accuracy
9	13/313 (Section 3.1)	<p>The work plan discusses the wastewater and stormwater treatment history. However, wastewater and stormwater management or where did it discharged prior to the 1950s when improvements were completed is not included in the work plan.</p> <ul style="list-style-type: none"> - Recommend adding the historical practices to the Work plan and evaluating areas that received historical discharge of wastewater and stormwater for persistent compounds (e.g., dioxins, PCBs, and metals). 	Extent of Site
10	13-17/313 (Section 3.2) Figure 5	<p>This section describes the paper making process.</p> <ul style="list-style-type: none"> - The process described in this section is only the most recent chemical pulping and bleaching process operated at the mill. From its very beginning until the 1960s, the mill produced groundwood pulp from spruce, alder, and cottonwood. Groundwood pulps are bleached with hydrosulfides (dithionates). - In the pulping discussion, this section ignores groundwood pumping. In addition, sulfite pulping was the was the second pulping process used at the mill. The sulfite process burns sulfur to form sulfur dioxide which is bubbled through a solution of lime water or magnesium hydroxide to produce a bisulfite cooking acid. - In the bleaching discussion, for most of its history, the sulfite bleach plant used elemental chlorine as a bleach agent followed by a hypochlorite stage (CH bleach sequence). - In the paper mill discussion, the finish provided to the paper machines contains, in addition to pulp, various additives such as alum, biocides, defoamer, dyes, fillers, pesticides, pigment, polymers, and wet strength agents, depending on the grade. Consider the chemicals that used in this process and evaluate is any should be added to the COPCs. 	Operations Accuracy
11	16/313 (Section 3.2)	<p>The inorganic components of black liquor are reported to include sodium hydroxide, sodium carbonate, sodium sulfide, sodium sulfate, and other sodium salts combined with organic matter.</p> <ul style="list-style-type: none"> - Recommend including a description or table of all COPC associated with black liquor, as well as the COPCs in other waste products, such as green liquor, white liquor, and lime mud. 	Consideration of COPCs

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12	23/313 (Section 3.5.1.1.2)	<p>This section describes the dock warehouse.</p> <ul style="list-style-type: none"> - Additional information regarding this area is: Beginning in 1889 the mill began the transportation of goods and finished product from docks and warehouses on the Camas Slough. There were also piles of bulk materials such as lime and sulfur. The No. 3 Warehouse (current site of the waste receiving area just south of the railroad mainline), for example, was built on pilings over open water. Materials were moved to and from these warehouses by mule train, electric railroad (until 1982), and ultimately diesel tractor train. Over time much of the area south of the railroad mainline was filled. The potential exists that this was not clean material that was placed as fill and it is recommended for assessment. 	Operations Accuracy
13	24/313 (Section 3.5.1.1.4) 79/313 Table 6	<p>The former Cat shop, electronic shop, and underground storage tanks included two underground storage tanks. One for gasoline and the other for degreaser solvent. Benzene, toluene, ethylbenzene, and xylenes (BTEX) is included in the analysis at this location.</p> <ul style="list-style-type: none"> - Recommend including analysis for the volatile organic compounds (VOC) suite of compounds as many degreasers contain other compounds such as tetrachloroethene and trichloroethene. Also recommend including metals analysis based on the historical uses in the area and gasoline products. 	Consideration of COPCs
14	27/313 (Section 3.5.2.1.2)	<p>Footnote to this section notes that following spills documented in Appendix A of the agreed order occurred in the Black Liquor area: 10 October 2014, 21 April 2014, 18 September 2012, 26 August 2011, 22 September 2002, 2 August 2001, 15 May 2001, 7 July 2000, 8 May 2000, 7 December 1998, and 22 October 1997.</p> <ul style="list-style-type: none"> - Historic and significant releases at the Site that were reported to Ecology are tabulated in Appendix A of the agreed order. The date of these tabulated spills ranges from 1997 to 2017. Is there documentation of spills that took place at the site prior to 1997 that are considered in this work plan? Considering mill operations at the site commenced circa 1883, there's a century of time where spills likely occurred that are not discussed in this report. Have employee interviews or facility records been reviewed to document spills during this period from the late 1800s to 1997 to inform sampling locations for the RI work plan, to the extent available? - Anecdotal information from former employees that indicate there are known spills and releases beyond those documented in the agreed order and RI work plan. In addition, there are likely unknown spills and releases. Therefore, sampling at the Site until the nature and extent is sufficiently characterized should include all COPCs. 	Completeness of Sampling
15	32/313 (Section 3.5.2.3.2)	<p>This section describes the Sulfite Pulp Bleaching.</p> <ul style="list-style-type: none"> - Chemicals used in this area also includes sodium hypochlorite. 	Operations Accuracy
16	General (Section 3)	<p>Descriptions of the locations used to take delivery, off-loading, handling, and storage of chemicals used in the processes at the facility are limited. Complete description would be beneficial as it relates to potential areas of concern. In addition, it should be determined if there are drains inside the buildings that have potential for direct discharge to soil.</p>	Operations Accuracy

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17	35/313 (Section 3.5.2.4.3)	<p>This section describes the fuel oil day tank and notes there are no records of spills in this area.</p> <ul style="list-style-type: none"> - Per the public record the largest single oil spill in recent mill history occurred at the No. 1 Day Tank on November 16, 1989. The spill was caused by the failure of a gauge on a fuel oil heater line. When the gauge blew out approximately 2,300 gallons of No. 6 Fuel Oil sprayed beyond containment. Of this total about 5 gallons reached the Camas Slough through a storm drain. Corrective measures following the incident included replacing the failed gauge, improving containment, and connecting the storm drain to the process sewer so that it would receive both primary and secondary treatment. 	Operations Accuracy
18	40/313 (Section 3.5.3.2.1)	<p>This section describes the mill modernization debris area and states there are no known chemicals used for operations in this operational feature.</p> <ul style="list-style-type: none"> - According to anecdotal information from a former employee, prior to the demolition of the No. 3 Warehouse and the construction of the current waste receiving area, this location served as one of the waste receiving locations for the mill (primarily drums and tote bins). 	Operations Accuracy
19	40/313 (Section 3.5.3.2.1)	<p>During the Mill Modernization Project (1981 to 1984), soil and demolition debris from the former Sulfite Mill and Bag Factory underlie the asphalt cover used for vehicle parking. COPCs associated with debris underlying the asphalt surface include petroleum hydrocarbons, VOCs, semivolatile organic compounds (SVOCs), PCBs, dioxins, PFAS, and metals.</p> <ul style="list-style-type: none"> - Recommend adding hazardous building materials as COPCs if they were not evaluated at the time of demolition. 	Consideration of COPCs
20	41/313 (Section 3.5.3.2.3)	<p>This section describes the buried material area. It is noted that a waste incinerator was present in this area reportedly used to burn paper wastes generated at the mill.</p> <ul style="list-style-type: none"> - According to anecdotal information from a former employee, the incinerator was used to burn slabbed paper and mill trash. Also, non-combustible or poorly combustible solids such as metal, brick, parent rolls of dense or pesticide paper, ash, and other materials were buried. From time-to-time, high water in the Washougal River has exposed buried materials on the riverbank. 	Operations Accuracy
21	45/313 (Section 3.5.3.4.2)	<p>This section describes the effluent pump station area.</p> <ul style="list-style-type: none"> - According to anecdotal information from a former employee, prior to construction of the primary clarifier on Lady Island all mill wastewater (except spent calcium sulfite liquor after 1960) entered the Camas Slough from the Tailrace Sewer or the Blue Creek Outfall (located under the No. 9 Substation). This included spent pulping liquor, brown stock wash water, bleach plant effluent, paper machine wastewater, and boiler ash (both coal and wood ash). Blue Creek was reportedly named for the color created by bag plant press washups. 	Operations Accuracy
22	45/313 (Section 3.5.3.5)	<p>This section describes operational area C5: wooded area and states there are no historical or current operational activities, no known spills, and no known chemical usage in this area.</p> <ul style="list-style-type: none"> - According to anecdotal information from a former employee, during a multiagency environmental inspection, drums of various waste materials were discovered partially buried in the Wooded Area. They had been diverted from the Buried Material Area. The identified drums and the associated soil were excavated and disposed of off-site. However, a comprehensive evaluation of the site was not completed. 	Operations Accuracy

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23	48/313 (Section 3.5.4.2)	<p>This section describes operational area D2: dredge spoils area, and notes the dredged materials are owned by the Army Corps of Engineers.</p> <ul style="list-style-type: none"> - Verify what is meant by this ownership. According to anecdotal information from a former employee, the Dredge Spoils Landfill was created to hold maintenance dredging materials excavated from mill- owned (at the time of dredging) underwater land located between the mill proper and Lady Island. This area should be characterized for COPCs. 	Operations Accuracy
24	52-54/313 (Section 4.1)	<p>The RI work plan indicates that the analytical results for soil, groundwater, and surface water will be compared to MTCA Method B cleanup levels and other applicable, relevant, and appropriate requirements as appropriate including ecological receptors.</p> <ul style="list-style-type: none"> - We acknowledge that screening will be to MTCA Method B cleanup levels and that Section 1 states that analytical data will be compared to MTCA cleanup levels for current and <i>planned future land use</i>. 	MTCA Regulations
25	55/313 (Section 4.2)	<p>Prior to the completion of the 1950s wastewater treatment plant, direct discharge of wastewater and stormwater occurred to the Camas Slough.</p> <ul style="list-style-type: none"> - Recommend evaluating where these direct discharges were directed and handled, as well as including characterization for persistent COPCs. 	Extent of Site
26	58/313 (Section 5)	<p>The work plan focuses on assessing groundwater for soluble COPCs.</p> <ul style="list-style-type: none"> - Recommend assessing all COPCs in groundwater. With little characterization the fate and transport of COPCs in the water-bearing zone is difficult to predict. In addition, with the uncertainty of over a century of operations at the facility, the full extent of spills and releases is likely to be understood. A complete list of COPCs will provide more certainty to the extent of COPCs. 	Consideration of COPCs
27	58/313 (Section 5)	<p>The work plan focuses on assessing shallow soil for insoluble COPCs.</p> <ul style="list-style-type: none"> - Recommend assessing all COPCs to the depth they are present below the anticipated release mechanism (e.g., surface spill, underground storage tank release). In addition, with the uncertainty of over a century of operations at the facility the full extent of spills and releases is likely to be understood. A complete list of COPCs will provide more certainty to the extent of COPCs. 	Consideration of COPCs
28	60/313 (Section 5.3.1)	<p>The target depth for borings to install groundwater wells is 10 below the groundwater table.</p> <ul style="list-style-type: none"> - The COPCs include compounds that in the non-aqueous phase liquid that are lighter than water and float and some that are denser than water and sink. Placement of well screens and groundwater sampling depths should take this into account to allow collection of groundwater representative of COPCs. 	Approach

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29	63/313 (Section 5.5)	<p>The statement is made that the agreed order includes sampling and analysis of the following media: seeps, surface and subsurface sediments, and stormwater and catch basin solids. As stated in Section 3.4, routine inspection and/or monitoring of seeps, sediment, and stormwater occurs as part of existing monitoring programs and therefore, no additional sampling of these media is proposed.</p> <ul style="list-style-type: none"> - While recognized that the current programs monitor these media, it is unclear if the programs monitor for all COPCs identified for the site. 	Consideration of Media
30	71/313 (Table 1)	<p>Table 1 provides COPCs associated with various operations areas and features.</p> <ul style="list-style-type: none"> - OA-B2 Powerhouse: Since fuels such as coal and wood were burned in the area the COPCs (chemicals of potential concern) should include PAHs (poly aromatic hydrocarbons). - OA-C2 Buried Material Area. Incinerator ash and miscellaneous inert wastes were buried here. Some suggested COPCs would include asbestos and PAHs. - OA-C3 Car Barn/Paint Shop: This area was used to sandblast equipment before coating. The COPCs should include metals. - OA-C5 Wooded Area: A screening study should be conducted in this area due to the discovery of previous contamination. Suggested COPCs include total petroleum hydrocarbons (TPH), PCBs, and metals. 	Consideration of COPCs
31	73/313 (Table 2)	<p>Table 2 provides a summary of previous sampling and cleanup activities.</p> <ul style="list-style-type: none"> - Recommend adding data from these previous sampling and cleanup efforts to an appendix of the RI work plan to understand the body of analytical data that already exists for the site, per the agreed order. 	Completeness of the RI Work Plan
32	75/313 (Table 3)	<p>Pesticides misspelled under Wastewater Effluent—Monitored Parameters/Activities as "Petsticides."</p> <ul style="list-style-type: none"> - Recommend correcting the spelling. 	General Formatting or Grammar Issue
33	76/313 (Table 4)	<p>In Table 4, the table notes the data gap includes presence of soluble COPC(s) in groundwater and presence of insoluble COPC(s) in soil.</p> <ul style="list-style-type: none"> - These terms do not appear to be defined in the work plan, beyond identifying PCBs as an insoluble COPC. Recommend defining these terms so it is known what is considered a soluble COPC for groundwater and insoluble COPC for soil. Furthermore, until the nature and extent of contamination is sufficiently characterized, segregation of soil- and groundwater-specific COPCs by solubility is not recommended. 	Clarification of Term
34	76/313 (Table 4)	<p>In Table 4, there are locations where the proposed scope indicates "visual inspection; surface soil sampling if observed potential spill."</p> <ul style="list-style-type: none"> - Recommend sampling and analysis be performed in these areas regardless if visual inspection indicates potential spill. With the longevity of use, past spills may no longer be visible. 	Approach

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35	80/313 (Table 6)	<p>In Table 6: Note (d) indicates groundwater analysis for PFAS proposed in areas where PFAS was used in operations (Paper Treatment Operational Feature). PFAS analysis may also be proposed for upgradient/downgradient wells.</p> <ul style="list-style-type: none"> - Ecology's PFAS Chemical Action Plan published in November 2021 indicates North American Industry Classification System Codes of industries likely to use PFAS includes paper mills and pulp mills. Recommend sampling all groundwater samples for PFAS for complete characterization of potential PFAS impacts at the site, given site operations being linked to the potential for PFAS chemicals. 	Consideration of COPCs
36	80/313 (Table 6)	<p>In Table 6:</p> <p>Note (f) indicates groundwater analysis of metals proposed in areas where there are suspected buried materials or where process wastewater contacted bare ground (e.g., at the effluent pump station or former wastewater ditches). Metals analysis will include at least arsenic, lead, and copper at a minimum. Metals analysis may also be proposed for upgradient/downgradient wells. The Lady Island Landfill (LILF) permit includes a specific list of metals for analysis at the existing LILF monitoring wells.</p> <p>Note (g) indicates groundwater analysis of VOCs proposed in areas where fuel oil or solvents were used or stored. VOCs analysis may also be proposed for upgradient/downgradient wells.</p> <p>Note (h) indicates groundwater analysis of SVOCs proposed in areas where there are suspected buried materials. SVOCs analysis may also be proposed for upgradient/downgradient wells.</p> <ul style="list-style-type: none"> - Verify what the complete analyte suite will be for each analyte group. Specifically for metals, verify whether sample analysis will be for total or dissolved (field filtered) metals and if the analyte suite will vary by location. Also, will SVOC and VOC analysis include tentatively identified compounds? For all analytes, please include a table that shows the method reporting limits, per the contracted laboratory, in comparison to applicable screening level values. 	Completeness of Sampling
37	80/313 (Table 6)	<p>In Table 6: Note (l) indicates LILF permit parameters also includes alkalinity, ammonia, biological oxygen demand, bicarbonate, carbonate, chemical oxygen demand, chloride, conductivity, nitrate, sulfate, total dissolved solids, total organic carbon, and dissolved metals. The proposed additional sampling for LILF as part of the RI work plan is limited to PFAS at two of five locations and metals.</p> <ul style="list-style-type: none"> - Because the LILF Permit Parameters and the proposed additional analytes does not include all COPCs of the site, consider adding these. 	Consideration of COPCs
38	80/313 (Table 6)	<p>In Table 6: Note (m) indicates groundwater samples from CBC existing monitoring wells that are being analyzed for VOCs will be analyzed for tetrachloroethylene (PCE), trichloroethylene (TCE), 1,1,1-trichloroethane, 1,1-dichloroethene, and cis-1,2-DCE.</p> <ul style="list-style-type: none"> - Because vinyl chloride is a natural degradation product of chlorinated solvents such as PCE, consider adding it to the VOC suite. 	Consideration of COPCs

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39	80/313 (Table 6) 173/313 (Table 1)	<p>In Table 6, only "soluble" chemicals are being analyzed for in groundwater. Therefore, Dioxins and PCBs are excluded. However, Table 1 of the HASP notes that dioxins and PCBs are potential chemicals present in groundwater monitoring samples.</p> <ul style="list-style-type: none"> - Consider adding dioxins and PCBs to groundwater samples given the HASP acknowledges they may be present in groundwater and that the nature and extent of the site has not been sufficiently defined to eliminate COPCs. 	Consideration of COPCs
40	81/313 (Table 7)	<p>In Table 7: Proposed soil sampling proximal to hydraulic fluid aboveground storage tanks and documented lube oil releases at the First Woodmill and Wood Chip Piles is limited to TPH, BTEX, pH, and PCBs.</p> <p>Proposed soil sampling proximal to documented diesel spill at the Second Woodmill is limited to TPH, BTEX, and pH.</p> <p>Proposed soil sampling proximal to documented diesel release from former diesel aboveground storage tanks at the Riverbank Pump House is limited to TPH, BTEX, and pH.</p> <ul style="list-style-type: none"> - This listing of analyte is not consistent per Ecology Table 830-1. Recommend adding these analytes. 	MTCA Regulations and Consideration of COPCs
41	81 and 82/313 (Table 7)	<p>Proposed soil sampling proximal to Nos. 1, 2, 5, 6, 8, 9, and 10 Substation states soil samples will be analyzed for TPH, PCBs if visual indications of spills. Proposed sampling matrix shows TPH, BTEX, pH, and PCBs selected for analysis.</p> <ul style="list-style-type: none"> - Recommend sampling shallow soil for analysis regardless of whether there are visual indications of spills. With the longevity of use, past spills may no longer be visible. 	Consideration of COPCs
42	82/313 (Table 7)	<p>Proposed soil sampling for the OA-F1 CBC area is listed as lead only.</p> <ul style="list-style-type: none"> - Fort James Specialty Chemicals manufactured defoamers, DMSO2, napkin/towel ink, and phenolic compounds. Previous investigations did not appear to evaluate this area, thus a suggested addition to soil sampling at the settling basin would be TPH and SVOCs near the diked (waste storage) area. 	Consideration of COPCs
43	82/313 (Table 7)	<p>Note (b) in Table 7 indicates a minimum of two soil samples will be analyzed from each monitoring well installation and proposed sample location. Additional samples may be collected and analyzed based on field observations.</p> <ul style="list-style-type: none"> - Verify samples will be analyzed regardless of whether there is visual indication of spills. With the longevity of use, past spills may no longer be visible. 	Completeness of Sampling

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44	82/313 (Table 7)	<p>In Table 7:</p> <p>Note (f) indicates soil samples proposed in areas where there are suspected buried materials or where process wastewater contacted bare ground (e.g., at the effluent pump station or former wastewater ditches) will be analyzed for metals. Metals analysis will include at least arsenic, lead, and copper at a minimum.</p> <p>Note (g) indicates soil samples proposed in areas where fuel oil or solvents were used or stored will be analyzed for VOCs</p> <p>Note (j) indicates soil samples proposed in areas where there are suspected buried materials will be analyzed for SVOCs.</p> <ul style="list-style-type: none"> - Verify what the complete analyte suite will be for each location (metals in particular, if it varies by location) and each analyte group. For all analytes, please include a table that shows the method reporting limits, per the contracted laboratory, in comparison to applicable screening level values. 	Completeness of Sampling
45	82/313 (Table 7)	<p>In Table 7, there's a note that "Background" is located upgradient and intended to represent background conditions.</p> <ul style="list-style-type: none"> - Verify what it is upgradient of the Site? Without defining the extent of the Site, what is assigned as background may be impacted by air deposition from emissions or other unknown release on the property. Also, why is proposed analyte suite not the same for all three background locations? 	Extent of Site
46	94/313 (Figure 11)	<p>We understand that this a preliminary conceptual site model and will be refined as the nature and extent is further defined. However, there are some comments we feel are worth mentioning:</p> <ul style="list-style-type: none"> - Recommend adding air emissions as a potential source, which will tie into potential affected media of surface soil, groundwater, sediments and surface water, and additional potential human receptors beyond what is currently shown (e.g., residential and recreational). - The exposure of soil media is greater than what is shown in the conceptual site model. The point of compliance for direct contact is 0 to 15 feet below ground surface. - Inhalation of vapors is listed as a likely insignificant pathway; however, with limited characterization of the nature and extent of COPCs, conclusions on vapor intrusion into buildings is unknown. - In the exposure media section, soils are referred to as "future;" however, impacted soil is a potential exposure pathway to current and future receptors. - Recommend considering utilities as a pathway in the conceptual site model. - Surface water and sediments should also have potential exposure to additional human receptor for recreationists. 	Complete Characterization
47	112/313 (SAP Section 3.6)	<p>For dioxin/furan data validation, there is no mention of the estimated detection limit in this section.</p> <ul style="list-style-type: none"> - Typically, it is preferred that dioxin/furan data is reported to the estimated detection limit rather than the method detection limit. Is it intended that dioxin/furan data will be reported at the estimated detection limit? 	Approach

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48	116/313 (SAP Section 4.4.3)	<p>The target depth for monitoring well installation and groundwater sampling depths relative to the groundwater table or confining layers are not defined.</p> <ul style="list-style-type: none"> - The COPCs include compounds that in the non-aqueous phase liquid that are lighter than water and float and some that are denser than water and sink. Placement of well screens and groundwater sampling depths should take this into account to allow collection of groundwater representative of COPCs. 	Complete Characterization
49	129/313 (SAP Section 8.3)	<p>No validation guidance for dioxins identified.</p> <ul style="list-style-type: none"> - Recommend referencing appropriate validation guidelines: EPA. 2020. EPA Superfund contract laboratory program, national functional guidelines for high resolution Superfund methods data review. EPA 542-R-20-007. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. November. 	Approach
50	135/313 (SAP/QAPP Table 2)	<p>Perfluoro Sulfonic Acid (PFOS) and Perfluorooctanoic Acid (PFOA) are listed as analytes for groundwater analysis. The rest of the workplan speaks of PFAS generally without specifying which PFAS compounds.</p> <ul style="list-style-type: none"> - Recommend analyzing for a suite of PFAS analytes (some labs can run about 45 now rather than 2 or 18) to fully characterize PFAS in groundwater. PFOS and PFOA could have broken down into shorter chain PFAS over time and those analytes and impacts would be missed by just analyzing PFOA and PFOS. 	Consideration of COPCs
51	253/313 (SAP Appendix B)	<p>Appendix B goes into detail describing different PFAS methods, but it is still unclear how many PFAS compounds will be analyzed, and which of the 537 modifications will be used. Appendix B indicates that Department of Defense or National Environmental Laboratory Accreditation Program certified labs <u>should</u> be used for analysis.</p> <ul style="list-style-type: none"> - Is the intent that these labs "will" be used? 	Consideration of COPCs