

TECHNICAL MEMORANDUM

Date: December 15, 2022

To: Ms. Carrie Rackey, Senior Associate, Environmental Services—Stantec Consulting Services Inc.

From: Brian Pletcher, Senior Geologist—Akana

Subject: **Inventory of Residual Chemicals and Hazardous Substances
Former Blue Heron Mill
427 Main Street, Oregon City, Oregon 97405
Akana Project No. 22-019**

INTRODUCTION

Akana has prepared this technical memorandum to present the findings of the chemical and hazardous substances survey conducted at the former Blue Heron Mill (Mill) on September 9 and 18, 2022. The survey consisted of a visual survey of indoor and outdoor areas of the former Mill site to support preparation of an inventory of residual chemicals. The survey was conducted as outlined in “Former Blue Heron Mill Approach to Inventory of Residual Chemicals/Hazardous Substances,” dated September 1, 2022, prepared by Stantec, and approved by the Oregon Department of Environmental Quality (ODEQ). The inventory generated from the survey will be used to plan for future characterization and disposal of identified chemicals and hazardous substances remaining from the Mill operations.

The survey and resulting inventory did not consider underground storage tanks, tailrace sediment, the stormwater management system, hazardous building materials, bleach plant waste, or impacted soil. These items and areas are being addressed under separate scopes of work.

SURVEY METHODS

Akana initially conducted the inventory survey on September 9, 2022, with Carrie Rackey, of Stantec Consulting Services Inc., and Ryan Webb, of the Confederated Tribes of the Grand Ronde (CTGR). Portland General Electric (PGE) construction activities at Mill H prevented surveying the

southern portion of the site on September 9, 2022. Akana staff returned on September 18, 2022, and surveyed Mill H and associated buildings on the southern portion of the site as PGE work allowed.

Akana and Stantec conducted a visual survey of accessible indoor and outdoor areas to identify the presence of stored chemicals and hazardous materials. Akana noted each container or container group with a unique identification number (ID No.). The ID No. consists of the building number, container code, date of the survey, and a sequential number assigned to groups of containers within a specific building. Akana did not open or move containers during the survey.

The potential residual chemicals and hazardous substances identified during the site surveys are summarized in Table 1 - Inventory of Residual Chemicals and Hazardous Substances (Attachment 1). The table presents the container type, known or suspected contents (if identifiable), and approximate volume of stored or residual material based on visual observation. Locations of the chemical and hazardous material containers (aboveground tanks, totes, cylinders, drums, buckets) are shown on Figure 1 (Attachment 2). Photographs of each container or container group, with corresponding ID No., are provided in Attachment 3.

SURVEY LOCATIONS

Figure 1 shows the historical layout of all buildings at the former Mill. A total of 40 buildings were accessed to conduct this survey.

The following buildings were previously demolished and were not included in the 2022 visual survey:

- + Water Filter Plant (Building 2)
- + Control Tower (Building 3)
- + Fire Station (Building 4)
- + Office and Guard Shack (Buildings 5 and 6)
- + Mill D (Buildings 7 and 8)
- + Carpentry Shop (Building 19)
- + Millwright Shop (Building 21)
- + Auto Shop (Building 22)
- + Mill E Offices (Building 37)



- + Maintenance, Receiving, and Storeroom (Building 36)
- + Weld Shop (Building 38)

Additionally, there were two buildings that were not included in the survey as indicated below:

- + Mill O and the associated laboratory (Building 18): Ryan Webb informed Akana that Mill O and the associated laboratory were unsafe to enter due to structural instability. Mill O was inspected from the outside through windows and other openings. The former owner had reportedly secured the wastes stored at the Building 18 Laboratory and had characterized and discarded many stored and containerized wastes formerly located in this area (Wood 2021).
- + Pipe Shop (Building 20): The former Pipe Shop is currently used by Oregon Department of Fish and Wildlife (ODFW) to store their field equipment. Akana spoke with Michael Brown with ODFW. He reported they removed a small quantity of paint cans and took them to the Metro South hazardous waste transfer station in Oregon City for disposal.

FINDINGS

There are two main areas of hazardous material containers at the Mill—Building 51 (Deink Repulper) and South Substation Building 27. Building 51 has numerous empty drums, a 250-gallon waste oil above-ground storage tank (AST), and other small containers. Building 27 contains three totes labeled as resin and three blue 55-gallon drums contained in clear plastic. The contents of the drums in both buildings are unknown. Other drums and small containers of potential hazardous materials were found dispersed throughout the Mill. Locations of these materials are shown on Figure 1 and descriptions are summarized in Table 1.

There are 13 brick ASTs and silos. Numerous ASTs and portable tanks were observed throughout the site during the survey ranging from 100-gallon poly tanks to 10,000-gallon former sulphite, acid, and other chemical storage tanks. Most of the tanks observed appeared to be empty; however, residuals were observed through the sides of some poly tanks. ANSUL Inergen brand fire extinguisher system cylinder tanks were observed in the Paper Machine No. 4 (Building 42A). Below is a list of the ASTs observed during the inventory survey.

Above Ground Storage Tanks

- + One elevated brick tank at north end of Building 14
- + One tank west of Building 09 Mill D
- + One elevated concrete tank in Building 14
- + One tank along eastern edge of Building 28 Recovery Boiler



- + One tank west of Building 30 Mill H
- + One former kraft tank south of Building 39 Sulfito Plant
- + Four brick tanks in the Sulfito Plant Building 39
- + One elevated spherical tank south of Building 39 Sulfito Plant
- + One tank east of Building 50 Deink Repulper (Central)
- + One tank south of Building 50 Deink Lean-to
- + One tank located north of Building 35 Rewind
- + One "Save All" tank at Building 41 No. 4 PM Save A
- + One 250-gallon steel tank located in Building 51
- + One urea water tank at Building 54 near the clarifier
- + One urea water tank near the former clarifier
- + 10 poly tanks stored near the seawall south of Building 20

CONCLUSION

The survey conducted in September 2022 identified containers and tanks holding potential hazardous materials or chemicals in locations across the Mill. Akana recommends contracting with a hazardous materials contractor to characterize and dispose of the inventoried wastes. Empty containers and drums throughout the site should be centralized at Building 51 for additional characterization if needed or disposed as recommended by the supplier.

ASTs should be cleaned of residual chemicals or materials, triple washed, and recycled or disposed at a landfill. Kennedy Jenks (2013) suggested that many of the ASTs or impoundments were cleaned by NRI Global as part of site decommissioning activities. If NRI Global documentation confirms this, additional cleaning of ASTs may not be necessary. Some of the ASTs or impoundments are on the list of historical structures to be retained as part of redevelopment at the site, and they should be handled with care to prevent unnecessary damage (Winterbrook Planning 2014).

REFERENCES

Kennedy/ Jenks Consulting. 2013. Interim Stormwater Post-Closure Plan, Former Blue Heron Paper Mill. Oregon City, Oregon. September 18.



Winterbrook Planning. 2014. Willamette Falls Legacy Project, Application for a General Development Plan and Zone Change. July.

Wood. 2001. Overarching Work Plan-Revision Former Blue Heron Paper Company Mill. July 9.

Attachments

- 1 Table 1 - Inventory of Residual Chemicals and Hazardous Substances
- 2 Figure 1 Inventory of Residual Chemicals and Hazardous Substances Locations Map
- 3 Photo Log



Table 1
Inventory of Residual Chemicals and Hazardous Substances
Former Blue Heron Mill

Date of Inspection 9/21/2022

Inspection ID*	Location	Container Dimensions	Contents	Volume
9-D-220921-1	Building 9	55 gallon poly drum	1 blue drum, labeled Irgalite Blue RM PST RD	Unknown
10-C-220921-1	Building 10	10 gallon steel container	1 red fuel can	Empty
10-D-220921-1	Building 10 lower floor	50 gallon cardboard drum and 5 gallon pressure vessel	Contents unknown	Appears full
11-CY-220921-1	Building 11 north side	30 lb steel cylinder	1 red/pink refrigerant tank, Forane 502	Approximately 10 lbs
14-C-220921-1	West of Building 14	12 small containers of a gallon or less in size	Contents include paint, paint thinner, fuel, and oils	Approximately 5 gallons
14-A-220921-1	West of Building 14	Large brick AST	Unknown	Residual solids
14-A-220921-2	Lower level of Building 14	Large brick AST	Unknown	Residual solids
18-A-220921-1	South of Building 18 exterior	Approximately 800 gallon	White Poly Tank filled with construction debris	Unknown
23-CY-220921-1	Building 23 inside Conex Steel Shipping Container	15 pound steel cylinders	36 light green R22 refrigerant 15 lb tanks, 33 empty, 1 full, 2 partially full	Approximately 20 lbs
27-A-220921-1	Building 27	712 gallon	1 white poly tank, labeled Optical Brightner	Empty
27-D-220921-1	Building 27	55 gallon steel drum	1 blue drum upside down, former contents unknown	Unknown
27-D-220921-2	Building 27	55 gallon	2 blue drums, wrapped in plastic, labeled corrosive hazard	Unknown
27-D-220921-3	North of Building 27	55 gallon drum	Blue steel drum former contents unknown	half full of water
27-T-220921-1	Building 27	48" long x 40" wide x 46" high	1 tote, half full, with black unknown liquid	Approximately 200 gallons
27-T-220921-2	Building 27	48" long x 40" wide x 46" high	1 tote, labeled Wet Strength Resin AMRES 945-E	Unknown
27-T-220921-3	Building 27	48" long x 40" wide x 46" high	1 tote, nearby proximity to both previous totes noted	Residual
27-C-220921-1	Building 27	35 gallon plastic container	1 small white container, labeled water soluble degreasing solvent	Unknown
28-A-220921-1	Building 28 along eastern edge of recovery boiler building	Approximately 5000 gallon fiberglass	Green fiber glass AST, former contents unknown	Empty
28-A-220921-2	Building 28 along eastern edge of recovery boiler building	2 Poly tanks with approximately 2000 gallons of capacity each.	labeled as polymer storage	Empty may have residual
28-D-220921-1	Building 28	35 gallon steel drum	1 black drum, labeled coupling grease	Full of oily rags
29-A-220921-1	East of Building 29	Approximately 60 foot tall steel tank	Did not find safe access to Tank	Unknown
33-A-220921-1	East of Building 33	2 Large brick tanks	Former contents unknown	Solid Debris about 3 inches thick

Table 1
Inventory of Residual Chemicals and Hazardous Substances
Former Blue Heron Mill

Date of Inspection 9/21/2022

Inspection ID*	Location	Container Dimensions	Contents	Volume
34-A-220921-1	Lower level of Building 34	Large brick AST	Former contents unknown	Solid debris
36-A-220921-1	East of building 36	Large brick AST	Former Chip Silo	Debris
39-A-220921-1	South of Building 39	Large spherical steel AST	Former contents unknown, bottom of tank is open	Assumed to be empty
39-A-220921-2	Building 39	4 large brick ASTs	Former contents unknown. Potentially contained sulfate	Solid debris
40-A-220921-1	Building 40	Large steel vertical tanks approximately 60 feet in height	5 large ASTs, bottom of ASTs are open.	Assumed to be empty
41-A-220921-1	Building 41	Large brick AST	former use unknown	Solid Debris on floor of AST
42A-CY-220921-1	Building 42A east side of building	5 feet tall steel cylinders	2 red fire suppressant cylinders	Unknown
42A-A-220921-1	Building 42A east side of building	Large brick AST	Labeled as Hydrores 166MB	Debris and Residual
49-A-220921-1	Building 49 on second floor	1,000 gallon poly tank	BAF MIX Tank, contains residual	Residual
50-A-220921-1	East of Building 50	Large brick AST	Former DEINK Dump Chest	garbage and debris
50-A-220921-2	Outside of Building 50 DeInk Lean-To	Large brick AST	Former contents unknown	Solid Debris
50-D-220921-1	Building 50 first floor	55 gallon poly drums	1 blue drum, labeled Liquichlor, possible used for oil waste collection	Unknown
50-D-220921-2	Building 50 in sump	35 gallon steel drum	1 white/blue drum, labeled Mobil	Unknown
50-C-220921-1	Building 50	10 gallon steel container	1 red gas can, half full,	5 gallons
51-D-220921-1	Building 51	55 gallon steel drums	52 red empty drums, empty, 51 formally contained Mobil Gear 600XP68 and 1 Kerosene	Empty
51-D-220921-2	Building 51	55 gallon steel drums	14 black drums, empty	Empty
51-D-220921-3	Building 51	55 gallon steel drums	5 grey drums (green stripe), empty, labeled EAL224H	Empty
51-D-220921-4	Building 51	55 gallon plastic drums	3 blue plastic drums, empty, labeled AMA-110	Empty
51-D-220921-5	Building 51	55 gallon steel drums	2 white drums, empty, labeled VOLTZ	Empty
51-D-220921-6	Building 51	55 gallon steel drums	1 yellow/white drum, empty former contents unknown	Empty
51-D-220921-7	Building 51	55 gallon steel drums	1 blue steel drum, empty, former contents unknown	Empty
51-D-220921-8	Building 51	55 gallon steel drums	2 green and white drums, empty, labeled gear oil	Empty
51-D-220921-9	Building 51	55 gallon steel drums	2 blue and white drums, empty, former contents unknown	Empty
51-D-220921-10	Building 51	55 gallon steel drums	4 black drums, 3 contain solid waste, 1 contains unknown liquid waste	Empty
51-D-220921-11	Building 51	Greater than 55 gallons	2 orange plastic overpack drums	Empty

Table 1
Inventory of Residual Chemicals and Hazardous Substances
Former Blue Heron Mill

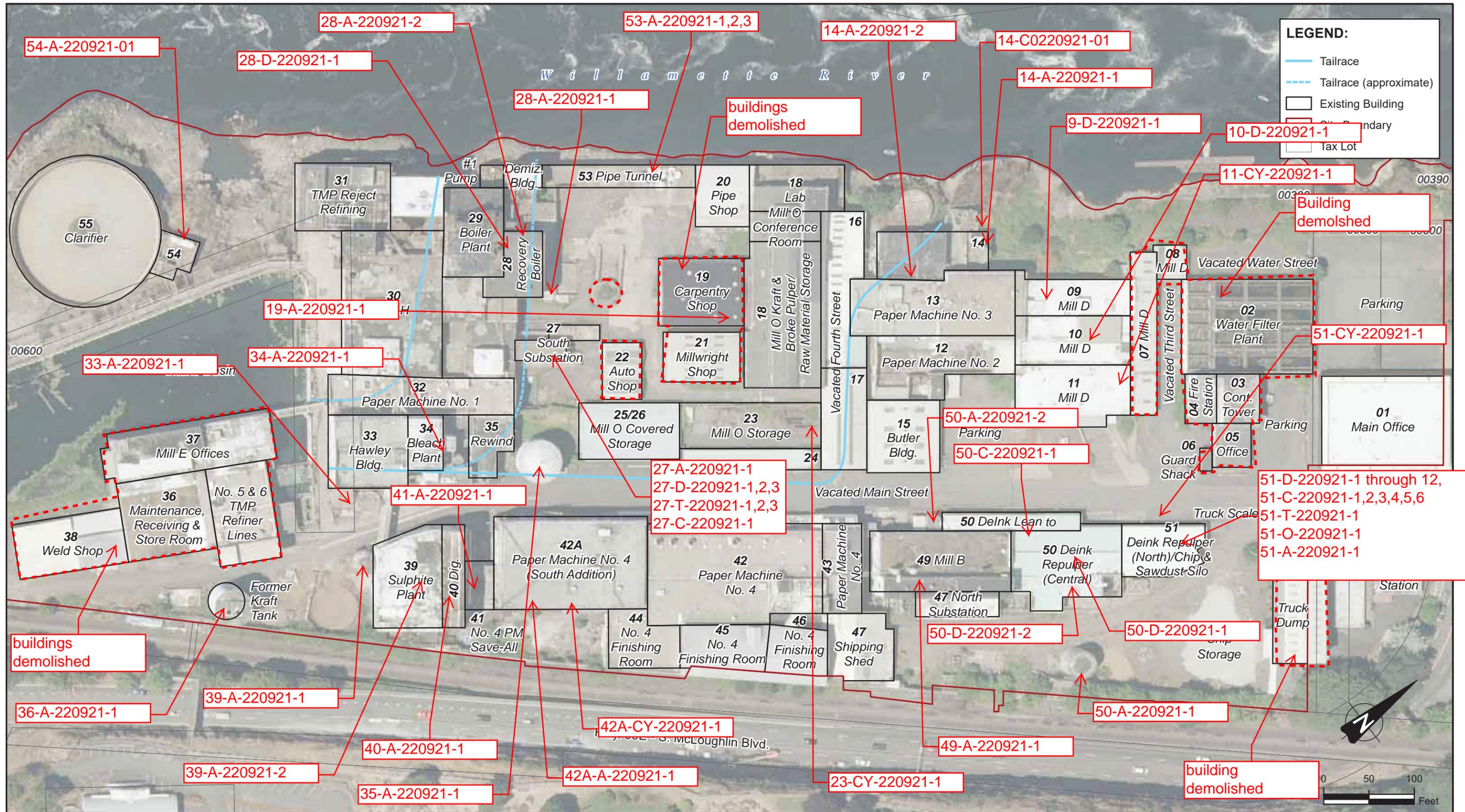
Date of Inspection 9/21/2022

Inspection ID*	Location	Container Dimensions	Contents	Volume
51-D-220921-12	Building 51	1/2 of 55 gallon steel drum	1 yellow partial drum, contains used oil filters	Approximately 20 pounds
51-A-220921-1	Building 51	250 gallon steel AST	1 red rectangle steel AST, empty, labeled as used oil	Unknown
51-C-220921-1	Building 51	18 " x 43" x 44" steel cabinet	1 yellow liquid storage cabinet, flammable, inaccessible, unknown contents	Not accessible
51-C-220921-2	Building 51 inside refrigerator	32 fluid ounce steel container	1 fluid container rusty, labeled Emery BL15 cell fluid	Unknown
51-C-220921-3	Building 51	5 gallon bucket	1 orange container, full, unknown liquid fluid (red/brown coloring)	5 gallons
51-C-220921-4	Building 51	1 gallon plastic container	1 gallon-sized blue container, 1/4 full, contents unknown	1/4 gallon
51-C-220921-5	Building 51	10 gallon steel cans	2 fuel cans, empty	Empty
51-T-220921-1	Building 51	48 " x 48" x 48" plastic totes	2 totes, empty, labeled AMA-110	Empty
51-O-220921-1	Building 51	40 pound bags	2 pallets of water softener salts	Approximately 400 lbs
51-CY-220921-1	Outside Building 51 next to west wall	20 pound cylinder	Propane Cylinder	Unknown
53-A-220921-1	Above Pipe Tunnel (53) at seawall	5.5 feet tall (estimate)	7 ASTs, one labeled Hydrores	Unknown, assumed to be empty
53-A-220921-2	Above Pipe Tunnel (53) at seawall	8 feet tall (estimate)	4 midsize ASTs, one labeled Wet End Starch	Unknown, assumed to be empty
53-A-220921-3	Above Pipe Tunnel (53) at seawall	18 feet tall (estimate)	4 large ASTs, one labeled defoamer	Unknown, assumed to be empty
54-A-220921-1	On top of Building (54)	2,500 gallon steel AST	Urea Water AST	Gauge on side of AST indicates 77% Capacity

Notes

* The ID No. consists of the building number, container code, date of the survey, and a sequential number assigned to groups of containers within a specific building.

- A - above ground storage tank
- T - tote
- D - drum
- C - container
- CY - cylinder



CONFEDERATED TRIBES
OF THE GRAND RONDE

Wood Environment &
Infrastructure Solutions, Inc.
7376 S.W. Durham Road
Portland, OR 97224

wood.

SITE PLAN

DATE
SEPTEMBER 2019

SCALE
1" = 100'

PROJECT NO.
961M13558.04

FIGURE
1 2A

DRAWN BY: PM CHECKED BY: JKH



Photo 1: Building 51 – 55-gallon drums, mostly empty (ID Numbers 51-D-220921-1 through 9).



Photo 2: Building 51 – 250-gallon steel AST, labeled as Used Oil. ID Number 51-A-220921-1



Photo 3: Building 51 – 4 black drums, 3 containing solid waste, 1 containing liquid waste.
ID Number 51-D-220921-10



Photo 4: Building 51 – Flammable liquid storage cabinet, locked, contents unknown (ID 51-C-220921-1), partial yellow drum containing used oil filters (ID 51-D-220921-12), two orange overpack drums (ID 51-D-220921-11).



Photo 5: Building 51 – 2 red empty gas cans (upper left) (ID 51-C-220921-5), 2 totes (one back left hidden, one right) labeled AMA-110 empty (ID 51-T-220921-1). Two pallets of water softener salts (ID 51-O-220921-1).



Photo 6: Building 51 – fluid container, contents inside, labeled Emery Cell Fluid BL 15 (ID 51-C-220921-2)



Photo 7: Blue Heron Paper Mill – orange bucket with liquid contents (red/brown color), blue 1-gallon size container about 1/4 full of unknown contents (ID 51-C-220921-3 and 4).



Photo 8: Building 49 Heron Paper Mill – BAF MIX Tank, contains residual contents (ID 49-A-220921-1)



Photo 9: Building 50 – blue 55-gallon drum labeled LIQUICHLOR, possibly used for waste oil collection, (ID 50-D-220921-1)



Photo 10: Building 50 – white/blue 35-gallon Mobil drum submerged in water (ID 50-D-220921-2)



Photo 11: Outside Building 50 DeInk Lean-to – large brick tank (ID 50-A-220921-2)



Photo 12: East of Building 50 – large brick tank (ID 50-A-220921-1).



Photo 13: Building 42A – 2 red fire suppressant cylinders (ID 42A-CY-220921-1).



Photo 14: Building 42A – Large brick Tank, labeled as Hydrores 166 MB (ID 42A-A-220921-1)



Photo 15: Building 39 – 4 large brick ASTs. Potentially contain sulfate. (ID 39-A-220921-2)

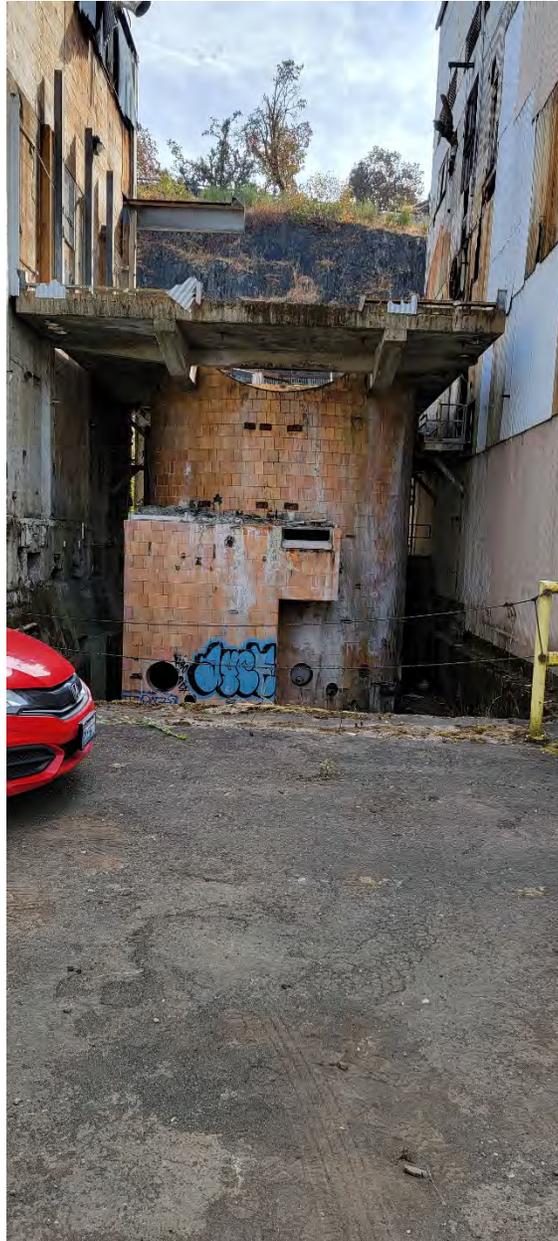


Photo 16: Building 41 – large brick tank (ID 41-A-220921-1)



Photo 17: Building 40 – Five large steel vertical tanks (ID 40-A-220921-1)



Photo 18: East of Building 33 – two large brick tanks (ID 33-A-220921-1)



Photo 19: East of Building 33 – view of solids inside of large brick tank (ID 33-A-220921-1)



Photo 20: South of Building 39 – large spherical steel tank (ID 39-A-220921-1) and Former Chip Silo (ID 36-A-220921-1)



Photo 21: Lower-level Building 34 – large brick tank (ID 34-A-220921-1)

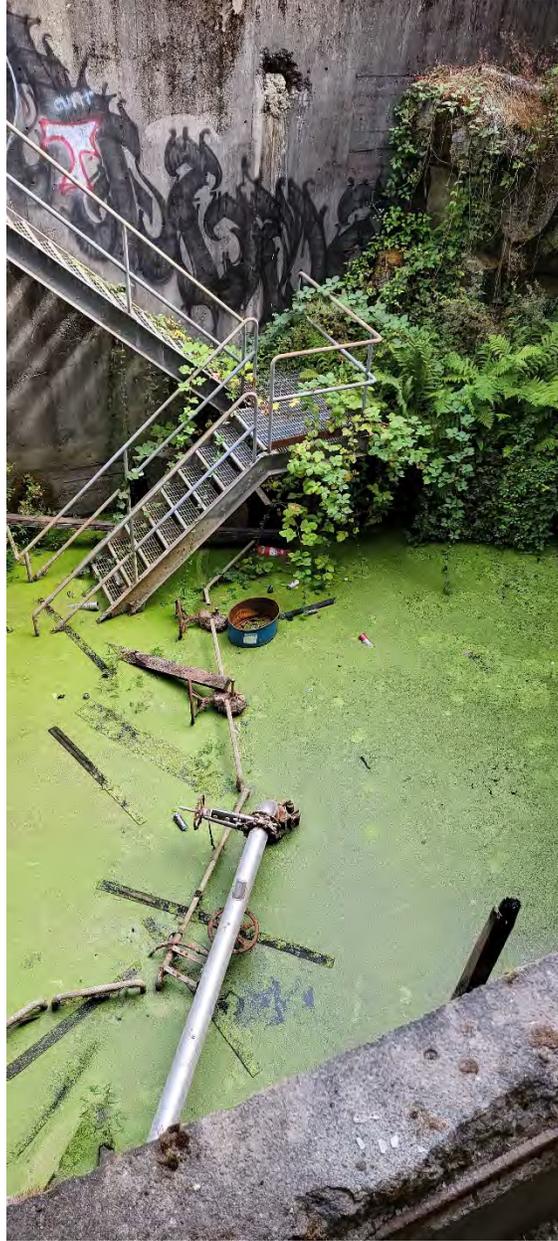


Photo 22: Millrace east of Building 27. Drum submerged in water (ID 27-D-220921-3).



Photo 23: Building 27 – 712-gallon Poly Tank, labeled optical brightner, (ID 27-A-220921-1)



Photo 24: Building 27 – tote is labeled Wet Strength Resin AMRES 945-E (27-T-220921-2)



Photo 25: Building 27 – open tote partially full of black liquid, specific contents unknown
(ID 27-T-220921-1)



Photo 26: Building 27 – upside down blue drum, believed to be empty (ID 27-D-220921-1)



Photo 27: Building 27 – tote with unknown contents (ID 27-T-220921-3)



Photo 28: Building 27 – white container labeled as water-soluble degreasing solvent contents.
(ID 27-C-220921-1)



Photo 29: Building 27 –drum labeled as empty (ID 27-D-220921-2)



Photo 30: Building 27 – blue drum wrapped in plastic, contents unknown, labeled corrosive hazard
(ID 27-D-220921-2)

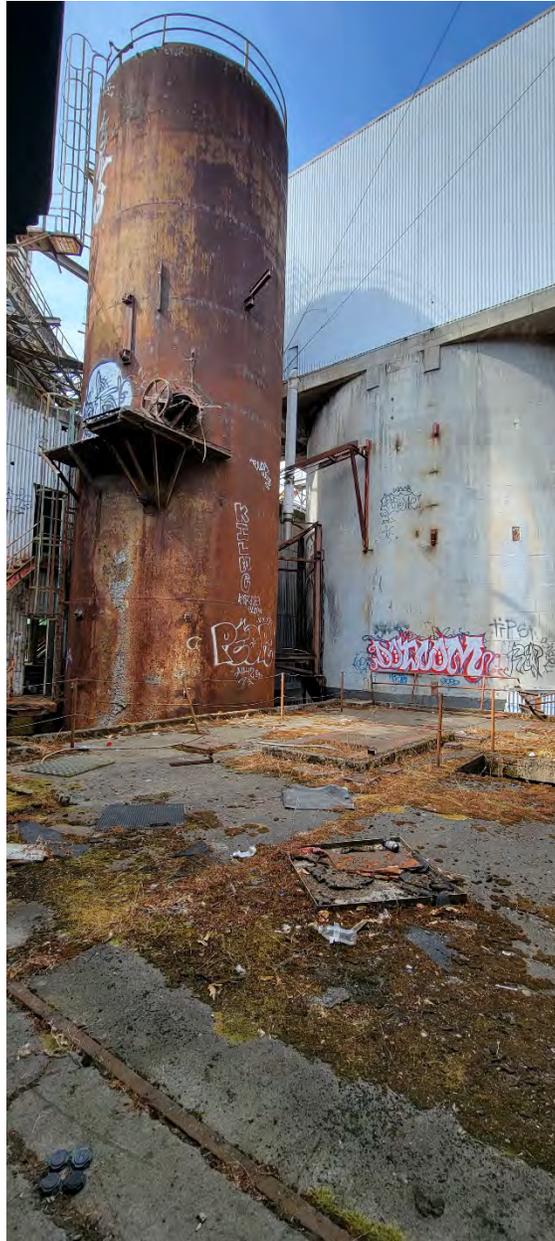


Photo 31: East of Boiler Plant Building 29-approximately 60-foot-tall steel tank (ID 29-A-220921-1)



Photo 32: Building 28 – 2000-gallon AST labeled Polymer Storage (ID 28-A-220921-2)



Photo 33: Above Pipe Tunnel (53) near river – 15 ASTs multiple sizes with heights ranging from approximately 5 to 18 feet. (ID 53-A-220921-1 through 3)



Photo 34: East of Building 28 – large green fiberglass AST (ID 28-A-220921-1)



Photo 35: Building 23 in Conex container – light green R22 refrigerant tanks (ID 23-CY-220921-1)



Photo 36: Building 11 north side – pink refrigerant tank (ID 11-CY-220921-1)



Photo 37: Building 10 ground floor – red fuel container empty (ID 10-C-220921-1)



Photo 38: Building 28 – Black drum labeled COUPLING GREASE KHP, filled with oily rags.
(ID 28-D-220921-1)



Photo 39: On top of Building 59 – Percent total tank capacity indicator and fluid temperature gauge on Urea Water AST (ID 59-A-220921-1)



Photo 40: On top of Building 54 – white horizontal cylindrical tank label Urea Water (ID 54-A-220921-1)



Photo 41: West of Building 14 and East of Pump Station #2 – small blue container, red fuel container, red fire hydrant, yellow container, white bucket with oily parts, residual and empty paint cans, and paint thinner containers. (ID 14-C-220921-1).



Photo 42: West of Building 14 – large brick tank (14-A-220921-1)



Photo 43: Building 9 lower level – Blue drum labeled IRGALITE BLUE RM PST RD
(ID 9-D-220921-1)

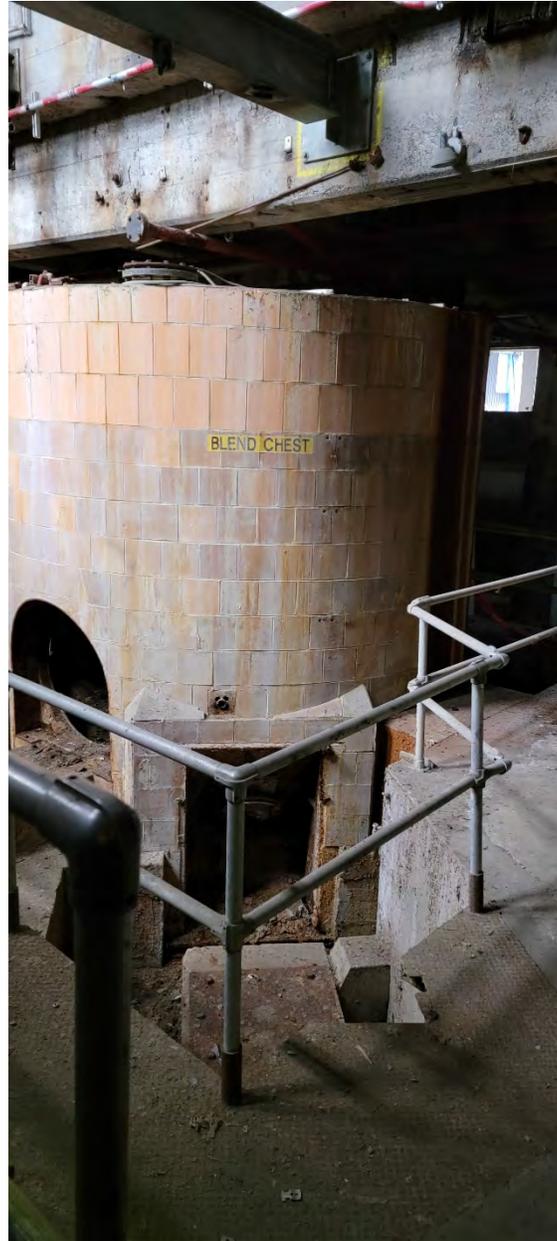


Photo 44: Blue Heron Paper Mill – large brick container labeled BLEND CHEST
(ID14-A-220921-2)

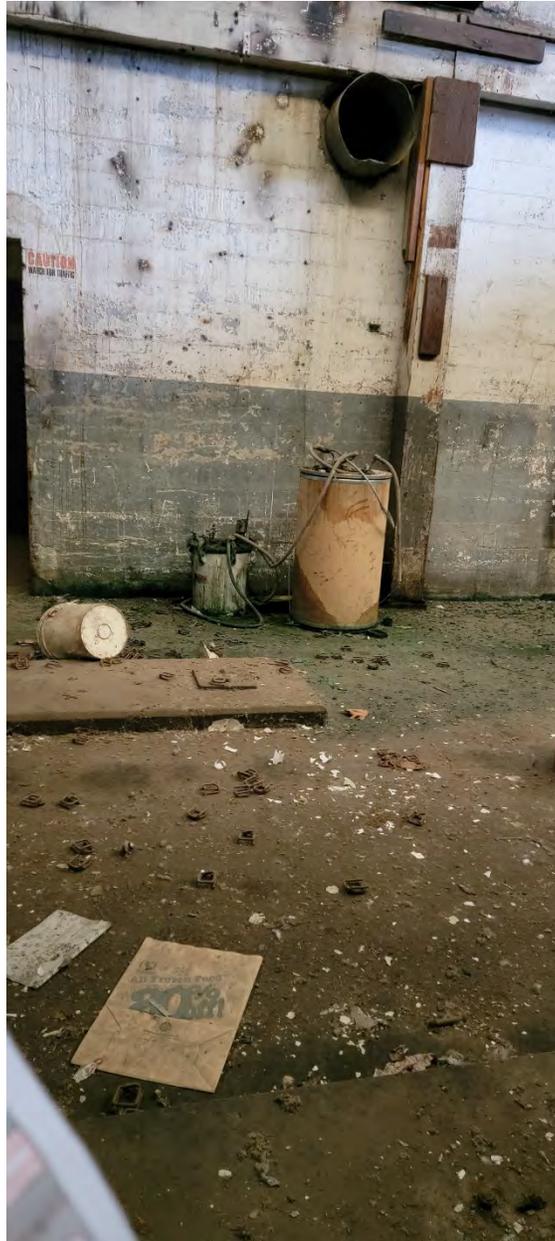


Photo 45: Building 10 lower level – cardboard drum and pressure vessel connected by hose.
Contents unknown (ID 10-D-220921-1)



Photo 46: Outside Building 51 – Propane Cylinder (ID 51-CY-220921-1).

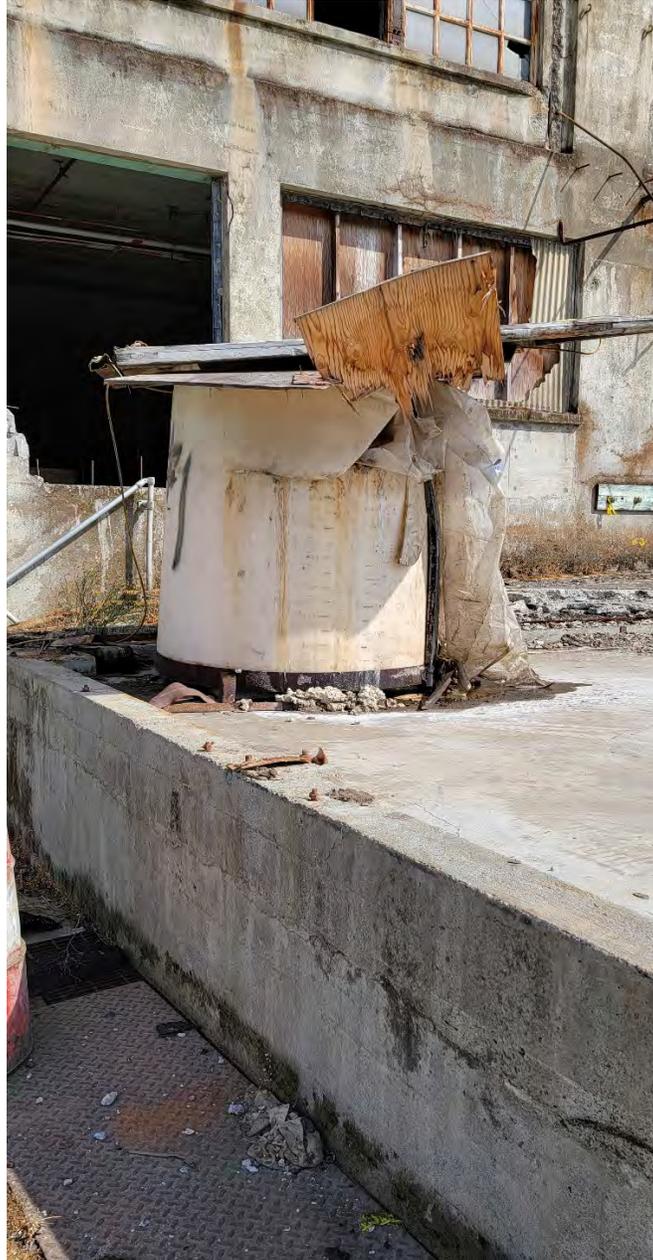


Photo 47: South of Building 18 – White poly tank filled with construction debris. Former contents unknown. (ID 18-A-220921-1)