Summary of Notes – Site Visit – Bowater Mersey Paper Company - June 26th

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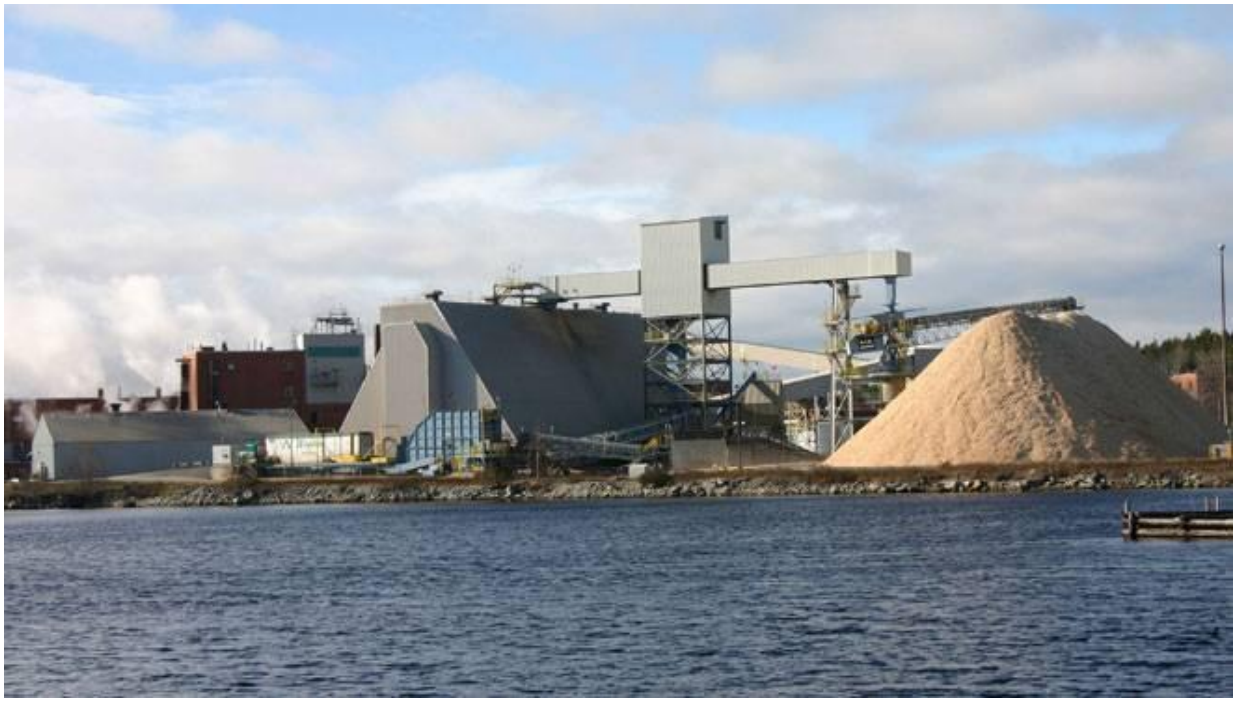

SUMMARY

In general, the operation as it currently exists appears to be well run and it appears that environmental issues are managed appropriately and within the Operating Approvals provided through Nova Scotia Dept of Environment. The Mill has been in operation since 1929 however and processes and practices have varied over the Mills operating life. This summary represents a very preliminary assessment of the site based on a single visit and walk through and very limited document review. The AMEC Phase I report being prepared for Bowater should be a much more comprehensive document and should expand and clarify on elements touched on in this summary. Best guess is environmental cleanup is in the order of $8,750,000 (see breakdown below).

Former Coal Operations

- The original operations included a coal fired boiler house near the center of the site that was used for process steam generation. This boiler house was converted to bunker fuel in the early 1950's
- There is not likely any long term impacts on the site proper from coal storage and boiler operations (the impacts would likely have dissipated by now)

Former Bulk Bunker Oil Fuel Tank Compound

- When the boiler house was converted to bunker fuel there was a bulk fuel handing compound constructed on the site (right of the entrance road). A plan view of the site from 1950's showed three large tanks in this compound and an over/under ground pipeline from the dock for bulk fuel handling. Although the plan shows 3 tanks, Tank Registration has only 1 large tank (400,000 liters). The area where the tanks were is now a grassy area with no obvious signs of contaminant. Area might be 1 acre in size
- The boiler was decommissioned in the 1990's when the Power plant across the street began supplying necessary steam
- Unless there is additional (unknown) information, consider that this area and the area of underground (removed) pipe may have bunker fuel impacts. Requires phase II

Chemical Storage

- The mill was not always strictly thermo-mechanical and had a chemical treatment process up till 1990's. To that point there would likely have been substantial quantities of chemicals (sodium sulphide?) and there was at one point a large storage tank.
- The area where this tank existed is now occupied by the chemical warehouse (there are two chemicals of some quantity still in use – a bleach (sodium sulphide and a resin dispersant)
- Chemicals are generally now stored in totes and drums; the material is currently being removed from the site
- Without additional information consider there may be some impacts to the grounds here
- 2 acre site (est)

Ash Disposal and General Landfill

- When the boiler house was in operation, ash was disposed at a landfill across the street from the main entrance. There may have been other materials disposed at this landfill over the course of its operation (1930 – 1960's ??).
- The site was covered in the 1990's (unsure of date) and at some point monitoring wells installed. Dillon Consulting sampled these wells in 2005. AMEC have this report – its content is not known to me.
- Typical issues with ash disposal sites might include elevated metals, PAH's and acid drainage.
- Without additional information, this area would be considered impacted. Requires phase II
- 5 acres (est)

Dredge Disposal Landfill

- At some point (1990's??) the Bay surrounding the site was dredged and the dredged materials disposed at a landfill adjacent to the ash landfill
- Quantities, chemistry and the final disposition (capped/uncapped) was not known by the existing environment officer
- Without further information, consider this area as impacted. Requires phase II
- 5 acres (est)

Water Supply Operations

- The mill uses substantial quantities of water (effluent of 20,000 m3 per day). This water is supplied by a plant operation on Nickerson's Pond where the Company maintains a dam on this lake and a separate dam on Herring Cove Brook. Although there are 38(?) domestic users on this water supply, the water is chlorinated but does not necessarily meet all requirements for a potable water supply
- There are several one tonne cylinders of chlorine stored and in use at the Pond facility
- Liability of supplying domestic water and of maintaining dams should be considered. The dams have fish passage installed

Liverpool Bay

- As part of the former (more recent) operations benthic studies of the Bay area near the Mill operation are required. Early studies indicated that there was minimal marine life in the bay shore areas near the Mill
- Since installation of the effluent water treatment plant, marine life (mussels) have recovered substantially

Sludge Treatment Lagoons

- After treatment through an onsite clarifier, Sludge effluent from the mill is pumped approx 5 km to a an ASB (aerated stabilization basin) treatment Plant that is designed to contain 356,000,000 liters. After treatment through the basins, the effluent is returned to the mill site where it is discharged to the Bay
- During normal operation, discharge is 20,000,000 liters per day
- In addition, some of the bottom sludge is pumped back, mixed with onsite clarifier pulp and trucked to the power plant for burning (15 trucks per day)
- Effluent is monitored for biochemical oxygen demand (BOD), suspended solids, acute lethality rainbow trout and acute lethality daphnia magna

Sludge Disposal

- Sludge from the treatment lagoons is collected and disposed to a registered (operating under NSE Approval) landfill adjacent to the lagoons
- As landfill cells reach capacity, capping with one meter of clay and 0.3 m topsoil is required
- Leachate is meant to be collected and sent back to treatment system

Power Plant Operation

- Although the power plant uses waste wood product for fuel, it is permitted for coal burning and C&D waste burning
- The fly ash that comes off the plant is used in the agricultural industry
- The bottom ash is disposed to Municipal Landfill
- There is a substantial woodchip pile (fuel) stored on the site but there doesn't seem to be any point source for leachate or runoff
- The power plant produces electricity that is sold onto the NSPI grid – none of the power is used to fire the pulp mill directly; the pulp mill is supplied with a 130lb steam source for its operation
- An 'abandonment' plan is required to be provided to NSE when required

Sawmill Operations

- Not assessed

Other

- There is a Sewage Treatment Plant on site that is no longer in use (all domestic sewer to Municipality).
- There are five registered nuclear devices (level gauges) on site. These are not a significant issue unless they inadvertently land in a scrap yard
- There are two 16,000 l lube oil tanks, one 4,700 l gas tank and one 5677 l hydraulic oil tank in use on the site
- Most chemicals are supplied in 1,800 l totes and drums
- There is asbestos present in the mill; it is removed when it becomes problematic or during modifications
- There are no PCB transformers or oils on the site; PCB containing light ballast are changed and disposed as required.
- Lead paint remains a concern in older portions of the mill
- All materials and garbage requiring disposal is transferred to appropriate Municipal landfill or HazMat facilities; there is no land fill operations operated by Bowater other than the water treatment sludge disposal site (operating under Approval)

The following documents are on file in Sydney

- Approval to Operate Co-generation Facility (power plant) Ap.#: 2005-048097-R01
- Approval to Operate – Pulp and Paper Mill Ap#: 2001-025430
- Approval to Operate – Industrial Landfill Ap#: 2001-024279 (sludge disposl)
- Nuclear Gauge License Lic#: 01012-1-11.1
- Approval to Operate - Herring Cove Lake Watershed – Ap#:2001-024534-R01
- Water Supply Registration, Reg.#: 2001-019449
- Petroleum Storage Tank Registration, Site Reg#: 2005-046565

Costs (see notes*)

- Asbestos abatement -	$ 150,000
- Chemical removal -	$ 150,000
- Equipment draining (oil, lubes) -	$ 150,000
- Process cleaning (sludge tanks, etc..) -	$ 500,000
- Clarifier cleanup (primary treatment) -	$ 100,000
- Chemical storage area cleanup -	$ 500,000
- Capping sludge landfill (say 120mx120m) -	$1,000,000
- Capping ash landfill - (say 120mx120m) -	$1,000,000
- Capping dredge landfill (say 120mx120m) -	$1,000,000
- Decommissioning dams/water system -	$ 500,000
- Bunker tank area remediation -	$ 500,000
- Decommission treatment lagoons -	$1,500,000
- General site cleanup -	$ 250,000
- Leachate collection trench at Power Plant -	$ 250,000
- Miscellaneous -	$ 500,000
- Long term monitoring and maintenance of caps (7 years) -	$ 350,000
- Leachate generation and treating (7 years) -	$ 350,000

TOTAL $8,750,000

NOTES:

1. Assumes Power Plant continues operating
2. Does not include building demolitions or equipment removal
3. Assumes Oakville saw mill continues operating (not assessed in this exercise)
4. Assumes landfill sites covered but not capped (or have no engineered low permeability cap)