



March 19, 2015

Tracking Number: 337672
Authorization Number: 4565

REGISTERED MAIL

Catalyst Paper Corporation and Catalyst Pulp Operations Limited doing business as
Catalyst Paper, General Partnership
2nd Floor
3600 Lysander Lane
Richmond BC V7B 1C3

Dear Permittee:

Enclosed is Amended Permit 4565 issued under the provisions of the *Environmental Management Act*. Your attention is respectfully directed to the terms and conditions outlined in the permit. An annual fee will be determined according to the Permit Fees Regulation.

This permit does not authorize entry upon, crossing over, or use for any purpose of private or Crown lands or works, unless and except as authorized by the owner of such lands or works. The responsibility for obtaining such authority rests with the permittee. This permit is issued pursuant to the provisions of the *Environmental Management Act* to ensure compliance with Section 120(3) of that statute, which makes it an offence to discharge waste, from a prescribed industry or activity, without proper authorization. It is also the responsibility of the permittee to ensure that all activities conducted under this authorization are carried out with regard to the rights of third parties, and comply with other applicable legislation that may be in force.

This decision may be appealed to the Environmental Appeal Board in accordance with Part 8 of the *Environmental Management Act*. An appeal must be delivered within 30 days from the date that notice of this decision is given. For further information, please contact the Environmental Appeal Board at (250) 387-3464.

Administration of this permit will be carried out by staff from the Coast Region. Plans, data and reports pertinent to the permit are to be submitted to the Regional Director, Environmental Protection, at Ministry of Environment, Regional Operations, Coast Region, Suite 200, 10470 - 152 Street, Surrey, BC V3R 0Y3.

Yours truly,



Avtar S. Sundher BSc.
for Director, *Environmental Management Act*
Coast Region

Enclosure

cc: Environment Canada

Sarah Barkowski, Catalyst Paper, General Partnership
5775 Ash Avenue, Powell River, BC V8A 4R3



MINISTRY OF ENVIRONMENT

PERMIT

4565

Under the Provisions of the Environmental Management Act

Catalyst Paper Corporation and Catalyst Pulp Operations Limited doing business as Catalyst Paper, General Partnership

2nd Floor
3600 Lysander Lane
Richmond BC V7B 1C3

is authorized to discharge refuse to the ground from a pulp and paper mill located at 5775 Ash Avenue, Powell River, British Columbia, subject to the terms and conditions listed below. Contravention of any of these conditions is a violation of the Environmental Management Act and may lead to prosecution.

This Permit supersedes and amends all previous versions of Permit 4565 issued under Part 2, Section 14 of the Environmental Management Act.

1. AUTHORIZED DISCHARGES

1.1 This section applies to the discharge of REFUSE FROM A PULP AND PAPER MILL. The site reference number for this discharge is E208453.

1.1.1 The maximum authorized rate of discharge is 25,000 m^3/year (uncompacted volume). The total volume of refuse discharged to the landfill must not exceed 620,000 m^3 (uncompacted volume).

1.1.2 The components of the refuse which may be discharged are restricted to:

- Flyash
Spent bed sand
Waste asbestos
Miscellaneous mill waste, subject to Section 2.9, to a maximum of 3000 m^3/year (uncompacted volume)

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[Signature]

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for Director, Environmental Management Act
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- 1.1.3 The authorized works are a landfill operation including a 6.1 ha landfill with a 1.5 mm high density polyethylene liner, a leachate management system consisting of a leak detection system, leachate collection system, leachate pond, pumping and conveyance system, surface water diversion ditches, surface water infiltration pit, truck wash facility, and related appurtenances approximately located as shown on Site Plan A.
- 1.1.4 The authorized works must be complete and in operation while discharging.
- 1.1.5 The location of the facilities from which the discharge originates is L3088 (PID 015-890-333), L7212 (PID 004-781-821), L7213 (PID 004-781-856), L6071, Water L 6174, L6237A, L5922, L5923, L5924, L4071, L4072, L3437 (PID 015-875-121), L3090 (PID 015-890-325), L3091 (PID 015-890-317), Lot A2, Ref. Plan 490, DL 3091 (PID 015-890-309), Part of Block 43 (PID 002-554-682), Block 44 (PID 010-264-469), and Block 46 (PID 002-560-194) of DL 450, Plan 8096, New Westminster District.

The location of the point of discharge is Part of Block 55, DL 450, Plan 8096 (PID 010-237-321) and Part of Block 48, DL 1901A, Plan 8096 (PID 010-267-361), Group 1, New Westminster District.

2. GENERAL REQUIREMENTS

2.1 Maintenance of Works and Emergency Procedures

The authorized works must be inspected regularly and maintained in good working order. In the event of an emergency or condition beyond the control of the permittee including, but not limited to, unauthorized fires arising from spontaneous combustion or other causes, or detection of leachate on the property, the permittee must take appropriate remedial action and notify the Director immediately. The Director may reduce or suspend operations to protect the environment until the authorized works has been restored, and/or corrective steps taken to prevent unauthorized discharges.

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2.2 **Maintenance of Contiguous Point - Part of Block 55 and Block 48 with Block 43**

The permittee must ensure that Part of Block 55, DL 450 (PID 010-267-361), Plan 8096, Group 1, NWD, and Block 48, DL1901A, Plan 8096, Group 1, NWD remain contiguous with Block 43, DL 450, Plan 8096, NWD. The permittee must notify the Regional Director, Environmental Protection in writing at least 90 days prior to any subdivision of Part of Block 55, DL 450 (PID 010-267-361), Plan 8096, Group 1, NWD or Block 48, DL1901A, Plan 8096, Group 1, NWD or Block 43, DL 450, Plan 8096, NWD.

2.3 **Bypasses**

Any bypass of the authorized works is prohibited unless the approval of the Director is obtained and confirmed in writing.

2.4 **Process Modifications**

The Director must be notified prior to implementing changes to any process that may adversely affect the quality and/or quantity of the discharge. Despite notification under this section, permitted levels must not be exceeded.

2.5 **Site Security**

The permittee must maintain an inner and an outer perimeter fence and secure access to the landfill authorized in Section 1.1 during the active life of the landfill. A sign, acceptable to the Director, including the name and contact information of the owner/operator must be posted at the entrance of the landfill.

2.6 **Buffer Zone**

The permittee must maintain a minimum 50 metre buffer zone between the perimeter of the discharge area and the closest property boundary.

2.7 **Inspections**

Once each calendar quarter, the permittee must inspect the area between the landfill and the inner perimeter fence, determine the extent of any noted problem, and notify the Regional Director, Environmental Protection of any evidence of potential environmental impact on adjacent properties. Records of inspections must be kept available on-site.

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2.8 Waste Reduction and Alternate Disposal

The Ministry of Environment has adopted a policy to reduce, recycle and reuse solid wastes. The permittee is encouraged to segregate for recycling and reuse, where possible, materials destined for disposal at this site.

The permittee must, on an ongoing basis, explore options for the use of flyash and spent bed sand as products, in order to reduce or eliminate the need for landfilling of those materials. Details of the efforts made must be included in the Annual Report required in Section 3.7.

2.9 Miscellaneous Mill Waste

The miscellaneous mill waste authorized for discharge in Section 1.1.2 is restricted to dirt contaminated wood chips/hog fuel, dirt contaminated pulp/paper, road sweepings, asphalt and concrete rubble from minor demolition/construction projects, elemental sulphur, spent activated carbon, lime, lime mud and lime dregs, effluent treatment solids, boiler feedwater treatment resins, and fibreglass. The discharge of any other types of miscellaneous mill wastes must be approved by the Director.

2.10 Refuse Deposition and Prohibitions

All refuse must be placed in a manner determined by a qualified professional registered in British Columbia and as specified in the Design and Operating Plan required in Section 2.15. Refuse must be discharged in lifts not exceeding 3 metres in height. Each lift must cover all of the available disposal area prior to the commencement of the next lift. Miscellaneous mill waste as defined in Section 2.9 must be discharged in layers, compacted to the smallest practical volume (where applicable), and covered with a minimum of 0.3 metres of suitable cover material at least once every thirty days.

The overall profile from the outer edge of the landfill must not exceed a maximum side slope of 1:3 (vertical:horizontal) at any time. The final side slopes of the landfill cover must not exceed a slope of 1:3 (vertical:horizontal). The working face must be confined to the smallest practical area. The permittee must take all necessary actions to minimize dust from the landfill, including but not limited to, more frequent application of cover material.

Waste asbestos authorized for discharge in section 1.1.2 must be managed in accordance with the Hazardous Waste Regulation.

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The discharge of the following waste is prohibited:

- Wood waste contaminated with wood preserving chemicals, or wastes that contain chemicals that penetrate the high density polyethylene liner.
- Hazardous waste, other than waste asbestos, as defined in the Hazardous Waste Regulation.

2.11 **Leachate Management**

The permittee must, to the satisfaction of the Director, take measures to minimize leachate generation, including but not limited to, providing effective surface water diversion and optimizing the amount of water used in producing the flyash slurry. Measures taken, their effectiveness and any proposed measures must be detailed in the Annual Report required in Section 3.7.

The leachate detection and collection works must be maintained in accordance with an approach designed by a qualified professional registered in British Columbia.

The leachate containment pond (active pond) must be lined to prevent infiltration of leachate into groundwater. A minimum level of 1.0 metres of freeboard must be maintained in the leachate containment pond to prevent overflow from the pond to the environment. Freeboard is defined as the difference in elevation between the contained liquid level and the top of the berm structure at its lowest point.

2.12 **Slope Stability and Settlement**

The permittee must retain a qualified professional registered in British Columbia to design a slope stability and settlement monitoring program, to the satisfaction of the Director, for the landfill authorized in Section 1.1. Areas of primary focus must include, but are not limited to:

- Slope stability of the south-east slope of the Phase 1 portion of the landfill.
- Settlement across the base of the Phase 2 portion of the landfill.

The details of the monitoring program must be included in the Design and Operating Plan required in Section 2.15. Monitoring results must form part of the Annual Report required in Section 3.7.

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2.13 Fugitive Particulate Emission

The permittee must control fugitive particulate emissions generated from the property. Should the Director have reasonable grounds to believe that fugitive particulate emissions cause pollution outside the property boundary; the permittee must undertake additional measures and/or curtail operations to control the emissions.

2.14 Ambient Air Quality


The permittee must evaluate ambient air quality (PM10 and PM2.5) in the adjacent community of Wildwood with respect to the applicable criteria on a continual basis. The Regional Director, Environmental Protection, must be notified if the data indicates deterioration of the ambient air quality. A summary of the evaluation must form part of the Annual Report required in Section 3.7.

2.15 Design and Operating Plan

The permittee must operate the landfill authorized in Section 1.1 in accordance with a design and operating plan certified by a qualified professional registered in British Columbia and acceptable to the Director. The plan must include, but is not limited to, information regarding:

- a fill plan for the design capacity of the landfill. The plan must incorporate the concept of progressive closure and take into consideration environmental protection measures and the proposed end use of the site,
- a contingency to close the landfill, including funding, prior to the design capacity being achieved should early closure be required for any reason,
- estimated elevations at 5 year intervals,
- cell size, progressive closure and intermediate and final cover details including types of materials used,
- details of how refuse will be managed/discharged,
- surface water diversion measures,
- measures to minimize leachate generation,
- leachate detection/collection maintenance details,
- operational hours, internal road network and truck wash facility,
- measures to prevent dust,
- contingencies to address slope stability issues and settlement issues should monitoring indicate slope movement or settling,

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- contingencies to address environmental protection issues, including leachate management, settlement and slope stability, in the event of an earthquake or any other emergency, and
- estimated closure/post-closure costs and details of how the closure/post-closure funds will be accrued.

The permittee must review the plan on an annual basis to determine if changes are required. Any revisions to the plan, certified by a qualified professional registered in British Columbia, must be submitted to the Regional Director, Environmental Protection, as part of the Annual Report required in Section 3.7.


2.16 Environmental Assessment Report

In addition to the annual report specified in Section 3.5, the permittee must submit an Environmental Assessment Report of the landfill authorized in Section 1.1 (acceptable to the Director) by December 31, 2019 and every five years thereafter for the life of the landfill. Terms of reference for each update must be submitted to the Regional Director, Environmental Protection at least 6 months prior to the due date. The Environmental Assessment Report must include, but is not limited to:

1. a review of all monitoring data collected since the date that discharge to the expanded landfill commenced (in the area outside of the existing mini-landfill),
2. a comparison to baseline data which is established, by a qualified professional registered in British Columbia, as being representative of conditions prior to the date when discharge to the expanded landfill commenced,
3. an evaluation of the overall impact on the receiving environment as a result of the expanded landfill operation, and
4. an evaluation of the effectiveness of the monitoring program.

Data for this assessment must include, but is not limited to, monitoring data from groundwater wells, recovery wells, surface water, leachate, dustfall canisters, and ambient monitoring stations as well as slope stability and settlement measurements.

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The Environmental Assessment Report and subsequent updates must be conducted by a qualified professional registered in British Columbia. Actions recommended as a result of these updates must be incorporated into the Design and Operating Plan required in Section 2.15.

If any Environmental Assessment Report, or any other information, indicates that there is an adverse impact on the receiving environment, the Director may at his/her discretion require that the permittee immediately cease the discharge authorized in Section 1.1.1 and close the landfill in accordance with the Closure Plan required in Section 2.18.

2.17 **Completed Areas of the Landfill**

The permittee must apply final cover to any area of the landfill which will not receive any further refuse. The design, method, and frequency of application of final cover must be determined by a qualified professional registered in British Columbia and be acceptable to the Director.

2.18 **Closure Plan**

The permittee must submit a closure plan for the landfill authorized in Section 1.1 at least 6 months prior to the closure of the landfill to the Director for approval. The plan must be prepared by a qualified professional registered in British Columbia and include information regarding:

- estimated total waste volume and the closure date,
- a topographical plan showing the final elevation contours of the landfill and surface water diversion and drainage controls,
- design of the final cover including the thickness and permeability of barrier layers, drainage layers details and information on topsoil, vegetative cover and erosion prevention controls,
- proposed end use of the property after closure,
- a post-closure monitoring program for groundwater, surface water, erosion and settlement for a minimum period of 25 years, and
- contingencies to address environmental impact concerns which may arise during the minimum post-closure period of 25 years.

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2.19 Closure/Post-Closure Funding

The permittee must record a financial obligation on its books, consistent with relevant provisions of the current Canadian Generally Accepted Accounting Principles (“GAAP”), to reflect future closure and other regulatory requirements related to the landfill. The estimated cost of meeting these requirements, and how this cost is determined, must be included in the Design and Operating Plan required in Section 2.15.

The estimated cost of future closure, post closure and other regulatory requirements must be reviewed annually and reflected appropriately in the accrued obligation in the permittee’s books. The outcome of this annual review must be reported to the Regional Director, Environmental Protection, as part of the Annual Report required in Section 3.7.

2.20 Site Decommissioning

In accordance with the *Environmental Management Act* and its regulations, the permittee must submit a site profile to the Regional Director, Environmental Protection, not less than 10 days prior to decommissioning the landfill authorized in Section 1.1.

2.21 Legal Survey

Upon closure of the landfill, the permittee must register a covenant or other legal notification (acceptable to the Director) that the property described in Section 1.1.5 was used for the purpose of refuse disposal as a charge against the title of the property. The Regional Director, Environmental Protection, must be notified of the covenant or legal notification.

3. MONITORING AND REPORTING REQUIREMENTS

3.1 Discharge Monitoring

3.1.1 Leachate Monitoring

The permittee must obtain representative grab samples of the leachate collected in the mini-landfill sump and from the expanded landfill and have the samples analyzed for the following parameters:

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<u>Parameter</u>	<u>Frequency</u>
pH	Semi-annually
Specific Conductivity	Semi-annually
Biochemical Oxygen Demand	Semi-annually
Dioxins & Furans	Annually

The leakage detection/collection system must be monitored semi-annually for the presence of flow. If any groundwater is collected by the leakage detection/collection system, the collected groundwater must also be analyzed for the same parameters and on the same frequency as listed above.

Proper care must be taken in sampling, storing and transporting the samples to adequately control temperature and avoid contamination, breakage, etc.

3.1.2 Discharge Quantities

The permittee must record the types and volumes (uncompacted cubic metres) of refuse discharged to the landfill (excluding cover material).

3.2 Receiving Environment Monitoring

3.2.1 Dustfall Monitoring

In order to determine compliance with Section 2.13, the permittee must conduct an annual dustfall monitoring program, acceptable to the Director. The program must include a minimum of 4 dustfall sampling locations and one PM10 sampling location that take into consideration the horizontal and vertical aspects of the landfill.

3.2.2 Groundwater Monitoring

The permittee must maintain at least six groundwater monitoring wells and at least six groundwater recovery wells. The water collected in the groundwater pumping wells must be directed to the effluent treatment system. The exact design and location of the groundwater monitoring and groundwater recovery wells must be designed by a qualified professional registered in British Columbia and be acceptable to the Director.

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3.2.3 Analysis

For the groundwater monitoring wells specified in Section 3.2.2, the permittee must obtain grab samples for each of the wells and other monitoring sites and analyze the samples for the following contaminants at the specified frequencies.

The abbreviations used in this section are described in Section 3.2.4.

Sample Location	Dry Weather (July / August)	Wet Weather (November / December)
93-2b	GP	GP, D.MET, D&F
89-5	GP	GP, D.MET, D&F, S
AH-3	GP	GP, CP*, D.MET, D&F
AH-6L	GP	GP, CP*, D.MET, D&F
94-1/3	GP	GP, D.MET, D&F
94-19L	GP	GP, D.MET, D&F
94-16B	GP	GP, D.MET, D&F
PW-COMP	GP	GP, D.MET, D&F, S
SPRING-S1	GP, D&F	GP, D&F, T.MET
SPRING-S2	GP, D&F	GP, D&F, T.MET

* If, it appears that the concentration of this contaminant is increasing significantly, based on data collected; the Director may amend the permit to add additional sampling locations.

Sample Location	Dry Weather (July / August)	Wet Weather (November / December)
Snapshot * Monitoring	Field Indicator Parameters	N/A
All Ground- water Wells	Manual Water Levels	Manual Water Levels

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<u>Sample Location</u>	<u>Monthly Monitoring</u>
All Active Recovery Wells	Flow, pH, Conductivity

- * Snapshot Monitoring Wells: upgradient well 93-2B and downgradient wells 94-16 (11m, 38 m, regional and bedrock flow zones), 94-17 (regional and bedrock flow zones), 94-18 (38 m and regional flow zones), 94-19 (38 m, regional and bedrock flow zones)

3.2.4 Abbreviations - Analysis

GP (General Parameters)	total suspended solids, total dissolved solids, alkalinity, sulphate and total organic carbon
CP	chlorinated / non- chlorinated phenols
T.MET	total metals
D.MET	dissolved metals
D&F	dioxins and furans
S	sulphide
Field Indicator parameters	pH, specific conductivity, alkalinity, sulphate (lab test), dissolved oxygen, temperature and redox

3.3 Polychlorinated Biphenyls (PCBs) Monitoring

PCB monitoring is no longer required, however, if new information regarding the presence of PCBs comes to the attention of the Director, the permit may be amended to require resumption of PCB monitoring.

3.4 Monitoring at the Mill Filterhouse

Sampling and monitoring at the Mill Filterhouse location is no longer required, however, if new information regarding the quality of the water at the Mill Filterhouse comes to the attention of the Director, the permit may be amended to require resumption of sampling and monitoring at that location.

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3.5 Sampling Procedures

Sampling is to be carried out in accordance with the procedures described in the "British Columbia Field Sampling Manual for Continuous Monitoring and the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples, 2003 Edition (Permittee)", or most recent edition, or by suitable alternative procedures as authorized by the Director.

A copy of the above manual is available on the Ministry web page at www.env.gov.bc.ca/epd/wamr/labsys/lab_meth_manual.html.

3.6 Analytical Procedures

Analyses are to be carried out in accordance with procedures described in the "British Columbia Laboratory Manual (2009 Permittee Edition)", or the most recent edition, or by suitable alternative procedures as authorized by the Director.

A copy of the above manual is available on the Ministry web page at www.env.gov.bc.ca/epd/wamr/labsys/lab_meth_manual.html.

3.7 Reporting

An annual report must be prepared by the permittee and submitted to the Regional Director, Environmental Protection, by April 30 of the following year. The report must include, but is not limited to the following items:

1. remaining design capacity of the landfill (uncompacted cubic metres) and an estimation of closure date at the current rate of disposal,
2. efforts made in waste reduction and alternate disposal as required in Section 2.8,
3. measures taken to minimize leachate generation, their effectiveness and any proposed measures as required in Section 2.11,
4. an evaluation of slope stability and settlement monitoring as required in Section 2.12,
5. an evaluation of air quality (PM10 and PM2.5) in the adjacent community of Wildwood as required in Section 2.14,
6. any changes to the design and operating plan as required in Section 2.15,
7. estimated costs of closure and post-closure activities as required in Section 2.19,
8. monitoring data as required in Section 3.1.1,

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9. types and volumes (uncompacted cubic metres) of refuse discharged as required in Section 3.1.2,
10. details of the proposed dustfall monitoring program for the coming year.

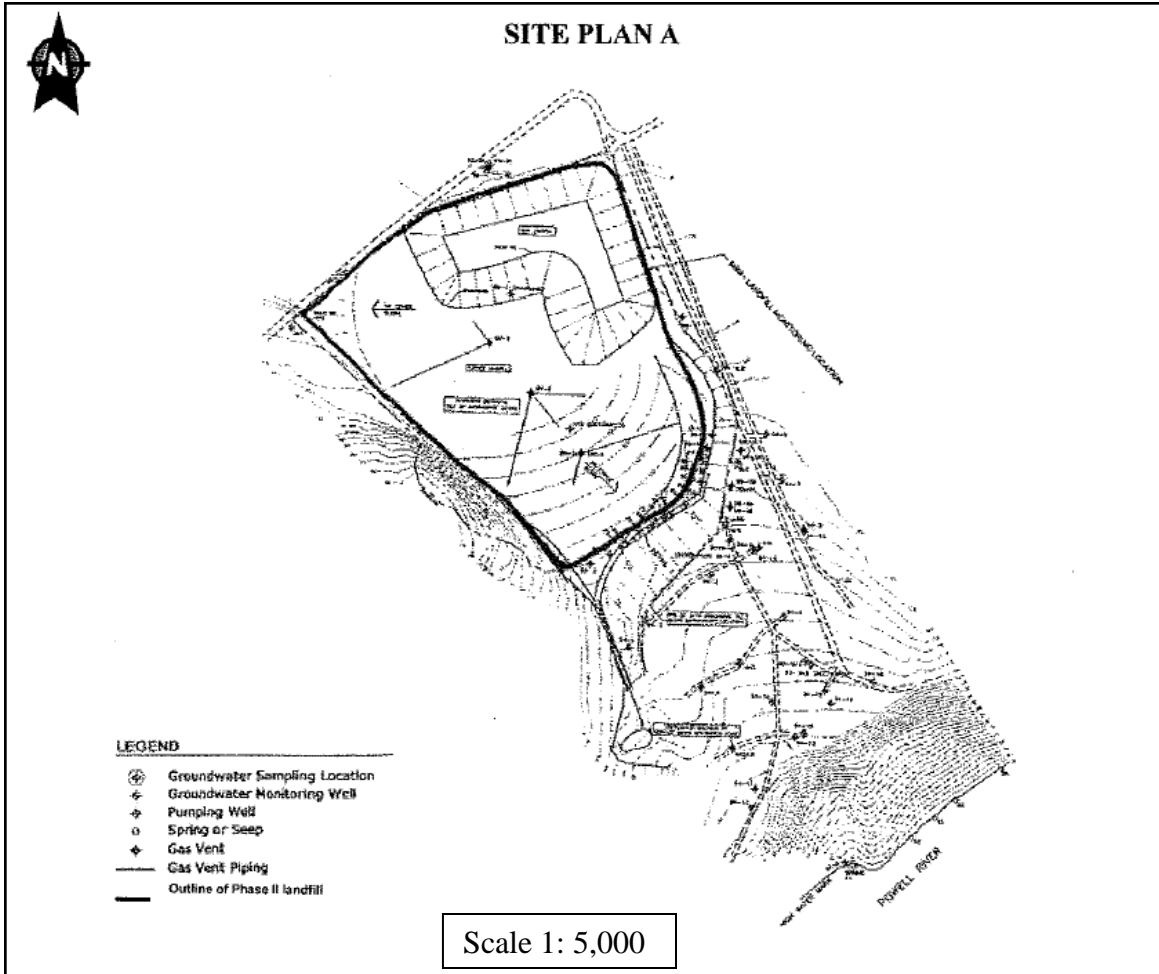
The following information must be posted on the company web page at the specified frequencies:

1. Ambient Monitoring Data Graphs and Hivol Monitoring Results – within 30 calendar days of the end of each month;
2. Dustfall Monitoring Results – within 30 calendar days following receipt of the data; and
3. Groundwater Update Report, Annual Report (Section 3.5) – within 30 calendar days of receipt of the report.

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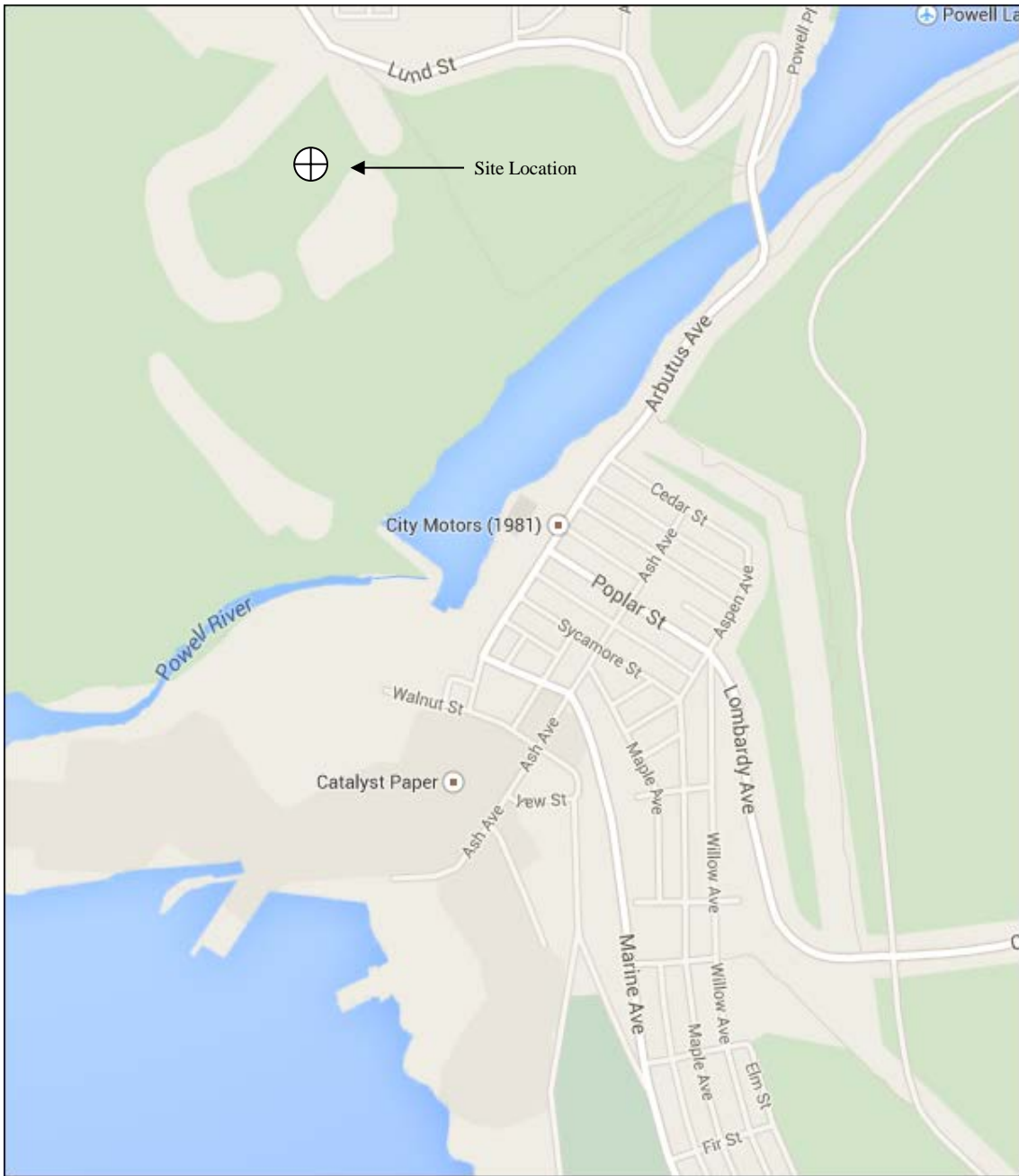
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LOCATION MAP



Lat / Long 49.883234, -124.558023

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