DEPARTMENT OF ECOLOGY
State of Washington

Notice of Construction Application

A notice of construction permit is required before installing a new source of air pollution or modifying an existing source of air pollution. This application applies to facilities in Ecology's jurisdiction. Submit this application for review of your project. For general information about completing the application, refer to Ecology Forms ECY 070-410a-g, "Instructions for Ecology's Notice of Construction Application."

Ecology offers up to two hours of free pre-application assistance. We encourage you to schedule a pre-application meeting with the contact person specified for the location of your proposal, below. If you use up your two hours of free pre-application assistance, we will continue to assist you after you submit Part 1 of the application and the application fee. You may schedule a meeting with us at any point in the process.

Upon completion of the application, please enclose a check for the initial fee and mail to:

Department of Ecology
Cashiering Unit
PO Box 47611
Olympia, WA 98504-7611

For Fiscal Office Use Only: 0299-3030404-B00-216--001--000404

Check the box for the location of your proposal. For assistance, call the appropriate office listed below:

Check box	Ecology Permitting Office	Contact
☐	**Chelan, Douglas, Kittitas, Klickitat, or Okanogan County** Ecology Central Regional Office (509) 575-2490	Lynnette Haller (509) 457-7126 lynnette.haller@ecy.wa.gov
☒	**Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Stevens, Walla Walla, or Whitman County** Ecology Eastern Regional Office (509) 329-3400	Karin Baldwin (509) 329-3452 karin.baldwin@ecy.wa.gov
☐	**San Juan County** Ecology Northwest Regional Office (206) 594-0000	David Adler (425) 649-7267 david.adler@ecy.wa.gov
☐	**For actions taken at Kraft and Sulfite Paper Mills and Aluminum Smelters Only** Ecology Industrial Section (360) 407-6900	James DeMay (360) 407-6868 james.demay@ecy.wa.gov
☐	**For actions taken on the US Department of Energy Hanford Reservation Only** Ecology Nuclear Waste Program (509) 372-7950	Lilyann Murphy (509) 372-7951 lilyann.murphy@ecy.wa.gov

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Check the box below for the fee that applies to your application.

New project or equipment:

- ☐ **$1,904: Basic project** initial fee covers up to 16 hours of review.
- ☐ **$12,614: Complex project** initial fee covers up to 106 hours of review.

Change to an existing permit or equipment:

- ☐ **$357: Administrative or simple change** initial fee covers up to 3 hours of review. Ecology may determine your change is complex during the completeness review of your application. If you project is complex, you must pay the additional xxx before we will continue working on your application
- ☒ **$1,190: Complex** change initial fee covers up to 10 hours of review
- ☐ **$350flat fee**: Replace or alter control technology equipment under WAC 173-400-114. Ecology will contact you if we determine your change belongs in another fee category. You must pay the fee associated with that category before we will continue working on your application.

Read each statement below, then check the box next to it to acknowledge that you agree.

- ☒ The initial fee you submitted may not cover the cost of processing your application. Ecology will track the number of hours spent on your project. If the number of hours Ecology spends exceeds the hours included in your initial fee, Ecology will bill you $119 per hour for the extra time.
- ☒ You must include all information requested by this application. Ecology may not process your application if it does not include all the information requested.
- ☒ Submittal of this application allows Ecology staff to visit and inspect your facility.

Part 1: General Information

I. Project, Facility, and Company Information

1. Project Name: OB-3 media Change
2. Facility Name: OB-3 Resource Management Industrial Wastewater Facility
3. Facility Street Address: 1201 Basin St Warden WA 98857
4. Facility Legal Description: Attached
5. Company Legal Name (if different from Facility Name): OB-3 Resource Management LLC
6. Company Mailing Address (street, city, state, zip) 1201 Basin St Warden WA 98857

II. Contact Information and Certification

1. Facility Contact Name (who will be onsite): Tyler Argo
2. Facility Contact Mailing Address (if different than Company Mailing Address: Same

3. Facility Contact Phone Number: 509-349-2547 ext 237
4. Facility Contact E-mail: targo@hdbllc.net
5. Billing Contact Name (who should receive billing information):
   Tyler Argo
6. Billing Contact Mailing Address (if different Company Mailing Address):
   Same
7. Billing contact Phone Number: 509-349-2547 ext 237
8. Billing Contact E-mail: targo@hdbllc.net
9. Consultant Name (optional – if 3rd party hired to complete application elements):
10. Consultant Organization/Company:
11. Consultant Mailing Address (street, city, state, zip):
12. Consultant Phone Number:
13. Consultant E-mail:
14. Responsible Official Name and Title (who is responsible for project policy or decision making):
15. Responsible Official Phone:
16. Responsible Official E-mail:
17. Responsible Official Certification and Signature:

    I certify that the information on this application is accurate and complete.

    Signature: Tyler Argo Date: 2/6/25

Part 2: Technical Information

The Technical Information may be sent with this application form to the Cashiering Unit, or may be sent directly to the Ecology regional office with jurisdiction along with a copy of this application form.

For all sections, check the box next to each item as you complete it.

III. Project Description

- [X] Written narrative describing your proposed project. (Attached)
- [ ] Projected construction start and completion dates.
- [ ] Operating schedule and production rates.
- [ ] List of all major process equipment and manufacturer and maximum rated capacity.
- [ ] Process flow diagram with all emission points identified.
- [ ] Plan view site map.
- [ ] Manufacturer specification sheets for major process equipment components
- [ ] Manufacturer specification sheets for pollution control equipment.
- [ ] Fuel specifications, including type, consumption (per hour and per year) and percent sulfur.

IV. State Environmental Policy Act (SEPA) Compliance

Check the appropriate box below. SEPA already on file

- [X] SEPA review is complete. Include a copy of the final SEPA checklist and SEPA determination (e.g., DNS, MDNS, and EIS) with your application.
- [ ] SEPA review has not been conducted:
  - [ ] If review will be conducted by another agency, list the agency. You must provide a copy of the final SEPA checklist and SEPA determination before Ecology will issue your permit. Agency reviewing SEPA: _____
  - [ ] If the review will be conducted by Ecology, fill out a SEPA checklist and submit it with your application. You can find a SEPA checklist online at https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-document-templates

V. Emissions Estimations of Criteria Pollutants

Does your project generate criteria air pollutant emissions? [ ] **Yes** [X] **No**

If yes, please proved the following information regarding your criteria emissions in the application.

- [ ] The names of the criteria air pollutants emitted (i.e., NO_X, SO_2, CO, $PM_{2.5}$, PM_{10}, TSP, VOC, and Pb)
- [ ] Potential emissions of criteria air pollutants in tons per hour, tons per day, and tons per year (include calculations)
- [ ] If there will be any fugitive criteria pollutant emissions, clearly identify the pollutant and quantity

VI. Emissions Estimations of Toxic Air Pollutants

Does your project generate toxic air pollutant emissions? [ ] **Yes** [X] **No**

If yes, please provide the following information regarding your toxic air pollutant emissions in your application.

☐ The names of the toxic air pollutants emitted (specified in WAC 173-460-150[1])

☐ Potential emissions of toxic air pollutants in pounds per hour, pounds per day, and pounds per year (include calculations)

☐ If there will be any fugitive toxic air pollutant emissions, clearly identify the pollutant and quantity

VII. Emission Standard Compliance

☐ Provide a list of all applicable new source performance standards, national emission standards for hazardous air pollutants, national emission standards for hazardous air pollutants for source categories, and emission standards adopted under Chapter 70A.15 RCW.

Does your project comply with all applicable standards identified? ☐ **Yes** ☐ **No**

VIII. Best Available Control Technology (Attached file)

☒ Provide a complete evaluation of Best Available Control Technology (BACT) for your proposal.

IX. Ambient Air Impacts Analyses

Please provide the following:

☐ Ambient air impacts analyses for Criteria Air Pollutants (including fugitive emissions)

☐ Ambient air impacts analyses for Toxic Air Pollutants (including fugitive emissions)

☐ Discharge point data for each point included in air impacts analyses (include only if modeling is required)

- ☐ Exhaust height
- ☐ Exhaust inside dimensions (ex. diameter or length and width)
- ☐ Exhaust gas velocity or volumetric flow rate
- ☐ Exhaust gas exit temperature
- ☐ The volumetric flow rate
- ☐ Description of the discharges (i.e., vertically or horizontally) and whether there are any obstructions (ex., raincap)
- ☐ Identification of the emission unit(s) discharging from the point
- ☐ The distance from the stack to the nearest property line
- ☐ Emission unit building height, width, and length
- ☐ Height of tallest building on-site or in the vicinity and the nearest distance of that building to the exhaust
- ☐ Whether the facility is in an urban or rural location

Does your project cause or contribute to a violation of any ambient air quality standard or acceptable source impact level? ☐ **Yes** ☐ **No**

To request ADA accommodation, call Ecology at (360) 407-6800, 711 (relay service), or (877) 833-6341 (TTY)

[1] http://apps.leg.wa.gov/WAC/default.aspx?cite=173-460-150

Legal description

POR FU'S 140 & 136, BLK 44 4 & 9 17 30 Those portions of Farm Unit 140 and Farm Unit 136, Irrigation Block 44, Columbia Basin Project, in Sections 4 and 9, Township 17 North, Range 30 East W.M., Grant County, Washington, described and delineate

Project Overview

This project aims to enhance the efficiency of gas cleaning operations at OB-3 by replacing the traditional iron sponge material with ferric hydroxide. The transition to ferric hydroxide is driven by its superior performance in removing hydrogen sulfide (H_2S) and other impurities from gas streams, leading to improved operational efficiency and reduced maintenance requirements. The change out process of ferric hydroxide is also less labor intensive and will result in less downtime.

Iron sponge has been widely used in gas purification processes due to its ability to remove H_2S. However, it has several limitations, including rapid depletion, frequent replacement needs, and loss of blower pressure due to it clumping. These challenges contribute to increased operational costs and downtime.

Ferric hydroxide presents a more effective alternative. It offers higher adsorption capacity, longer operational lifespan, and ability to not have any pressure loss when spent. Additionally, it aligns with industry efforts to adopt cleaner technologies while maintaining cost-effectiveness.

Conclusion

The transition from iron sponge to ferric hydroxide represents a strategic investment in improving gas purification processes. By adopting this advanced material, we enhance operational efficiency, reduce costs, and strengthen safety and environmental compliance. This project underscores our commitment to innovation and sustainable industry practices while delivering long-term value.

UNISON

Employee Owned

February 4, 2025

Attn: Tyler Argo, OB-3
Re: Media quote PM-125.2046

Dear Tyler,

Thank you for your interest in Unison Solutions and our options for H_2S removal media. Attached please find our quote based on your conversation with Adam Klaas. Note that the media quantity is based on 3 vessels, 12'Ø and 7.15' of bed depth each.

Please note that the media quoted is a ferric hydroxide product, which operates in a significantly different manner than the iron sponge product you have been using.

Iron sponge is a wood substrate with ferric oxide and other compounds imbedded into the surface of the wood. Removal of sulfur ions is done on the surface so the material tends to clump as sulfur is very sticky and can make the media hard to remove when spent. It also affects the pressure drop in your system.

The media we are recommending is a granular ferric hydroxide product that pulls sulfur ions into the pores of the media. It remains granular, even when exhausted so pressure drop is minimal and change outs can be done with a vac truck and high-pressure sprayer. Due to its smaller pellet size, this media requires a foam pad to be installed on the floor of the vessel prior to loading the media. In your system, it can be laid on top of the gravel floor in the bottom of the vessel. In addition to being easier to remove from the vessel, this media has a higher capacity for H_2S removal when compared to iron sponge.

At start up, there is a conditioning step where the CO_2 in the biogas reacts with the calcium on the media. The reaction produces calcium carbonate - $CaCO_3$ and heat, i.e. gas temperatures of 20 - 50°F above inlet gas temperature, and increases the methane percentage to almost 95% during this time. Some preconditioning of the media is done prior to shipping, but an exothermic reaction may occur. At some sites, the length of time for this reaction to be completed is 8-24 hours. Ideally the gas should be run slowly through the vessel and be diverted to a flare or boiler and monitored during this conditioning step.

Please note that both H_2S removal products are iron (ferric) based and will require flooding the vessel with water prior to removing the spent product. When the spent material is exposed to air, it will try to regenerate. This reaction produces heat so both media types ideally should be kept wet during this reaction time and laid out 6-8" deep on a non-flammable surface.

Once the reaction is completed, both media types will be disposed of in a landfill, according to the site's solid waste providers requirements.

Thank you for the opportunity to propose our media. Please feel free to contact me if you have any questions or concerns.

Sincerely,

Emma Hoefer

Unison Solutions, Inc.

563-585-0967

Following is a general comparison of the features of the ferric hydroxide product, UNI-H2S, and iron sponge.

Media Type	UNI-H2S	IRON SPONGE
Pellet Size	2-4 mm	Variable
Appearance	Variable shaped, light brown	Brown wood chips with wood odor
Chemistry	FeO(OH) Iron Hydroxide & Calcium mixtures	Wood substrate with Fe_2O_3, $NaCO_3$, $CaCO_3$ & H_2O
Iron (Fe) source	Mined in Germany	Byproduct of steel industry (may contain other meta
Sulfur Loading Capacity	20-40% by weight	6-13% by weight
Minimum raw gas moisture content	40% R.H. @ 80°F	100% R.H. @ 80°F with no free moisture present
Maximum/Optimum Gas Moisture	100% R.H. with no free moisture present	100% R.H. with no free moisture present
Operating Temperature	40 - 180°F	50-120°F (80 - 110°F optimum)
Oxygen Content for optimum operation	0.4-0.8%/1,000 ppmv H_2S	2-3%
Density, lb/ft^3	37-40 lb/ft^3	48-54 lb/ft^3
Standard packaging	2,200 lb Super sacks	42-bushel supersacks (Approx. 2,200 lbs)
Spent media characteristics	Material changes to a black color, stays granular	Major clumping of media
Foam pad required	Yes	No