

## **Fact Sheet Amendment #2 for State Waste Discharge Permit ST0008121 REC Solar Grade Silicon, LLC.**

### **Purpose of this fact sheet amendment**

This fact sheet amendment explains and documents the modifications to the permit issued to REC Solar Grade Silicon on November 29, 2016. The fact sheet that accompanied the 2016 permit has detailed information about the wastewater treatment plant and Ecology's permit decisions.

State law requires any commercial or industrial facility to obtain a permit before discharging waste or chemicals to municipal sanitary sewer collection and treatment system.

Ecology makes the draft modified permit available for public review and comment at least 30 days before issuing the final permit. Copies of the draft documents for REC Solar Grade Silicon, State Waste Discharge permit ST0008121, are available for public review and comment from October 23, 2019 until the close of business November 22, 2019. For more details on preparing and filing comments about these documents, please see **Appendix A - Public Involvement Information**.

After the public comment period closes, Ecology will summarize substantive comments and our responses to them. Ecology will include our summary and responses to comments to this fact sheet amendment as **Appendix C - Response to Comments**, and publish it when we issue the final State Waste Discharge permit. Ecology will not revise the rest of the fact sheet, but the full document including all appendices will become part of the legal history contained in the facility's permit file.

This fact sheet amendment explains the regulatory and technical basis for the amended conditions contained in the permit.

### **Introduction**

The legislature defined Ecology's authority and obligations for the wastewater discharge permit program in the Water Pollution Control law, chapter 90.48 RCW (Revised Code of Washington).

Ecology adopted rules describing how it exercises its authority:

- State waste discharge program (chapter 173-216 WAC)
- Submission of plans and reports for construction of wastewater facilities (chapter 173-240 WAC)

These rules require any industrial facility owner or operator to obtain a State Waste Discharge permit before discharging wastewater to state waters. This rule includes commercial or industrial discharges to sewerage systems operated by municipalities or public entities which discharge into public waters of the state. They also help define the basis for limits on each discharge and for performance requirements imposed by the permit.

## 1. General Information

**Table 1: Facility Information**

Facility Information	
Facility Name	REC Solar Grade Silicon, LLC.
Facility Address	3322 Road N NE, Moses Lake, WA 98837
Type of Treatment by Industry	Low chloride process wastewater (Outfall 001) – pH adjustment, chemical precipitation, filtration  Non-Contact Cooling Water (Outfall 003) – Seasonal storage and land treatment  High Sodium, High Silicate and High Chloride wastewaters (Outfall 004) – pH adjustment, chemical precipitation, filtration, discharge to lined evaporation ponds
Treatment Plant Receiving Discharge	City of Moses Lake Dunes, Treatment Plant

## 2. Background

REC Solar Grade Silicon (REC SGS) owns and operates a high purity polysilicon and silane plant in Moses Lake. The facility discharges low chloride wastewater to the City of Moses Lake, Sand Dunes Treatment Plant; high chloride and high sodium, high silicate wastewaters to a series of lined evaporation ponds; and non-contact cooling water to a 60 million gallon lined storage pond and 125 acre land application site.

## 3. Discussion

Ecology received a written request on August 1, 2019 from REC SGS to reduce sampling analysis for specific permit-required parameters. Below is a list of requests and Ecology's reasoning for the permit modification.

1. Reduce sodium sampling and analysis in Outfall 001 to a single monthly sample with a 558 pound/day limit.

In January 2013, the Permittee stopped using PolySiemens reactors (Plant 1.0) in the production of high purity polysilicon. This has resulted in a significant decrease in the quantity of sodium discharged in the low-chloride process wastewater (Outfall 001) to the City of Moses Lake POTW.

The current year-to-date (2019) sodium discharged through Outfall 001 averages 17 pounds per day (lbs/day), about 3 percent of the monthly average permit limit of 558 lbs/day. The Permittee has requested the monitoring frequency for sodium at Outfall 001 be reduced from 5 days per week to once per month. Considering the low levels of sodium discharged, Ecology proposes to reduce the monitoring frequency to once per month.

The Permittee also requested that a single, do not exceed limit of 558 lbs/day (current monthly average limit) replace the current permit limits of a monthly average of 558 lbs/day and a daily maximum of 796 lbs/day. Ecology proposes to set both the monthly average limit and daily maximum limits to 558 lbs/day.

The proposed amendment will also require REC to notify both the City of Moses Lake and Ecology in the event that production of polysilicon resumes. Ecology may increase the monitoring frequency of sodium at Outfall 001 at that time. The change in monitoring frequency will be subject to normal public review process prior to the final modification.

2. Relinquish the land application site with the following modifications to ST0008121

- S1.B. Outfall 003 Land Treatment System – Remove this section
- S2.B. Outfall 003 Land Treatment System Monitoring – Remove this section
- S2.E. Supplemental Irrigation Water Monitoring – Remove this section
- S2.F. Groundwater Monitoring – Remove GW-13 and GW-14 from well list
- S2.G. Soil Monitoring – Remove this section
- S2.H. Crop Monitoring – Remove this section
- S2.K. Remove 2<sup>nd</sup> paragraph as it relates to crop/soil monitoring
- S4.C. Irrigation Land Application Best Management Practices – Remove this section
- S9. Facility Loading – Remove this section
- S15. Irrigation and Crop Management Plan – Remove this section
- S17. Non-Contact Cooling Water Conditional Requirements – Remove this section

The end of silicon production from the PolySiemens reactors has also resulted in a decrease the volume of non-contact cooling water discharged to the land treatment system (Outfall 003). In combination with other reductions in water use, the Permittee no longer has the need to operate the land treatment system. Additionally, the Permittee sold the land treatment site in early 2019.

In a 2018 permit amendment, Ecology conditioned permit requirements and monitoring for the land treatment system (Outfall 003 – non-contact cooling water). If the facility did not apply any wastewater to the land treatment system during an irrigation season, the applicable permit monitoring and requirements would not apply.

The Permittee has requested that Ecology amend the permit to remove conditions and monitoring requirements related to the land treatment site. The Permittee will continue to send any non-contact cooling waters to the 60 million gallon storage pond for evaporation.

3. Discontinue sampling at GW-13, GW-14, SW-1, and SW-2; retain groundwater and surface water sampling at all other permit locations.

As the proposed modification will no longer authorize the land treatment of non-contact cooling water, REC no longer needs to monitor the groundwater downgradient from the land treatment site.

Permit condition S14 required REC to prepare a surface water and groundwater study plan and submit summary reports of the data in December 2018 and December 2020. The approved plan included two surface water sites associated with the land treatment site, SW-1 and SW-2. Similar to the groundwater wells GW-13 and GW-14, Ecology recognizes that REC no longer needs to monitor SW-1 and SW-2.

#### **4. Permit Modification**

Based on REC Solar Grade Silicon's request, Ecology proposes to make the following changes to the permit:

- Reduce sodium sampling and analysis in Outfall 001 to a single monthly sample with a 558 pound/day limit.
- Remove the following conditions related to the land treatment site from the permit:
  - S1.B. Outfall 003 Land Treatment System
  - S2.B. Outfall 003 Land Treatment System Monitoring
  - S2.E. Supplemental Irrigation Water Monitoring
  - S2.F. Groundwater Monitoring-Remove MW13 and MW14 from the list of wells
  - S2.G. Soil Monitoring
  - S2.H. Crop Monitoring
  - S2.K. Remove 2nd paragraph as it relates to crop/soil monitoring
  - S4.C. Irrigation Land Application Best Management Practices
  - S9. Facility Loading
  - S15. Irrigation and Crop Management Plan
  - S17. Non-Contact Cooling Water Conditional Requirements
- Discontinue sampling at MW13, MW14, SW-1, and SW-2; retain groundwater and surface water sampling at all other permit locations.

## **5. Conclusion**

Ecology proposes to modify REC Solar Grade Silicon's permit as discussed in section three and four above.

No other condition or requirement of the 2016 permit is hereby affected by this amendment.

**Appendix A – Public Involvement**

**Appendix B – Your Right to Appeal**

**Appendix C – Response to Comments**

## **Appendix A – Public Involvement Information**

Ecology proposes to modify the REC Solar Grade Silicon State Waste Discharge permit. The permit modifications are described in this fact sheet amendment.

Ecology will place a public notice in the Columbia Basin Herald, the paper of record for Grant County, on October 29, 2019 to inform the public and to invite comments on the proposed draft modified permit. Interested persons are invited to submit written comments regarding the modifications. Ecology is only accepting comments on the modified portions.

The modified permit and related documents can be viewed between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Mail written comments to **Water Quality Program, Department of Ecology, 4601 North Monroe Street, Spokane, Washington, 99205.**

Any interested party may request a public hearing on the proposed permit within 30 days of the publication date of this notice. The request for a hearing shall state the interest of the party and the reasons why a hearing is necessary. The request should be sent to the above address. The Department will hold a hearing if it determines that there is significant public interest. If a hearing is to be held, public notice will be published at least 30 days in advance of the hearing date. Any party responding to this notice with comments will be mailed a copy of a hearing public notice.

Ecology is an equal opportunity agency. If you need this publication in an alternate format, please contact us at (509) 329-3400 or TTY (for the speech and hearing impaired) at 711 or 1-800-833-6388.

For more information, call the Department of Ecology Eastern Regional Office at (509) 329-3400 or go online to the [Department of Ecology website](http://ecy.wa.gov) at [ecy.wa.gov](http://ecy.wa.gov).

## Appendix B - Your Right to Appeal

You have a right to appeal this permit to the Pollution Control Hearing Board (P.C.H.B.) within 30 days of the date of receipt of the final permit. **You may only file an appeal on the modified portions of the permit.** The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2) (see glossary).

To appeal you must do the following within 30 days of the date of receipt of this permit:

- File your appeal and a copy of this permit with the P.C.H.B. (see addresses below). Filing means actual receipt by the P.C.H.B. during regular business hours.
- Serve a copy of your appeal and this permit on Ecology in paper form, by mail or in person at the addresses below.

You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

### ADDRESS AND LOCATION INFORMATION

#### Deliver in person

Department of Ecology  
Attn: Appeals Processing Desk  
300 Desmond Drive SE  
Lacey, Washington 98503

Pollution Control Hearings Board  
1111 Israel Road Southwest, Suite 301  
Tumwater, Washington 98501

#### Deliver by mail

Department of Ecology  
Attn: Appeals Processing Desk  
P.O. Box 47608  
Olympia, Washington 98504-7608

Pollution Control Hearings Board  
P.O. Box 40903  
Olympia, Washington 98504-0903

\*Effective February 17, 2015, you can file with the P.C.H.B. by e-mail at the following address provided you follow-up with required hard copies postmarked the same day they are e-mailed (See WAC 371-08-305(6) and 335(3)); [PCHB-SHBappeals@eluhho.wa.gov](mailto:PCHB-SHBappeals@eluhho.wa.gov).

Ecology only accepts copies of appeals by hand delivery or by mail. Email is not accepted.

## **Appendix C - Response to Comments**

Ecology did not receive comments on the draft modified permit following the 30-day public comment period.



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Department of Ecology  
 Eastern Washington Office

Mr. Pat Hallinan  
 Washington State Department of Ecology  
 Water Quality Section  
 4601 N Monroe St.  
 Spokane, WA 99205

July 30, 2019

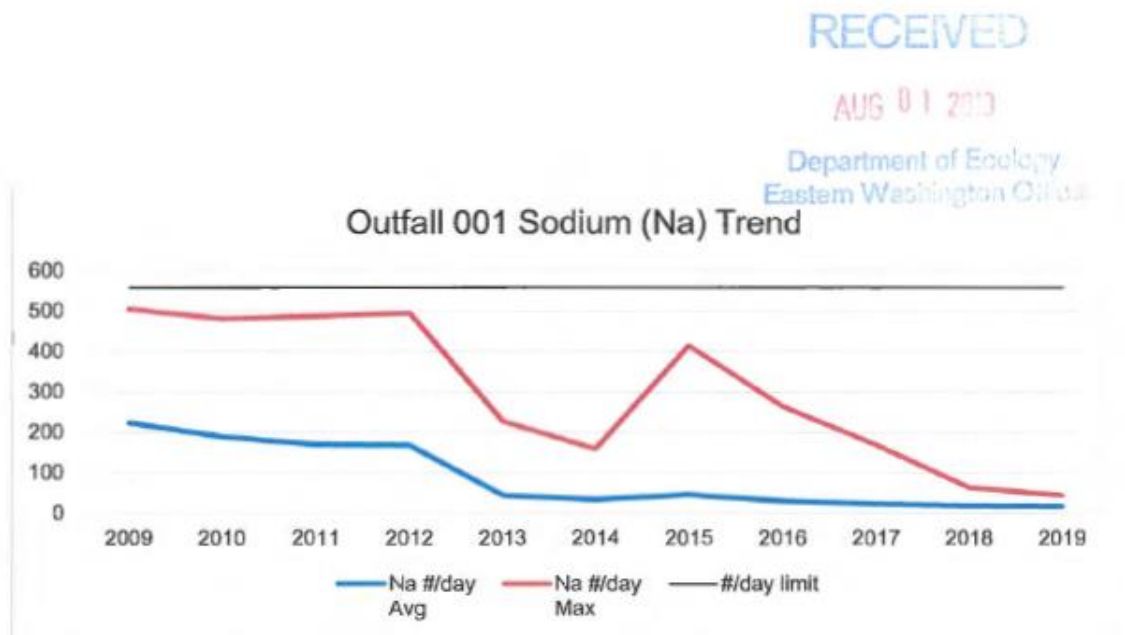
Dear Mr. Hallinan,

**Subject: Request for Sampling & Analysis Reduction for ST8121**

The purpose of this letter is to provide support for REC's request to reduce sampling and analysis for specific permit-required efforts. These include the reduction in sodium sampling at Outfall 001, and the removal/reduction of certain requirements in the ST8121 permit (herein as permit) as they relate to the land treatment application site.

REC measures sodium concentrations in Outfall 001. This analysis was performed in-house up until March 2018. Since then, REC has performed this analysis externally at a cost of \$12,300/year. Sodium amounts in Outfall 001 have been steadily decreasing year-over-year due to the cessation of PolySiemens manufacturing and are currently at ~1/3<sup>rd</sup> the monthly average pound/day limit. REC is respectfully requesting that sodium be modified from a 5x/week schedule to a single monthly sample due to cost and lower sodium mass discharge. This requested change would remove the daily maximum and monthly average limits and replace them with a single, do-not-exceed limit of 558 pounds/day (the current monthly average limit). Please review the table and graph below for supporting sodium data.

Outfall 001 Sodium Concentrations		
Year	Sodium pounds/day, avg	Sodium pounds/day, max
2009	224	506
2010	189	481
2011	170	488
2012	168	496
2013	45	227
2014	34	159
2015	46	414
2016	30	264
2017	22	170
2018	19	64
2019	17	44



In early 2019, REC sold Farm Unit 77. This was also referred to in the permit as the land treatment application site. One reason for the divestiture was that REC no longer needed a land application site for its non-contact cooling water discharge. The sale agreement also did not include access for REC's sampling efforts. Accordingly, REC is respectfully requesting the removal of certain groundwater, surface water, soil, and crop monitoring requirements from the permit. The rationale for this request is explained in the following paragraphs.

The interim groundwater and surface water study report submitted in December 2018 did not demonstrate that groundwater quality in these wells at the land application site (MW-13, MW-14) and surface water quality (SW-1, SW-2) correlate to any REC activities (specifically any subsurface intrusion from the on-site high chloride evaporation ponds to the wells, or the introduction of non-contact cooling water to the irrigation canal).

Based on groundwater flow maps from the 2012 Hydrogeology Study and the 2018 interim study report, MW-2, MW-11, and MW-12 are downgradient of the high chloride ponds. It is expected that any high chloride intrusion into groundwater would be discovered at these wells. MW-11 and MW-12 wells are also completed in the same geologic stratum as MW-13 and MW-14 (Priest Rapids Member of the Wanapum Basalt—see figures 6 & 7 from the 2012 Hydrogeologic Study). Thus, the use of MW-2, MW-11, and MW-12 would be reliable indicators of high chloride intrusion from the evaporation ponds because they are directly downgradient of the high chloride evaporation ponds. MW-13 and MW-14 are 1,800 feet and 2,800 feet, respectively, from the high chloride evaporation ponds. MW-2, MW-11, and MW-12 are all within 600 feet of the nearest high chloride evaporation pond.

Since REC will no longer surface discharge non-contact cooling water via Outfall 003, it is respectfully requested that crop, soil, and surface water (SW-1 and SW-2 only) monitoring be removed from the permit as it relates to the former land application site. These three media were specifically sampled to detect any changes in chemistry due to non-contact cooling water application.

REC is respectfully requesting the following changes to the permit:

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Department of Ecology  
Eastern Washington

- Reduce sodium sampling and analysis in Outfall 001 to a single monthly sample with a 558 pound/day limit.
- 1. Relinquish the land application site use
- 2. Discontinue sampling at GW-13, GW-14, SW-1, and SW-2; retain groundwater and surface water sampling at all other permit locations.

Specific modifications to ST8121 are listed below:

- S1.B. Outfall 003 Land Treatment System—Remove this section
- S2.B. Outfall 003 Land Treatment System Monitoring—Remove this section
- S2.E. Supplemental Irrigation Water Monitoring—Remove this section
- S2.F. Groundwater Monitoring—Remove GW-13 and GW-14 from well list
- S2.G. Soil Monitoring—Remove this section
- S2.H. Crop Monitoring—Remove this section
- S2.K. Remove 2<sup>nd</sup> paragraph as it relates to crop/soil monitoring
- S4.C. Irrigation Land Application Best Management Practices—Remove this section
- S9. Facility Loading—Remove this section
- S15. Irrigation and Crop Management Plan—Remove this section
- S17. Non-Contact Cooling Water Conditional Requirements—Remove this section

REC will also submit the same request for sodium sampling and analysis to the City of Moses Lake to amend Industrial Waste Discharge Permit No.4 as appropriate, pending Ecology's decision.

Please contact me or Shawn Bowen with any questions. His phone number is (509) 766-8537.

Respectfully,



Paul Stenhouse  
Environmental Engineer  
509-793-9165