

**Bay Area Air Quality Management District**

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**Permit Evaluation  
and  
Statement of Basis  
for  
MAJOR FACILITY REVIEW PERMIT  
MINOR REVISION**

for  
**Redwood Landfill, Inc.  
Facility #A1179**

**Facility Address:**  
8950 Redwood Highway  
Novato, CA 94948

**Mailing Address:**  
P.O. Box 793  
Novato, CA 94945

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# ENGINEERING EVALUATION and STATEMENT of BASIS

## Redwood Landfill, Inc.; Site # A1179 APPLICATIONS # 6943 and # 9565

### A. BACKGROUND

Redwood Landfill submitted Application # 9565 in order to obtain an Authority to Construct and Permit to Operate for modifications of the landfill gas collection system for the S-5 Redwood Landfill. Redwood Landfill is proposing to (a) install 70 new vertical wells, (b) install 4000 feet of new horizontal collectors, (c) shutdown 3 inoperable vertical wells, and (d) shutdown all 44 existing horizontal collectors. The map enclosed with their application materials shows the locations of the current gas collection system and the proposed additions to the collection system in detail. These collection system modifications are necessary in order for Redwood Landfill to remain in compliance with the Regulation 8, Rule 34, Section 303 surface leak limit.

A Temporary Permit to Operate was issued for Application # 9565 on May 24, 2004 (effective as of the complete date, May 4, 2004). In accordance with the terms of this temporary permit, Redwood Landfill has completed the following collection system component changes:

- shutdown 3 vertical wells
- shutdown 33 horizontal collectors
- installed 5 vertical wells (V21-V25) on May 17, 2004
- installed 4 vertical wells (V26-V29) on June 7, 2004

The remaining vertical wells are expected to be installed over the next 2 years. New horizontal collectors may be installed (if necessary) in new fill areas as filling progresses. The old horizontal collectors will be capped and abandoned in-place in stages as the replacement vertical wells are installed in the same areas of influence.

### B. EMISSIONS

Redwood Landfill vents all of their collected landfill gas to the A-50 Landfill Gas Flare and S-50 Leachate Evaporator. The flare and evaporator were initially permitted to burn a total of 2667 scfm of landfill gas with an HHV of 500 BTU/scf. (Pursuant to Application # 8501, Redwood Landfill has requested an increase in the landfill gas throughput for the flare.) Redwood Landfill recently reported that this equipment burned an annual average of 1515 scfm of landfill gas. The new collection system equipment is expected to increase the landfill gas flow rate by no more than 1000 scfm. A-50 and S-50 have sufficient capacity to handle all of this increased volume of landfill gas with no permit modifications. Therefore, this application will not result in any emission increases. Cumulative emission increases for this facility and this application are summarized in Table 1.

Table 1. Summary of Plant Cumulative Emission Increases

	<u>Current Balance</u> <u>for Site # A1179</u>		<u>Application # 9565</u> <u>Emission Increases</u>		<u>New Balance for</u> <u>Site # A1179</u>
	<u>Tons/Year</u>		<u>Tons/Year</u>		<u>Tons/Year</u>
POC	= 0.000	+	0.000	=	0.000
NO <sub>x</sub>	= 0.000	+	0.000	=	0.000
CO	= 280.888	+	0.000	=	280.888
PM <sub>10</sub>	= 34.613	+	0.000	=	34.613
SO <sub>2</sub>	= 51.206	+	0.000	=	51.206

NPOC = 5.031 + 0.000 = 5.031

### **C. STATEMENT OF COMPLIANCE**

#### Regulation 2, Rule 1 (CEQA and Public School Notifications):

The Engineering Evaluation for this application uses fixed standards and objective measurements and does not involve any element of discretion. In accordance with District Permit Handbook Chapter 8.1 "Landfills", this application is considered ministerial. No further CEQA review is required.

The project is over 1000 feet from the nearest school and is therefore not subject to the public notification requirements of Regulation 2-1-412.

#### Regulation 2, Rule 2 (New Source Review) and Risk Management Policy (Toxic Pollutants):

Since there are no emission increases expected from this project, BACT, Offsets, and PSD do not apply, a toxic risk screening analysis was not required, and TBACT does not apply.

#### Regulation 8, Rule 34:

The Redwood Landfill's Active Landfill with Gas Collection System (S-5) is expected to comply with Regulation 8 Rule 34 Section 301 by:

- (a) continuously operating the gas collection system (currently consisting of 97 vertical wells and 11 horizontal collectors) and the flare,
- (b) having no leaks (exceeding 1000 ppmv) from the gas collection system, and
- (c) processing all collected gases in a flare achieving at least 98% destruction efficiency.

The S-5 Active Landfill is also subject to 8-34-303, which limits leaks on the surface of the landfill to less than 500 ppmv as methane. The collection system modifications requested in this application are intended to prevent surface leaks in the future.

#### Federal Requirements:

The Redwood Landfill is subject to the NSPS for MSW Landfills (40 CFR, Part 60, Subpart WWW) because the design capacity for the landfill was modified in 1995. The collection and control standards for this site became effective on December 10, 1998. Recent source testing indicates that the Flare is achieving at least 98% control for NMOC. The collection system modifications requested in this application are necessary to maintain compliance with the 500 ppmv as methane surface leak limit. Redwood Landfill is complying with the monthly wellhead and cover monitoring and quarterly surface monitoring requirements. This application does not trigger any new NSPS requirements.

The Redwood Landfill is also subject to the NESHAPs for MSW Landfills (40 CFR, Part 63, Subpart AAAA). In accordance with NESHAP requirements, Redwood Landfill has prepared a Start-up, Shut-down, and Malfunction Plan and is now submitting the Regulation 8, Rule 34 Annual Report on a semi-annual basis.

## D. MFR PERMIT CHANGES

Since Application # 9565 does not result in any emission increases and does not involve any new or modified applicable requirements or monitoring procedures, this application may be handled as a minor revision to the MFR Permit.

In addition to the collection system modifications discussed above for Application # 9565, the collection system modifications that were completed pursuant to Application # 6943 will be reflected in these proposed MFR Permit revisions. As indicated in Condition # 19867, Part 17b, updating the number of wells installed pursuant to an Authority to Construct constitutes a minor MFR Permit revision. The Application # 6943 collection system modifications are summarized in the Application # 6943 Permit to Operate Report, which is included as Appendix A.

This minor revision action will not require any changes to Sections I, III, IV, V, VII, VIII, IX, XI, or XII. Changes to Sections II, VI, and X are identified below in double strikeout and double underline format.

### Changes to Section II:

Pursuant to Application # 6943, 52 vertical wells were added, 13 horizontal collectors were shut down, and 5 horizontal collectors were reconnected. The current equipment description included 5 of the 52 authorized vertical wells and the shut of 13 horizontal collectors. After installation of the remaining 47 vertical wells and reconnection of 5 horizontal collectors, the new component description is 91 vertical wells and 44 horizontal collectors.

Pursuant to Application # 9565, 9 vertical wells have been added, 3 vertical wells have been shutdown, and 33 horizontal collectors have been shutdown. These collection system component changes result in a new total of 97 vertical wells and 11 horizontal collectors.

### **Table II - A Permitted Sources**

Each of the following sources has been issued a permit to operate pursuant to the requirements of BAAQMD Regulation 2, Permits. The capacities in this table are the maximum allowable capacities for each source, pursuant to Standard Condition I.J and Regulation 2-1-301.

S-#	Description	Make or Type	Model	Capacity
S-2	Sewage Sludge Storage, Main Pond			106 dry tons (528 wet tons) per day and 21,120 dry tons (105,600 wet tons) per year
S-5	Redwood Landfill, Active Solid Waste Disposal Site  Landfill Gas Collection System, Active	Types of waste accepted include municipal, commercial, industrial, construction, designated, and special wastes.		Max. Design Capacity = 19.1 E6 yd <sup>3</sup> (14.6 E6 m <sup>3</sup> ) Max. Cumulative Waste In Place = 17.1 MM tons in place Max. Waste Acceptance Rate = 2,300 tons/day <del>3911</del> <u>4497</u> vertical wells and <del>3911</del> <u>44</u> horizontal collectors

Permit Evaluation and Statement of Basis:  
Applications # 6943 and # 9565,  
Gas Collection System Modifications

Site A1179, Redwood Landfill, Inc.  
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Changes to Section VI:

Applications # 6943 and # 9565 will require modifications of the collection system components described in Condition # 19867, Part 17. There will be no changes to Parts 1-16 or 18-32.

**Condition # 19867**

**FOR: S-5, REDWOOD LANDFILL WITH GAS COLLECTION SYSTEM; A-18, WATER SPRAYS; AND A-50, LANDFILL GAS FLARE**

17. The landfill gas collection system described in subpart a below shall be operated continuously. Wells shall not be shut off, disconnected, or removed from operation without written authorization from the District, unless the Permit Holder complies with all applicable requirements of Regulation 8, Rule 34, Sections 113, 116, 117, and 118. The Permit Holder shall apply for and receive an Authority to Construct before modifying the landfill gas collection system described in subparts a-b below. Increasing or decreasing the number of wells or collectors, or significantly changing the length of collectors or the locations of wells or collectors are modifications that are subject to the Authority to Construct requirement.

a. The Permit Holder has been issued a Permit to Operate for the landfill gas collection system components listed below. Well and collector locations, depths, and lengths are as described in detail in Permit Application # ~~6943~~9565.

Required Components

Total Number of Vertical Wells: 4497

Total Number of Horizontal Collectors: 3911

b. The Permit Holder has been issued an Authority to Construct for the landfill gas collection system components listed below. Specific well and collector locations, depths, and lengths of associated piping are as described in detail in Permit Application # ~~6943~~9565.

	<u>Minimum</u>	<u>Maximum</u>
<u>Install New Vertical Wells:</u>	0	<u>4758</u>
<u>Install New Horizontal Collectors</u>	0 feet	<u>4000 feet</u>
<u>Decommission Horizontal Collectors</u>	0 feet	<u>11</u>

Wells installed or shutdown pursuant to subpart b shall be added to or removed from subpart a in accordance with the procedures identified in Regulations 2-6-414 or 2-6-415. The Permit Holder shall maintain records of the initial operation date for each new well.

(Basis: Regulations 2-1-301, 8-34-301.1, 8-34-304, 8-34-305, and 2-6-413)

Changes to Section X:

The revisions made pursuant to Applications # 6943 and # 9565 are summarized in Section X Revision History. Note that the Application # 8501 significant revision is currently undergoing public/EPA comment, and revisions associated with Application # 8501 are not final.

**Title V Permit Issuance (Application 17363):**

**November 10, 2003**

**Significant Revision (Application 8501):**

**[Insert Approval Date]**

- In Table II-B, change the capacity of the A-50 Flare from 75 MM BTU/hour to 120 MM BTU/hour.
- Add several missing sections of 40 CFR Part 60, Subpart WWW (flare operating and monitoring requirements) to Table IV-B.
- Delete future effective dates that have passed from Tables IV-B, IV-M, VII-B, VII-M and Condition # 19867, Part 22.
- Delete unnecessary requirements of Condition # 19867 (Parts 27 and 28) and delete references to these parts in Tables IV-B, VII-B, and VIII.
- Correct errors in Tables IV-B and IV-M and in Condition # 19867, Parts 16 and 30.

- Revise landfill gas throughput limits for A-50 in Condition # 19867, Part 20 and Table VII-B.
- Revise the NMOC emission limit for A-50 in Condition # 19867, Part 23 and Table VII-B.
- Revise the non-federally enforceable TAC destruction efficiency limit for A-50 in Condition # 19867, Part 24 and Table VII-B.

**Minor Revision (Applications 6943 and 9565):**

**[Insert Approval Date]**

- In Table II-A and Section VI, Condition # 19867, Part 17a, update collection system description to reflect gas collection system components that are operating as of August 1, 2004.
- In Section VI, Condition # 19867, Part 17b, add the description of the collection system component changes that have been authorized pursuant to Application # 9565.

**E. RECOMMENDATION**

Issue an Authority to Construct with conditions for the following equipment modifications:

- S-5 Redwood Landfill with Gas Collection System:  
Approved Landfill Gas Collection System Modifications**
- **add 70 vertical wells**
  - **add 4000 feet of horizontal collectors**
  - **shutdown 3 inoperable vertical wells**
  - **shutdown 44 existing horizontal collectors**

By: Signed by Carol S. Allen  
Carol S. Allen  
Senior Air Quality Engineer

on August 12, 2004  
August 12, 2004  
Date



**APPENDIX A**

**APPLICATION # 6943**

**PERMIT TO OPERATE REPORT**

**PERMIT to OPERATE REPORT**  
**Redwood Landfill; PLANT #1179**  
**APPLICATION #6943**

**BACKGROUND**

Redwood Landfill submitted this application on January 8, 2003 to request modifications of the landfill gas collection system for the S-5 Redwood Landfill as described in Condition # 19867, Part 17. The District issued a Temporary Permit to Operate for this application on January 31, 2003. An Authority to Construct was issued on March 4, 2003, which authorized the installation of 52 new vertical wells and the shutdown of 13 horizontal collectors.

**COLLECTION SYSTEM CHANGES (as built)**

Redwood Landfill submitted numerous start-up notification letters for this application. The gas collection system modifications are summarized below.

Prior Collection System Description:	39 vertical wells, 52 horizontal collectors	
Date of Notification Letter:	Action	Effective Date of Action
January 7, 2003	shutdown 13 horizontal collectors	Dec. 2002 / Jan. 2003
February 6, 2003	begin operating 2 vertical wells	February 10, 2003
February 14, 2003	begin operating 3 vertical wells	February 18, 2003
February 27, 2003	begin operating 3 vertical wells	March 4, 2003
March 13, 2003	begin operating 18 vertical wells	March 17, 2003
April 10, 2003	begin operating 4 vertical wells	April 14, 2003
June 18, 2003	begin operating 2 vertical wells	June 23, 2003
July 10, 2003	reconnect 5 horizontal collectors	July 10, 2003
March 12, 2004	begin operating 11 vertical wells	March 17, 2004
May 13, 2004	begin operating 9 vertical wells	May 17, 2004
Total Component Changes:	+ 52 vertical wells, - 8 horizontal collectors	
New Collection System Description:	91 vertical wells, 44 horizontal collectors	

All authorized wells have now been installed. In addition 5 horizontal collectors that had been shutdown have now been reconnected. The current operational collection system includes 91 vertical wells and 44 horizontal collectors.

Redwood Landfill submitted Application # 9565 to request additional landfill gas collection system modifications.

**RECOMMENDATION**

Update the well count in Condition # 19867, Part 17 and issue the Permit to Operate for the following equipment modifications:

**S-5 Active Landfill with Gas Collection System**

Permit Evaluation and Statement of Basis:  
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**Final Gas Collection System Modifications: Added 52 vertical wells and removed 8 horizontal collectors from the component list for a new total of 91 vertical wells and 44 horizontal collectors.**

Update the well count in Table II-A and Condition # 19867, Part 17 of the MFR Permit. This update will be combined with the minor MFR permit revision that is being prepared for Application # 9565.

By: Signed by Carol S. Allen  
Carol S. Allen  
Senior Air Quality Engineer

on August 12, 2004  
August 12, 2004  
Date