ENGINEERING EVALUATION

Browning Ferris Industries, Inc. of CA; PLANT #2266
APPLICATION #3221

BACKGROUND

Browning Ferris Industries, Inc. of CA (BFI) operates the Los Trancos Canyon Landfill (S-1) in Half Moon Bay, CA. This facility is also known as the Ox Mountain Sanitary Landfill. BFI submitted this application in order to obtain an Authority to Construct and Permit to Operate for proposed modifications to the landfill gas collection system located in the lower canyon area of the S-1 Los Trancos Canyon Landfill. BFI is proposing to install between 8 and 18 horizontal collectors in the 650 foot deck and 700 foot deck of the lower canyon fill area. These collectors will be the sixth set of collectors installed in the lower canyon.

The collection system in the lower canyon area is being expanded as the landfill is being filled upward. The first horizontal collectors (1A, 1B, 1C, 1D, 1E, 1F, 1G, 1H, 1I, 2A, 2B, 2C, 2D, 2E, 2F, 2G, 2H, 2I, and 2J) were installed in 1995 and 1996. The collectors were spaced approximately 150 feet apart horizontally at about the 500 foot elevation deck. The second set of collectors (3A, 3B, 3C, 3D, 3E, 3F, 3G, 3H, 3I, 3J, 3K, 4A, 4B, 4C, 4D, 4E, 4F, 4G, 4H, 4I, and 4J) was installed in 1997 at the 550 foot elevation deck and horizontally at the midpoints between the first set of collectors.

In 1997 and 1998, the 500 foot deck collectors (1B-1I and 2A-2H) became plugged with water and failed. Thirteen vertical perforated pipe sections were installed at the ends of horizontal collectors 3B, 3C, 3E, 3G, 3H, 3I, 3J, 3K, 4B, 4C, 4D, 4F, and 4H. These vertical sections collect gas from the lower elevation levels and draw it into the level 3 and 4 horizontal collectors. There is no separate monitoring or vacuum control for these vertical sections and they are treated has part of the horizontal collectors. After installation of these vertical sections, gas collection from the first set of horizontal collectors (1A-1I and 2A-2J) was discontinued. As of September 1998, BFI was operating 21 horizontal collectors with 13 vertical sections.

Twenty-one additional horizontal collectors (5A, 5B, 5C, 5D, 5E, 5F, 5G, 5H, 5I, 5J, 6A, 6B, 6C, 6D, 6E, 6F, 6G, 6H, 6I, 6J, and 6K) were installed in late 1998 and 1999. These collectors were horizontally located essentially directly on top of the plugged collectors (1B-1I and 2A-2H) at the 600 foot deck. In the summer of 2000, BFI installed 15 vertical extraction wells spaced about 300 feet apart. BFI is now operating 42 horizontal collectors (3A, 3B, 3C, 3D, 3E, 3F, 3G, 3H, 3I, 3J, 3K, 4A, 4B, 4C, 4D, 4E, 4F, 4G, 4H, 4I, 4J, 5A, 5B, 5C, 5D, 5E, 5F, 5G, 5H, 5I, 5J, 6A, 6B, 6C, 6D, 6E, 6F, 6G, 6H, 6I, 6J, and 6K) with 13 vertical sections (at the ends of collectors 3B, 3C, 3E, 3G, 3H, 3I, 3J, 3K, 4B, 4C, 4D, 4F, and 4H) and 15 vertical extraction wells (EW-1, EW-2, EW-3, EW-4, EW-5, EW-6, EW-7, EW-8, EW-9, EW-10, EW-11, EW-12, EW-13, EW-14, and EW-15). There are a total of 4 monitoring points for the horizontal collectors and one monitoring point for each vertical well.

BFI is now proposing to install a minimum of 8 and a maximum of 18 horizontal collectors in the 650 and 700 foot decks. The drawings for the proposed system show 9 collectors in the 650 foot deck and 1 collector in the 700 foot deck. During the start-up period, BFI will provide the as-built drawings for the collection system that was installed, the unique ID numbers for the collectors, and identify the monitoring points for the horizontal collectors.

EMISSIONS

Application # 18429 contains a detailed discussion of the emissions expected from this facility. By the end of December 2000, BFI projected that they would be collecting 792,564 tons/year of refuse with a cumulative amount of refuse in place of 11,532,536 tons. These refuse rates were expected to result in 5718 cfm of landfill gas generated and 4289 cfm of landfill gas collected. For comparison, BFI actually collected 901,950 tons of refuse in year 2000 and has a total of 13.5 million tons of refuse in place. Using the calculations from Table 1 of Application # 18429, the gas collection system should be collecting 4887 cfm of landfill gas for 13.5 million tons of refuse in place. BFI collected an average of 4176 cfm of landfill gas. BFI has collected more waste and less gas than projected in Application # 18429. As of the end of year 2000, the collection system was collecting 711 cfm less gas than projected, which equates to a collection system efficiency of 64%. Although current data show that the collection system is not collecting as much gas as it should, BFI made significant improvements to both the upper and lower canyon collection systems in the summer of 2000. We do not have sufficient data yet to evaluate the effectiveness of these improvements. The collection system efficiency should be calculated again based on Year 2001 data to determine if any additional collection system improvements are necessary.

BFI is currently accepting an average of 75,200 tons of refuse per month. By December 31, 2002, BFI is now expected to accept an additional 1,804,800 tons of refuse and to have 15.3 million tons of refuse in place. For the years 2001 and 2002, the gas collection rate was projected to increase approximately 300 cfm per every million tons of refuse placed. Using this rate, the collection system is expected to collect an additional 555 cfm of gas by 12/31/02. At 15.3 million tons of refuse in place, the landfill is expected to generate 7188 cfm of landfill gas and the collection system should collect 5391 cfm of landfill gas. This maximum projected collection rate is 1215 cfm greater than the current collection rate.

BFI currently vents all of the landfill gas collected from the lower canyon area to the A-6 New Landfill Gas Flare. This 126 MM BTU/hour flare was permitted to burn 4200 scfm of landfill gas with an HHV of 500 BTU/scf. BFI reported that as of 12/31/00, A-6 burned 1.39 E9 scf/year (2645 scfm) of landfill gas. Therefore, A-6 currently has 1555 cfm of excess landfill gas capacity. As described above, the collection system expansion is expected to increase the landfill gas flow rate by 555 cfm to 1215 scfm. The A-6 Flare has sufficient excess capacity to handle all of the projected landfill gas flow rate increase without any modifications of the current permit. Therefore, this application will not result in any emission increases.

PLANT CUMULATIVE INCREASE

		Current tons/yr		Increase tons/yr		New Total tons/yr
POC	=	0.000	+	0.000	=	0.000
NO_x	=	0.000	+	0.000	=	0.000
CO	=	140.780	+	0.000	=	140.780
PM_{10}	=	25.461	+	0.000	=	25.461
SO_2	=	29.100	+	0.000	=	29.100
NPOC	=	50.670	+	0.000	=	50.670

STATEMENT OF COMPLIANCE

Regulation 2, Rule 1: CEQA and Public Notification Requirements

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 and Toxic Risk Management Policy: New Source Review

There are no emission increases expected from this project. Therefore, BACT, Offsets, PSD, and the Toxic Risk Management Policy do not apply.

Regulation 2, Rule 6: Major Facility Review

BFI was issued the initial Major Facility Review permit for this site on October 1, 2001. This permit application does not involve any emission increases or any applicable requirement modifications that would be considered a Significant Permit Revision pursuant to 2-6-226. Therefore, this application is expected to be handled as a Minor Permit Revision to this facility's MFR Permit. In accordance with 2-6-406, the facility may proceed with the revision after the minor revision application requirements described in Sections 2-6-406.1-406.5 have been satisfied. The facility is expected to submit an application for a Minor Permit Revision as soon as the District approves the permit condition changes discussed below.

Proposed revisions to the MFR permit are attached.

Regulation 8, Rule 34: Solid Waste Disposal Sites

BFI's S-1 Los Trancos Canyon Landfill and gas collection systems are expected to comply with Regulation 8 Rule 34 Section 301 by:
(a) continuously operating the gas collection system and flares,
(b) having no leaks (exceeding 1000 ppmv) from the gas collection system, and
(c) processing all collected gases in a flares achieving at least 98% destruction efficiency.
Although BFI has generally had few problems complying with this requirement in the past, BFI received several violations for excessive flare down time in July 2000. Enforcement is monitoring this facility more closely to determine the root cause of the flare shut downs and an appropriate remedy.

S-1 is also subject to 8-34-303, which limits leaks on the surface of the landfill to less than 1000 ppmv as methane (current) and less than 500 ppmv as methane (effective 7-1-2002) as methane. BFI has had no violations of this limit in the last three years. The horizontal collectors in the lower canyon area are currently spaced such that there is a maximum distance of about 90 feet between any collectors. For the proposed collection system expansion, the maximum horizontal collector spacing will be 300 feet, but the maximum distance between collectors will only increase to 112 feet, because collectors will be added every 50 feet in elevation and staggered horizontally. These horizontal collectors are expected to have a sufficient radius of influence to accommodate an increase in horizontal well spacing without impacting surface emissions.

BFI indicated that refuse was first placed in the uncontrolled area on November 15, 2000. BFI is currently accepting an average of 75,200 tons of refuse per month. At this rate, BFI will reach 1,000,000 tons of refuse in an uncontrolled area by December 31, 2001. In accordance with 8-34-304.3, a collection system must be operational in this area by no later than March 1, 2002. This date will be included in the permit conditions to ensure compliance with this requirement.

Federal Requirements

BFI's Los Trancos Canyon 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 1994. The collection and control standards for this site became effective on December 10, 1998. Recent source testing indicates that the flares (A-4, A-5, and A-6) are achieving at least 98% control for NMOC. The current and proposed collections are expected to maintain surface emissions below the 500 ppmv as methane surface leak limit. A recent District inspection indicated that BFI was complying with the monthly wellhead and cover monitoring and quarterly surface monitoring requirements. This application does not trigger any new NSPS requirements.

There are no NESHAPS requirements for landfills.

PERMIT CONDITIONS

The proposed permit condition changes to Condition #10164 Parts 14 and 15 are shown below in strikeout and underline format. It was determined during the evaluation of this application that the collection system described in Part 15.a. was not correct. This collection system description is being revised as well as adding the proposed collection system to Part 15.b.

14. The Permit Holder of S-1 shall have a properly operated and properly maintained landfill gas collection system in the Upper Los Trancos Canyon Fill Area. The Permit Holder shall apply for and receive ~~written authorization~~ an Authority to Construct from the District before implementing any changes to the Collection and Control System Design Plan. Increasing or decreasing the number of wells or collectors or significantly changing the locations, depths or lengths of wells or collectors are all considered to be modifications that are subject to the Authority to Construct requirement.
    a. This gas collection system shall consist of 76 vertical wells.
    [Basis: 2-1-301, 8-34-301.1, 8-34-305, and NSPS: 40 CFR 60.752(b)(2)(ii)]

15. The Permit Holder of S-1 shall have a properly operated and properly maintained landfill gas collection system in the Lower Los Trancos Canyon Fill Area. The Permit Holder shall apply for and receive ~~written authorization~~ an Authority to Construct from the District before implementing any changes to the Collection and Control System Design Plan. Increasing or decreasing the number of wells or collectors or significantly changing the locations, depths, or lengths of wells or collectors are all considered to be modifications that are subject to the Authority to Construct requirement.
    a. This gas collection system shall consist of ~~21~~42 horizontal collectors (monitored at ~~2~~4 headers) and 15 vertical wells.

b. The Permit Holder has been issued an Authority to Construct for the additional landfill gas collection system components listed below. The minimum number of wells shall be installed by no later than March 1, 2002. Specific well locations, depths, and lengths of associated piping are as described in detail in Permit Application # 3221. Wells installed pursuant to Part 15.b. shall be added to Part 15.a. via an administrative permit amendment.

Minimum Collectors	Maximum Collectors
8 horizontal	18 horizontal

[Basis: 2-1-301, 8-34-301.1, 8-34-305, and NSPS: 40 CFR 60.752(b)(2)(ii), 60.755(a) and 60.759]

RECOMMENDATION

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

S-1 Los Trancos Canyon Landfill: Modification to install additional landfill gas collection system equipment consisting of a minimum of 8 horizontal collectors and a maximum of 18 horizontal collectors in the 650 and 700 foot decks of the lower canyon fill area.

By: Carol S. Allen — October 16, 2001
Senior Air Quality Engineer — Date