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VERMONT ENVIRONMENTAL BOARD
10 V.S.A., Chapter 151

RE: Browning Ferris Industries Declaratory Ruling #188
 of Vermont, Inc. by Findings of Fact and
 Douglas Richards, Esq. Conclusions of Law and
 P.O. Box 200 Order
 Springfield, VT 05156-0200

On April 6, 1987, a petition for a declaratory ruling was filed with the Environmental Board by the Southern **Windsor/Windham** County Solid Waste Management District and the Sullivan County Regional Refuse Disposal District (Districts) through their attorney, Raymond P. Perra, Esq. The Petition was filed as an appeal from Advisory Opinion #2-29 issued on April 3 by the District #2 Environmental Coordinator. This opinion concluded that an Act 250 permit would be required for the temporary use of the Browning-Ferris Industries (BFI) landfill located in Rockingham, Vermont, as an ash disposal site for the Signal Environmental Systems waste incinerator and electric generating facility in Claremont, New Hampshire because there had been a substantial change to a pre-existing landfill. On April 6, the District #2 Coordinator issued Corrected Advisory Opinion #2-29, which concluded that BFI needs to obtain a permit amendment because the Act 250 permit the landfill received in 1973 to construct a building established Act 250 jurisdiction over the project and that changes to the project constituted a "material" change requiring an amendment.

A prehearing conference was held in Springfield on April 17, 1987. The Board convened a public hearing in Bellows Falls on May 1, Chairman Darby Bradley presiding. The following parties participated in the hearing:

Districts by Raymond P. Perra, Esq. and Lucy **McVitty**,
Esq.
BFI by Robert Gerrity, Esq.
Town of Rockingham by Douglas **MacPhee**
Windham County Regional Planning **Commission** by Steven
Holmes
State of Vermont by Stephen B. Sease, Esq.
Vermonters Organized for Cleanup (**VOC**) by Dan Maple

At the hearing, the Board affirmed the Chairman's preliminary decision to grant party status to VOC.

After the Board recessed the hearing on May 1, it received a request from VOC to reopen the hearings to take additional evidence and objections from the Petitioners.

On July 2, the Board issued a decision to stay further action in the proceeding pending the submission of a statistically valid analysis of the ash, after which the Board would decide whether to reopen the proceedings. The Board conducted several deliberative sessions, but did not reach a decision.

In early December 1987, VOC submitted another request to reopen the hearings and the Petitioners filed an objection. On January 14, 1988, the Board issued a decision to reopen the proceedings. On January 25, BFI filed a request for permission to appeal to the Vermont Supreme Court the Board's order to reopen the hearings. On January 28, Chairman Leonard U. Wilson convened a prehearing conference. At the prehearing, Chairman Wilson informed the parties that he would not participate in the hearings.

On March 21, the Board issued a decision in which the scope of the hearings was delineated and the information needed by the Board was identified. On that date the Board also issued a decision in which it denied **BFI's** motion for permission to appeal to the Vermont Supreme Court. BFI and the Districts appealed the Board's denial to the Supreme Court and filed a motion with the Board to stay the hearings pending the outcome of the appeal. On April 7, the Board denied the motion for a stay. On April 13, BFI and the Districts withdrew their appeal to the Supreme Court.

On May 10 and June 30, the Board convened a public hearing with the following parties participating:

Districts by Raymond P. Perra, Esq., Lucy W. **McVitty**,
Esq., Robert H. Opel, Esq. and Philip H. Zalinger,
Esq.
BFI by Douglas Richards, Esq.
State-of Vermont by Mark Sinclair, Esq.
VOC by Pamela Peck

The hearing was recessed on June 30 pending the submission of proposed findings of fact and conclusions of law by the parties and review of the record and deliberation by the Board. On July 29, VOC filed proposed findings of fact and on August 1 the Districts and BFI filed proposed findings of fact and conclusions of law. On August 3 the Districts filed an objection to certain proposed findings of **VOC**. The Board conducted deliberative sessions on June 30, August 18, and September 14, 1988. On September 14, the Board completed its review of the record, declared the record complete, and adjourned the hearing. This matter is now ready for decision. The following findings of fact and

conclusions of law are based exclusively upon the record developed at the hearing. To the extent the Board agreed with and found necessary any findings proposed by the parties, they have been incorporated herein; otherwise, said requests to find are hereby denied.

I. ISSUES IN THE DECLARATORY RULING

In Advisory Opinion #2-29 the District Coordinator concluded that although the BFI landfill was in existence at the date of the enactment of Act 250 and would therefore be exempt from jurisdiction under 10 V.S.A. § 6081(b), BFI must obtain an Act 250 permit to operate because there has been a substantial change to the landfill since 1970. Two such changes were identified: an increase in the number of towns using the landfill since 1970 with an accompanying increase in the amount of refuse disposed of at the landfill, and the proposed disposal of ash produced at the trash incinerator in Claremont, New Hampshire.

Shortly after issuing Advisory Opinion #2-29, the Coordinator discovered that the landfill had received Land Use Permit #2W0161 in 1973 for construction of an 80' x 100' building to house an office, garage facilities, and space to bale waste paper, and for the paving of a portion of the access road to the landfill and another area. The Coordinator consequently issued corrected Advisory Opinion #2-29 which concluded that the landfill needs an Act 250 permit amendment because the increase in use of the facility and the disposal of ash are both material changes to an existing permitted project, according to the definition of "material change" in Board Rule 2(P).

In order to determine whether the BFI landfill requires an Act 250 permit, the following issues must be decided:

1. Whether the disposal of solid waste ash at the Browning-Ferris landfill is a "material change," as defined by Environmental Board Rule 2(P), to Land Use Permit #2W0161 which was issued on July 23, 1973 and which permitted the construction of a 80' x 100' building to house an office, garage, and space for baling paper at the landfill.
2. Whether the disposal of ash at the Browning-Ferris landfill constitutes a "substantial change," as defined by Environmental Board Rule 2(G), to the otherwise exempt landfill and, therefore, requires a permit pursuant to 10 V.S.A. § 6081(b).

3. Notwithstanding the disposal of ash, whether there has been a "substantial change" at the Browning-Ferris landfill since 1970 which would require a permit pursuant to 10 V.S.A. § 6081.
4. Whether the disposal of ash at the landfill is being undertaken for municipal purposes; and, if **so**, whether it is therefore not a "development" as defined by 10 V.S.A. § 6001(3) even if it involves 10 or more acres of land.

II. FINDINGS OF FACT

A. Description of the Landfill

1. In 1973, BFI purchased a 102-acre tract of land in Rockingham that included a landfill which had operated since 1968. The total area of the landfill is 13.9 acres; 7.1 acres are currently in use.
2. The landfill is located near the Windham-Windsor county line, approximately 3.7 miles southeast of Springfield on Vermont Route 5. Across Route 5 to the east are located private residences. The Connecticut River is located 500' east of the landfill.
3. Approximately 874 people on the Vermont side of the Connecticut River have been identified as being served by groundwater drawn from within 3 miles of the landfill. On the New Hampshire side of the river, approximately 3,700 residents of Charlestown obtain their water from a shallow gravel well approximately 2.7 miles northeast of the landfill.
4. On July 23, 1973, Land Use Permit #2W0161 was issued to the former owners of the landfill for the construction of an 80' x 100' building for use as an office and garage and space for baling waste paper, and for the paving of the existing access road to the landfill and a 120' x 160' area in front of the building.
5. The following construction took place on the site subsequent to the issuance of the land use permit: In 1976, the building was partially destroyed by fire and was replaced by a smaller building and in 1979 or 1980 a transfer station consisting of a 10' x 40' concrete slab was installed.

6. On October 15, 1983, the Agency of Environmental Conservation (now Agency of Natural Resources and hereinafter referred to as the Agency) issued a Solid Waste Disposal Facility Certification.
7. During 1985 and 1986 a liner and **leachate** collection system were installed in the landfill. A macadam bituminous liner was first placed in the landfill but after it was discovered that it was cracking, it was covered with a layer of sand and a 40 mil high density polyethylene (**HDPE**) liner was put on top of that. Another layer of 12 to 18 inches of sand was placed over the liner. The liner is located in an area of approximately one acre. The HDPE liner is very resistant to a variety of solvents, acids and bases and it contains a black coloring agent to protect it from breakdown from ultraviolet light.
8. At the time the liner was installed in 1985, the rest of the landfill site was sprayed with road tar #2.
9. On April 6, 1987, **BFI's** Solid Waste Certification was modified to allow BFI to accept ash from an incinerator in Claremont, New Hampshire, owned by SES Claremont Company, L.P. and subsequently sold to Wheelabrator Environmental Systems. This certification required that the ash be disposed of in a lined landfill.
10. As of 1970, the Towns of Chester, Springfield, Stratton, and Westminster were using the landfill for disposing of municipal solid waste. Based upon current disposal rates, the total amount of municipal solid waste disposed of by these towns would have been 43 tons per day.
11. Subsequent to 1970, the following Vermont towns have used the landfill for municipal solid waste for the years indicated:

Andover	1972 - Present
Athens	1971 - "
Baltimore	1973 - "
Cavendish	1973 - "
Jamaica	1973 - "
Plymouth	1974 - "
Reading	1973 - "
Windsor	1974 - "
Ludlow	1976 - 1982
Sherburne	1971 - 1974
Wardsboro	1971 - 1983
Westminster	1969 - 1984
Winhall	1972 - 1983

12. The following New Hampshire towns have been disposing of municipal solid waste in the BFI landfill: **Alstead**, Bradford, Charlestown, **Langdon**, Sunapee, and Springfield.
13. BFI also accepts approximately 40 cubic yards per day of refuse from private sources in Brattleboro and an unknown quantity from private haulers from places such as **Rutland** and Dover.
14. The Southern Windsor/Windsor County Solid Waste Management District and the Sullivan County Regional Refuse Disposal District consist of 13 Vermont towns and 12 New Hampshire towns. Of these towns, 12 are currently using the BFI landfill for waste disposal. These 12 towns generate approximately 100 tons (or approximately 200 cubic yards) of solid waste daily.
15. In 1985 the Districts entered into an agreement with SES Claremont Company, L.P. for a 200 ton per day waste disposal and electrical generating facility to be constructed in Claremont, New Hampshire. This facility was constructed and began burning waste from the Districts in 1987.
16. The contract required the Districts to provide a site for disposal of the ash residue from the facility within 20 miles of the facility. The Districts intended to dispose of the ash in a lined landfill to be constructed in Newport, New Hampshire. Construction of this landfill is not yet completed.
17. When the incinerator began operating in approximately March, 1987, the Districts had not made arrangements for disposal of the ash. The BFI landfill was the only lined landfill within 20 miles of the incinerator that could accept ash. The landfill has been accepting the ash since approximately April, 1987. Sufficient capacity exists in the lined area for disposal of ash until approximately October, 1988.
18. Incineration of the 200 cubic yards of waste produced daily by the District towns results in approximately 60 cubic yards of ash for disposal in the landfill.
19. The Vermont towns of Athens, Jamaica, Stratton, and Plymouth and the New Hampshire towns of Charlestown, Bradford, and **Alstead** are not members of the Districts and will continue to use the BFI landfill for their municipal solid waste.

20. At least 50 cubic yards of municipal solid waste per day continue to be deposited in the unlined portions of the BFI landfill. Approximately 4 to 6 trucks per day deliver municipal solid waste to the landfill.
21. **BFI's** certification to accept ash at the landfill from the Claremont facility was to expire on December 31, 1987. A modified certification was issued extending the date to October 15, 1988.

B. Liner and Leachate Collection System

22. The installation of the liner and **leachate** collection system consisted of the following: The site was graded to create 2% grades from the west end of the landfill toward the point of **leachate** collection and grades were sloped to the north and south. The material used to grade the site was ordinary fill. After the grades were established, the graded area was covered with 12 to 18 inches of sand and the liner was placed on top of the sand. More sand was dumped on the liner and was pushed across the liner by equipment.
23. The lined area was graded so that the **leachate** flows by gravity to a central collection system and a 4' manhole. The manhole is connected to an 8" PVC pipe that **transfers the** liquid into a 10,000 gallon fiberglass underground storage tank. When the volume of **leachate** in the tank approaches 5,000 gallons, BFI personnel contact CECOS International, Inc. of Bristol, Connecticut. **CECOS's** 5,000 gallon tanker truck pumps the **leachate** from the storage tank and drives it to its waste treatment facility in Connecticut.
24. BFI does not have a contract with CECOS for **leachate** but is billed on a load-by-load basis. BFI has no permits for disposing of **leachate** in Vermont.
25. In May, 1988, approximately 26,000 gallons of **leachate** were generated at the BFI landfill: approximately five trucks were used to haul the **leachate** to Connecticut that month.
26. Before any ash was deposited in the lined area of the landfill, one approximately eight-foot lift of municipal solid waste was placed in that area and was covered with material.
27. The ash that is disposed in the landfill should be covered daily to prevent surface water and precipitation from infiltrating the landfill. Daily

cover was not being placed over the ash because the wetness of the ash made covering it with existing equipment difficult and BFI personnel were waiting until the ash dried before covering it. BFI has acquired special equipment that allows the wet ash to be covered on a daily basis and is covering it daily.

28. Incineration of the solid waste at the Claremont facility involves both the use of acid gas scrubbers and the injection of pulverized lime into the flue which is then drained on fabric filters known as "bag houses" where particulate matter is removed as fly ash. The fly ash and lime mixture is mixed with the bottom ash and disposed of together.
29. At the time the ash is transported to the landfill it is wet. After it is deposited it gradually dries out and hardens.
30. Metals are not destroyed in the incineration process because they do not burn. The result is that ash contains concentrations of metals including lead, cadmium, mercury, manganese, chromium, arsenic, copper, and zinc. Lead and cadmium can cause serious human health and environmental problems.
31. The acid gas scrubber renders the ash highly alkaline which can increase the leachability of certain metals.
32. The Claremont incinerator began using a lead immobilization system in June or July, 1987. It is the first incinerator in the country to use this process.
33. The purpose of lead immobilization process is to reduce the ability of lead to leach out of the ash by adding lime and phosphoric acid. While simulated permeability tests indicate that **leachate** does not pass through the ash because the ash has hardened, actual permeability tests on the ash from the Claremont facility have not been conducted.
34. Heavy metals become less mobile in an environment of high **pH**. The use of lime in the lead immobilization system increases the **pH** of the ash.
35. Incinerator ash consists of small particles, in contrast to municipal solid waste which tends to be bulky. Ash therefore provides a much larger surface area for contact between metals and the environment.

36. Hazardous organic chemicals can be created by incomplete combustion in the incineration process.
37. Very little testing for organic contaminants of incinerator ash other than dioxin has been conducted.
38. Municipal solid waste contains potentially toxic materials from household and industrial waste, such as paints, solvents, waste oil, degreasers, cleaning agents, pesticides, and batteries. Municipal solid waste **leachate** contains organic substances such as organic acids, alcohols, ketones, solvents, hydrocarbons, synthetic organic materials, pesticides, and herbicides, and inorganic compounds such as lead, cadmium, and other heavy metals. Municipal solid waste also contains methane and sulfur gases. A mixed solid waste has a greater variety of constituents than incinerator ash.
39. Heavy metals are less mobile in the environment than most organic compounds.
40. The Extraction Procedure Toxicity Test (EP Tox Test) is one method used to determine whether a solid waste substance should be handled as a hazardous waste if it is not listed as a hazardous waste. The federal Environmental Protection Agency does not list ash as a hazardous waste.
41. Samples of ash from the incinerator are collected weekly and composited monthly: three EP Tox Tests are run. The ash is also subject to a distilled water test and a pH control extraction. Agency personnel observe the sampling procedures and samples are split for analyzing by the Agency as well as by BFI.
42. Between March 1987 and February 1988, the EP Tox Tests of the ash indicate that the level for lead was exceeded once and the level for cadmium was exceeded twice. Ash is characterized as hazardous only when it routinely fails the EP Tox Test. The EP Tox Tests conducted on the Claremont ash indicate that the ash is nonhazardous and therefore is not considered a characteristic hazardous waste.
43. Monitoring wells at the BFI landfill indicate that the groundwater is contaminated.
44. The possibility of dispersal of toxic metals into the environment exists with ash because small particles of ash containing high concentrations of heavy metals

could be inhaled or ingested in the event of exposure. The possibility of leaching of toxic metals into groundwater or surface water also exists.

45. Rockingham has adopted both permanent zoning and subdivision bylaws.

III. CONCLUSIONS OF LAW

Section 6081(a) of 10 V.S.A. Chapter 151 (Act 250) requires that a permit be obtained before commencing development pursuant to 10 V.S.A. § 6081(a). "Development" is defined in 10 V.S.A. § 6001 in pertinent part as "the construction of improvements on a tract or tracts of land, owned or controlled by a person, involving more than 10 acres of land within a radius of five miles of any point on any involved land, for commercial or industrial purposes."

If a development existed before 1970, however, 10 V.S.A. § 6081(b) provides that a permit is not required unless there has been a substantial change in the development. Board Rule 2(G) defines "substantial change" as "any change in a development or subdivision which may result in significant impact with respect to any of the criteria specified in 10 V.S.A. § 6086(a) (1) through (a) (10)." In order to constitute a substantial change, there must be a cognizable physical change, and the change must **have** the potential for impact with respect to any of the ten criteria. See In re: H. A. Manosh Corporation, 147 Vt. 367, 369-70 (1986), in which the court upheld the Board's interpretation of "substantial change."

A development that is already subject to an Act 250 permit must obtain an amendment for any "material" or "substantial" change, pursuant to Rule 34(B) and (C). "Material change" is defined in Rule 2(P) as "any alteration to a project which has a significant impact on any finding, conclusion, term or condition of the project's permit and which affects one or more values sought to be protected by the Act." A material change may occur even in the absence of any physical change. See In re Greg Gallagher, No. 87-172 (Vt. Supreme Court, April, 1988).

The Districts argue that the activities at the landfill do not constitute "development" because no construction of improvements has taken place and therefore the Board has no jurisdiction in this matter. The Districts, however, overlook the actual physical construction that has taken place at the landfill, including the construction of a

building and the paving of the access road in 1973 and the installation of a liner and **leachate** collection system in 1985 and 1986. The Board believes that the activities associated with the operation of a landfill constitute "development" and as such has **consistently** asserted jurisdiction over landfills. See, e.g., In re Land Use Application of Clyde M. Patch, 140 Vt. 158 (1981); In re Barker Sargent Corporation, 132 Vt. 42 (1973).

The Districts also contend that the Board has no jurisdiction in this matter because the landfill fulfills a municipal purpose for which, pursuant to 10 V.S.A. § 6001(3), more than 10 acres of land must be involved. The number of acres involved in this landfill, the Districts argue, is no more than nine. The Board does not agree that this landfill is considered to be for a "municipal purpose," because it is privately owned. In order to fall within the meaning of "municipal purpose" in the definition of "development" in Act 250, the landfill would have to be owned, or at least exclusively controlled, by the municipality.

The Board believes that a substantial change has occurred at the BFI landfill in several respects. First, the installation of the liner and **leachate** collection system are physical changes that raise the potential for significant impact with respect to many of the criteria, including but not limited to Criteria 1(B), 3, 4, and 5. Installation of the liner and **leachate** collection system required site preparation that involved digging, bringing in fill, and grading of the surface. The potential exists for soil erosion and siltation from the site preparation work. The possibility of additional impacts is raised with respect to the **leachate** collection system. These include the potential for water pollution of the ground and surface water including individuals' water supplies from spilled **leachate** during pumping of the storage tank and removal of the **leachate**. Unsafe conditions on the highways caused by trucks carrying **leachate** is a possibility. Disposal of the **leachate** could raise serious concerns when BFI has no contract for long-term disposal with any facility permitted to treat solid waste **leachate**.

The Board believes a substantial change also has occurred by virtue of the disposal of incinerator ash in the landfill. We are not suggesting that incinerator ash poses **more** or greater risks of contamination than those posed by **the** disposal of municipal solid waste. Insufficient definitive information exists for such a conclusion to be **drawn**. We do believe, however, that the evidence demonstrates **that** the disposal of ash raises the possibility of significant

impacts. For example, there is the potential for airborne contamination by ash particles that could be ingested or inhaled, in addition to possible pollution of surface and groundwater and neighboring water supplies. Safety issues with respect to the transport of ash are also raised.

The Board also believes that a substantial change has occurred at the BFI landfill in one other respect. The amount of solid waste disposed of there increased substantially after 1970. An increase from approximately 43 tons per day from the four towns using the landfill before 1970 (at current waste disposal rates) to approximately 125 tons per day from 12 towns and private sources that the landfill accepted before the waste was incinerated is an increase in volume of almost 300%. Even with the reduction in volume resulting from incineration, the increase since 1970 is substantial. This increase in volume is primarily due to the greater number of towns using the landfill for disposing of their solid waste and not to the rise in per capita generation of solid waste or the increase in the four towns' populations, since the 43 ton per day estimate is based upon current amounts.

The Board believes that in requiring developments in existence before 1970 to obtain a permit if there is a substantial change to the development, the Legislature's intent was to **allow activities** that had begun prior to the enactment of Act 250 to continue without a permit, but only to the extent that they remained the same or increased solely because of an expansion inherent to the development. Thus, if additional waste is disposed of at the BFI landfill because individuals in the towns using the landfill prior to 1970 generate more waste, or even because the towns authorized to use the landfill before 1970 experience increases in population, the Board might not conclude that a substantial change has occurred. However, when the amount of waste increases substantially because of an increase in the number of towns disposing of waste in the landfill, the Board believes that the legislature intended that a permit be obtained. The physical change is the increase in waste, and the potential impacts from such change at this landfill include water pollution, air pollution, impact on water supplies, soil erosion, and traffic.

An analogous situation exists with regard to gravel pits. The Board has found that a small increase in annual volume of extraction of gravel at a gravel pit would not constitute a substantial change. When the increase in annual extraction exceeds **10%**, or when different equipment such as a rock crusher is brought into a pit, the Board has

concluded that a substantial change has occurred. See, e.g., Re: H. A. Manosh Corporation, Declaratory Ruling #163 (Aug. 29, 1984); Re: Clifford's Loam and Gravel, Inc., Declaratory Ruling #90 (Nov. 6, 1978).^{/1/} The increase in the volume of solid waste disposed of at the BFI landfill far exceeds 10%. With the potential impacts associated with such increase, there can be no question that a substantial change has occurred at the BFI landfill.

For all of the above reasons, the Board concludes that a substantial change has occurred at the BFI landfill. Since the Board has determined that a substantial change has occurred, it need not reach the question of whether there has also been a material change to the landfill. BFI must obtain an Act 250 permit pursuant to 10 V.S.A. § 6081 for its current operation, which includes receiving municipal solid waste and ash.

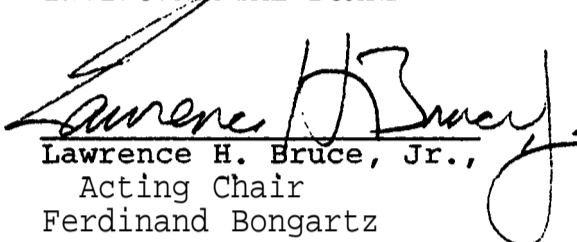
^{/1/}This conclusion and the Board's analysis with respect to determining when a substantial change has occurred have been upheld by the Vermont Supreme Court. See In re H. A. Manosh Corporation, 147 Vt. 367 (1986); In re Orzel, 145 Vt. 355 (1985).

IV. ORDER

On or before November 18, 1988, BFI must apply for an Act 250 permit pursuant to 10 V.S.A. § 6081 to authorize continuing its current operation. No additional construction at or expansion of the landfill may occur until a permit has been issued.

Dated at Montpelier, Vermont this 11th day of October, 1988.

ENVIRONMENTAL BOARD


Lawrence H. Bruce, Jr.,
Acting Chair
Ferdinand Bongartz
Jan S. Eastman
Elizabeth Courtney
Samuel Lloyd
Arthur Gibb

Concurring opinion of Arthur Gibb

I agree that there has been a substantial change to the landfill because of the large increase in the number of towns disposing of waste at the landfill. However, I do not think that installation of the liner is a substantial change, because this is a mandated administrative procedure which will apply to all landfills in the State.

BFI6