

Social movements and dramatic events: Closing a toxic waste landfill

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Abstract

When closure of a toxic waste disposal facility is preceded by several years of social movement protest directed toward precisely that end, it would appear that closure demonstrates the success of movement activity. Using archival material, this paper examines events in the years before and after the closing of a toxic waste disposal facility at the BKK Landfill in West Covina, California (USA). A more immediate cause of the closure than the efforts of social movement organizations was the escape of toxic gases that found their way into 21 homes adjacent to the landfill, resulting in a prolonged evacuation lasting up to five months for many of the evacuated families. The evacuation dramatized some of the hazards critics had long complained about, drew news media attention to problems associated with the operation of the landfill, and led to a shift in the balance of power among stakeholders in the controversy.

Introduction

The "NIMBY" ("Not-In-My-Back-Yard") problem is much discussed in association with toxic waste disposal, usually in the context of siting new facilities. Citizens who may recognize the need to create more space for storing cast-off chemicals oppose creation of any new installation near their own homes, their places of work, or their children's schools. This paper deals with protest that is typical of the NIMBY phenomenon but with a slightly different twist. The BKK Landfill opened in the 1960s on a hilltop in West Covina, California (USA) in a portion of the city that was undeveloped at the time. As the demand for housing pushed the urban sprawl farther and farther eastward from Los Angeles in the late 1960s and early 1970s, new housing tracts built along the base of the hillside at the southern edge of the landfill brought the backyards of new suburban homeowners to this toxic waste site. NIMBY came with them.

I describe in this paper the major events and the principal groups involved during a long period of social movement opposition to the operation of a toxic waste disposal facility at the BKK Landfill, concentrating on events in the mid-1980s before and after the operators of the landfill decided to stop receiv-

ing hazardous material. With “dense description” [1] I try to arrive at an hypothesis explaining why the toxic waste landfill closed when it did. My examination is loosely guided by a resource mobilization theory of social movements [2]. I am more interested in the strategies and tactics employed by movement organizations and the consequences of these than in the attitudes of participants or their motives for becoming involved.

The bulk of the descriptive material is contained in three major sections of the paper. These sections correspond roughly to the three principal stages or phases in the history of the closing of the toxic waste operation. In a concluding section I use the descriptive material to evaluate the effectiveness of social movement activity and to propose an explanation for the closure. The paper begins with a fifth section containing a brief overview of the history and context of the controversy.

Overview

The BKK Landfill (named for its owners and chief operating officers, Ben and Ken Kazarian) is a 583-acre (2.36 km^2) site in West Covina, California, a suburban community of approximately 100,000 population located 20 miles east of downtown Los Angeles in the San Gabriel Valley. Granted an unclassified use permit by the City of West Covina in the 1960s and later designated a Class I disposal site by the state’s regional water quality control board, the BKK Landfill was the largest commercial hazardous waste management facility in California and the only operating facility of its kind within a 150-mile (240 km) radius of Los Angeles where 80 percent of the state’s toxic waste is generated. Over 840 million gallons ($3.2 \times 10^9 \text{ l}$) of hazardous liquids were deposited on 92 acres (0.37 km^2) of the site, with an additional 157 acres used for disposal of municipal waste and sewage treatment sludge (see Fig. 1).

Located on a hilltop in what was once a relatively open and uninhabited area, residential development now has enveloped the landfill on the south along Amar Road, along Azusa Avenue on the west, and in the City of Walnut on the east. By the mid-1980s the population living within a one-mile (1.6 km) radius from the center of the landfill was estimated to be 40,000.

In July 1984 a work crew from the regional electric utility detected heavy concentrations of methane gas in the housing tract between Amar Road and the southern border of the landfill. Gas company crews were summoned and determined that the gas was coming from the landfill, not from the utility’s transmission lines and was concentrated inside several of the houses. Twenty-one families were evacuated. Vinyl chloride was subsequently found in two of the homes. Eight families were allowed to return in August, but the remainder lived in a residential motel until the end of the year. One month after the evacuation, the operators of the BKK Landfill announced their intention to

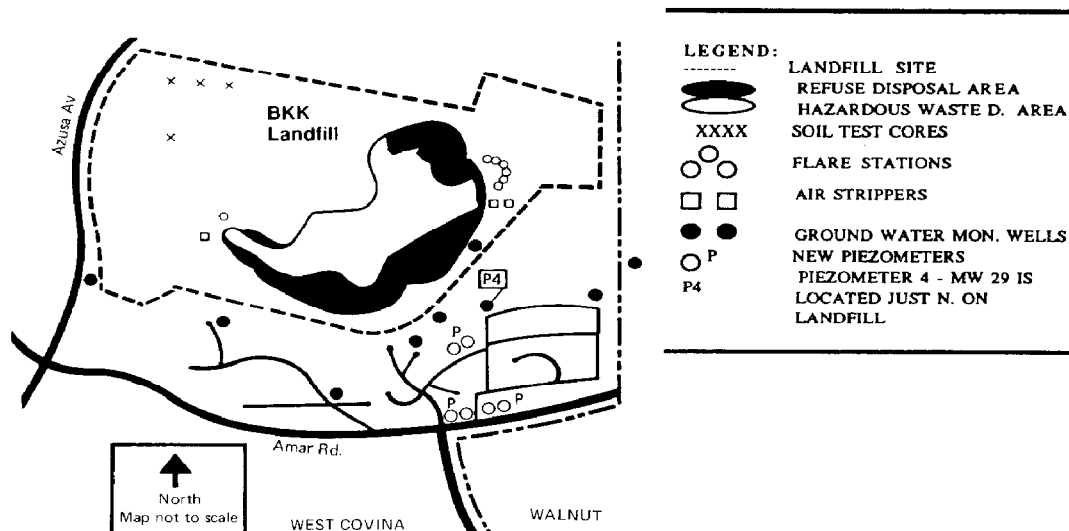


Fig. 1. Map of the BKK Landfill and vicinity

voluntarily cease disposing of toxic material as of December 1, 1984. The landfill continues to receive municipal waste.

The BKK Landfill was a target of various closure efforts both before and after the evacuation in 1984. The principal players in the closure drama included: the five-member West Covina city council; a coalition of homeowners associations from the housing tracts adjacent to the landfill; various judges of the Los Angeles County Superior Court; the State of California's Department of Health Services; and the U.S. Environmental Protection Agency (EPA). The following description of their actions and those of other players relies extensively on materials in the archives of the daily newspaper serving this portion of Los Angeles County, the *San Gabriel Valley Tribune*; on various public documents and government reports; and on participant observation by the author at selected meetings and public hearings during the period following the evacuation.

The pre-evacuation period

Opposition to the operation of a toxic waste landfill at the West Covina site began more than twenty years before the 1984 evacuation. A city council vote in 1963 to approve two operating permits for a toxic waste disposal facility came during a session characterized by "stormy citizen protest", in the words of a *Tribune* reporter. (All references to city council activities refer to the West Covina City Council unless another city is specifically named.) Sustained opposition grew as new residential subdivisions began to encircle the landfill during the 1970s. In 1980 the city council received a petition with 7,532 signatures demanding that the city close down the toxic waste landfill immediately. An

estimated “30 to 50 homeowners” picketed the entrance to the landfill early in 1981. Thirteen separate homeowners groups met the following day to form the Coalition of West Covina Homeowners Associations (CWCHA). The CWCHA became the focal organization in a coalition of groups opposed to continued operation of a toxic waste facility. More than one hundred pickets protested at the entrance to the landfill one week after the formation of CWCHA.

The homeowners coalition soon entered the arena of conventional politics as well. It served four city council members with notices of recall in the spring of 1981 while at the same time forcing council to approve a local ballot initiative, Proposition K, on closure of the toxic waste operation. However, West Covina voters defeated Proposition K by a vote of 6,488 to 5,366. Public documents available after the election disclosed that the homeowners coalition spent \$1,482 attempting to increase support for Proposition K while the BKK Corporation and a housing contractor who had unsuccessfully sought a court injunction to keep the proposition off the ballot combined to spend \$162,057 opposing it. The CWCHA threatened to sue if the council did not place another landfill closure initiative on the ballot for the spring 1982 municipal elections, but the council refused to approve a second local initiative. The recall of the four so-called “pro-BKK” city council members also failed by some 2,000 votes in special elections held in March 1982, and two of the four who were also running for re-election won new terms on the council in the regular election in April. A political action committee (pac) created by BKK, the “West Covina Good Government Committee”, contributed \$98,949 supporting candidates in the two elections.

The landfill’s opponents had suffered two other losses in 1981. A minor setback was a Los Angeles Superior Court judge’s temporary restraining order that prevented the city from implementing its ban prohibiting the disposal at BKK of cleanup waste from other toxic waste sites in the county. (Two later suits to prevent toxic material being hauled in from other EPA Superfund clean-up sites would also fail.) A major defeat was the passage of Senate Bill 501 (SB 501) by the California legislature. This bill gave the state rather than local jurisdictions control of hazardous waste landfills:

“The bill would prohibit a city or county, whether chartered or general law, or district, from, among other things, adopting or enforcing any ordinance, regulation, or law or issuing any permit or license relating to an existing hazardous waste facility, as defined, so as to prohibit or unreasonably regulate the disposal, treatment, or recovery of resources from hazardous or solid wastes at any existing hazardous waste facility.”

This legislation would frustrate efforts to close the landfill for years to come. (Three years later the bill’s sponsor was listed among the recipients of campaign donations from BKK-affiliated pac’s after his re-election to another term in the state senate.)

Local opposition to the use of the BKK Landfill as a toxic waste disposal facility continued to grow, and pressure on the city council to do something

increased. Twice in 1983 council asked the Department of Health Services to conduct a public hearing under SB 501 to determine whether BKK constituted a public health hazard. Also citing SB 501, the health department refused, arguing that the bill required demonstration of the existence of a hazard *before* a hearing could be held. In retaliation the council ordered its city attorney to file suit against the health department to force a hearing.

Divisions within the city council over the BKK-closure issue became more evident in early 1984. One council member, a physician, argued that the city had no control over the landfill under provisions of SB 501 and that it should get on with other business and leave the matter in the hands of the state health department and the EPA. He later publicly criticized the city attorney for giving the council bad legal advice and called for abandoning any further efforts to use the courts to close the toxic waste facility. Other members of council defended the city attorney and declared their intention to push ahead with legal action against the landfill operators.

Campaigns for municipal office in the local elections in April 1984 once again featured donations from the BKK Corporation. Its new political action committee, the "West Covina Taxpayers and Homeowners Committee," was co-chaired by two local residents. In fact, one was the general manager of the BKK Landfill. This and three other BKK-controlled pac's spent nearly \$125,000 to support incumbents and challengers favorable to its continued operation and to oppose its critics, including the president of the homeowners coalition who was running for a city council seat. The story of large campaign contributions in this small-city election attracted the interest of the *Los Angeles Times* which published a lengthy article on campaign spending shortly before the election. The *Tribune* registered its disgust with the large sums of money being spent by BKK in an editorial. Some recipients of this pac money became uneasy. One returned a check for \$557.20 to the West Covina Taxpayers and Homeowners Committee and asked that her name not be used in its telephone solicitations. Another publicly threatened to sue BKK unless its pac's stopped providing what he termed "unsolicited campaign support". Election results left the complexion of the city council regarding the landfill-closure issue unchanged.

Calls for closure were coming from outside the municipality as well, but none brought a halt to the toxic waste operation. The congressional representative for the West Covina district demanded that the EPA close the facility immediately, but the agency refused. Various bills originating in the state legislature got nowhere. Ralph Nader tried to rally support for closure among students at the local community college. After the state health department refused still another request for a public hearing, the city was again in court in May 1984 with a suit to force a public hearing under SB 501.

The city continued its *ad hoc* committee approach to the toxic waste landfill controversy throughout the pre-evacuation period. By a 3-2 vote the council

elevated its two-year old waste management advisory committee to the status of a paid seven-member commission. A registered nurse, an environmental engineer, a professor of chemistry from a nearby state college, and a member of the city's personnel commission joined the three hold-over members, each of whom had held one or another elective city office over the years, to form the Transition/Waste Management Commission. Among its first agenda items was a proposal from BKK to construct a trash-to-energy plant at the landfill. The electricity generating plant was part of the company's long-range plan for maintaining the site as an income-producing property.

Another source of irritation for opponents of the toxic waste operation was their lack of success in curtailing spills and other incidents on the major transportation arteries leading to the entrance of the landfill. Officials of BKK disowned responsibility for these problems, blaming them on the waste hauling companies. Numerous spills and truck mishaps in early 1983 on Azusa Avenue, the street where the entrance to BKK is located (see Fig. 1), coincided with the preparation of a hazardous materials incident plan by the West Covina Police Department. Back-to-back spills in April closed Azusa Avenue for six hours and forced the evacuation of 30 customers from a family restaurant north of the entrance. Parents of children attending a parochial elementary school on Azusa Avenue south of the landfill registered repeated complaints throughout the spring about the hauling of hazardous material.

The problems of waste haulers continued in 1984. During March the California Highway Patrol cited 61 trucks for safety violations on Azusa Avenue, 26 of which contained hazardous waste headed for the BKK Landfill. West Covina police cited still other haulers during the same month. In June a *Tribune* editorial urged California's Senate Transportation Committee to approve an assembly bill that would grant West Covina police greater authority to inspect trucks hauling hazardous waste within the city. Representatives of waste haulers argued that this bill would be used by the city to harass truckers as part of its heretofore unsuccessful effort to close the BKK Landfill to toxic waste, and in July the Senate Transportation Committee voted to kill this legislation. (Highway patrol records list 326 chemical spills on Azusa Avenue and adjoining streets during the life of the toxic landfill operated by BKK.)

One final area where opponents of the toxic waste operation failed to have the impact they would have liked was in countering the various risk assessments showing that the landfill did not constitute a public health hazard. The earliest assessment, released in 1980, was funded by BKK and performed by faculty from the University of Southern California's medical school. This study concluded that there were no health dangers to surrounding residents from material deposited in the landfill. A second study in 1983, funded this time by the state health department, was a statistical analysis performed by faculty from the same medical school using the county's cancer registry, a large data base containing information on everyone under a physician's care who had

developed cancer since 1972. Results showed no statistically significant differences in the rate of cancers in the Census tracts adjacent to the landfill compared with those in the rest of the county. However, the public meeting held by the health department to present the study results produced what members of the city council felt were inconsistent and contradictory answers and resulted in yet another demand by the city for a public safety hearing under SB 501. Technical aspects of the report were also criticized at the meeting by representatives of the homeowners coalition.

By July 1984, four years of protest activity by social movement organizations had failed to close the BKK Landfill to toxic waste. Picketing, petition drives, local ballot initiatives, electoral politics, and litigation had all been unsuccessful. City government policies generally stuck to the middle-ground, seeking to protect residents from short-term, acute risks (such as unsafe trucks and transportation spills) on the one hand while pursuing a cautious approach to planning the eventual end of dumping at the landfill (e.g., its appointment of a Transition/Waste Management Commission) without losing a major source of local revenue on the other. Operators of the landfill had been successful in keeping out council members who were unequivocally opposed to its continued existence (though not in “packing” the council with pro-BKK members) and in using the state legislative process to place the issue of landfill closure in the context of southern California’s dwindling capacity for disposing of toxic waste (hence SB 501, etc.).

There is nothing in these descriptive materials to suggest that BKK opponents would have succeeded in closing the landfill before it reached the expected limits of its capacity in the early 1990s. There was noisy opposition especially from homeowners in the area immediately adjacent to the site, but a majority of the city’s 100,000 population did not live in close proximity to the landfill. Very few of the million or so county residents to the south knew or understood the route of groundwater migration southward to the Pacific Ocean. There was cautious, publicly restrained support for BKK from the business community. The city itself was keeping an eye on the \$600,000 revenue generated annually by the landfill that would be lost through early closure. There was little press interest in the BKK-closure issue outside the immediate area. News coverage was almost exclusively confined to the regional daily paper published in West Covina, the *San Gabriel Valley Tribune*. Only two articles dealing with BKK appeared in the *Los Angeles Times* in the twelve months prior to July 1984 compared to 54 articles and three editorials published in the *Tribune* (see Table 1). Even a series of articles on the death of a nine-year-old boy from aplastic anemia and the wrongful death suit filed against BKK by his parents in the summer of 1982 failed to mobilize more participation in the controversy. The courts seemed like an unpromising avenue to success unless some new argument about the safety of operating the toxic waste disposal facility could be made.

TABLE 1

Newspaper coverage of BKK, during the period July 17, 1983–July 17, 1985

Type	Before evacuation	After evacuation	Total
<i>San Gabriel Valley Tribune</i>			
Articles	54	134	188
Editorials	3	6	9
<i>Los Angeles Times</i>			
Articles	2	17	19
Editorials	0	3	3
<i>Los Angeles Times — Other Toxic Waste</i>			
Articles	78	128	206
Editorials	8	11	19

The evacuation

The first signs that all was not well down in the bowels of the BKK Landfill appeared in 1981. Concentrations of vinyl chloride were detected in one of the new housing developments along Amar Road in August. The regional air quality management district began monitoring for gas emissions, a program costing \$1,200 per week. Eighteen months later high readings of trichloroethylene (TCE), perchloroethylene (PCE), and ethyl dichloride were also detected. An EPA inspection of the toxic waste site in 1983 disclosed the existence of fractured bedrock, meaning that underground liquids could not be contained as designed. The agency banned the deposit of any further liquid waste from the Stringfellow Acid Pit, a Superfund clean-up site in Riverside County. The EPA and the state health department jointly announced that no more liquid waste could be deposited at the landfill after May 1, 1984.

The EPA publicly questioned the landfill's ability to contain liquid on-site, observing in January 1984 that liquids were migrating past two underground containment barriers. Contaminants were found two weeks later in well water on-site but beyond both the northern and southern containment barriers. Three weeks after these discoveries vinyl chloride readings increased along the southern boundary of the BKK property, the boundary closest to suburban tract homes along Amar Road. In a headline story the *Tribune* described the seemingly uphill (i.e., northerly) migration of vinyl chloride as judged by measurements from monitoring wells. Contaminated groundwater was also found in a well 400 feet west of an outer containment barrier. The by-products of toxic waste seemed to be seeping out of the landfill in all directions.

The state health department took another step toward restricting the use of the BKK Landfill as a toxic waste disposal facility. It disclosed the presence of contaminants in gas monitoring wells drilled *off-site* near homes between Amar Road and the southern border of the landfill and ordered 70 percent of the hazardous waste site closed. The health department publicly admitted that

its own earlier geologic studies had been in error; the site used to contain toxic waste was not a bowl of impermeable material but instead consisted of sandstone. The level of emissions of vinyl chloride was such that in April the drilling of additional monitoring wells on-site was halted. Further geological analysis disclosed that the southern underground barrier had been constructed on a bed of cracked shale and that contaminated groundwater had migrated 1,000 feet (300 m) beyond it, though not yet off-site. As July approached the health department was allowing BKK to mix toxic liquids (with the exception of TCE) with topsoil before disposal and had approved plans to dig 12 new wells to prevent contaminated groundwater from seeping through the sand and sandstone barriers at the southeast corner of the landfill as well as six additional gas monitoring wells.

On Tuesday, July 17, 1984, a work crew from the regional electric utility detected heavy concentrations of methane gas in the residential subdivision between Amar road and the southern boarder of the landfill. Gas company crews quickly summoned to the scene determined that the gas was coming from inside several of the houses and not from the utility's transmission lines. At 8:40 p.m., 17 families were evacuated due to high concentrations of methane in their homes. Two additional families were evacuated when concentrations of vinyl chloride 90 times greater than allowable state limits were discovered in their homes. The gases seemed to be coming from where plumbing entered the homes. Natural gas service to all homes in the neighbourhood was discontinued, and residents not evacuated were ordered to turn off their electricity.

The evacuated families were taken first to a temporary shelter in a nearby public park. Four families spent the night in motels while the others stayed with relatives or friends. Two families were allowed to return to their homes the following day, but one week later two additional families were evacuated after more vinyl chloride was discovered. All 19 families subsequently moved into a residential motel with the rooms and a meal allowance paid for by the City of West Covina which in turn was to be reimbursed by the BKK Corporation. Four weeks after the initial evacuation the health department announced that eight of the 19 families could reoccupy their homes. The eight families were in no hurry to return, however. At a show-down meeting with representatives of the EPA, the health department, and the city, city officials announced that housing and meal subsidies would be immediately suspended unless the eight families agreed to return to their homes at once.

The threatened economic sanctions failed. The eight families remained in the residential motel at their own expense. Two weeks later these families received \$175 each, money raised through donations from their non-evacuated neighbours that had been matched by a local attorney. A car wash held in mid-September at a gas station at the intersection of Azusa Avenue and Amar Road raised another \$1,500. Bake sales took place the next week at two supermarkets at the same location with proceeds donated to the evacuees. A second car wash

was held in October. By this time the City of West Covina listed its costs for feeding and housing the evacuees at \$175,240, about half of its estimated \$322,500 costs as a direct result of the evacuation. (BKK had repaid the city \$184,829 by this time.)

The tax assessor gave the evacuees a different type of economic jolt. In November the county assessors office refused to reappraise the houses that had stood unused for over four months. (A reappraisal would save evacuees money on their property tax bill by lowering the assessed valuation of their homes to reflect declining market value as a direct result of problems related to the landfill operation.) The county supervisor representing the West Covina area formally ordered the county tax assessor to reappraise these homes to entitle their owners relief when property taxes were due in December. In so doing he cited provisions for such a reassessment in the state's emergency services act, although no emergency declaration had been issued by the governor for the BKK-related evacuations.

Evacuees had other concerns in addition to economic worries. The home of one of the evacuated families was burglarized in September. Three more evacuated homes were broken into in October. A controversy developed over security measures for the neighbourhood. Costs for security provided by the West Covina Police Department had exceeded \$115,000 during the first six weeks of the evacuation, \$97,928 of which was for overtime salaries. The BKK Corporation, which was reimbursing the city, was becoming worried about security costs since there was no way to determine exactly when concentrations of gas would decrease to a level that would allow the homes to be reoccupied. The city agreed to a proposal by BKK for the latter to contract with a private security firm to take over patrol of the neighborhoods with evacuated homes from the police department on September 1, 1984. At the time of the break-ins only one private security guard was being used to patrol the area.

Non-evacuees in the vicinity of the toxic gas discoveries faced uncertainties as well. Trichloroethylene (TCE) turned up in two of the already-evacuated homes in late August, and a rumor that 50 more homes would have to be evacuated made its way onto most of the local radio and television news broadcasts. Speculators offering to pay cash for homes in the neighborhood — but at less than half their pre-evacuation prices — added to homeowner's concerns over what longterm effect BKK's problems might have on the value of their property. Several homeowners refused the state permission to drill new gas monitoring wells on their property for fear that the mere presence of probes would further reduce the value of their homes.

As the December holidays neared, ten evacuated families were still living at the residential motel. All ten received letters in early December from the EPA and the state health department stating that methane and vinyl chloride levels were safe enough for them to return home. One week later the *Tribune* published a feature article on the dilemmas one of these families faced as it decided

what to do and announced in an editorial that with the return of the last evacuees the health hazard was over. However, one of the ten families still refused to move back into its home and only did so in early January 1985 when BKK refused to provide any further food and housing subsidy.

The evacuation was a “dramatic event” in the career of the controversy surrounding the operation of a toxic waste disposal facility by BKK [3]. It moved the issue of the safety of the landfill center-stage in wider public arenas than had been the case during the pre-evacuation period. Coverage of events associated with the BKK Landfill by the *Los Angeles Times* increased significantly following the evacuation, as Table 1 indicates. Ninety percent of its BKK-related articles (17 of 19) appeared in the 12 months between July 18, 1984 and July 17, 1985. The *Times* published not only feature stories on evacuated families but also background articles, such as a lengthy piece on real estate speculators offering cash for homes but for less than half their previous market price. The evacuation also drew the *Times*' attention to the topic of toxic waste in general and to public policy issues associated with it; the number of toxic waste articles published in the year following the evacuation rose 64 percent compared to the year before. While the frequency of articles in the *Times* about BKK itself fell off quickly, articles dealing with other toxic waste incidents remained constant throughout the following year [4]. Coverage of BKK in the *San Gabriel Valley Tribune* had been more extensive all along, but it nearly tripled during the twelve months following the evacuation.

The post-evacuation period

Three days after the 19 families had been evacuated, the West Covina city council voted unanimously to declare the BKK Landfill a public nuisance and to suspend its operating permit. It ordered its police department to barricade the entrance to the landfill to prohibit haulers from delivering waste of any kind starting at 6:00 a.m. Monday morning July 23, 1984. The barricades went up as ordered but were taken down two hours later when BKK's corporate attorney arrived with a temporary restraining order issued by a superior court judge. Despite the public statement by the head of the state health department that the city had the power to prevent dumping at the landfill if it wanted to, the landfill remained open for both toxic and solid wastes.

As the evacuation entered its second week, the number of calls for some form of closure of the facility increased. The *Tribune* urged the EPA to close the toxic waste operation in an editorial on July 26, challenging the agency's director to personally walk through the evacuated neighborhood. The area's congressional representative requested closure in a letter delivered to the EPA director that same day, and the chair of the House Small Business Subcommittee on Energy and Safety invited the director to appear before the subcommittee to explain what the agency was doing about problems associated with BKK. The EPA director refused to appear in person, sending instead an as-

sistant who argued that there was insufficient evidence to warrant closing the landfill, that the problems of site integrity would not go away if toxic waste disposal was suspended, and that there would also be health hazards if dumping took place elsewhere. Subsequently, the area's House representative introduced an amendment to the Superfund reauthorization bill that would have had the effect of closing BKK. Though the amendment passed in subcommittee, it did not survive the legislative process.

Suddenly, the operators of the BKK Landfill unofficially threw in the towel as a toxic waste disposal facility. In a written statement mailed to news organizations on August 20, less than one month after the evacuation, they announced their intention to voluntarily close the landfill to toxic waste. It would receive no chloroform, benzene, or toluene after August 31 and would accept only non-toxic solid waste beginning in December 1984. The company cited legal, political, regulatory, and public pressures that were draining its financial resources. Two months later it emphasized that its reasons were economic rather than political.

Social movement organizations neither claimed victory nor demobilized following the surprise announcement. The homeowners coalition and some officials of the City of West Covina continued to push for a complete shut-down of the landfill. Gases continued to escape from the ground, and contaminated groundwater continued to turn up farther and farther from containment barriers. Repeated requests by the city for a state hearing to declare the site a hazard to public health were made (and rejected). Controversy developed around the planning, design, and execution of an assessment of health risks in areas surrounding the landfill. The formal plan for closing the toxic waste portion of the site also generated conflict.

Closing the BKK Landfill as a toxic waste disposal facility was a long-term process, not an overnight accomplishment. As the district's county supervisor noted, closure would not solve the problems of leaking gas and migrating groundwater. Site stabilization and continuous monitoring, possibly for as long as 30 years, would be necessary. Closure to further receipt of toxic waste also did not mean that the land would stand idle. Questions about future development of the BKK property as a source of income (and public revenue) were also part of the closure process. There were even fears that the BKK Corporation might someday change its mind and decide to resume its toxic waste operation, prompting the City of Walnut to request an amendment to the federal solid waste disposal act that would prohibit relicensing previously closed toxic waste disposal sites.

The BKK Corporation's surprising decision to voluntarily cease its toxic waste disposal operation meant that formal plans for site stabilization, including stabilization financing, had to be prepared for the approval of both the EPA and the state health department. The EPA rejected BKK's first preliminary closure plan, so a revised preliminary plan was announced in October 1984. A

tentative agreement, calling for BKK to continue to use the site as a Class II landfill (licensed to receive only solid waste) and barring receipt of any treated toxic waste or contaminated dirt, was signed one week later by both the EPA and the state health department. Another written agreement was signed by BKK, the City of West Covina, and the State of California in January 1985. This agreement called for the drilling of new gas extraction and gas monitoring wells, the installation of an air stripping system to remove toxic material before venting gases into the atmosphere, and a time-table for submission of a formal closure plan. (The EPA's letter of February 23, 1985 to BKK's corporate attorney officially ended the landfill's right to receive toxic waste.)

The formal plan, presented on February 16, triggered new controversies. One developed over the amount of fill or "cap" to be placed on top of the buried toxic waste. The BKK plan called for filling to an elevation of 1,100 feet (330 m) above sea level. Opponents soon questioned whether the weight of material needed to reach this elevation would be so great as to crack open the underground barriers being created to contain the buried waste. Another contested aspect of the plan was the type of material BKK proposed using to seal up the toxic waste. It planned to use a mixture of impermeable clay, vegetation, and trash. State health department officials wanted assurances that toxic waste could not seep out through such potentially porous material and pointed out that at its present rate of fill not enough solid waste would be received to cap off toxic waste by the agreed upon deadline. There was also criticism of BKK's proposal to seal up only 16 of the 92 acres where hazardous material had been deposited. The health department insisted that at a minimum 92 and possibly as many as 150 acres might need to be sealed.

The portion of BKK's closure plan dealing with proposed arrangements for financing site stabilization was also controversial. An EPA spokesperson labeled this part of the plan "deficient". The agency noted that the plan contained no corporate financial statement and that BKK refused to provide financial records as requested to demonstrate that it had sufficient resources to pay for stabilization. The company wanted to fund the costs of stabilization and long-term monitoring from anticipated income to be generated by future uses of the site (such as the sale of electricity from a trash-to-energy plant). The EPA insisted instead on the creation of a trust fund to pay for closure costs, fined BKK \$21,000 for not having cost estimates and financial assurances completed as agreed, and threatened another \$21,000 fine when these were again unavailable in June. (BKK was subsequently able to raise \$12.5 million through the sale of bonds once sponsorship by the California Pollution Control Financing Authority made interest paid on the notes tax-free.)

The BKK Corporation endeavored to hold down expenses associated with closure and sought new sources of income to make up for some of the losses that closure would bring. The company first tried to halt geologic site characterization studies, arguing that these were no longer needed since toxic waste

disposal operations had ceased. The state health department insisted that core sampling, underground water detection, and seismic studies be completed. Attorneys for BKK then asked a superior court judge to relieve the company of the costs of court-ordered gas testing being performed by the regional gas company at a cost that by then had reached \$4,000 per day. To increase its income during this period, BKK negotiated an agreement to receive daily shipments of 4,000 tons of solid waste from the City of Los Angeles whose own existing landfills were nearly filled to capacity. This proposal brought an outpouring of disapproval from politicians outside the City of Los Angeles; BKK quickly voided the agreement.

The Department of Health Services also rejected the first version of the formal closure plan but for somewhat different reasons than the EPA. The BKK Corporation was forced to compromise on the elevation of the cap atop buried toxic material, agreeing to fill to 1,040 feet above sea level rather than 1,100 feet. (Later this would be further negotiated downward, first to 975 then to 940 ft or 230 m.) The company insisted that capping toxic material was the safest way to prevent any threat to public health. The health department countered that the safety of this capping technique had never been proven. The homeowners association continued to argue (unsuccessfully) that any elevation above 900 was inherently unsafe. The health department also ruled that BKK was not eligible for state superfund money for site stabilization since it was a financially solvent company. (BKK could have qualified for federal aid under the Superfund act before July 1984, but the EPA feared that this would establish a costly precedent.)

Other efforts by the BKK Corporation to finance the transition from toxic waste disposal to alternative uses of its West Covina property generated more controversy. In April 1985 the company asked the city for a waiver of its FY 1985 business license fees (approximately \$600,000), citing lost income since it ceased receiving toxic waste for disposal. It listed gross revenue of \$469,134 for December 1984 compared to \$2.24 million for the month of March 1984 (before the evacuation and voluntary closure). The *Tribune* argued against approval of any waivers in an editorial in early May. BKK repeated this request in June, but city officials argued that first the company should sign a letter of intent to close its refuse disposal operation entirely within ten years and another agreement guaranteeing to develop the property for future income-generating uses. Under these two conditions, the city agreed that planning costs for future development of the property could be financed by deferral of the \$600,000 license fee.

The formal agreement calling for complete closure of the landfill within ten years was signed on November 22, 1985. A local attorney who had lived near the landfill for nine years and who was publicly known as an opponent of the operation was hired by BKK to supervise the closure and site-development processes. The city retained a consulting firm to identify markets for potential

future uses of the 583-acre site, only one-third of which had been used for toxic and solid waste disposal combined, and to determine what types of structures could safely be built over the landfill.

Development plans themselves soon became controversial. At the time of the evacuation in 1984, BKK was preparing to build a trash-to-energy plant on the site. With six electric generating turbines, the company estimated that it could produce 241 million kilowatt hours of energy annually for sale to the regional power company. Just a week before the evacuation the city had signed agreements with two consulting firms to advise it on the merits of the proposal. After the evacuation, the city's Transition/Waste Management Commission voted to delay issuing a permit for the proposed electric generator. Its members feared that approval might cause BKK to fight harder to keep the landfill open in order to provide the solid waste needed to fuel the turbines. The homeowners coalition also opposed the plan, citing what it termed BKK's poor management record and the experimental nature of trash conversion technology. It called for an environmental impact report and for completion of the site characterization study before any permits were issued. Nevertheless the city council approved the plan four months after the evacuation, arguing that power to be sold to the regional utility would generate profits that could be used to finance closure. Council members expressed concern that the BKK Corporation was near bankruptcy and might simply walk away from its problems. It hoped to keep the company profitable for the future — both to insure the closure process and to avoid loss of a major source of revenue — by approving the plan.

Economic issues continued to haunt BKK during the post-evacuation period. Waste haulers predicted that toxic waste disposal costs would skyrocket when the time came for the landfill to no longer accept such material. In addition, BKK raised the fee it charged haulers to dump solid waste 33 percent, from \$3.75 to \$5.00 per ton. The increase immediately changed the City of West Covina's budget for refuse collection from a projected surplus of \$8,000 by the end of the fiscal year to a projected deficit of \$33,000. City officials expressed fears that private haulers would pass these increased costs of operation for trash collection on to residents. In a scathing editorial, the *Tribune* blistered BKK for increasing its refuse disposal fees which the company claimed it was forced to do to pay its legal expenses and for the costs of migration suppression efforts. The editorial accused BKK of forcing its customers to pay for its own irresponsibility. Despite these and other public expressions of outrage, the increased refuse fees remained in effect.

The BKK Corporation faced problems on other fronts. Four months after the evacuation, residents in neighborhoods along the southern boundary of the landfill complained of an increase in foul odors. They were also critical of the regional air quality management district's apparent inability to do anything about the odors. The air quality agency suggested that the upswing in odors could be due to the increasing number of gas monitoring and extraction wells.

It defended itself by saying that it could only cite BKK if one of its inspectors personally detected the odors. At about this time same two telephone company workers were overcome by an unknown noxious gas while working in a man-hole in the same neighborhood. Complaints about odors increased again during the holiday season in December, but it was not until the first anniversary of the evacuation in July 1985 that the air quality agency cited BKK. The company agreed to pay a \$10,750 fine for leaving odor-producing refuse uncovered overnight.

The BKK Landfill operators continued to have problems stopping the migration of underground liquids. The regional water quality control board ordered the company to repair two underground barriers to stop such migration when in August 1985 it discovered that the barriers had either been built out of fractured rock or had been built atop an earthquake fault. Four new wells were drilled off-site to monitor possible migration in mid-September. Both benzene and vinyl chloride were discovered for the first time in water samples taken in October from wells outside the property limits of the landfill; contaminants were moving off-site. The EPA drilled 12 more wells out to a distance of 1,000 feet beyond the southern boundary of the landfill (see Fig. 1). BKK's attorney tried to minimize the danger, pointing out that the liquids were 100 feet underground and two miles from the nearest drinking well. Regardless, the regional water quality control board fined the landfill in mid-October. In January 1986 BKK agreed to drill six more off-site wells to aid in detecting any further migration of contaminated groundwater.

The BKK Corporation spent a good deal of time during the post-evacuation period defending itself in the courts. It was sued in February 1985 (with the city, the state health department, the EPA, and a local realtor as co-defendants) by two couples who claimed that problems at the landfill, gas probes drilled in their front yards, etc., had destroyed the value of their homes. Their suit alleged that the realtor had described the BKK site as "either a golf course or a country club" under construction. Two other groups of homeowners sued in July. In August BKK was named a co-defendant in a class action suit against the Stringfellow Acid Pit in Riverside County. The suit charged that BKK owned the trucking company that hauled 600,000 gallons of toxic waste to the acid pit.

The number of social movement organizations confronting the BKK Corporation over its toxic waste disposal problem grew during the post-evacuation period. The parent-teacher association (PTA) of an elementary school in the City of Walnut, West Covina's (and BKK's) neighbor to the east, became mobilized after receiving complaints about odors on and around the school grounds in late August 1984. Its president led a group of angry PTA members who packed a Walnut city council meeting to demand action before school opened in the fall. An estimated 250 people attended a special PTA meeting at the school three nights later. The president of the homeowners coalition ad-

dressed the gathering and (unsuccessfully) urged parents to picket the entrance to BKK. The state health department agreed to take air samples at the school, having already begun taking water samples from a nearby spring. Subsequent chemical analysis of air and water samples disclosed no pollutants. Unconvinced, the PTA demanded that new tests be performed by an independent chemical laboratory. When the health department refused, the PTA organized a petition drive resulting in the signatures of 928 parents which were presented to the state's Assembly Committee on Consumer Protection and Toxic Materials. The health department successfully persuaded committee members not to order it to use additional funds for an independent analysis.

The design and scope of risk assessments and public health evaluations became a major focus of social movement activity during the post-evacuation period. The state health department one month after the evacuation announced plans for a survey of families living in areas adjacent to the landfill. A sample of more than 850 homes was to be drawn. Testing was to be performed by an engineering consulting firm paid for by BKK but supervised by the health department. Unhappy with the state's plan, the homeowners coalition demanded a larger, more comprehensive health study. Its design would survey everyone who had lived within a two-mile radius of the landfill since 1968; would require the compilation of a complete list of toxic material buried on-site; called for extensive medical tests to be performed on randomly selected individuals; and would require regular review and updating for a period of 30 years. Support for the homeowners expanded study design came from the district's congressional representative, who asked the EPA to undertake such a study to comply with the 1984 federal Resources Conservation and Recovery Act.

The Department of Health Services rejected the homeowner's proposal, citing prohibitive costs estimated by the state to exceed \$2 million. The EPA, the state health department, and the air quality management district agreed instead on a preliminary study of health effects designed earlier in the year by a private consultant. The preliminary effort called for identification of all substances buried in the landfill and medical examination of a small number of volunteers living nearby. At the same time another study of the incidence of cancers using the county's cancer registry was to be performed by epidemiologists from the University of Southern California's medical school. Representatives of the homeowners coalition criticized the first study for making no attempt to establish causal links between any health problems discovered and substances buried in the landfill. The second study, completed in June 1985, once again showed no unusually high rates of cancer in the Census tracts adjacent to the landfill. The homeowner's coalition criticized the cancer study for using data from a relatively small number of Census tracts, for including residents who had lived in the study areas for only a short period of time, and for not following up on long-time residents no longer living in the study area.

The homeowners coalition lost other political skirmishes during the post-evacuation period. It failed to win Transition/Waste Management Commission backing in January 1985 to request that the EPA add BKK to its Superfund list. It pushed the commission to endorse its call for a special advisory election in April on whether or not the City of West Covina should close the landfill immediately. However, the city's Transition/Waste Management Commission voted 5-1 against recommending that the city council call a special election. Even the city staffer who had been the city's most vigorous BKK opponent argued against the election proposal, recommending that the commission approve instead a counter-proposal for council to seek complete closure of BKK "at the earliest possible time".

The city, frustrated in its efforts to close the landfill immediately after the evacuation (its post-evacuation closure ordinance was neither legal nor binding), continued to call upon the state's health department to shut down the toxic waste operation. The department refused and pointed out that even immediate closure would not eliminate the gas leaks along the landfill's southern boundary. The city's Waste Management Advisory Committee (a rival of its newer Transition/Waste Management Commission) tried to keep the pressure on by distributing the addresses and telephone numbers of elected representatives and regulatory agencies and by contacting local service clubs, asking that their members press for closure.

The city's most promising avenue to success during the post-evacuation period appeared to be the courts. The Superior Court judge hearing the suit filed by the city to close the landfill ordered BKK to provide data on the effectiveness of 44 gas extraction wells drilled after the evacuation. He negotiated a further agreement among the several parties involved in the suit in early August in which the BKK Corporation agreed to immediately install 11 more gas monitoring probes, to increase the number of gas extraction wells, and to hire a court-approved consultant to conduct a risk assessment of the health hazard posed by deposited chemicals. The city's request for immediate closure of the landfill was formally denied on August 24. On February 4, 1985, the judge signed a 28-page agreement worked out among BKK, the City of West Covina, and the state health department calling for correction of gas, groundwater, and odor problems within 90 days.

A second suit brought by the city was going nowhere. A hearing on its suit to force the health department to hold the long-sought SB 501 public-hazard hearing was once again postponed. The EPA and the state legislative delegation from West Covina also requested that the department hold such a hearing. However, the health department in early October again formally rejected these requests.

The City of Walnut passed its own non-binding ordinance in the fall of 1984 calling for closure. It voted down an ordinance that would have imposed a moratorium on construction of new homes along the landfill's eastern bound-

ary. It did adopt an emergency measure requiring realtors to provide prospective buyers of homes in the landfill area with information packets explaining the nature of the facility. Controversy over development along the landfill's eastern boundary continued into 1986, one aspect of which was whether 471 acres of BKK property should be set aside to provide a 2,000-foot radius buffer zone between any new homes and the site.

Discussion and conclusions

Why the BKK Landfill closed its toxic waste disposal operation is a question of both practical and theoretical relevance. Questions of cause and effect cannot be answered with materials from a single case study, of course. At best one can propose a plausible hypothesis that seems to subsume the most important features of the case and make that hypothesis available for further evaluation as other similar cases present themselves.

Closure of the toxic waste landfill in West Covina, California was not the direct result of social movement activity. Closure resulted from changes in the aftermath of a "dramatic event" [3], the prolonged evacuation of homes following the escape of toxic gases. Put differently, without an evacuation that led to a redistribution of power among the various stakeholders, it is doubtful that the landfill's opponents would have ever been successful in bringing about early closure of the site.

Social movement organizations were no more successful in achieving their objectives in the post-evacuation period than they had been in the pre-evacuation period. They failed to obtain independent testing at the elementary school in Walnut; failed to mobilize pickets to protest at the landfill's entrance; failed to have the cap over buried material limited to 900 feet above sea level; failed to get the city council to call a special advisory election; failed to win commission support for requesting the EPA to add the BKK Landfill to its list of Superfund sites; failed to enlarge the scope of the health survey; and failed to stop planning for a trash-to-energy plant on the landfill site. The principal consequence of their actions was to keep attention focused on the landfill and its problems through (primarily local) press coverage of their activities. The direct effects of their protest efforts were anything but "successful", however.

The nature of the BKK Landfill as a target of protest in part explains why social movement activity had been and would have continued to be unsuccessful. For one thing, the landfill's immediate "customers" were not members of the public-at-large. Its customers were the cities and private haulers who paid a fee for disposing household and industrial waste on its property. Therefore, it was out of reach of tactics to reduce its income such as organized boycotts to limit its use.

Because of the unique business position it found itself in southern California in the mid-1980s, BKK had numerous and powerful, though usually invisible,

political supporters. Its support was more pragmatic than ideological. No one was, publicly at least, in favor of exposing citizens (i.e., voters and taxpayers) to toxic chemicals and noxious odors. Support for BKK was greatest at those points in the controversy when social movement activity focused specifically on the issue of immediate closure of either part or all of the landfill rather than related issues (e.g., the scope of health evaluations). All parties involved, even the owners of BKK, understood that the landfill would eventually cease to operate once its physical capacity was reached.

Immediate closure would require the identification and development of one or more other locations as toxic waste disposal sites since in 1984 the BKK Landfill was the only licensed Class I landfill within 150 miles of Los Angeles. (The EPA cautiously suggested that several smaller sites rather than one large one be considered, perhaps as a means of diffusing local NIMBY-type opposition.) Officials from the Los Angeles County Sanitation District publicly expressed concern that BKK would close before new sites for municipal refuse could be found. Early closure of the entire landfill, it was feared, would fill the county's remaining solid waste landfills three years ahead of existing projections. The sanitation district and the county Department of Public Works undertook a \$500,000 study to identify sites to replace the BKK Landfill, but at least one of the five county supervisors opposed even the taking of earth samples in his district. Feeling political pressure from within, several cities in the county passed ordinances opposing any plans to locate a solid waste disposal facility in their jurisdiction. The county supervisor who already had the BKK Landfill in his "backyard", while not publicly supporting its owners, repeatedly warned that illegal dumping of toxic material would increase if the landfill were to be closed and argued that conditions generating complaints about the site would exist whether it was open or closed.

The City of West Covina, a plaintiff in several court actions against the landfill operators, was itself torn in two directions over the landfill-closure issue. On the one hand, it was responsible for the health and safety of its citizens who seemingly were being placed at risk by the failure of the landfill's various containment mechanisms. On the other hand, the landfill was a source of revenue for the city through licenses and taxes. To have the BKK Corporation pull out or declare bankruptcy would be a financial blow. Hence, the city was careful to avoid doing irreparable harm to the BKK Corporation. Its designated BKK watch-dog body was named the "Transition/Waste Management Commission", hinting that the city's interest was in ensuring that the BKK property remained an income-producing piece of real estate in the long run, perhaps as an industrial park, a residential development, or a site for the production of electrical energy through a trash-to-energy conversion plant. It is not surprising, therefore, that the BKK-closure issue produced splits within the city council, between council and some of the city's administrative officers,

and within the city administration at various points throughout the periods of greatest protest activity.

The BKK Landfill, in other words, had not only a license but a mandate to operate as the principal toxic waste disposal facility in southern California. Until the state and federal regulatory agencies withdrew that mandate, the landfill would have continued to operate. The courts had never ruled favorably on either the direct or indirect (e.g., demands for a health-hazard survey) efforts by litigants to halt its operation. Various class action suits brought by homeowners were aimed at recovering damages rather than closing the landfill. Even after the evacuation, there was no withdrawal of BKK's mandate, although there were new restrictions about what chemicals the landfill could and could not accept from its customers.

The evacuation as a dramatic event produced two significant changes in the evolution of the controversy. First, it produced some (but far from all) key legal and regulatory decisions that were more in line with the anti-BKK movement's objectives. Second, it produced intense news coverage of the landfill, its operation, and its problems. The evacuation legitimated the issues various critics had raised about the landfill over the years, whether or not one agreed with some of the critics' recommended courses of action (e.g., immediate closure of the entire landfill). In turn, increased coverage in the general audience media had two additional consequences. It gave opponents of the landfill — old and new — access to wider public arenas to state their case. It also created an increase in the number of people within the public-at-large who believed that the landfill was less safe than its owners and many public officials had claimed, as the quantity-of-coverage theory would predict [5].

The point is that the BKK Landfill was not indomitable, but, because of its nature as a target for social movement protest and the nature of its political support, it was susceptible to only certain kinds of pressures. These could only be brought to bear by the regulatory agencies that licensed its operation as a toxic waste disposal facility. For a variety of reasons, the political winds favored — and would have continued to favor — operation of the landfill. The coalition of homeowners associations and elements of city government lacked the economic, legal, and political resources to force early closure. Only after its critics' worst fears were demonstrated by escaping gases and leaching chemicals did the political winds become so turbulent and the economic waters so choppy that BKK's operators decided not to go on. The landfill's crumbling containment barriers and failing gas and odor suppression mechanisms had more to do with this outcome than did the actions of its opponents. The BKK Landfill closed itself, literally and figuratively.

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