Chapter 23

Diseases, accidents and fatalities

Smelter plants are dangerous places both in the short term and the long term. New hires could be struck by a vehicle or a falling crane load or burned by hot bath or metal on their first day at the plant, while employees who retired after decades of accident-free work could face chronic illnesses that developed over time without visible symptoms. The result in either case was typically more government regulations, increased health insurance costs, worker's compensation claims or personal injury lawsuits. Training and ergonomic improvements to equipment increased productivity at the Anaconda Aluminum Co. plant in Columbia Falls while also preventing some kinds of accidents. Not much could be done about the overall design of Soderberg reduction pots – the open-top anodes emitted fumes, pot crusts were not covered with metal hoods, and fall protection for workers who climbed on pots was not easy to arrange. Hazardous fumes and particulates, including asbestos fibers, were responsible for chronic diseases, and both the government and the plant attempted to lessen the risk to workers by encouraging or requiring the use of personal protective equipment, especially respirators. But in some cases, the encouragement or requirement came too late.

OSHA citations go to court

In October 1971, the federal Occupational Safety and Health Administration cited the Anaconda Aluminum Co. for the lack of respirator equipment for workers in areas at its smelter in Columbia Falls where there were excessive coal tar pitch volatiles. In May 1973, OSHA inspectors cited the plant for several safety violations, including failing to provide annual examinations for workers exposed to airborne concentrations of asbestos fibers. AAC did not contest that charge and in 1974 the issue was settled by federal Judge James J. Cronin. [1] In August 1975, OSHA representatives held a three-day public hearing before a federal judge in Kalispell to discuss a complaint by the Secretary of Labor that employees at the AAC plant were exposed to airborne pollution. The complaint alleged that the company allowed particularly high concentrations of coal and coke dust, asbestos fibers and coal tar pitch volatiles to result from normal operations at the aluminum plant. The complaint also alleged that the airborne concentrations exceeded allowable levels, that comprehensive medical examinations were not provided to certain workers, and respiratory protective equipment was not adequate. [2]

OSHA brought a complaint against AAC following inspections at the plant from Jan. 21 through Feb. 27, 1975. The federal agency alleged workers were exposed to coal tar pitch volatiles in excess of allowable levels and were not provided with applicable or suitable respirators – including cathode reline workers, ore truck drivers and members of the pot gas ventilation crew. Coal tar pitch volatiles included benzene, anthracene, benze-a-pyrene, phenanthrene, acridine, chrysene and pyrene. Administrative Law Judge John J. Morris issued his decision and order on the complaint for the Occupational Safety and Health Commission on May 29, 1976. The OSHA inspector in the case testified that in his opinion the half-mask respirator worn by the cathode reline crew could leak contaminants – especially when the workers were using vibrating tools to pound and ram cathode paste while rebuilding pots. OSHA called for the use of a hood-type respirator with a continuous flow of air for cathode reline workers, a power-supplied continuous flow respirator for ore truck drivers, and a supplied air respirator with a tight-fitting mask for briquette truck drivers. [3]

AAC's experts countered by arguing that OSHA's tests were inaccurate and that the ambient chemical levels were much lower, but Judge Morris disagreed. On the other hand, Morris found OSHA's evidence that the chemicals in coal tar pitch were dangerous to be weak. "Complainant's evidence fails to establish by persuasive evidence that a substantial probability of death or serious harm could result from the exposures above described," he wrote. Benzene-a-pyrene was included in hazardous chemical lists, but that did not establish its potency. "It may well be that exposure to BaP increases mortality from lung cancer… however, the record does not so indicate," Morris wrote. "Respondent's witness establishes that the rate of the 12 observed lung cancer deaths, though elevated, is statistically unstable. The elevation could be by chance. In normal occurrences, there are 6 per 1,000 deaths resulting from lung cancer in the population… While BaP, which is present in cigarette smoke and polluted urban air, can cause skin cancer in animals, no such results have been obtained in lungs… Different products, temperatures, concentrations of particulate size, and processes prevent an equation between aluminum reduction workers and those workers in coke ovens, gas retort plants and the roofing industry." [4]

OSHA argued that toxic substance standards established by the U.S. Secretary of Labor should be the guiding rule, and furthermore that the "best available evidence" indicated that plant workers without proper respirators were exposed to a carcinogenic contaminant of high toxicity. Judge Morris, however, was not persuaded and ruled that the violation should be reduced from serious to non-serious. On the other hand, the judge noted that AAC had been cited for the similar violations in 1971. The fact that AAC had ordered forced-air hoods and used them after the inspections "indicates its good faith," but AAC's citation for excessive coal tar pitch volatiles in 1971 "seriously

tarnished such good faith," he wrote. "Nine hundred employees work at this facility." Judge Morris also noted that AAC was cited in May 1973 for failing to provide annual examinations for workers exposed to airborne asbestos. AAC did not contest that citation, and Judge Cronin had approved a settlement on that issue in 1974. "On this bare record, it must be concluded that respondent knowingly, and obstinately, refused to comply with this regulation," Judge Morris wrote. "No exculpatory evidence appears to explain or mitigate the lack of action by respondent." [5]

OSHA also cited AAC because pot gas ventilation crew workers were not supplied with respiratory-protective equipment and special clothing when engaged in the removal of asbestos insulation and coverings from the gooseneck pipes that connected reduction pots to the plant's flue gas emissions control system. OSHA wanted the crews to use forced-air respirators and wear coveralls or similar whole-body clothing along with head covering, gloves and foot coverings. Judge Morris vacated that citation because the concentration of airborne asbestos fibers was not in excess of safety level ceilings. OSHA also cited AAC because cathode reline workers using pneumatic hammers were exposed to noise levels 1.9 times the level permitted by the noise standard. Workers in the area wore "wool ear plugs" and rammed cathodes every other day. The OSHA inspector suggested the cathode reline workers could work half a day at a time, thus reducing the amount of noise in a 24-hour period. [6]

Judge Morris was not swayed and vacated the citation. "The inspector did not suggest what effect his recommendation would have on the workers or the work process," he wrote. "Particularly, the record does not reflect his qualifications to make such an evaluation." Morris also ruled that "no feasible engineering controls exist to reduce the noise level caused by the pneumatic hammer." OSHA also cited AAC because cathode reline workers, briquette truck drivers and ore truck drivers were exposed to pitch fumes, and some paste plant workers were exposed to coal and coke dust while servicing the emissions-control baghouse and Draco units. "Some of the employees had erytheme, known as pitch burn, on their faces and from exposure at their wrists," Judge Morris wrote. "Respondent's contentions that the workers had adequate protection clothing in the form of Levis, cotton shirts, and gloves lacks merit. Further, merely furnishing workers with 'Noxema' for use in wash rooms does not constitute compliance." Other complaints and citations made by OSHA involved the lack of proper training and instructive materials on how to use safety equipment and the lack of regularly scheduled medical exams. All told, OSHA called for $5,620 in fines. Judge Morris vacated $480, leaving $5,140 in fines. [7]

AAC appealed Judge Morris' ruling, and the Occupational Safety and Health Review Commission issued its decision on AAC's appeal on March 31, 1981. The commission

focused on three areas: 1) coal tar pitch volatiles, proper application of respirators and the carcinogenic properties of the chemical hazards; 2) the presence of asbestos fibers and whether employees were properly outfitted and given annual medical inspections as required; and 3) noise in the reline pits. OSHA industrial hygienist David DiTommaso had conducted sampling at the Columbia Falls smelter plant from Jan. 21 to Feb. 27, 1975. AAC's appeal on the coal tar pitch volatiles issue focused on the accuracy of OSHA's tests and the adequacy of the respirators. AAC presented as its expert witness Dr. H. Jerome Seim, the manager of analytic research for Kaiser Aluminum. OSHA presented as its expert witness Dr. Floyd Madsen, director of the OSHA laboratory in Salt Lake City. [8]

The commission noted that Judge Morris had rejected AAC's earlier argument that the OSHA tests might accidentally measure other substances, and "the judge construed the argument as an attack on the wisdom of the standard… on the basis that the commission has no authority to question the wisdom of the (Secretary of Labor's) standards." The commission agreed with Morris' findings on that issue. The commission also agreed with Morris that AAC had failed to provide test results that would refute the OSHA lab results. The commission also ruled that two similar previous cases involving respirator use – Spring Air Mattress regarding cotton dust and Alcoa regarding coal tar pitch volatiles – "were wrongly decided," although they supported AAC's position. "To meet his burden of proof, the Secretary need not establish a fact with absolute certainty," they wrote. "Instead, he must prove the existence of that fact by the preponderance of the evidence." [9]

The commission also noted that DiTommaso had cited AAC for providing negative pressure air-purifying respirators with cotton facelets where vibrations from the use of pneumatic hammers could cause leaks around the edges of the respirators. DiTommaso called for use of positive pressure type respirators – including powered air-purifying respirators and airline supplied respirators. The safety level of the respirators could be determined by dividing the coal tar pitch volatile levels by the protection factor of the respirators, but "DiTommaso also relied on his opinion that coal tar pitch volatiles and its benzene-a-pyrene component were recognized carcinogens," based on a passage in the American Conference of Government Industrial Hygienists 1971 textbook. [10]

The commission wrote that "no 'safe' limit of exposure can be established for carcinogens" in establishing the recommended level of coal tar pitch volatiles in the ambient environment at 0.2 milligrams of benzene-soluble components per cubic meter. "Any erring in the selection of respirators shall be on the safe side," the commission wrote. AAC presented an expert witness on respirators – Dr. Peter Magnante, manager of product development for the safety products division of the

American Optical Co. Magnante testified that the respirators used by AAC were applicable and suitable. “Even the fact that coal tar pitch volatiles contain benzene-a-pyrene, which Magnante agreed was a carcinogen, did not change his opinion,” the commission wrote. “In the same vein, Magnante refused to offer an opinion on the toxicity of benzene-a-pyrene. He did, however, opine that the work environment did not constitute an atmosphere ‘immediately dangerous to life or health’ within the meaning of the applicable ANSI (American National Standards Institute) standard.” [11]

OSHA had also argued that factors other than ambient contaminant levels and the protection factor of respirators should be considered in choosing a respirator – for example, vibrations from use of pneumatic tools. The commission rejected OSHA’s argument that the ambient hazard level should be based on the presence of benzene-a-pyrene alone, since coal tar pitch volatiles altogether were considered carcinogenic. “Although we agree in principle that exposure of employees to any carcinogen should be reduced as much as possible, an employer’s duty under the Act, where a specific applicable standard exists, is to comply with that standard,” the commission wrote. “Accordingly, Anaconda did not violate the standard solely because it did not provide the most effective available respirators to protect its employees against coal tar pitch volatiles. However, the nature of the hazard is still an important consideration in determining the adequacy of the respirators Anaconda did provide. The fact that the hazard is life-threatening, and involves a disease having effects that are largely nonreversible, mandates that an adequate respirator must have characteristics assuring, with virtual certainty, that each employer is exposed to no more coal tar pitch volatiles than the standard permits.” [12]

The commission determined that only ore truck drivers were insufficiently protected – not the briquette truck drivers or cathode reline crew members. The next step was to determine if a “serious violation” occurred. Under the 1970 Occupational Safety and Health Act, a serious violation was “deemed to exist in a place of employment if there is a substantial probability that death or serious harm could result… unless the employer did not, and could not with the exercise of reasonable diligence, know of the presence of the violation.” Based on that, the commission wrote, “The record establishes that Anaconda had the requisite knowledge for a serious violation. Anaconda knew of the presence of airborne coal tar pitch volatiles in its plant, and knew of the type of respirator the ore trucker was using.” [13]

The commission continued, “Thus, the question whether the violation was of a serious nature turns on whether it gave rise to a ‘substantial probability of death or serious harm.’ The parties dispute whether this criterion was met. The dispute encompasses two issues: whether excessive coal tar pitch volatiles presents any carcinogenic risk to

workers in an aluminum reduction plant and, if so, whether the record establishes such a risk under the facts of this case." DiTommaso had based his opinion that benzene-a-pyrene was a carcinogen on a paper by Dr. Irving J. Selikoff titled "Inhalation of Benzpyrene and Cancer in Man," which was based on a mortality study of roofers exposed to fumes from hot pitch. Selikoff, however, did not determine if other chemicals in the fumes could have caused the cancers, or if the roofer smoked tobacco products. AAC's expert witness, Dr. Bertram Dinman, the corporate safety director for Alcoa, concluded that the only way to determine whether aluminum reduction workers were exposed to an increased risk of cancer was to perform a mortality study of such workers. Such a study, sponsored by the aluminum industry, was underway, he told the commission. [14]

OSHA argued that Judge Morris erred in finding the violation not to be serious. OSHA contended it "need prove only that the violation gives rise to the possibility that an employee may contract cancer, and not the probability of such an illness occurring," and argued that previous cases were wrongly decided. OSHA "asserts that, in the view of the limited state of scientific knowledge concerning the causes and developmental stages of cancer, it is unreasonable to require OSHA to prove the exposure levels and duration those levels must exist in order to result in cancer." AAC had countered that "the evidence fails to establish that even chronic exposure of aluminum workers to coal tar pitch volatiles would increase their risk of contracting cancer," the commission noted. In drawing its conclusion on the seriousness of the violation, the commission referred to OSHA's "Identification, Classification and Regulation of Potential Occupational Carcinogens," the preamble of which provided "a detailed discussion of the scientific evidence on which the regulation is based." [15]

The Occupational Safety and Health Review Commission concluded by ruling that the violation was serious. "The question of whether an environmental contaminant poses an increased risk of cancer to humans is an extremely difficult and controversial one," the commission wrote. "However, it is not the commission's function to determine whether a particular substance should be regulated as a carcinogen. Instead, we must interpret and apply the standards the Secretary has promulgated." Lastly, the commission ruled that "Anaconda's good faith is questionable. Although Anaconda knew of the presence of coal tar pitch volatiles in its plant, both from an earlier citation and from its knowledge of its own work processes, the record indicates that it took a rather lackadaisical approach to protecting the health of its employees against an excess exposure to coal tar pitch volatiles." With regard to protecting AAC workers from exposure to asbestos fibers, the commission agreed with Judge Morris' earlier ruling that not only had AAC violated the regulations, but that it had done so willfully. The commission concluded that AAC had violated the regulations "consciously and

intentionally" because it had been cited previously and should have known better. With regard to protecting AAC workers from excessive noise, the commission overruled Judge Morris and found AAC had violated safety regulations. DiTommaso had found that workers were exposed to 190% of the permissible daily exposure in an 8-hour shift, with noise as high as 103 decibels. He had attached a noise dosimeter to one employee and found he received 110% of the permissible daily exposure in only four hours. [16]

Workers compensation cases

In 1919, the Montana Supreme Court upheld the power of the Montana Legislature to enact a worker's compensation act to provide benefits to workers injured in industrial accidents. The act was created as a way to replace common law remedies in the case of Shea v. North-Butte Mining Co. The point of worker's compensation law was to provide limited protection to industries from personal injury lawsuits. Workers who agreed to take state benefits were limited in their ability to sue a company. In 1959, the Montana Legislature followed up by enacting the Occupational Diseases Act to provide benefits to workers who were made ill over time by industrial conditions. By 1978, nearly every state in the U.S. had enacted some type of occupational diseases act, typically in response to the "heavy incidence of silicosis and asbestosis in certain industries, for which full coverage under worker's compensation would have created a difficult burden," a 1989 Montana Supreme Court majority opinion explained. In the 1989 Eastman v. ARCO case, the Montana Supreme Court held that the Montana Legislature had sound reasons to provide less benefits under the Occupational Diseases Act than under the Worker's Compensation Act. The Montana Legislature enacted amendments to the Worker's Compensation Act in 1987, however, and in 2003 the Montana Supreme Court reversed itself on Eastman v. ARCO using the 1987 amendments, ruling that workers should not be separated into two classifications as far as benefits were concerned. [17]

Eastman had been an ironworker at the ARCO Aluminum smelter in Columbia Falls from 1977 to 1985, when he was diagnosed with chronic obstructive pulmonary disease. The disease led to his dependence on steroids, which in turn led to severe physical and emotional side effects. Claiming his condition was aggravated by a single incident that led to smoke and fume inhalation while at work, Eastman petitioned Montana's Worker's Compensation Court for compensation benefits. The court held that he suffered from an occupational disease and not an injury and therefore was limited to $10,000 in benefits, pursuant to the state's Occupational Disease Act. Eastman appealed the decision. The Montana Supreme Court ruled on Eastman's appeal in 1989. According to dissenting Justice William Hunt, Eastman was "forced to surmount hurdles that would challenge even the greatest trial tactician. He appears before this Court pro se because

his attorney, after collecting his fee, merged his law firm with the firm representing ARCO." Without an attorney to assist him, Eastman made simple omissions in his appeal, including failing to argue his constitutional right to equal protection under the law. [18]

Montana Supreme Court Justice Terry Trieweiler referenced the Eastman case in Stavenjord v. Montana State Fund, which was decided in April 2003. Normally the Supreme Court will not make a constitutional decision when a plaintiff acts without counsel, Trieweiler said, but the Montana Supreme Court decided that "broad public concerns" were involved in the Eastman case and went on to decide the constitutional issues. The court described the historical development of worker's compensation law from earlier tort law and noted that the Occupational Diseases Act was passed by the Montana Legislature in 1959 as "incidents of devastating diseases in the work place also increased," Trieweiler said. Then, without full explanation, the court ruled that Eastman had failed to establish that his constitutional rights had been violated under the equal protection clauses, Trieweiler said. Writing for the majority in Stavenjord v. Montana State Fund, Trieweiler said amendments made to the state's Worker's Compensation Act in 1987 – after Eastman's case was already decided – changed the definitions separating occupational disease from injuries, and "the entire underpinnings of Eastman have evaporated, rendering its continued validity questionable." [19]

Warnings about respirators

On Nov. 5, 1997, CFAC distributed an in-house flyer named "CFAC Newsbriefs" with information on respirators and atmospheric hazards in the plant. Paper dust masks were no longer considered an approved respirator at CFAC "because the Industrial Hygiene Committee determined these dust masks do not provide adequate protection against respirable dust, as well as no protection against hydrogen fluoride and coal tar pitch volatiles," the flyer said. Workers had expressed concerns about respiratory protection and bad visibility in the cathode split area in the North Crane Bay area. Dust created from emptying out spent cathode shells contained cyanide and potentially other hazardous chemicals. CFAC's response was to recommend that "while splits are taking place in the north end of Room 8, all nonessential employees avoid the affected area… Currently, the facility permitted to handle spent potliner requires the material to be sized. This sizing operation is the task that creates the majority of the dust in the north end of Room 8." [20]

On June 25, 1998, CFAC published information on coal tar pitch hazards in its "Business, Safety & Health Newsletter." Emissions from coal tar pitch included coal tar pitch volatiles, which were airborne solid particles released into the air when pitch was heated, along with other gases and vapors. The main volatiles of concern were

polycyclic aromatic hydrocarbons, some of which were considered carcinogens. The coal tar pitch used at CFAC to manufacture anode briquettes contained approximately 2.5% polycyclic aromatic hydrocarbons by weight, the newsletter explained. Volatiles were present in the CFAC plant in various concentrations, which were regulated under OSHA rules, including above the first floor in the paste plant and anywhere in the potlines above the anode level. The cartridge-type respirator supplied by CFAC was capable of filtering out coal tar pitch volatile emissions, the newsletter said. Exposure to pitch dust and vapors could cause irritation to skin, eyes and the respiratory tract. Frequent or prolonged exposure could cause pitch burn to skin, similar to the symptoms of sunburn and made worse by sunlight. Continued or repeated exposures could cause skin disorders such as dermatitis, tar warts or rough skin. Over many years, continued or repeated exposures could lead to skin pigmentation, benign skin growths and possibly skin cancer. Inhaling coal tar pitch volatiles over a long period of time could cause lung cancer. CFAC required long-sleeved shirts and barrier cream to minimize skin exposure. Employees were encouraged to wash their hands and face prior to eating, drinking, smoking or using a restroom. [21]

In 2002, thirteen years after the Montana Supreme Court ruled in the Eastman case, CFAC was ranked 32nd out of the top 35 Montana companies for environmental releases in pounds of toluene-equivalents, according to the Environmental Defense nonprofit organization. At the top of the list was the Colstrip Steam Electric Station with 4.3 billion pounds. Number 17 on the list was Plum Creek's MDF plant in Columbia Falls with 5.5 million pounds. Other top-ranked sites included generating plants, petroleum refineries, mines, timber plants and a concrete plant. CFAC, which restarted Potline 4 that year after being completely shut down for nearly all of 2001, was ranked 32 with 460 pounds. CFAC was ranked in the top 80-90 percentile that year for total environmental major chemical releases or waste generation in the U.S. and in the lower 0-10 percentile for non-cancer risk score for air and water releases. The top-ranked non-cancer risk at the plant was anthracene according to the Environmental Defense. In 2002, with one of five potlines operating, CFAC released to the air 9,303 pounds of suspected carcinogens; 163,880 pounds of suspected cardiovascular or blood toxicants; 154,577 pounds of suspected development toxicants; 2,723 pounds of suspected endocrine toxicants; 166,603 pounds of suspected gastrointestinal or liver toxicants; 154,577 pounds of suspected musculoskeletal toxicants; 154,577 pounds of suspected neurotoxicants; 163,880 pounds of suspected reproductive toxicants, 178,994 pounds of suspected respiratory toxicants; and 181,717 pounds of suspected skin or sense organ toxicants, according to Environmental Defense. [22]

Asbestos lawsuits

In 2000, nine former and current CFAC workers filed lawsuits in Montana district courts against the Anaconda Company, subsequent owners of the aluminum smelter near Columbia Falls and several asbestos-related companies. Terry Smith, Michael A. Rutecki, Alton F. Johnson, Larry Bump, Ray Sorenson, Robert Conley, Fred Tobiason, Richard Neise and George Dofelmire alleged they were exposed to asbestos while working at the plant and were injured as a result. [23] Five of the workers sued CFAC, ARCO, the Anaconda Company, Glencore, Brack Duker, Jerome Broussard, the Montana Aluminum Investors Corp., W.R. Grace, Zonolite, Mobil, D.B. Riley, Union Carbide and the Montana Vermiculite Co., among others, alleging that negligence by the defendants led to unsafe conditions and the development of asbestosis. [24]

The five workers began working at the aluminum smelter near Columbia Falls in the late 1960s as laborers and craftsmen. They sued for past and future medical costs, lost earning capacity, pain and suffering, loss of enjoyment of life, punitive damages, legal expenses and other costs. The plaintiffs argued that the defendants were aware of the dangers of asbestos exposure to workers' health but concealed that information from the workers. Asbestos products had been used in the plant in concrete pipe and conduit, mud used to seal cracks in reduction pots, rope packing on crucible lids, and insulation for pipes, electrical wires and duct work. Four types of asbestos diseases could result from the inhalation or swallowing of asbestos fibers – mesothelioma, a cancer of the pleural lining surrounding the lung and heart cavity; lung cancer, which could be exacerbated by smoking tobacco products; asbestosis, the scarring of the lung tissue leading to loss of lung capacity; and other cancers, including cancer in the throat, esophagus, larynx, stomach and colon. [25]

Tom Lewis, the Great Falls attorney representing the five workers, said mesothelioma and asbestosis were "signature" diseases that could only be caused by exposure to asbestos fibers. Some of the defendants responded to the complaints by denying nearly everything – both ARCO and CFAC attorneys denied the companies owned or operated an aluminum plant near Columbia Falls. They also suggested that negligence by the plaintiffs could be greater than the negligence of the defendants in use of the dangerous products. According to a 2001 RAND report, more than 600,000 asbestos-related lawsuits had been filed nationwide and more than 200,000 were still pending, totaling about $54 billion in claims in related costs, of which the claimants averaged only 43 cents on every dollar spent on litigation. Beginning in about 1998, CFAC began taking a more proactive stance with asbestos, training craftsmen in asbestos abatement and hiring outside contractors to remove or encapsulate asbestos in the plant. The occasional strong winds in the 1,080-foot long pot rooms, however, could have blown

asbestos fibers all over the place, workers worried. One worker said, “A single asbestos fiber is so light, it takes eight hours for it to settle from high in a room to the floor.” [26]

Aluminum Workers Trades Council President Terry Smith began working at the aluminum plant in 1974. His first lawyer, Jon Heberling of the McGarvey, Heberling and Sullivan law firm in Kalispell, claimed a nationwide conspiracy existed among firms that manufactured or used asbestos products going back to the 1930s which tried to conceal the dangers of asbestos. The law firm had represented 500 clients in asbestos-related lawsuits, mostly against W.R. Grace, which operated a vermiculite mine in Libby, Mont. About 30 of those cases had been settled out of court and three were won at trial. Smith’s lawsuit was handed over to Great Falls attorney Tom Lewis at a later date. Public knowledge about the dangers of asbestos fibers at the CFAC plant dated back to at least August 1975, the plaintiffs claimed, when OSHA held a three-day public hearing in Kalispell to address charges against the Anaconda Aluminum Co. alleging workers were exposed to dangerous health conditions, including asbestos fibers. [27]

According to Smith’s lawsuit, “Although defendants knew that their acts and omissions created a high degree of risk… the defendants nevertheless deliberately acted in conscious disregard for and indifference to the harm imposed upon plaintiff by his continued exposure to ultra-hazardous asbestos.” Smith alleged he did not know of the life-threatening risk and “would not have worked in such an environment if he had known the true facts.” Smith claimed the defendants knew about the risks of exposure to asbestos and that they neglected to warn workers, conspired and fraudulently concealed the risks, failed to provide a safe workplace, intentionally exposed workers to harm, and acted maliciously. The lawsuit asked for punitive and actual damages, including medical expenses. [28]

Larry Bump, a general mechanic assigned to the compressor house, began working at the aluminum smelter in 1967 and suffered from asbestos-related pleural disease and parenchymal fibrosis. He was seeking unspecified compensation for past and future medical expenses, lost earning capacity, pain and suffering, and punitive and exemplary damages. CFAC human resources manager Lyle Phillips said asbestos was used for insulating drain and water lines in the plant’s earlier years and that a “gas-removal system” also had asbestos insulation. Phillips said ARCO did a “tremendous amount” of remediation at the plant in the 1980s, removing or encapsulating asbestos insulation, a process that was continued for many years after that. About a year or so before Bump filed his lawsuit, Phillips said, the Aluminum Workers Trades Council pushed for lung tests, and some aluminum plant workers were screened. [29] CFAC spokesperson Bob Brown mentioned media reports that said asbestos was not used in the manufacture of aluminum. But according to reports, asbestos products were used to insulate pipes and

flue ducts. Altogether, 13 companies were named in the lawsuit which not only sought damages but also to "punish the defendant and to serve as a warning to other similar companies." [30]

Richard Neise started working at the aluminum plant in 1967 and then again from 1971 through 1993. He claimed asbestos in insulation used at the plant caused irreversible damage to his lungs and that he would not have worked in the plant if he had known about the risks. In November 2003, his lawsuit was brought to Flathead County District Court, where many of the defendants were located. Neise sought damages for past and future medical costs, loss of earnings, pain and suffering, loss of enjoyment of life, emotional distress, punitive damages and other costs. [31] Robert Conley, who began working at the aluminum smelter in 1968, claimed he was exposed to asbestos during his entire career at the plant. [32] One week after Larry Bump filed his lawsuit, Fred Tobiason, a retired production worker at the paste plant, and Ray Sorenson, a dayshift operator at the paste plant, joined Bump's lawsuit. The lawsuits claimed that the named companies knew that exposure to the asbestos was a health hazard, but Tobiason and Sorenson further claimed that plant management concealed the asbestos danger from workers and even told employees it was safe to work there. [33]

In February 2005, the Montana Supreme Court ruled against CFAC and other defendants in the asbestos lawsuits, and ordered the cases to be tried in state district court in Great Falls. The lawsuit by then named 46 plaintiffs and 53 defendants. CFAC attorneys had argued that the only reason the case was filed in Great Falls was because one of the defendants, Robinson Insulation, had once operated a vermiculite plant there, but Robinson went out of business in 1989. CFAC argued that Robinson was a "sham" defendant because it no longer existed, and that naming Robinson was just a ruse to keep the case in Great Falls, not the Flathead Valley. Supreme Court Justice John Warner agreed, but five other justices ruled that state law allowed lawsuits against companies that had dissolved. [34] Depositions in the case were taken on May 25, 2005. Bump explained why he never gave the company notification about his exposure to asbestos. He said he wrote it down for a future lawsuit. "I heard if you documented stuff, it would stand up (in court)," he said. In a 1998 physical exam conducted by Dr. Jay T. Segarra, Bump was diagnosed as "a pleasant, mildly obese white man in no respiratory distress at rest." Segarra did say that Bump was at increased risk for mesothelioma and had signs of asbestos-related pleural disease and atherosclerotic heart disease. [35]

The asbestos lawsuits became a political matter in the 2004 Montana gubernatorial race between Whitefish Democrat Brian Schweitzer and Whitefish Republican Bob Brown. CFAC hired Bob Brown as a part-time external affairs manager in July 1998, a job that became full-time in November. "It was a good opportunity for me because it fit with

what I'd been doing," he said. Brown had worked as an economics teacher in high school, taught teachers working on master's degrees at Flathead Valley Community College, and served in the Montana House for four years and in the Montana Senate for 22 years. [36] The Brian Schweitzer for Governor Campaign ran TV advertisements claiming that more than 100 CFAC workers had filed lawsuits over asbestos-related diseases and connecting Brown to the smelter. But the AP story Schweitzer's campaign cited to support this claim clearly reported that it was W.R. Grace that was sued by more than 100 workers, not CFAC. W.R. Grace operated a vermiculite mine near Libby. [37]

On Aug. 22, 2007, plant painter and artist Elmer Sprunger died of mesothelioma blamed on asbestos he breathed while working at the smelter. One of his jobs between1956 and 1971 was to paint identification numbers on the reduction pots, which involved peeling back blankets of asbestos insulation. The renowned cartoonist was diagnosed with mesothelioma in May 2007, and doctors discovered a rapidly growing tumor in his left lung about a week before he died. Sprunger's lawyer, Jon Heberling, assured Sprunger's family that his lawsuit against CFAC would continue and that a wrongful death charge might be added to the lawsuit. [38] Jerrold Collins died in his home in Kalispell on Jan. 5, 2010. He worked at the Columbia Falls smelter from Jan. 29, 1969, until his retirement due to asbestosis in May 2003. He was a veteran. [39] Larry Bump died of asbestosis on Dec. 29, 2010. According to his obituary, Bump "got asbestosis from being exposed to asbestos for over 40 years working as a laborer, iron worker and pipefitter." He had received an honorable discharge from the Montana Army National Guard and had 14 grandchildren and seven great grandchildren. "Don't cry for me," he wrote. "I had a hell'va good life. I've enjoyed everybody I've met through my life. Love you all, and I look forward to meeting everyone again." [40]

Proactive safety steps

CFAC plant managers took steps to address hazards by updating policies. They also accepted advice from outside experts. In the summer of 1991, the Environmental Protection Agency conducted a chemical safety audit of the CFAC plant that gave the facility high marks for its environmental, safety, occupational health and emergency response programs. The EPA did issue a list of recommendations including: 1) implementation of a safety incentive program; 2) development of a closer relationship between plant and city or county emergency response teams; 3) development of a formal hazard analysis program to define plant hazards; 4) determine explosive hazards throughout the plant; 5) updating of dry scrubber procedures; 6) noise measuring in the casting building; 7) training in response to chlorine releases; and 8) training in response to propane releases. [41]

In October 1991, three representatives from CFAC met with safety and health representatives from Intalco in Bellingham, Wash., Vanalco in Vancouver, Wash., the Reynolds' plant in Longview, Wash., Alcoa's plant in Wenatchee, Wash., Columbia Aluminum in Goldendale, Wash., and Northwest Aluminum in The Dalles, Ore. Among the items of discussion were recent fatalities at Intalco from a furnace explosion and at Vanalco from a forklift accident; the recent fire at Kaiser's Mead plant in Spokane, Wash., and problems in cleaning up asbestos there; the issue of certifying forklift operators; ergonomics and the possibility that OSHA might require job changes to avoid cumulative trauma disorder; safety and health compliance with outside contractors; the use of seat belts on equipment; and heat stress. [42] In February 2000, several CFAC managers traveled to The Dalles and Goldendale to compare certain operations with those used at CFAC. Safety seemed to be worse at Goldendale. The serious injury frequency for CFAC was 5.12 and for Goldendale was 9.5; the disabling injury frequency for CFAC was 2.89 and for Goldendale was 3.9. All three smelters had ergonomic programs. [43]

On Dec. 6, 1991, CFAC potline superintendent Bob Bean and CFAC safety coordinator Gary Kimmet issued a company memo discussing the goal of making natural-fiber clothing mandatory attire in the pot rooms. The idea had been addressed at safety meetings in October and November 1991. Natural-fiber clothing included wool and cotton, which afforded greater protection from burns, especially from molten metal or cryolite bath splashing on employees. Synthetic fabrics had been found to shrink when exposed to temperatures approaching their melting point, thus putting the fabric closer to the skin and eliminating an insulating layer of air. Flame retardant fabrics, such as Nomex, FR-7, FR-8 and FR-9, were not considered as good as natural fibers in handling burns caused by molten bath. [44] On June 21, 1993, CFAC issued a policy restricting the number of areas where tobacco smoking was no longer allowed, including all conference rooms and many lunch rooms. Exceptions included the Potline 2 and Potline 4 lunch rooms, and a provision was being developed to create designated smoking-allowed lunch rooms. [45]

The potential for injuries at the smelter had an impact on health insurance costs. On Dec. 10, 1993, CFAC operations superintendent Allen Barkley provided testimony for the U.S. House Subcommittee on Labor-Management Relations regarding the high cost of medical insurance. According to Barkley, the Aluminum Workers Trades Council historically administered an insurance program for hourly workers with majority funding by CFAC. For all employees, premium costs as a percentage of payrolls ranged from a low of 7% for salaried employees in 1987 to as high as 18.4% for AWTC members in 1992. The composite cost per individual ranged from $2,196 to $3,821 per year. As medical insurance costs increased over time, the company turned to benefit reductions

as a solution, resulting in higher out-of-pocket expenses for employees. Deductibles increased from $200 to as much as $2,000 per family. Benefits such as orthodontic and vision were eliminated altogether. [46]

In 1997, in an effort to reduce strain injuries at the smelter, CFAC began a long-term ergonomic study. CFAC financial controller Jerry Miller told local media that the workforce at the plant was productive but aging. Dan Arnold at North Valley Hospital had studied the workers and made recommendations to CFAC. Ron Nunley was hired in summer 1997 to be the new safety coordinator at CFAC. Costs associated with injuries or job-related illnesses had dropped significantly, Nunley said, from millions of dollars to less than $1 million in 1997. Keith Haverfield, who had worked at the plant for 24 years and had injured his back several years earlier, said he'd seen safety programs come and go, and many were ignored after several months, but he regarded the 1997 effort as more serious. "It's the best I've been involved with," he said. "It's quite a bit better than it was." [47]

In 1997, CFAC provided its employees with a list of job tasks and plant locations where hearing protection was required. Job tasks included use of impact wrenches, chippers and jackhammers, operating certain types of vehicles, operating air-arc cutting tools, jackslipping, skirt maintenance, pin rebuild and pot rebuild. Locations where hearing protection was required included Shed 24 for anode rebuild, Shed 11 for cathode rebuild, the ball mill area in the paste plant, the Loma sheet-ingot saw in the casting house, the blower rooms of the two pot gas dry scrubber systems, and the compressor house. [48] New safety rules for vehicles went into effect at the CFAC plant beginning Sept. 1, 2000. Among the new rules – bicycles would no longer be allowed in the plant. [49] By April 2003, CFAC was engaged in completely rewriting its General Safety and Health manual to eliminate conflicting rules, redundancies and job-specific rules that should be handled by Job Safety Analysis procedures. "The goal is to make it clean, clear and concise without affecting the bottom line," General Manager Steve Knight said. [50]

Flammable materials and sources of ignition were commonplace at the Columbia Falls smelter plant, despite the best engineering designs and implementation. On Dec. 18, 1974, an explosion in one of the pitch storage tanks at the AAC plant caused $10,000 in damage. The explosion partially blew off the top the 18-foot diameter tank, which contained 9,200 gallons of heated liquid coal tar pitch at a temperature of more than 300 degrees Fahrenheit. The tank could hold 35,000 gallons when full. The blaze was under control almost immediately, and no injuries were reported. [51] On July 17, 1990, a fire in one of CFAC's casting furnaces resulted in a call to the Columbia Falls Volunteer Fire Department for assistance and oxygen packs. Nobody was injured in the incident. [52]

On Sept. 10, 1991, an explosion in a high-voltage transformer in the CFAC switchyard caused a fire and forced the evacuation of 70 workers as a hazardous chemical was released into the air. Nobody was injured when the transformer, containing 10,700 gallons of oil containing polychlorinated biphenyls (PCBs) burst into flames and spilled about 20% of its contents. About 50 firefighters from Columbia Falls, Creston, Bad Rock and Whitefish responded to the call for help. Foam was used to extinguish the fire, and power was lost to parts of the potlines. CFAC contacted the EPA to coordinate a cleanup effort. [53] The only people exposed to the chemical were firefighters from the six volunteer fire departments. Most of the oil was contained by a vessel located under the transformer, and CFAC hired Aptus Environmental Services to do the cleanup work. [54] An EPA official inspected the site on Sept. 13, and found levels of PCBs in the soil to be well below 15 parts per million. Even though the soil did not have to be removed at that level of contamination, it was expected that CFAC would do so anyway. [55] By late September, a hazardous chemical cleanup was underway at the CFAC switchyard. CFAC hired Olympus Environmental Inc. to test and remove soil contaminated by oil containing PCBs. The fire was blamed on a faulty selector switch that controlled the voltage level coming into the transformer. [56] Sixteen years later, a fire broke out in the CFAC rectifier yard's No. 3 line. Workers quickly put out the Sept. 4, 2007 fire. Personnel from the Volunteer Fire Department also responded. [57]

Injuries and deaths

The results of accidents at the Columbia Falls smelter ranged from burns, concussions, lacerations, broken bones and sprains to deaths. In an early incident, Gordon Saurey, a pot control man at the new AAC plant, was taking a sample of molten cryolite bath on Aug. 18, 1955, when there was blowback. By wearing safety goggles, Saurey saved his right eye. His hand was burned, but not seriously. For wearing safety goggles, Saurey was made the first member of the Wise Owl club at the plant by company management and the National Society for the Prevention of Blindness. [58] Not many months later, on Jan. 7, 1956, an electrical conducting rail for a crane in Potroom 3 fell injuring several workers. Suffering serious lacerations and contusions were electricians Barney Bolme, Lyle Shuttlesworth and Rex McMurdo, while maintenance mechanic John Barbo had several bones broken in his left foot. Workers at the plant believed the men would be back to work at the plant within a week, although they were hospitalized for several days. [59]

In 1964, Sewell A. Robins fell 16 to 18 feet at the plant, fracturing his skull and other bones, resulting in a concussion and his remaining unconscious for some time. The aftereffects included difficulty with speech, memory and physical coordination. He returned to work at a lighter job with a lower wage, and AAC paid Robins a $1,825

settlement to make up for the lower wage. Robins had a second accident at the plant on Jan. 26, 1973, when he stepped on a piece of equipment and fell off, injuring his back. He was later diagnosed by one doctor as having an "acute back sprain" and by another as having "nerve root compression at the S-1 vertebra level." Surgery and compensation for the injury was paid for by AAC. Robins returned to work for three days beginning July 10, 1973, then returned to work from Aug. 20, 1973 through Feb. 11, 1974, and again from May 6, 1974 through Dec. 3, 1974. AAC wanted to deduct Social Security payments from Robins' state workmen's compensation payments, so Robins appealed to the Worker's Compensation Court. AAC claimed Robins' back injury was a pre-existing condition, but both the Worker's Compensation Court and the Montana Supreme Court ruled against AAC. On Feb. 14, 1978, the Supreme Court ruled that Robins' disability resulted from the two separate accidents at AAC, that he was permanently disabled, and that his healing period ended nine months after surgery for the second accident, so AAC could deduct Social Security payments from that time. [60]

On May 22, 1968, Kenneth M. Kennedy, a jackslipper at the plant, was killed while working on Pot 317. Kennedy was placing a six-foot long 960-pound iron strongback across the clamps on the DC buss bars to hold the anode pins in place while they were adjusted. Jackslipping was a required daily procedure that addressed shrinking of the anode as it burned at the rate of about three-quarters of an inch per day. Although there were no eyewitnesses to the accident, it was believed that the temporary iron support fell on Kennedy while he was climbing back on the anode to tighten the clamps on the strongback. Kennedy's death was the first fatality in the AAC plant since operations began in 1955. He was 38 years old when he died. [61] Jackslipping procedures were modified as a result of this accident. At the time of Kennedy's death, the strongback was lifted and set by the jackslipping truck and then held in place strictly by the magnetism of the DC buss bars. Conventional wisdom among the workers at the plant was that either Potline 2 was dropped or there was some kind of temporary power outage, and the loss of electrical power in the DC buss bars eliminated sufficient magnetism to hold the strongback in place. The new procedure did not rely on magnetism. The strongback was clamped in place before the lifting machine itself was removed. [62]

In 1969, a crew of workers at the casting department found themselves in serious trouble when the plug in a furnace's tap hole could not contain the 60,000 pounds of molten 800-degree Fahrenheit aluminum inside the furnace. According to Harold Lockhart, writing in January 2005, the hot metal poured out of the trough onto the casting pit floor, catching hoses and wires on fire and filling the room with dark smoke and escaping chlorine gas. Lockhart described the crew as "all 1955 hires," a crew that had "a strong work ethic, and they functioned proficiently in a hazardous work area."

Delbert "Dub" Owens was a "standout member" of the crew and a "wizard at processing molten metal," Lockhart said. Owens climbed up on the rim of a trough filled with molten metal and used a wooden broom handle wrapped in asbestos cloth to push the tapping block in tighter, blocking the flow of metal. In smoke so thick he couldn't see, he held the block tight while a metal strap was welded across the block to hold it more securely. In Owen's obituary, which ran in the newspapers 36 years later in January 2005, Owens was described as "a good, honest hard-working man." [63]

On Aug. 26, 1971, Jerry DeLeary slipped on a catwalk on a reduction pot and put his foot in molten aluminum, severely burning his left leg. He received plastic surgery in Spokane. DeLeary notified AAC he would not return to work at the plant on May 5, 1972, after he got a job at a filling station earning $600 per month. He worked at the station until September 1973, at which time he began work as an apprentice mechanic earning $500 per month, but he continued to feel pain and tiredness in his leg. AAC paid temporary total disability benefits from the date of the accident to the date of DeLeary notifying AAC he would not return to work at the plant. In May 1974, the Montana Worker's Compensation Division heard DeLeary's case. Doctors at the hearing rated his impairment from 15% to 20% of equivalent to amputation below the knee. The Worker's Compensation Division granted DeLeary 60 more weeks at $50 per week. He petitioned for another hearing and then appealed to Flathead County District Court Judge Robert Sykes. Judge Sykes awarded DeLeary additional benefits, but Sykes was reversed by the Montana Supreme Court on Oct. 31, 1975. [64]

On Dec. 12, 1974, at about 9:30 a.m., Jeremy A. Pallister, 19, of Boulder, Mont., was fatally injured while operating a front-end loader in the basement of a potroom at the AAC smelter. Flathead County Sheriff's Deputy Charles Rhodes said Pallister apparently drove the loader into an area without sufficient headroom beneath an insulated pipe and received head and chest injuries. Pallister died an hour later at the office of a Columbia Falls physician where he had been transported by an AAC ambulance. He had started work at the plant about three months earlier in September 1974. According to the Dec. 20, 1974, report in the Hungry Horse News, "A mystery is the delay in public information on this fatality. The young man's father was informed of the death by the attending physician. First word received at the Hungry Horse News was from another AAC employee after he had finished day shift." [65]

On June 17, 1977, Kerry K. Hafer, a 24-year-old who had worked at the AAC smelter for three years, fractured his elbow and sustained a permanent partial disability while working at the plant. Hafer was given an elbow implant that prevented him from straightening and turning his arm. AAC took him back after the prosthesis was implanted and gave him a job as an iron worker, paying $10 per hour. He was making $7

per hour at the time of the accident, but Hafer was unable to perform the duties of an iron worker. AAC employee relations officer Robert Redinger testified if Hafer could not do the work of an iron worker, the company would offer Hafer a clerical job, but it paid $6 per hour. Hafer sued, claiming diminished earning capacity as a result of the accident. He had never graduated from high school, and his only working experience was as a laborer. The Montana Supreme Court vacated the case and remanded it to the lower court. [66]

On April 11, 1978, Jesse R. Shupert, working on the reline crew, was using a jackhammer to lift metal lids off a reduction pot when he injured his back. The next day, chiropractor Dr. Peter Pisk diagnosed Shupert with a fracture of the right 5th lumbar vertebrae. AAC paid Shupert temporary total disability at the rate of $174 per week from April 14, 1978 through Oct. 29, 1978. Shupert saw orthopedic surgeon Dr. Jack Hillebo on May 17, 1978, who diagnosed a sustained herniated nucleus pulposis between the 4th and 5th lumbar vertebrae. Shupert then received a diagnosis by neurologist Dr. Gary Cooney of Missoula. After seeing several doctors, Hilleboe concluded that Shupert's pain was "psychological." Shupert returned to work at the AAC smelter part-time between Oct. 30, 1978 and May 1979 and then worked full-time at the plant until he re-injured his back on Nov. 26, 1980, while breaking pot crusts with a break bar. He returned to the plant on Dec. 17, 1980, and drove the ore truck, but lacking seniority he was returned to the labor pool where he was unable to perform his duties. He visited Dr. Robert Schimpff in November 1981, who measured his thigh muscles and determined that Shupert's legs had begun to atrophy due to the back injury. AAC refused to pay further disability payments on March 2, 1982, and Shupert petitioned for total disability. The Montana Worker's Compensation Court denied Shupert's petition, but the court was reversed by the Montana Supreme Court on March 7, 1985. [67]

On Sept. 8, 1979, Irving C. "Jake" Worrell, a pin puller at the plant, was seriously injured while working on top of an anode. Worrell was attempting to pull a pin when his wrench slipped and grounded his equipment. The resulting electric arc set his clothing on fire. Over 43% of his body was burned in the resulting fireball, mostly his legs. The Anaconda Company chartered a plane to fly Worrell and his wife to a burn center in Seattle where he stayed in intensive care while being scheduled for skin grafts. Worrell's partner at pin pulling, Merle Miller, suffered slight blister burns on his hands from trying to extinguish Worrell's burning clothes. Worrell had worked at the plant for 11 years but had just started at the pin puller position. [68]

On March 15, 1980, Robert Bos was using a transfer crucible when he was seriously injured. As molten aluminum was poured into the crucible, it reacted with the material lining the bottom of the container and the lining material exploded. The lining material,

called Fusecrete, was manufactured by the General Refractories Company. In March 1983, Bos filed a lawsuit against General Refractories in federal district court in Great Falls seeking punitive damages in addition to medical and hospital expenses as well as lost earnings, lost earning capacity, pain, suffering and destruction of his way of life. [69]

On May 10, 1982, Vic Cordier, a potroom technician, was seriously burned while working on Pot 433. Cordier began working at the plant on July 28, 1955, helping to prepare the first reduction pots before they went into operation, and he had worked in the potlines ever since the plant started running. He was taking the temperature of the cryolite bath in Pot 433 when some of the material inside the pot splashed on him. He was sitting in an electric cart at the time and was burned over 25% of his body, including first and second degree burns on his back and left arm and a small third degree burn on his left hand. He was expected to be hospitalized for at least a week. [70] Ten days later, Cordier was recovering in protective isolation at North Valley Hospital in Whitefish. It was expected that he would require skin grafts for part of his back and some surgery to remove dead tissue. [71] By July 8, Cordier had recovered enough from his burns that he was playing golf and working in his yard. He expected to return to the potlines on July 28. [72] In April 1980, Cordier celebrated 25 years of working in the pot rooms. He had worked as an ore truck driver, hot metal truck driver, tapper, with the anode repair crew and as a pot operator. He was never a pin puller, which he considered a dangerous operation, or a foreman. Compared with the early years, the pollution control efforts were a big change, he noted. “The rooms are clear now,” he said. “You can see. Years ago, it was so hazy and smoky you couldn’t see to the end of the room.” Equipment performed the same basic functions, he said, only it was more efficient and safer. In 25 years time, he was never laid off by economic downturns or power shortages and only called in sick four times – other than the burn incident, he said. [73]

On June 22, 1981, maintenance foreman John Alton received first and second degree burns over 15% of his body while helping other maintenance workers free up a frozen coal tar pitch line. They were using a propane torch when the valve suddenly opened and the pitch ignited in a flash fire. Alton was taken by the AAC ambulance to the hospital in Kalispell where he was listed in satisfactory condition. This was the first lost-time accident at the plant since Aug. 15, 1980, and a new safety record of 1,967,000 man-hours without a lost-time accident was set. [74] Coal tar pitch is a black glossy glass-like solid at room temperature. To keep it liquefied so it can be pumped from storage tanks through pipes and valves to mixers in the AAC paste plant, the pitch was heated to more than 300 degrees Fahrenheit. Electric heating elements were used to keep the pitch liquefied in large storage tanks, and a special type of electrical heat tape was used to keep the transfer pipelines hot. A hot oil system was used to keep the pitch hot in the mixers, and excess pitch was kept circulating back to the storage tanks to maintain a

constant flow. Pitch was typically in a solid form when it arrived in railroad tank cars, and the tank cars needed to be plugged into 480 volt receptacles to heat up and liquefy the pitch. If a railroad car spilled out, the pitch hardened quickly and never seeped into the groundwater system. Cold weather often created difficulties for maintenance workers on the pitch lines, and during unexpected power outages one of the first systems to be restarted was the hot oil system.

News about accidents at other Anaconda Aluminum Co. plants or other aluminum smelters usually made its way to the workers in Columbia Falls. On June 9, 1981, an explosion in the No. 10 furnace at the AAC rolling mill in Terre Haute, Ind., caused the death of Joseph Blade. His widow sued AAC, alleging the unsafe actions of the company caused the accident. On Aug. 24, 1983, the Indiana Court of Appeals First District ruled against Blade's widow, saying that at most AAC could be characterized as grossly negligent or wanton, meaning she could only collect benefits offered through the state's Worker's Compensation Act. Blade's widow alleged the oxygen analyzer alarm bell was disconnected two months prior to the accident and then reconnected two days after the accident. She further alleged that cooling water to the furnace door and mantels was disconnected, and AAC failed and refused to shut down the No. 10 furnace even though the company knew the furnace had been "detonating." In addition, she alleged AAC failed and refused to replace cracked furnace radiant tubes, relying on welding instead, that AAC failed and refused to operate the No. 10 furnace with the exhaust fan running, that AAC ordered the exhaust side burner box plugged off while failing to plug the intake side, and that AAC failed to take steps to prevent raw gas from being dumped into the furnace. [75]

On June 25, 1982, a tapping crucible fell on Randy Miller's leg while he was tapping pots in Potline 3 at the AAC plant in Columbia Falls. His leg was broken in the accident. [76] On Sept. 20, 1982, John Lyman, a worker in the casting department, was severely burned by spatter burns from a steam and metal explosion. Lyman was taken by ambulance to North Valley Hospital in Whitefish, Mont., and released the next day. The accident was the first lost-time accident at the plant in 89 days after 453,000 man-hours. [77] On Oct. 4, 1982, Barbara Hurlbutt stepped onto a pot crust and broke through. Her feet were badly burned and required skin grafts. One month later, on Nov. 4, 1982, Dave Crowley stepped onto a pot crust and broke through. His feet also were badly burned and required skin grafts. [78]

On June 23, 1987, Thomas Taylor was driving a hot metal truck at the CFAC plant when it fell on its side and he was injured. He was placed in a neck collar and transported to a local hospital, treated and released. The examining doctor determined that Taylor had suffered a neck sprain. A subsequent examination by another doctor determined that

Taylor had a post-cervical thoracic sprain or strain, myofascial pain and muscle contraction headaches. As a result of this diagnosis, Taylor was permanently restricted to medium work at the plant, avoiding repetitive work above shoulder level or arms outstretched, and avoiding static positioning of the head or continuous twisting of his head or neck. When he returned to the plant, he was initially assigned to light duty, but after five weeks he returned to driving the hot metal truck. After three days of driving, the symptoms of his injury returned, and he returned to the doctor. Taylor was told to either quit work, return to light duty or bid out of his present job into a less strenuous one. He was successful in bidding into a position as a casting laborer. As a result of this change, he no longer missed any work, but his chance to advance was limited. [79]

Following the accident, CFAC accepted liability and Taylor was reimbursed for medical bills and for the time he missed at work. A dispute arose over the extent of his entitlement to permanent partial disability, and the case went to trial. The worker's compensation judge awarded Taylor 500 weeks of permanent disability benefits. At the time of the trial, Taylor was 44 years old and married with four children. He had served in the Marines from 1964 to 1968. He started working at the aluminum smelter in 1968 and missed only eight months from then to the time of the trial in 1985. The National Union Fire Insurance Co. appealed the workers compensation judgment. The worker's compensation court determined that Taylor had lost access to 38.5% of the Flathead County labor market because of his injuries, and if CFAC closed down, his ability to compete for other jobs would be diminished and he would suffer a wage loss. The Montana Supreme Court agreed with the lower court's findings and ruling. [80]

On Oct. 28, 1988, Mark Lampman was seriously injured when a transfer crucible exploded. Lampman, a tapper, had first and second degree burns on his face from the hot gas that escaped the crucible. [81] On Aug. 9, 1991, Jerry McDonald was seriously burned by an explosion of molten bath as he was tapping bath from a reduction pot. With second and third degree burns on his face, chest, shoulders, arms and hands – covering about 12% to 13% of his body – McDonald was flown to Harborview Hospital in Seattle for skin grafts. The cause of the explosion was blamed on oil in the pneumatic line that powered the tapping crucible. McDonald had worked at the plant since April 1976. [82] April 2000 was a bad month for safety in the CFAC potlines. The worst of several accidents involved a tapper who was severely burned when he removed the board which covered the sight glass of an overfilled tapping crucible and was splashed with metal. The molten aluminum went down his open shirt pockets and collected around his butane cigarette lighter, which overheated and began to spit flames like a small blow torch. Following this accident, butane lighters were banned from the plant for the second or third time. [83]

On March 14, 2002, James "Mike" Gibson, a tapper at the CFAC smelter, was seriously injured when he was sprayed with molten metal that exited a site tube in a tapping crucible. He was transported to North Valley Hospital where he was diagnosed with second and third degree burns to his neck and second degree burns on his hand. The tappers were moving molten aluminum from pot to pot during the restart process after the plant had been closed for more than a year. [84] On March 19, 2004, John Petersen lost several fingers in an industrial accident at the CFAC machine shop where he was using a 400-ton hydraulic press that was not properly guarded. On April 13 and 14, an OSHA inspector from Billings traveled to CFAC and inspected the equipment. On April 29, OSHA issued two citations for serious violations and notifications of a penalty amounting to $4,500. The company was given until May 7, to abate the hazard. [85] CFAC had until May 21 to contest the findings and asked for an informal conference with OSHA. [86]

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