

Chapter 64

The slurry wall and the lawsuit

The status of the former Columbia Falls Aluminum Co. smelter plant in Montana as a Superfund site was well entrenched by 2017, as lawyers directed scientists to dig deep into concerns about potential pollutants leaving the site. The reports grew larger and more complex over time, while the plant's infrastructure shrank - buildings were removed and potroom basements were filled. During all this time, a Montana state health agency took a look at cancer threats in the Flathead Valley and Glencore, through its proxy the Columbia Falls Aluminum Co., sued Atlantic Richfield, by that time owned by British Petroleum, seeking funds to pay for expensive cleanup operations. The main threat continued to be contaminated groundwater moving toward the Flathead River from improperly constructed landfills used for decades to hold spent potliner. The 2021 ruling in the CFAC v ARCO case revealed significant information that had been kept out of the public eye - for example, awareness of cyanide pollution by the state of Montana and AAC as early as 1980 and how much money Glencore earned through sales of electric power in 2001-2002.

Roux reports on ecological risks

Environmental consultant Roux released its Sept. 18, 2017 Screening Level Ecological Risk Assessment Report on the CFAC Superfund site in mid-January 2018. The 351-page report could be downloaded from a CFAC website maintained by Ann Green Communications. The report by Roux hydro-geologists Michael Ritorto and Andrew Baris evaluated the potential risks to ecological receptors from materials released or disposed of at the former smelter site. The purpose of the assessment, in accordance with EPA guidance for Superfund sites, was to provide risk managers with sufficient information to determine what remedial actions were necessary to protect the environment from chemicals of potential ecological concern (COPECs) or other hazards at the site. The report relied on information gathered for Roux Associates' Phase 1 Site Characterization Report, including soil, sediment, groundwater and surface water sampling. The study site included 1,340 acres of Glencore's 3,196-acre property, including the footprint of historic industrial operations roughly bounded by the Cedar Creek Reservoir Overflow Ditch to the north, Teakettle Mountain to the east, the Flathead River to the south and Cedar Creek to the west. The site included seven

closed landfills, one active landfill, material loading and unloading sites, two closed leachate ponds, and several percolation ponds. ¹

Water level data collected in summer 2016 for the Phase 1 Site Characterization Report when the Flathead River was at low flow indicated that the river was receiving groundwater from the upper hydro-geological unit beneath the CFAC site, the risk report stated. Based on the topography, Cedar Creek was within half a mile of the CFAC site but was at a higher elevation than the groundwater elevations at the site, indicating the creek was a perched or losing stream rather than a gaining stream. The overflow ditch also was higher than groundwater elevations at the site, indicating the ditch also could be a losing stream. The South Percolation Ponds were three ponds connected in series and adjacent to the Flathead River, measuring 2.4, 1.2 and 6.6 acres in size. Historically, the ponds received water from numerous sources, including the plant's sewage treatment plant, contact water from the casting plant's direct-chill equipment, non-contact cooling water, process wastewater from casting-mold cleaning, non-process wastewater from the fabrication's shop steam cleaning, and stormwater drainage. At the time of the sampling by Roux, only stormwater discharged into the South Percolation Ponds. ²

The North Percolation Ponds included two interconnected wastewater ponds. The two-acre Northeast Percolation Pond was built in 1955 and continued to be a discharge point for stormwater drainage. The Northeast Percolation Pond had received water from the Paste Plant's briquette production system; non-contact cooling water; non-process wastewater from the mason shop, battery shop and garage; wastewater from the garage's steam cleaning and anode pin steam-cleaning; boiler blowdown from the laboratory building; air conditioner condensate; Paste Plant wet scrubber blowdown until 1999; the cathode soaking pits prior to 1978; and process area stormwater drainage. The eight-acre Northwest Percolation Pond had received water from the Northeast Percolation Pond through a 1,440-foot long unlined ditch. Based on aerial photography, Roux suggested the Northwest Percolation Pond may have been constructed in 1972. The Northern Surface Water Feature was a seasonal ponding area discovered during the May 2016 habitat assessment. Located just south of the West Landfill, the feature was seasonally fed in the spring and early summer by at least two groundwater seeps north and west of the feature. ³

In developing a conceptual site model for the risk report on the Superfund site, Roux addressed ecological fate, transport pathways and media of concern; exposure pathways; key receptors; and assessment endpoints and measurement endpoints. Reconnaissance indicated that the site contained several functional terrestrial and aquatic habitats. Roux Associates noted that according to the EPA, the “most significant exposure route for wildlife is ingestion of chemicals in impacted media.” Wildlife could ingest chemicals by drinking surface water or by incidentally ingesting contaminated soil or sediment while grooming or foraging. These ingested chemicals could bio-accumulate in the tissues of plants and animals. The EPA had developed a list of persistent bioaccumulative and toxic chemicals, which included polycyclic aromatic hydrocarbons (PAH), which were commonly emitted at the CFAC plant by the manufacture of anode briquettes and the burning of Soderberg anodes. The primary aquatic pathway of potential concern was the potential presence of COPECs either adhered to the sediment or dissolved in the surface water of the Flathead River. One area where groundwater from beneath the plant site seeped into the river already had been defined by CFAC’s Montana Pollutant Discharge Elimination System permit, so another area where groundwater seeped into the river was labeled by investigators as the Backwater Seep Sampling Area. ⁴

According to Roux Associates, dissolved COPECs in groundwater will tend to remain in the dissolved phase where there are coarse-grained sediments with little organic material, but groundwater-borne COPECs could adhere to sediment in fine-grained or organic-rich sediments. Whether the COPECs remained dissolved or adhered to sediments also depended upon chemical characteristics of the hazardous materials. According to Roux Associates, cyanide and metal-cyanide anions, as well as dissolved metals, “may adsorb onto oxide minerals or clays with high anion exchange capacities.” Roux noted that “the primary mechanism by which chemicals may migrate from sediments at this site would be through physical disturbance, including periods of high river discharge.” Another potential migration pathway to the sediments and surface water of the Flathead River would be through stormwater runoff, specifically by the Cedar Creek Reservoir Overflow Ditch, the report said. ⁵

Roux concluded in the risk report that, “Based on these findings, it is not anticipated that COPECs present in groundwater discharging to the Flathead River from the site would have a significant impact to the

sediment due to the absence of fine-grained material, with the exception of the groundwater discharging in the Backwater Seep Sampling Area.” Roux also noted that whereas Cedar Creek was at a higher elevation than the groundwater at the CFAC site, and while there was no evidence of COPEC migration in Cedar Creek, “there is the potential for stormwater runoff from the industrial landfill area towards Cedar Creek.” Roux noted that the conclusions found in the Screening Level Ecological Risk Assessment report were “insufficient to dismiss potential ecological risk, and further data gathering or data analyses is recommended to better understand the risk.” The company proposed to conduct a COPEC refinement investigation. ⁶

Roux Associates also released its Sept. 18, 2017 Phase 1 Site Characterization Data Summary Report for the CFAC Superfund site in mid-January 2018. This was the final version of the Feb. 27, 2017 report, and the 7,415-page report also could be downloaded from a CFAC website maintained by Ann Green Communications. According to Roux, the conceptual site model presented in the EPA’s remedial investigation and feasibility study work plan had identified the landfills at the site as a potential source for cyanide and fluoride and potentially other chemicals of potential concern (COPCs). The area of elevated cyanide and fluoride concentrations in groundwater within the upper hydro-geological unit appeared to originate immediately to the west of the Wet Scrubber Sludge Pond, where concentrations of cyanide and fluoride each exceeded 5,000 micrograms per liter. This area of maximum concentration was located immediately downgradient of the West Landfill and the Wet Scrubber Sludge Pond. ⁷

Roux noted that this finding was consistent with historical use of these features as disposal locations for cyanide in spent potliner dumped in the West Landfill and fluoride contained in the calcium fluoride sludge dumped in the Wet Scrubber Sludge Pond. In addition, Roux noted, both landfills were unlined and the West Landfill was not covered with a clay cap until 1995. Roux also noted that groundwater elevations in the upper hydro-geological unit adjacent to the West Landfill could fluctuate by more than 50 feet seasonally, indicating the potential for groundwater to rise above the base of the West Landfill. Groundwater sampling elsewhere led Roux to conclude that the Sanitary, Center and East landfills were not contributing sources for cyanide or fluoride to groundwater. Soil sampling around the West Landfill and Wet Scrubber Sludge Pond contained concentrations of cyanide, fluoride and polycyclic aromatic hydrocarbons (PAHs). The concentrations were

similar to concentrations found in soil sampled around the Paste Plant, Main Plant and railroad sidings and could be explained as resulting from historical waste-handling practices near the landfills and by aerial deposition of COPCs from historical plant emissions, Roux said. ⁸

The Former Drum Storage Area became a feature of concern to the investigators after samples from a well drilled in the center of the storage area were found to contain the highest concentration of cyanide at the plant site – a September 2016 sampling contained 7,320 micrograms per liter. The storage area could be a contributing source to elevated cyanide and fluoride concentrations in the landfill area, Roux said. The North Percolation Ponds were also a feature of concern to the investigators. Soil and sediment samples from the Northeast Percolation Pond and its influent ditch contained among the highest concentrations of cyanide and PAHs, followed by the effluent ditch, the connected Northwest Percolation Pond and the West Pond. Roux noted, however, that COPC concentrations decreased with increased depth in the soil sampled around the North Percolation Ponds. Both the Northeast Percolation Pond and the West Percolation Pond were hydraulically downgradient of the West Landfill and the Wet Scrubber Sludge Pond. Soil samples taken around the CFAC site contained concentrations of cyanide and fluoride that typically exceeded the EPA’s protection of groundwater risk-based soil screening levels but below the EPA’s industrial regional-screening levels at all locations and below the EPA’s residential regional-screening levels at all locations but two. Soil samples from across the plant site also contained PAH concentrations that exceeded the EPA’s industrial regional-screening levels. ⁹

In its discussion of cyanide, Roux noted that prior studies of spent potliner leachate had documented that cyanide at aluminum smelter sites existed primarily in the form of iron-cyanide complexes. “Typically, ferrocyanide and ferricyanide are more stable in the environment (tend not to release free cyanide and are less bio-available),” Roux said. “Thus, any potential for effects due to cyanide exposure is likely to be overestimated, as free cyanide would only comprise a fraction, if any, of the total cyanide present.” Roux, however, said it would continue to look for free cyanide in future sampling. In its discussion of volatile organic compounds, including benzene, toluene, ethyl benzene and xylene, together grouped as BTEX, Roux noted that the widespread occurrence of acetone in soil samplings may have resulted from laboratory contamination. The widespread distribution of volatile organic compounds in general across the CFAC plant site was similar to

that of PAHs and was likely the result of the use of petroleum coke and coal tar pitch at the smelter, Roux suggested.¹⁰

Multiple metals were detected in site-wide soil sampling at concentrations that exceeded the EPA's residential regional-screening levels, including aluminum, iron, cobalt, manganese and thallium, Roux said. Based on background sampling and statistical data analysis, those metal concentrations were likely background concentrations, Roux suggested. However, certain metals were found at higher concentrations than background levels within the North Percolation Ponds and the ditch connecting the two ponds. Soil sampling also was conducted in the plant's switchyards because of past transformer fires in the historical record. The low occurrence of chemicals that could be generated by the combustion of polychlorinated biphenyls (PCBs commonly found in electrical equipment) during a transformer fire, however, suggested that dioxins and fibenzofurans no longer needed to be retained as a COPC in future study of the Superfund site.¹¹

Groundwater sampling indicated a southerly flow pattern in the upper hydro-geological unit, but also that the impacted groundwater had not migrated beneath Aluminum City and other neighboring residential areas and was not migrating in that direction. Well sampling also indicated only limited, if any, hydraulic connectivity between the upper hydro-geological unit and the water-bearing zones in the underlying glacial till, Roux reported. While the presence of some metals in the groundwater was attributed to the same source as cyanide and fluoride – that is, the landfills – sampling indicated that metals in groundwater had not migrated as far as cyanide and fluoride. Groundwater sampling also indicated that PAHs, while common in surface soil samples, had not impacted groundwater. Roux also noted that the Cedar Creek Reservoir Overflow Ditch lost water to the area directly adjacent to the West Landfill and Wet Scrubber Sludge Pond, and this water could get into the upper hydro-geological unit and contribute to groundwater flow at the plant site.¹²

Surface water samples from the South Percolation Ponds adjacent to the Flathead River contained maximum concentrations of cyanide at 12.5 micrograms per liter and of fluoride at 379 micrograms per liter, but cyanide had not been detected in the discharge from the ponds since October 2015. Sediment was not observed at most sampling locations along the river because of the fast-flowing nature of the river. Roux also noted that the water level in the South Percolation Ponds correlated

closely with surface water elevations in the Flathead River, indicating a hydraulic connection between the two water bodies. Roux concluded that preliminary findings indicated that elevated levels of cyanide and fluoride in groundwater, the Backwater Seep Sampling Area and the South Percolation Ponds “are not significantly impacting surface water quality within the main stem of the Flathead River.” Further sampling and evaluation would be conducted, Roux said. ¹³

Community health concerns

In the meantime, concerns had been raised by a doctor in Whitefish about a spike in cancer cases in Flathead County that could be linked to emissions by the CFAC smelter or by Plum Creek Timber Co.’s medium-density fiberboard plant. The MDF plant had emitted large amounts of formaldehyde until the company installed a \$9.5-million biofilter in 2008. According to statistics provided in February 2018 by Heather Zimmerman, an epidemiologist at the Montana Department of Public Health and Human Services, Cancer Control Programs, Flathead County had a statistically and significantly higher incidence rate of cancer per 100,000 people than Montana from 2011 to 2015 in four age-adjusted categories – all sites (533.8 to 451), prostate (158.9 to 112.2), lung (64.9 to 55.9) and melanoma (36.3 to 25.9). ¹⁴

“Flathead County does have a higher cancer incidence rate than what we see in Montana overall,” Zimmerman said. “When I look at the incidence rate for the 10 most common types of cancer in Montana, we can see that this increased cancer rate is probably because of an increase in prostate cancer, lung cancer, and melanoma.” Zimmer said the tumor registry could not explain why these cancers were occurring more often in Flathead County residents, and her agency didn’t collect any information about potential risk factors or environmental exposures in the registry data. “However, when we look at the rate of deaths due to cancer, we can see that the rate of death is the same in Flathead County as in Montana overall for all cancers and for the 10 most common types of cancer,” Zimmerman said. “This tells us that the increased incidence is likely not due to more severe cases of cancer occurring in Flathead County. The increased incidence may be because of more screening (especially for prostate cancer) or more aggressive diagnosis that finds early cancers or slow-growing cancers that would not ultimately progress to more severe disease and death.” ¹⁵

Zimmerman said the Montana Environmental Health Assessment and Education program, which is part of her agency, was working on an

assessment of public health risks from the CFAC site. "They have reviewed all of the environmental data that has been collected thus far on the site," she said. "Next they will estimate the amounts of contaminants workers and trespassers might have taken in from touching surface soil and sediments and accidentally swallowing them from hand-to-mouth contact." The Environmental Health Assessment and Education program staff also would estimate residents' past exposure levels from drinking tap water with cyanide levels found in offsite private wells in 2013. "They call these completed exposure pathways - the means by which people might take in site-related contamination," Zimmerman said. "Only then can they determine what adverse health effects might be expected from these estimated exposure levels, by comparing them with levels known to cause illness from animal and medical studies." Contaminant levels measured in surface water and most groundwater samples would only pose a risk if people used this water as a drinking water source, she noted. Because of the known emissions of polycyclic aromatic hydrocarbons by the CFAC smelter, the Environmental Health Assessment and Education program staff "will recommend testing of offsite yard surface soil for PAHs, as currently no such testing has been done," Zimmerman said. "They will also recommend continued testing of nearby offsite drinking water wells." ¹⁶

In April 2018, IRS Environmental reported to the Montana DEQ that 69,900 pounds of regulated asbestos waste had been removed from the CFAC site since demolition began. Another 635,380 pounds of non-regulated asbestos material was removed in March 2018, bringing the total of non-regulated asbestos material removed since demolition began to 5.5 million pounds. The materials came from the West Rectifier, Rod Mill, Paste Plant, Quonset Hut, West Aluminum Unloader, Compressor Building, Laboratory, Building 1 (the 10 potrooms) and the Changehouse. The asbestos project permit and demolition notification for Building 1 was extended by the DEQ through August 2018. ¹⁷

On May 9, 2018, more than 50 people attended a presentation and tour led by the EPA, Roux Associates and CFAC to learn about progress at the CFAC Superfund site. During demolition, more than 29,000 tons of hazardous materials had been removed, and more than 131,000 tons of materials were recycled. Project managers said the 10th and final potroom would be dismantled by early 2019. The fabrication building, warehouses and main office building would remain standing for use by any industrial businesses that occupied the site after the site was

cleared by the EPA, which officials said would be no earlier than 2021.¹⁸ CFAC environmental project manager John Stroiazzo said the company received about three to four inquiries each month from companies interested in using one of the buildings still standing at the CFAC site. "They're good buildings," Stroiazzo said. "They could be renovated and used for something." He noted that the fabrication building had rail service.¹⁹

EPA project manager Mike Cirian told the tour group that the potroom basement floors had been punctured so water could drain through them. The concrete walls and floors of the basements had been tested, and no contaminants had been found. About 450,000 cubic yards of material mined from the CFAC site would be used to fill the basements. The potrooms should be gone by November or December 2018, and the entire demolition should be completed in the first quarter of 2019, Stroiazzo said. Ritorto said Roux Associates planned to take 425 additional soil samples in 2018, along with 33 sediment samples, 50 pore water samples from sediment, 152 groundwater samples and 103 surface water samples. Plans also called for conducting a background study using soil and water collected off the site.²⁰

Questions were also asked about the future of the Gateway to Glacier Trail planned to run along the south side of the Flathead River opposite from the CFAC plant site. The land on both sides of the river at that point belonged to Glencore, CFAC's owner. A licensing agreement had been negotiated between Glencore and the trail group, but when the group approached the city of Columbia Falls in spring 2018 about the city taking over long-term administration of the license, the city's insurance company said it wouldn't cover the proposed bike-pedestrian path. Justin Breck, the city's attorney, suggested that the trail group obtain an easement for the trail, which would be a real property right that insurance would cover. But when asked whether Glencore would grant an easement, CFAC president Cheryl Driscoll said the company had already spent a lot of time and effort on the license. "We're not in a position to grant an easement," Driscoll said.²¹

On June 5, 2018, EPA Region 8 Administrator Doug Benevento and project manager Mike Cirian met with local officials in Columbia Falls to discuss the CFAC Superfund site. "One of the priorities we have is trying to move things along safely but also getting it done expeditiously," Benevento said. "We want to start bringing things to some sort of resolution so that people can move on." Benevento said the EPA wanted

to enact a remedy that protected both human health and the environment. "It appears to me that things are going pretty well, though our job is to trust by verify and make sure that things are moving forward the way they should be moving forward," he said. The process the EPA was taking to identify any contaminants at the CFAC site and to find their source was a lengthy one, but Columbia Falls City Manager Susan Nicosia said she wanted it to be done right the first time. "We don't want people sitting around this table years down the line surprised that there is water contamination and wondering why we missed it," she said. "We all share this water, and we certainly don't want contaminated water 25 years from now." ²²

City councilors present at the meeting said they wanted information provided to the public in a way that could be easily understood and in a way that would quell rumors. "With the innuendos and the rumors and half-truths and the outright bald-face lies that float around, there is an undercurrent of 'what if,'" Councilor Mike Shepard said. "It has more than one person concerned, because half of them don't know a damn thing about what they are talking about, but they are relying on that crazy information that is out there." To address how information was provided to the public, the EPA and local officials discussed the use of a Technical Assistance Group, which would hire an expert to break the large amount of technical data down into simpler-to-understand terms. "I think a technical assistance grant makes some sense for this community," Benevento said. ²³

Shepard noted that testing so far had done a good job of identifying some of the contaminated sites at the CFAC plant, but investigators needed to talk to former employees whose job had been to bury materials at the plant. "The only people that buried stuff at this plant were the materials department and the service crew," Shepard said. "When things happened, the order was to get rid of it immediately. The ex-employees that know where things are felt that no one listened to them when they came to initial meetings, so they quit coming. There are some that could tell you where things are." Benevento acknowledged that Shepard's suggestion could be a worthwhile avenue to pursue, and he noted that the cleanup project would continue to do everything in its power to identify and locate all possible contaminants. Cirian spoke of the possibility of dividing the cleanup project into "operable units" that would allow specific problems to be dealt with if a simple solution was available. "Just because we are still investigating doesn't mean we can't solve problems as we find them," he said.

Benevento elaborated on that approach. “We are looking at adaptive management approaches, where we can see some progress, not just constant study followed by work,” he said. “We are trying to be quick, smartly. That is what we are trying to implement.” ²⁴

In January 2019, the Montana Department of Environmental Quality posted a draft environmental assessment on its website stating that a preferred action had been determined to terminate the Montana Pollutant Discharge Elimination System permit for the CFAC site. The permit governed the point-source discharges from the aluminum smelter, but the plant was no longer operating and had been torn down and removed. No other persons or agencies had been consulted in this decision, but a 30-day comment period would be held. The assessment said nothing about nonpoint pollution discharges that could come from leaking landfills or other hazardous materials at the site. ²⁵

On March 12, 2019, Stroiazzo announced that three important draft reports on contamination at the CFAC Superfund site had been submitted to the EPA and DEQ, marking a milestone in the cleanup effort. The 17,000 total pages included the Phase II Site Characterization Data Summary Report, the Baseline Human Health Risk Assessment, and the Baseline Ecological Risk Assessment. “We are pleased to keep moving this project forward,” Stroiazzo said. “We have a dedicated team and regulatory agencies who are keeping to their commitment. That means a great deal to this project and to getting the work completed. This portion is critical to understanding the big picture of the site.” ²⁶

The Baseline Human Health Risk Assessment preliminarily confirmed that constituents from the site did not impact plant neighbors or other offsite people. The Baseline Ecological Risk Assessment preliminarily indicated some potential, theoretical impact from the site to a backwater seep along the Flathead River but didn’t show any actual impact to organisms. The assessment also determined that the area impacted by the seep had limited fish habitat and that the plant did not impact the rest of the Flathead River. The Phase II Site Characterization Data Summary Report confirmed site facts indicated by the earlier Phase I report, including that groundwater flow was south to southwest toward the Flathead River during all seasons and flowed away from the Aluminum City residential area. In addition, the new report confirmed that the highest concentrations of cyanide and fluoride in groundwater were found near the legacy landfills, indicating that the landfills were

the primary source of cyanide and fluoride. Also, the report confirmed that polycyclical aromatic hydrocarbons were detected at the site, mostly in soil samples, and the highest PAH concentrations were found near the main smelter building and operational areas. EPA and DEQ personnel would review the three reports and provide comments.²⁷

On Sept. 18, 2019, the public was invited for an update and tour of the CFAC plant. Representatives from CFAC, EPA, Roux and EHS Support presented findings and answered questions. Roux and EHS Support had worked to collect data and prepare the EPA-required human health and ecological risk assessments, which were completed in August and sent to the EPA and Montana DEQ for review. The assessments made up the first part of the remedial investigation and feasibility study, which in turn was step three of the nine-step Superfund process the EPA required in full before any Superfund site could be deemed reusable, Mike Cirian explained. According to Gary Long with EHS Support, the assessments would help engineers determine what areas of the project site needed further attention.²⁸

According to findings in the human health risk assessment, the percolation ponds north of the potlines building, operational areas between the main plant and the central landfill, and the industrial landfill were primary areas in need of further evaluation for risk reduction. Long said constituents of possible concern at those areas primarily included cyanide, fluoride and polycyclic aromatic hydrocarbons. The same three areas were in need of further evaluation for risk to human health. Long added that a backwater seep area along the Flathead River and the cooling ponds next to the river might require further evaluation for risk posed to aquatic life. Long emphasized that the risk calculations for the assessments “are estimated for theoretical current use of the site and future scenarios.”²⁹

“We basically wanted to look at scenarios where humans or wildlife would come in contact with the site and what are the risks that would be associated with those exposures,” Long said. For the human health report, consultants analyzed situations where commercial or industrial workers, trespassers, recreationists or others might be impacted by entering the site. For the ecological assessment, they analyzed potential impacts to terrestrial and aquatic animals and looked at routes of exposure, such as humans drinking water from the site or coming into contact with soils, or animals ingesting plants or sediments. The potential for humans and wildlife to experience adverse effects from

contaminants on the site varied greatly depending on how they might come into contact with the site, how long they might be exposed and other factors, Long said. Notably, the ecological assessment found no impacts to the Flathead River, upstream or downstream, and that contaminated groundwater flowing south toward the Flathead River was not impacting the nearby Aluminum City subdivision. ³⁰

During a meeting of the CFAC liaison panel, community leaders and stakeholders were told the health and ecological risk assessment was just another step in eventually “cleaning up” the Superfund site. Richard Sloan, of the Montana Department of Environmental Quality, however, said the term “cleaning up” was not entirely correct. “We’re going to re-remediate to the extent necessary to reduce the risk to an acceptable level,” Sloan told the panel. “It’s important to understand that.” Long said that while the smelter site proper had contaminants, the modeling also didn’t indicate any “bio-accumulation” of hazards in animals such as fish and game. Cyanide and PAHs don’t bio-accumulate – they tend to metabolize, he said. ³¹

According to Ritoro, nearly 2,000 samples were collected from soil, groundwater and other potential points of contamination on the 1,300-acre project site. In addition, 52 monitoring wells were installed and 20 existing wells were redeveloped to establish a “robust” data set. “There really wasn’t a portion of the site that wasn’t evaluated extensively,” he said. Cirian added to that point. “There were so many hands and eyes on these assessments,” the EPA official said. “There were hundreds of comments on all of these initial documents, and people from multiple agencies were involved.” With most of the remedial investigation completed, the consultants expected to begin work on the feasibility study. Ritoro said a work plan draft, which involved looking at possible methods for re-remediating the identified risk areas, would be submitted by 2020. The hope was to have the final feasibility study report completed by the first quarter of 2021, after state and federal agencies had completed extensive reviews. According to Cirian, the teams were on track to meet those deadlines. “We definitely aren’t done yet. We have a long ways to go,” he said. “But we are on schedule and we are moving ahead.” He noted that it wasn’t uncommon for the Superfund process to take a decade or longer. ³²

Cleanup and development

By January 2018, demolition had begun on Potroom 5 at the CFAC site. Demolition of the North Crane Bay structure and Potrooms 1 through 4

were completed. ³³ On Jan. 31, 2018, the Hungry Horse News reported on past work at the CFAC Superfund site and future plans. Mike Cirian told the newspaper eight more monitoring wells would be drilled across the 900-acre site, and wells located at the southeast end of the site would be tested in 2018. Two of the new wells would be drilled near the Aluminum City residential area. In 2017, crews obtained 520 soil samples, 12 sediment samples, 87 surface water samples and 242 groundwater samples. Cirian said sampling in 2018 would take place during high water, likely in June, and during low water, likely in the fall. Investigative work would be done at several water-production wells in the southeast corner of the site, including pulling the pumps. Former CFAC workers had criticized the EPA for not having those water-production wells tested. Cirian also reported that crews had shored up a coffer dam along the Flathead River that protected CFAC's settling ponds along the river. About 30 feet of river bank washed out in spring 2017, so the EPA decided to bolster the coffer dam with rip-rap. Roux Associates also had recently released two important reports on the Superfund site - the Screening Level Ecological Risk Assessment Report and the Final Phase 1 Site Characterization Data Summary Report, the newspaper reported. ³⁴

On Sept. 21, 2018, the Montana Department of Environmental Quality announced that Calbag Resources had completed cleaning all the reduction pots in the CFAC smelter building. An agreement between DEQ and Calbag in 2015 called for removal of hazardous potlining material from the 451 reduction pots in the smelter room. Consultant TetraTech submitted a closure report that included closure certifications, annual hazardous waste registration and a total project summary log of wastes disposed and recycled materials. About 415,881,518 pounds of waste had been removed from the plant site, including solid waste, asbestos, hazardous waste, universal waste and reused and recycled waste. "We are happy to have reached this milestone in the cleanup of the Columbia Falls Aluminum Co.," DEQ waste management and remediation administrator Jenny Chambers said in a press release. "While there is still work to do, DEQ is committed to making sure all aspects of the cleanup are done right to protect human health and the environment." ³⁵

On Oct. 17, 2018, CFAC, Roux Associates and EPA officials addressed the public in Columbia Falls to provide an update on contamination at the closed smelter site. Ritorto said his company had taken 860 samples over summer 2018 from soil, surface water, groundwater and

sediment. The results confirmed what Roux had suspected – that groundwater contamination was moving south toward the Flathead River and not toward the Aluminum City residential neighborhood. EPA project manager Mike Cirian said a sample taken several years ago from a drinking well in Aluminum City that detected low levels of cyanide could not be repeated and might have been the result of methods used by the testing lab. Ritorto said levels of groundwater contamination flowing beneath the smelter site dropped off the further away from old landfills, which were located located north of the potlines buildings. By the time the contaminated groundwater reached the Flathead River, cyanide levels were below the safe drinking water standard of 100 micrograms per liter. Some monitoring wells near the river didn't detect cyanide at all, Ritorto said. The data bolstered CFAC's legal case against ARCO, Stroiazzo said.³⁶

Meanwhile, Calbag had completed demolition of the potlines buildings and filled many of the basements with gravel mined on site. Five alumina silos for the East Plant remained standing as they still held alumina. Calbag planned to sell the alumina and then tear down the silos in spring 2019. Several warehouses, the machine shop and the administrative offices also remained standing, as they could be used by a future business that moved onto the industrial site. The next phase in the cleanup project was for Roux to draft a characterization data summary report for Phase 2 testing that was done in 2018. After that, EHS Support would look at risk assessments for humans and ecology. The EHS Support report was expected to be completed by late 2019. Drafting a feasibility work plan to determine the best way to clean up the smelter site would start in 2020, with a final report due to the EPA by 2021.³⁷

According to the official minutes to the Oct. 17, 2018, liaison panel meeting at the Columbia Falls High School cafeteria, Stroiazzo said demolition was expected to be completed by the end of January 2019. Once the alumina in the East Plant silos was sold, the silos could be torn down, possibly by spring 2019. Rail cars were being used to haul steel from the site for recycling. Any material taken from the site by truck through Columbia Falls was tested before leaving the site to ensure all laws and regulations were followed. Some hazardous material, such as asbestos, needed to be packaged in specific ways, Stroiazzo said. He expected truck shipments would be completed by early December 2018. The onsite borrow pit being used to provide gravel to fill in the

potlines basements would be reclaimed with onsite topsoil and then reseeded, he said.³⁸

CFAC environmental manager Steve Wright said 10 to 11 community drinking water wells were being tested by CFAC along with the rest of the plant-site testing. The drinking water wells were tested quarterly, with three tests so far in 2018, he said. Because no variability had been seen, the community wells testing would be done twice annually starting in 2019, Wright said – in the spring and fall. Cirian reviewed the remedial investigation for the liaison panel and reported that no cyanide had been detected in wells near Aluminum City. The older landfills at the smelter were the source of cyanide and fluoride in groundwater, Cirian said. He also noted that the EPA was looking for ways to manage the project more efficiently. One approach could shorten the review process by four months, he said. In response to a question by former CFAC engineer Nino Berube about the transparency of the review process, Cirian said discussions between the parties needed to be candid and so were not open to the public. Dick Sloan from Montana DEQ said the reports would be made public and there would be a public comment period for the proposed remediation plan that would follow the remedial investigation and risk assessment process. Berube pointed out that pertinent documents were no longer up to date at the local library. It was noted that the library was unwilling to manage the documents until Wright dealt with the issue.³⁹

The Columbia Falls Planning Board discussed future uses of the CFAC site as part of the board's review of the city's growth policy on Dec. 11, 2018. It was believed that the property could one day be valuable real estate for industrial or even residential purposes, but that depended on the level of cleanup under the Superfund program. Glencore had hired rePlan to look at future uses of the property, but rePlan's report had never been published, the board noted. The potrooms and subsidiary buildings had been removed, except for some silos that temporarily held alumina, and the basements had been filled with gravel, so all that remained for a future buyer were the machine shop and some warehouses. The board went through possible problems with the site, including the BPA's plans to tear down the switchyard, which the federal agency said dated back to the 1950s and 1960s and was too old to refurbish. An industrial buyer would need the Flathead Electric Cooperative to put in a new power service, the board noted. City councilor Mike Shepard, who also sat on the board, said heating and cooling systems had likely frozen and broken and needed replacement.

Contaminants leaking from the landfills still needed to be addressed before residential uses at the CFAC site could be considered. The board noted that Glencore had cleaned up its Vanalco aluminum smelter property at Vancouver, Wash. on the Columbia River about 10 years ago, but the cleanup there only met industrial standards and covenants for the site restricted many uses, such as residential. ⁴⁰

Signs of cleanup progress or community optimism became evident when the Columbia Falls City Council approved a new growth policy in mid-August 2019. Slated for updates every five years, the city's planning board had worked on the growth policy revision for several months before submitting it to the city council. The policy document was intended to be a guide to future development both inside the city limits and in the planning area surrounding the city. Depending on land availability, economic trends and housing demands, some areas would be targeted for increased development through zoning and extension of services by the city. ⁴¹

Slowly but surely, Columbia Falls was losing its title to the "Industrial Hub of the Flathead," a slogan that long ago found itself in newspapers and publications and on signs around the city. But with the demolition of the sawmill and plywood plant by Weyerhaeuser and the demolition of the CFAC smelter plant, along with its Superfund designation for cleanup, heavy industry was no longer the primary economic driver for the city. Instead it was housing for residents who commuted to neighboring towns for work. Median house prices in Columbia Falls had increased from \$100,000 in 2011 during the Great Recession to \$309,500 in 2019. The median price in 2007, one year prior to the Wall Street meltdown, was \$183,000. With increased demand for new housing, the city's planners turned to the area surrounding the former aluminum smelter site, where contamination was believed to be primarily in groundwater caused by leaky landfills. The new growth policy called for designating land surrounding the plant property for suburban-residential development once the cleanup was completed. The heart of the plant, where 10 potrooms once stood, would remain zoned for industrial use, but the rest of the plant site would be zoned suburban-agricultural. Large parcels of industrially-zoned land remained within the city's growth-policy area, and more than 80% of the residents surveyed for the document revision supported new clean industries. ⁴²

Glencore's controversial cleanup plan

If permanently closing the CFAC plant, placing it on the Superfund's National Priority List, investigating contamination and demolishing the buildings were the first four major steps toward cleaning up the smelter site, then the feasibility study and a lawsuit between potentially responsible parties marked the next major moves. The advent of the COVID-19 pandemic, however, delayed both cleanup and litigation in 2020 and 2021. The public first learned about the Draft Feasibility Study Report that summed up the remedial investigation and proposed a path forward on Feb. 11, 2021, during a virtual meeting of the CFAC Community Liaison Panel. Roux, Glencore's environmental consultant, and EPA staff participated in the meeting, as well as city council members and media. The report was completed by Roux in October 2020 and had been under review by the EPA and the state Department of Environmental Quality.⁴³

According to Roux's cleanup plan, known contaminants in a leaking landfill and a sludge pond would remain buried where they were, but those sites would be recapped and a slurry wall would be constructed around them to ensure contaminants were contained and no longer entering groundwater. Furthermore, contaminated soils around the facility would be removed and then placed in approved landfills already onsite, explained Laura Jensen, a hydro-geologist with Roux. The slurry wall that would surround the landfill and wastewater pond would be made of an impenetrable material, said Drew Baris, another Roux hydro-geologist.⁴⁴

When Erin Sexton, a senior research scientist with the Flathead Lake Biological Station, brought up concerns about a potential rain or snow event that could flood the site and damage the slurry wall, Baris responded, "It's made of material that doesn't degrade," adding, "There should be long-term almost indefinite durability of the wall." The most concerning contaminant at the plant site was cyanide emanating from spent potliner. When asked whether cyanide would degrade over time, Baris noted that some types of cyanide degraded in sunlight, but "some forms don't degrade that much." EPA officials stressed the feasibility study was still a draft and that the public could comment once the final version was released in fall 2021.⁴⁵

Former Columbia Falls city councilor Dave Petersen criticized the proposed cleanup plan during the council's March 1, 2021 meeting, calling the idea of leaving the waste onsite "untenable." He urged the

council to send a letter to the EPA in opposition. “They’ve always had their eye on the least expensive route they could go,” he said, referring to Glencore, CFAC’s parent company. Councilor Mike Shepard, who once worked at the smelter plant, agreed that the wastes should be removed, not simply contained. “Many of us are concerned,” he noted. Mayor Don Barnhart agreed the wastes should be removed but noted it was “a matter of science” when it came to the EPA’s final decision. “I’m totally in favor of (the waste) being removed,” he said. The council stopped short of formally endorsing a letter in opposition to Glencore’s plan, and Shepard suggested they consult with Sen. Jon Tester’s office on the timing of a letter. The council concurred. ⁴⁶

The city council officially responded to the proposed cleanup plan during its March 15, 2021 meeting. After consulting with Tester’s office and the EPA, the council approved sending a letter to the EPA and certain elected officials voicing their disapproval of Glencore’s cleanup proposal. Tester had earlier pushed for Superfund listing of the site at the urging of city leaders and residents. The council expressed concern that groundwater contaminated with cyanide and fluoride could eventually migrate offsite into neighboring drinking water wells and the Flathead River, although that hadn’t yet happened. Earlier in March, the plant site’s new EPA project manager Ken Champagne noted that the final plan was not set in stone, and the EPA could require Glencore to remove the wastes. “We’re not constrained to choosing (the company’s) highest ranking (alternative),” he said, adding that Glencore’s cleanup plan was an expensive alternative, contrary to the assertion of some city residents. He noted that the final feasibility study would come out May 31, followed by a round of public meetings on the plan. ⁴⁷

The city council got its first detailed look at the draft feasibility study during its April 19, 2021 meeting. Following a slide presentation, Glencore project manager John Stroiazzo estimated the total cost of the slurry wall plan at about \$50 million. About \$46 million would go to constructing the wall, which would be 3 to 6 feet thick and 100 feet deep, he told media. Constructing a new and approved onsite landfill to re-bury the waste could cost \$148 million, he said. ⁴⁸ Glencore’s proposed plan resembled a Corrective Action Management Unit (CAMU) as provided for under federal law 40 CFR § 264.552. According to statute, the EPA regional administrator could designate one or more areas inside a facility’s boundary as a corrective action management unit if the wastes were CAMU-eligible. According to the statute, “Areas within the CAMU, where wastes remain in place after closure of the

CAMU, shall be managed and contained so as to minimize future releases, to the extent practicable.”⁴⁹

According to a 2005 Waste Management Inc. website page about the use of CAMUs for RCRA-listed hazardous wastes, permanently disposing of CAMU-eligible waste on-site “can be problematic.” Founded in 1968, Texas-based Waste Management Inc. was one of the largest solid waste-handling companies in North America by 2023, operating 346 transfer stations, 293 active active landfill disposal sites, 146 recycling plants, 111 beneficial-use landfill gas projects and six independent power production plants. “There is the ongoing risk of liability in the event contaminants escape into the surrounding environment,” the company warned about on-site disposal. “The presence of hazardous materials can also make property redevelopment more difficult.” The company noted that a 2002 amendment to federal RCRA law allowed CAMU-eligible wastes to be accepted at CAMU-approved off-site Subtitle C landfills, including the landfill facility in Arlington, Oregon, owned and operated by Chemical Waste Management of the Northwest, a subsidiary of Waste Management Inc. According to the website page, the Arlington site could accept a wide range of hazardous wastes, including “spent potliner treatment.” Transportation of these hazardous wastes to the Arlington site’s rail spur could be handled by the companies WasteByRail system. “Waste Management can transport virtually any volume of waste to its CAMU-permitted facility,” the website stated.⁵⁰

Roux ranked several action alternatives, and removing the waste from the plant site was rejected because Roux felt that process could expose the community to hazardous material during transportation to an approved offsite landfill, Stroiazzo said. While Roux did not complete a cost estimate for removing the contaminants from the plant site by truck, they estimated it would take up to five years, he said. About 60,000 truckloads would be needed to haul the estimated 1.6 million cubic yards of waste to a hazardous waste landfill in Arlington, Ore. Those thousands of truckloads would presumably travel through towns and cities. The waste could be hauled by train, he noted, but that would require specialized rail cars that the company would need to provide. City councilors made no statements during the presentation, but afterward they expressed concerns about the long-term viability of the containment plan. “Walls crumble, Mother Nature attacks,” councilor Mike Shepard said.⁵¹

During the city council presentation, Stroiazzo said Roux examined statistics on 86 slurry walls used at other Superfund sites. “From what we can tell, all of them worked,” he said. The Hungry Horse News reported on EPA reports about slurry walls they found online. A 1998 study that looked at 36 walls found eight had met objectives, 17 “may have” met objectives and seven “may not” have met objectives. A key factor in the successful use of slurry walls was closely monitoring water inside and outside of the site to see if any long-term migration had taken place, the EPA noted in its study. CFAC’s plan included numerous monitoring wells. A 2002 EPA study looked at fewer wall samples, but the EPA noted they worked as designed. ⁵²

The Draft Feasibility Study Report organized the CFAC plant site into six Decision Units based on similar environmental factors, not specific locations. They included DU1 – the West Landfill, Wet Scrubber Sludge Pond and Center Landfill; DU2 – the Industrial Landfill, Sanitary Landfill, East Landfill and four asbestos landfills; DU3 – soils across the plant site; DU4 – the two North Percolation Ponds and connecting ditch; DU5 – percolation ponds and land along the Flathead River; and DU6 – groundwater defined by a previously mapped cyanide plume beneath the plant site. Remedial technology options in the report included no action, restricting access, treatment, containment, or removal and disposal. The options were analyzed in terms of effectiveness, implementability and relative cost. ⁵³

During the screening process, simply vegetating landfill caps was ruled out because of the area’s short growing season and the volume of water during spring runoff. Excavation of the DU1 landfills was ruled out because of potential adverse effects on communities during transportation of the waste material. A total of seven action alternatives were analyzed for DU1 and DU6, two for DU2, four for DU3, four for DU4, and two for DU5. Threshold criteria for evaluating these action alternatives included overall protection of human health and the environment, and compliance with Applicable or Relevant and Appropriate Requirements (ARARs). Balancing criteria included long-term effectiveness and permanence, reduction of toxicity, mobility or volume of contaminants, short-term effectiveness, implementability and cost. According to Roux, this evaluation process was prescribed by Superfund law and subsequent EPA regulations and guidance. A scoring system was used to summarize the process and results. ⁵⁴

For Decision Unit 1, considered the main source of cyanide and fluoride contamination in groundwater beneath the plant site, the highest

scoring alternative, LDU1/GW-4A with 77 points, called for improved containment by capping and construction of a slurry wall around the West Landfill and Wet Scrubber Sludge Pond. The lowest scoring alternative for this decision unit, LDU1/GW-6 with 37 points, called for excavation of the waste and onsite consolidation. Roux awarded this alternative zero points for implementability and cost. Capping was proposed for the seven landfills making up Decision Unit 2. Seven areas of concern in Decision Unit 3 were mapped for excavation, including the Former Drum Storage Area. The two percolation ponds and the overflow ditch connecting them in Decision Unit 4 would be excavated and consolidated onsite. The South Percolation Ponds along the Flathead River in Decision Unit 5 would be excavated, while the backwater seep area where cyanide had been detected and a nearby riparian area would receive long-term monitoring. Long-term groundwater monitoring was recommended for Decision Unit 6. ⁵⁵

The Daily Inter Lake supported the Columbia Falls City Council's objection to Glencore's cleanup proposal in a May 15, 2021 editorial. "Corporations using and abusing Montana's lands and natural resources, and then trying to wiggle out of cleanup responsibilities when the time comes, is an all too common scenario," the editorial said. The Inter Lake noted that a century of copper mining had left the largest Superfund site in the country at Butte, and asbestos dust from the defunct W.R. Grace & Co. vermiculite mine in Libby killed hundreds of residents and sickened thousands. "Now the Flathead Valley - Columbia Falls specifically - faces its own Superfund saga," the editorial said. Noting that Glencore rejected removing the wastes because of potential hazards during shipping, the editorial said, "It doesn't take a rocket scientist to figure out the real reason for CFAC ditching this plan is that it likely would be much more expensive." The editorial urged the city council to continue insisting that Glencore remove all the wastes from the plant site. ⁵⁶

Roux defends its recommendations

On June 24, 2021, the Hungry Horse News reported that Glencore had released its 538-page Final Feasibility Study Report to the public for review and comment. Marking the end of a five-year long process determined by the company's commitment to an EPA administrative order of consent, Glencore project manager John Stroiazzo said the study process came in on time and on budget. "We're kind of proud of that," he said. "It was a pretty tight timeline." He said Glencore would continue to be involved in the site cleanup, which could take years. He

noted that the EPA would make the final decision on how best to clean up the site, and that allocation of the cleanup costs between CFAC and ARCO would be determined during a two-week bench trial before U.S. District Judge Donald Molloy, scheduled to begin in just four days. “We think we’re a lesser responsible party,” Stroiazzo said.⁵⁷

In accordance with federal regulations, the objectives of the overall Remedial Investigation/Feasibility Study were to identify and characterize sources of contaminants of potential concern (COPCs); determine the nature and extent of site-related COPCs in environmental media at the site, including soil, groundwater, surface water, sediment and sediment porewater (the interface between groundwater and surface water); understand the fate and transport of COPCs in environmental media at the site; identify any complete or potentially complete exposure pathways, considering current and also potential future land use; evaluate current and potential future human health and ecological risks posed by the COPCs present at the site; and conduct an evaluation of remedial alternatives for the site. This information was presented in a series of reports, including a Site Characterization Data Summary Report in 2017; a Screening Level Ecological Risk Assessment in 2017; a Groundwater and Surface Water Data Summary Report in 2018; a Phase II Site Characterization Data Summary Report in 2019; a Baseline Human Health Risk Assessment in 2019; a Baseline Ecological Risk Assessment in 2019; and a Remedial Investigation Report in 2020.

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By the time Glencore released Roux’s final feasibility study to the public, it was well known and considered established fact that the main sources of cyanide and fluoride contamination in the groundwater flowing beneath the plant south to southwest toward the Flathead River were hazardous wastes in the West Landfill and adjacent Wet Scrubber Sludge Pond. While other sources of contamination at the site, including plant-wide soils, additional landfills and percolation ponds, could be cleaned up by excavation, relocation and additional capping, the West Landfill and Wet Scrubber Sludge Pond underwent a different remediation evaluation. Options ranged from allowing the wastes to remain on site contained by a slurry wall and cap, or excavating the wastes and hauling them to an appropriate offsite landfill. With that said, several key points about the main source of cyanide contamination could be gleaned from the final feasibility study:

- 1) Spent potliner was not considered a hazardous substance by the EPA at the time it was dumped in the West Landfill by the Anaconda Aluminum Company.
- 2) Contaminated soil beneath the West Landfill contributing to cyanide pollution in the groundwater likely extended to 115 feet below the surface, well within the groundwater table during high-water season.
- 3) Excavation was considered a proven method for removing contaminated surface and subsurface materials, but not necessarily for buried spent potliner or spent potliner intermingled with mixed industrial wastes, and not at the scale which would be required at the CFAC site.
- 4) Roux believed spent potliner could be left in-situ or be consolidated onsite in accordance with federal regulations.
- 5) The nearest approved site for removal and disposal of spent potliner mixed with other industrial waste was in Arlington, Ore., nearly 500 miles from the plant site.
- 6) Transportation to Arlington could require up to 60,000 trucks or containers with 60 million truck miles over 4 to 5 years, resulting in as many as 35 estimated injuries from traffic accidents and one fatality. According to Roux, truck traffic would adversely impact communities and tourists, and they noted past concerns expressed by Flathead County residents about trucks hauling hazardous waste during the demolition process.
- 7) The Oregon Department of Environmental Quality might require pre-treatment of cyanide-contaminated material, which would drive up the cost and time to excavate and remove the West Landfill material.
- 8) Roux had screened excavation and offsite disposal for the West Landfill from further consideration early in the decision process.
- 9) Roux said relative cost alone was not used to justify eliminating a technology for further consideration. But it's worth noting that the cost of the preferred alternative for remediating the West Landfill and Wet Scrubber Sludge Pond area, by containment via capping and a fully-encompassing slurry wall, was about \$45 million at present value, while the least preferred option, excavation with onsite consolidation, was estimated to cost more than \$165 million. ⁵⁹

Roux provided more detailed information about the West Landfill in the final feasibility study. Based on aerial photography, it was believed dumping of spent potliner in the unlined West Landfill did not start until circa 1963-1974. Spent potliner may have been dumped there through 1980, although dumping of spent potliner in the West Landfill reportedly ended in 1970. According to a CFAC statement in 2013, the West Landfill was closed in 1981 and covered with an earthen cap including a 6-inch clay layer, and it was further capped with synthetic Hypalon material in 1994. As-built drawings for construction of the 1994 cap indicated the depth of the waste in the West Landfill at 30 feet, but CFAC reported in 2013 that the depth was 48 feet. According to Roux, for the purpose of evaluating and comparing remedial alternatives in the final feasibility study report, "an average depth of waste of 35 feet has been assumed." That put the bottom of the waste at about 15 to 22 feet below the surrounding grade. Roux estimated the volume of waste in the 7.8-acre 30-to-48-foot deep West Landfill at about 378,000 to 604,000 cubic yards. "These volume estimates do not include impacted underlying soils beneath the West Landfill that are likely contributing to groundwater contamination," Roux noted. Based on assumptions about depths, Roux estimated the total volume of waste at 440,440 cubic yards and the total volume of impacted underlying soils at 377,520 cubic yards.⁶⁰

Cyanide and fluoride contamination entered the groundwater by a process called leaching. According to Roux, "Leaching can occur when soils or waste contact either precipitation (i.e., rainwater) or groundwater, resulting in a liquid known as leachate. Leachate can move downward from a source into the water table and cause groundwater contamination. Leaching is the primary process responsible for the mobilization of cyanide and fluoride from wastes within the West Landfill and Wet Scrubber Sludge Pond into the underlying groundwater. Rates of leaching of contaminants from soil or waste into groundwater depends on the solubility of the chemical, the tightness of binding of the chemical to soil, the amount of water the soil-bound chemical comes in contact with, and the chemical characteristics of the soil and recharging water."⁶¹

Groundwater levels at the West Landfill site ranged from 36 feet below the land surface in high-water season to 87 feet in low-water season. According to Roux, "These water table depths are below the estimated base of the waste within the West Landfill, suggesting that groundwater does not saturate the waste, even under high-water conditions.

However, this does not include any impacted underlying soils beneath the West Landfill.” According to Roux, “Prior to construction of an effective low-permeability cap on the landfill in 1994, precipitation would have infiltrated through the landfill, generating spent potliner leachate that would have migrated vertically downward into groundwater. Some of the cyanide within this leachate would have been retained in the soil above the seasonal low-water table (which as described above can be more than 80 feet below land surface) and available to serve as a residual source of cyanide to groundwater when the water table rises during the high-water season.”⁶²

Roux described how it determined the depth of contamination beneath the West Landfill at 115 feet. “This conclusion is supported by an electrical resistivity/induced polarization geophysical survey that was conducted as part of the Phase I site characterization to approximate the landfill bottom and landfill caps. As determined from the ER/IP geophysical survey, an area of low resistivity was identified to approximately 115 feet below the top of the West Landfill. The interpretation of these results suggested the depth of the waste material or impacted soil and groundwater underlying the West Landfill could be as thick as 115 feet; though it should be noted that these types of geophysical surveys are indirect measurements and subject to various interferences.” Roux added, “While no samples have been collected beneath the West Landfill, the long-term persistence of cyanide in groundwater directly downgradient of the landfill coupled with a low-permeability cap in place since 1994 indicates that impacted material likely extends into and beneath the seasonal high-water table and is serving as a continuing source of contamination. Impacted material above the water table could also come in contact with infiltrating surface water runoff via lateral migration of such water through the vadose zone [the area between the land surface and the groundwater level].”⁶³

The Wet Scrubber Sludge Pond received waste material from the wet scrubber system used to remove fluoride gas and fluoride particulate emissions from reduction-pot gas from 1955 until about 1980. The wet scrubbers were replaced with dry scrubbers that efficiently recycled fluoride back to the aluminum reduction system and produced significantly less waste. The Wet Scrubber Sludge Pond was subsequently covered with an earthen cap in 1981 and vegetated. Located adjacent to the West Landfill, the pond was about 10.8 acres in size, measuring about 750 feet by 580 feet. The berm surrounding the

pond was about 15 feet above surrounding grade. Based on historical documents reviewed by Roux, the total depth of waste material in the pond, including the above-grade portion, was estimated to be about 30 feet. Groundwater levels measured in adjacent monitoring wells indicated that during high-water season, groundwater was observed to be about 60 feet below land surface, although groundwater levels in a monitoring well adjacent to the West Landfill reached 35.5 feet below land surface. During low-water season, groundwater near the pond was observed to be about 105 feet below land surface.⁶⁴

Roux also calculated the size of the groundwater in Decision Unit 6. “The approximate area of the plume area (upper hydrogeologic unit) exceeding maximum contaminant levels/DEQ-7 standards is 300 acres,” Roux said. “The saturated thickness of the upper hydrogeologic unit varies across the site depending upon the depth to underlying glacial till and the proximity to Teakettle Mountain. Saturated thickness was observed to be less near Teakettle Mountain when compared to areas beneath the Central Landfills Area and to the west of this area. Water level elevation data indicated that groundwater elevations fluctuate seasonally at varying magnitudes depending on the area of the site; as such, the saturated thickness fluctuates seasonally. During high-water season, the saturated thickness of the upper hydrogeologic unit varies from approximately 19 feet to 92 feet. During low-water season, the saturated thickness of the upper hydrogeologic unit varies from approximately 1 foot to 77 feet.”⁶⁵

Identification of the West Landfill and Wet Scrubber Sludge Pond as the main sources of groundwater contamination had resulted from groundwater migration studies at the site. According to Roux, “The six rounds of groundwater sampling conducted during the Remedial Investigation indicate that the West Landfill and Wet Scrubber Sludge Pond area appears to be the primary source of the cyanide and fluoride in groundwater.” Furthermore, “A consistent pattern was observed during all six rounds of groundwater sampling; cyanide and fluoride migrates in a south/south-westerly direction from the aforementioned landfills toward the Flathead River. Total cyanide and fluoride concentrations in groundwater within the upper hydrogeologic unit decrease with increasing distance away from the landfills.”⁶⁶

Roux also reported that contamination from the West Landfill and Wet Scrubber Sludge Pond had entered the Flathead River. According to Roux, “The hydrogeologic studies (i.e., groundwater elevation data and

surface water elevation data) indicate that groundwater discharges to the Flathead River. The Backwater Seep Sampling Area, the Riparian Sampling Area and the South Percolation Pond Area are all located within the extent of the 'Seep Area' where groundwater is expressed from the upper hydrogeologic unit to the Flathead River. Elevated concentrations of cyanide in sediment and sediment porewater are present in the Backwater Seep Sampling Area and Riparian Sampling Area." Roux, however, believed that the contaminants were not negatively impacting the river. According to Roux, "These findings confirmed that the elevated levels of cyanide and fluoride found in groundwater and in the Backwater Seep Sampling Area, Riparian Sampling Area and the South Percolation Pond are not measurably impacting surface water, sediment or sediment porewater quality within the main channel of the Flathead River." ⁶⁷

Roux identified the following recommended remedial action objectives for contaminated groundwater at the smelter site: "Reduce cyanide, fluoride and arsenic concentrations in groundwater within the upper hydrogeologic unit to levels below Montana DEQ-7 standards, prevent further degradation of groundwater that exceeds Montana DEQ-7 standards (i.e. ensure no actions are taken that could increase concentrations of COCs within the contaminant plume), and prevent expansion of the contaminant plume into groundwater that meets Montana DEQ-7 standards." ⁶⁸ Published in 2019, the Montana Department of Environmental Quality's 80-page Circular DEQ-7 set numerical standards for aquatic life and human health for total cyanide and fluoride. ⁶⁹ According to Roux, its preliminary remediation goals for the groundwater decision unit were 200 micrograms per liter total cyanide, 200 mg/L free cyanide and 4,000 mg/L fluoride. Roux noted, "Total cyanide and fluoride concentrations in groundwater within the upper hydrogeologic unit decrease with increasing distance away from the Landfills DU1 [the West Landfill and Wet Scrubber Sludge Pond], likely due to various natural attenuation processes such as biodegradation and adsorption." ⁷⁰

In evaluating general response actions for the Final Feasibility Study Report, Roux looked at any combination of no action; access restrictions, including institutional controls and engineering controls; in-situ treatment, including monitored natural attenuation processes; ex-situ treatment following excavation or groundwater extraction, with treatment performed at an onsite treatment unit; containment; and removal/collection and disposal. The evaluated technology screening

criteria and methodology included effectiveness, implementability and relative cost. According to Roux, "Relative cost was used to screen out process options that have a high capital cost only if similar or greater effectiveness is available via other process option(s) at similar or lesser cost; relative cost alone was not used to justify not retaining a technology for further consideration." In the case of the West Landfill, Wet Scrubber Sludge Pond and Center Landfill, the offsite disposal solution was "screened from further consideration."⁷¹

Roux described the technological challenges of excavation as a remediation for Decision Unit 1, which included about 1 million bulk cubic yards and 1.2 million loose cubic yards of material. According to Roux, "This volume estimate does not include impacted underlying soils beneath the West Landfill that are likely contributing to groundwater contamination, which for the purpose of screening technologies and alternatives in this feasibility study has been assumed to extend to 50 feet below surrounding grade (i.e., approximately 30 feet in thickness; or 380,000 cubic yards)," Roux said. "To excavate material to approximately 50 feet below grade, sloping and benching would be required to maintain stability of the sidewalls. Collection and treatment of water that enters the open excavation would be necessary to maintain a safe and dry work area as well as to minimize impacts to groundwater from infiltration of precipitation and surface water runoff through waste and impacted soil."⁷²

Reducing the scope of the excavation would not succeed in remediating the landfill, Roux noted. "The volume and depth of material to be excavated would be reduced under a partial source removal alternative," Roux said. "Such an alternative would limit the excavation to a depth less than the seasonal high-water table, a shallower depth than would be required to remove all waste and underlying impacted soils. By reducing the depth of the excavation, the requirements for sidewall stability and dewatering would be reduced, subsequently lessening a few of the technical challenges associated with a complete source removal alternative. However, by failing to remove impacted material from below the seasonal high-water table, a continuing source of contamination would not be addressed, diminishing the effectiveness of an excavation remedy such that achievement of remedial action objectives, including Applicable or Relevant and Appropriate Requirements, would be unlikely in the absence of additional remedial measures to contain the residual contamination. For this reason, a

partial source removal alternative for Landfills DU1 was screened from further consideration.”⁷³

Roux also noted that spent potliner was not considered a hazardous waste at the time of its disposal in the site’s landfills. “Thus, EPA policy is clear that it is not a hazardous waste,” Roux said, citing the 1990 National Contingency Plan. “Although spent potliner is now a listed hazardous waste requiring treatment prior to land disposal, the EPA stated in amendments to the National Contingency Plan that such material is not subject to Resource Conservation and Recovery Act requirements, including land disposal restrictions, when it is relocated and contained within the same area of contamination as the originally disposed of material.... The EPA’s rationale was that the material is not actually moved from what would be the equivalent of a Resource Conservation and Recovery Act unit and therefore it is not ‘placed in’ a ‘land disposal unit’ as defined by the Resource Conservation and Recovery Act.”⁷⁴

Roux concluded, “CFAC believes that the Landfills DU1 and the groundwater immediately to the south that is impacted by contaminant migration from the Landfills DU1 is an ‘Area of Contamination’ as described in EPA amendments to the National Contingency Plan. Therefore, removal of spent potliner and soil or other material impacted by spent potliner from the Landfills DU1 and relocation of that material into a repository constructed in the area of contamination would not constitute placement of the material in a land disposal unit. Nonetheless, any new repository for spent potliner-impacted material in Landfills DU1 would comply with substantive requirements of Resource Conservation and Recovery Act Subtitle C for new landfills (e.g., liner, leachate collection, capping) as relevant and appropriate provisions governing design, construction, operation, closure and post-closure care.”⁷⁵

Beyond the legal parsing of the 1990 National Contingency Plan and the 1976 Resource Conservation and Recovery Act, Roux emphasized the practical concerns of excavating and removing the contaminants in Decision Unit 1. “Based on the anticipated volume, depth and characteristics of the impacted material which would need to be excavated, there are numerous risks and technical challenges which could complicate implementation of such a remedy and potentially compromise the effectiveness of the remedial action,” Roux said. “These challenges would need to be further evaluated if this technology

is retained. Evaluation of an excavation alternative for the Landfills DU1 would also need to assess the potential adverse environmental impacts resulting from an open excavation for an extended period as well as the potential adverse effects on human health from exposure to hazardous substances, fugitive dust, contaminant vapors/odors, exhaust emissions and noise.”⁷⁶

Roux also questioned the effectiveness of excavating in this situation. “Although excavation is a proven method of removing contaminated surface and subsurface materials, it is not a proven method of removing previously-landfilled spent potliner material, or spent potliner intermingled with mixed industrial wastes, at the scale which would be required to address the Landfills DU1 waste management units,” Roux said. “While there are numerous technical and administrative challenges associated with such an alternative, excavation is a commercially available technology and has the potential to be effective. Therefore, excavation has been retained for further consideration for the Landfills DU1 to evaluate the technical implementability of this alternative and its impacts to human health and the environment.” An additional concern was that if Oregon required pre-treatment of spent potliner before allowing the waste to be deposited at the Arlington site, excavation could be impeded, increasing the duration of remedial activities. Roux noted that the EPA had acknowledged the difficulty in treating spent potliner intermingled with soil or other waste.⁷⁷

As for transportation difficulties, Roux noted that, “Excavated material would be packaged in clean, leak-proof, vented containers and transported in accordance with United States Department of Transportation regulations as a Resource Conservation and Recovery Act hazardous waste by a licensed hazardous waste hauler with the appropriate manifests, permits, training, equipment, insurance and financial responsibility.” In addition to the high carbon footprint for 60 million truck miles over 4 to 5 years, there would be community welfare impacts. According to Roux, “residents in neighboring communities as well as communities along the designated route would be subject to trucks and/or trains regularly passing through their neighborhoods for several years. The impact to quality of life for the residents of these communities as well as to visitors of Glacier National Park due to this increased traffic would include noise, dust and congestion (truck traffic or delays from railroad crossings) above and beyond the significant seasonal increases. During previous demolition activities at the site, CFAC received complaints from the community.”⁷⁸

Roux also outlined health and safety concerns resulting from transporting hazardous wastes about 500 miles to Arlington, Ore. “Health and safety are also substantial concerns with this process option as movement of material at this scale has statistically resulted in numerous incidents,” Roux said. “Risk of traffic accidents during transportation increases the likelihood of injuries and inadvertent contaminant releases. The potential for releases during transport and the risk associated with such releases would be much greater than for other process options as they are directly proportional to the quantity of transported waste and the travel distance between the site and the disposal facility. Further, the route from the site to the nearest spent potliner disposal facility traverses approximately 130 miles of two-lane road before reaching the interstate; these roads are often well traveled during the tourist season (which overlaps the construction season), increasing the risk of traffic accidents. In addition, the route runs near the Flathead River and alongside the Flathead Lake for tens of miles, worsening the adverse effects a potential release would cause.” ⁷⁹

Health and safety concerns related to transportation extended to others beside the general public, Roux noted. “The health and safety risks for the workers involved with the loading, transporting and unloading of the waste are also proportional to these metrics, and as such would also be expected to be significant,” Roux said. “As an example, if the excavated waste material were to be transported to the nearest operational Resource Conservation and Recovery Act Subtitle C landfill exclusively by truck, the expected magnitude of persons injured as a result of transportation alone would be 35 persons, including at least one fatality.” Roux based this estimate on 2017 trucking statistics provided by the Federal Motor Carrier Safety Administration. On top of all that would be disposal fees charged at the Arlington, Ore. landfill, Roux noted. “These costs increase nearly linearly as the volumes of waste increase. Due to the large volumes of waste that would be generated from excavating the Landfills DU1 waste management units, much of which would be listed hazardous waste, offsite disposal would be prohibitively expensive.” ⁸⁰

It should be noted that much larger volumes of materials were transported by rail to the smelter facility during the years it operated, from 1955 to 2009, than would be expected from the removal of the West Landfill waste. These incoming rail shipments included tank cars filled with coal tar pitch and hopper cars filled with petroleum coke, anthracite coal and alumina. In addition, CFAC Montana and Glencore

shipped spent potliner to offsite landfills from 1990 through 2009 without notable incident.

CFAC sues ARCO

The Superfund drama took a new direction on July 13, 2018, when CFAC filed a complaint against ARCO in U.S. District Court in Missoula, Mont. claiming damages caused by ARCO dumping hazardous materials in the plant site's landfills. Local newspapers in the Flathead Valley reported the story in front-page articles. According to CFAC's complaint, ARCO dumped many tons of spent potliner in the West and Center Landfills while CFAC never dumped materials in either of them. CFAC also claimed millions of gallons of water used to cool spent pot bottoms or discharged from wet scrubbers were disposed of in percolation ponds on the plant site. ⁸¹ On Aug. 8, 2018, the Hungry Horse News reported that EPA project manager Mike Cirian believed CFAC's lawsuit would not delay the cleanup at the former aluminum smelter. Cirian said such lawsuits were not uncommon in Superfund cleanups, and by the time the remedial investigation and feasibility study of the site was completed in a few more years, the lawsuit might have already gone through the federal court system. ⁸² U.S. District Court Judge Donald W. Molloy was assigned to the case, and the Browning Kaleczyc Berry & Hoven law firm of Bozeman, Mont. represented CFAC. According to the court docket, CFAC filed 26 exhibits, including reports on spent potliner, production and consumption; hydrological data and analytical reports; reports on dry scrubber operations and stormwater pollution prevention; the agreement and plan for merger of the Anaconda Company and ARCO; and letters between CFAC and state or federal officials. ⁸³

CFAC filed the complaint against ARCO under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Montana Comprehensive Environmental Cleanup and Responsibility Act (CECRA). CFAC sought a contribution from ARCO for expenses that CFAC had incurred and would continue to incur in the future by responding to releases or threatened releases of hazardous substances at the former smelter site near Columbia Falls. According to the complaint, ARCO or its corporate predecessor, the Anaconda Company, owned and operated the site from 1955 to 1985 and was responsible for the disposal and release of significant amounts of hazardous substances, including cyanide, fluoride and polycyclic aromatic hydrocarbons (PAH). "To date, ARCO has refused to contribute toward any portion of the response costs that CFAC has and will incur," the

complaint said. According to the complaint, the Anaconda Company and ARCO produced 3,523,501 tons of aluminum from 1955 to 1985. ARCO sold the plant in 1985 to the Montana Aluminum Investors Corp. (MAIC), which became CFAC Montana in 1989. CFAC Montana produced 2,380,973 tons of aluminum from 1985 through 1998. Glencore, operating under the name CFAC, acquired the plant in 1999. CFAC produced 810,755 tons of aluminum from 1999 to 2009.⁸⁴

“Both CFAC Montana’s and CFAC’s production of aluminum at the site caused substantially fewer releases or threatened releases of hazardous substances than ARCO’s ownership and operation of the site did,” the complaint said. According to the complaint, the Anaconda Company’s and ARCO’s operation of the smelter created several waste streams which ended up in various landfills, ponds and other areas on the plant site. From 1955 to 1970, the Anaconda Company disposed of about 50,000 tons of spent potliner at the West Landfill while spilling waste material around the landfill. ARCO closed, capped and re-vegetated the West Landfill in 1981 and no more materials were disposed of there. From 1970 to 1980, ARCO disposed of 50,000 tons of spent potliner in the Center Landfill while spilling waste material around the landfill. ARCO closed, capped and re-vegetated the Center Landfill in 1981 and no more materials were disposed of there. From 1955 through 1978, the Anaconda Company disposed of sludge from the pot gas wet scrubbers in the Wet Scrubber Sludge Pond. The wet scrubbers were replaced with dry scrubbers by 1978 and no more waste was sent to the Wet Scrubber Sludge Pond, which was closed in 1981.⁸⁵

According to the complaint, the Anaconda Company soaked failed cathode pot bottoms in a pit to cool the spent potliner before it was disposed of in the West Landfill and the Center Landfill from 1964 to 1977. About 180 million gallons of water used to soak the cathodes was disposed of in the Northeast Percolation Pond. Discharge water from the Paste Plant wet scrubber also was disposed of in the Northeast Percolation Pond. The Paste Plant’s wet scrubber was replaced with a dry scrubber using petroleum coke in 1999. During the time that the Anaconda Company and ARCO owned and operated the smelter, the smelter used about 2,105,151 tons of carbon, which came to the Paste Plant in the form of petroleum coke, coal tar pitch and anthracite coal. These materials were released during unloading and storage in uncovered piles around the Paste Plant. From 1963 to 1985, the Anaconda Company and ARCO disposed of water used for cooling in the

Cast House and wastewater from the plant's sewage plant in the South Percolation Ponds, located along the Flathead River. ⁸⁶

Contrasting past practices by the Anaconda Company and ARCO, according to the complaint, CFAC Montana and CFAC were more careful about disposing of hazardous materials. CFAC Montana disposed of spent potliner onsite from 1985 to 1990 in a landfill lined with a clay pad from two to five feet thick. The landfill was capped and re-vegetated in 1990, and spent potliner from then on was shipped to an out-of-state landfill. From 1999 to 2009, under Glencore ownership, CFAC continued to dispose of spent potliner offsite. According to the complaint, CFAC Montana and CFAC utilized the Sumitomo-design reduction pots, which released less polycyclic aromatic hydrocarbon emissions to the air. The pot gas dry scrubbers also did a better job of controlling emissions of fluoride and PAHs than the wet scrubbers and did not produce sludge that was discharged into the Wet Scrubber Sludge Pond. ⁸⁷

The complaint noted that CFAC under Glencore ownership spent money to study the site for cleanup. The EPA hired Weston Solutions Inc. to investigate the site, and a report was released April 4, 2014. CFAC participated in a teleconference with the EPA and Montana DEQ on May 23, 2014 and met with the DEQ in Helena on July 8, 2014. The DEQ sent an email to CFAC on July 31, 2014 notifying the company that CFAC was liable for remedial actions under CECRA. On Aug. 14, 2014, in response to these communications, CFAC hired Roux Associates to prepare a remedial investigation and feasibility study work plan for the site. Cooperation between CFAC and the state of Montana deteriorated at that point. "Unable to agree to an administrative order on consent with Montana DEQ, however, CFAC reached out to EPA in November 2014 to note its desire to begin discussions about entering into an administrative order on consent with EPA regarding assessment activities at CFAC," the complaint said. "Negotiations with Montana DEQ ended in December 2014." ⁸⁸

According to the complaint, CFAC contacted ARCO on Feb. 25, 2015 to notify them that CFAC was beginning to negotiate an administrative order on consent with the EPA to address contamination identified at the site. "In that same letter, CFAC told ARCO that it welcomed any views that ARCO had with respect to the site," the complaint said. On June 8, 2015, CFAC contacted the EPA to reiterate its interest in discussing an administrative order on consent and to notify the EPA that CFAC had

already prepared a remedial investigation and feasibility study work plan for the site. The next day, the EPA sent a letter to ARCO and CFAC stating that both companies were potentially responsible parties and should pay response costs the EPA had incurred so far at the site. The EPA also asked ARCO and CFAC to “voluntarily negotiate a consent order” in which both parties “perform a remedial investigation and feasibility study... under EPA’s oversight at the site,” according to the complaint. CFAC accepted the EPA’s invitation to negotiate an administrative order on consent on June 25, 2015. That same day, ARCO rejected the EPA’s invitation to engage in negotiating the administrative order on consent, “leaving 100 percent of the burden and financial costs on CFAC,” the complaint said. “To date, ARCO has refused to reimburse CFAC for any of the pre-administrative order on consent costs.” Furthermore, ARCO refused to reimburse the EPA for any of its expenses incurred to date, despite the EPA’s demand for ARCO to do so. The EPA’s costs had reached \$743,133 by that time.⁸⁹

The EPA approved CFAC’s remedial investigation and feasibility study work plan on Nov. 23, 2015 as prepared by Roux. CFAC entered into an administrative order on consent with the EPA on Nov. 30, 2015. Roux’s work plan identified several sources and pathways for contaminants of potential concern (COPCs) – cyanide, fluoride and PAHs, which qualified as hazardous substances under CERCLA. “Each of the specific areas where COPCs are found at potentially hazardous levels are all closely associated with ARCO’s historic ownership and operation of the site,” the complaint said. Roux’s groundwater sampling indicated that the highest concentrations of cyanide and fluoride were found next to the West Landfill and Wet Scrubber Sludge Pond. “ARCO is solely responsible for depositing the material that are the likely sources of this contamination,” the complaint said. “ARCO disposed of over 50,000 tons of spent potliner, which contains cyanide and fluoride, into the West Landfill.” Furthermore, Roux determined that “the soils around the landfills have likely been impacted by the historical waste handling practices around the landfills and by aerial deposition of COPCs (like PAHs) from historical plant emissions,” the complaint quoted Roux. The same situation was described at the Center Landfill and the Wet Scrubber Sludge Pond, where the calcium fluoride sludge from the pot gas scrubbers that was pumped into the pond contained elevated levels of PAHs.⁹⁰

According to the complaint, CFAC had spent at least \$7 million in response costs to date and would incur additional costs under the

administrative order under consent. These costs would include data collection, human risk assessment, site reconnaissance, well monitoring, sediment sampling, groundwater sampling, surface water sampling, ecological screening, assessment of treatment technologies, and further analysis of alternative remedial methods. "ARCO has refused to reimburse CFAC for any of the administrative order on consent costs incurred to date," the complaint said. CFAC's first claim for relief was for cost recovery based on CERCLA and incurred in connection with the investigation, assessment and monitoring of the site. CFAC's second claim for relief was for contribution under CERCLA for ARCO's equitable portion of the response costs. CFAC's third claim for relief was for a declaratory judgment based on the belief that "the extent and magnitude of the contamination in, around and under the site... is not yet fully known, and because the contamination has not yet been fully mitigated, CFAC will incur further necessary response costs, which may include (but not be limited to) additional investigatory, remedial and removal expenses," the complaint said. "There is a present and actual controversy between CFAC and ARCO concerning their respective rights and obligations with respect to the response costs associated with the releases of hazardous substances at the site," the complaint said. CFAC's fourth and fifth claims for relief were similar but based on Montana's CECRA laws. In summary, CFAC sought damages and prejudgment interest to be proven at trial and a declaration that ARCO was responsible and liable for any and all remedial actions costs and responses at the site.⁹¹

Several observations could be made about the facts and claims made in CFAC's complaint. For one, ARCO was no newcomer to CERCLA and CECRA actions in Montana - the Butte-Anaconda Superfund site in the Upper Clark Fork River Basin has been characterized as the largest and oldest Superfund site in the U.S. The EPA placed the Butte-Anaconda copper mining and smelting complex on the Superfund's National Priorities List in September 1983. The Anaconda Company owned and operated the copper complex there since 1884, and ARCO became the responsible party after it acquired the Anaconda Company in the late 1970s. Thirty-five years after the site was placed on the National Priorities List on July 28, 2018, the EPA, U.S. Department of Justice, State of Montana, Anaconda-Deer Lodge County and ARCO reached a conceptual settlement framework that addressed final cleanup actions at the giant Superfund site.⁹² In a curious coincidence, ARCO became a subsidiary of British Petroleum in 2000. Tony Hayward, who was CEO of British Petroleum at the time of the Deepwater Horizon oil spill in the

Gulf of Mexico in April 2010, became chairman of the board of Glencore in May 2013.⁹³

In addition, the complaint differentiated between CFAC Montana and CFAC. The former grew out of MAIC, which was comprised of two men – Brack Duker and Jerome Broussard – and which owned and operated the smelter plant from 1985 to 1989. According to the complaint, MAIC became CFAC Montana in 1989, although Duker and Broussard continued to own the company. Glencore acquired the smelter plant in 1999, at which point the complaint referred to the operating company as CFAC. The complaint also provided interesting figures for aluminum production at the plant – the Anaconda Company and ARCO produced 3,523,501 tons of aluminum from 1955 to 1985, MAIC and CFAC Montana produced 2,380,973 tons of aluminum from 1985 through 1998, and Glencore, operating under the name CFAC, produced 810,755 tons of aluminum from 1999 to 2009. A correlation could be drawn between the amount of aluminum produced and the amount of hazardous materials handled, produced, released or emitted, but the complaint made the claim that CFAC employed better practices and procedures and relied on better pollution control equipment to limit releases or emissions.

But several points could be made about that claim – first, the complaint itself stated that CFAC Montana placed spent potliner in a clay-lined landfill from 1985 through 1990 that was later capped with a clay liner and re-vegetated. An argument could be made that those hazardous materials should be removed from the smelter site and shipped to a certified landfill because their long-term status could never be certain. Even if construction plans for that landfill could be reviewed and contractors interviewed to see if the landfill was well built, that landfill was perched above groundwater and the Flathead River and could be considered always at risk of leaking. CFAC did not name Duker or Broussard, which owned CFAC Montana, as responsible parties.

Secondly, while the dry scrubbers used for pot gases were very efficient, nevertheless significant amounts of fluoride and polycyclic aromatic hydrocarbons continued to be present in the plant's primary emissions from 1985 to 2009. And while the use of Sumitomo-type reduction pots reduced the amount of fluoride or polycyclic aromatic hydrocarbons escaping through the potrooms' rooftop clamshell vents, nevertheless significant amounts of hazardous materials continued to be released as secondary emissions. The materials in primary and

secondary emissions were deposited on the ground and surface water at the plant site and for miles around – extending all the way to lakes in Glacier National Park, where evidence of polycyclic aromatic hydrocarbons traced to the aluminum smelter were found in sediment samples.

Motion to dismiss

In March 2019, ARCO filed a motion in the CFAC v. ARCO case seeking a dismissal on the grounds that when it sold the smelter business to MAIC for \$1 in 1985, the buyer agreed to “indemnify and hold harmless ARCO for all contingent liabilities relating to the operation of the smelter business post closing.” Under the purchase agreement, ARCO claimed, CFAC couldn’t seek liabilities more than five years after the sale was completed. Judge Molloy ruled against ARCO’s motion on April 11, 2019. “CFAC’s indemnification obligation could reasonably be interpreted not to include pre-existing environmental conditions,” Molloy said in his ruling. He cited Stimson Lumber Co.’s lawsuit against International Paper Co. over disputed liabilities related to PCBs found in cooling ponds at the former timber mill site at Bonner, Mont. In that case, Stimson was not found to expressly assume International Paper’s environmental liabilities under CERCLA law. Molloy, however, noted that the indemnity provision in the sale of the aluminum smelter to MAIC was “ambiguous” and it was “not possible to ascertain the intent of the parties at this stage of the proceeding.”⁹⁴

While the CFAC v. ARCO case was slated to continue, ARCO filed a counterclaim for \$160,000 in attorneys fees. In addition, ARCO noted that if it paid for cleaning up the landfills blamed for groundwater contamination, CFAC would be able to sell the site for a profit. “CFAC will benefit from any increase in the value of the property above the \$1 attributable to any cleanup,” ARCO attorneys said. “It therefore should be allocated a share of the response costs accordingly.” CFAC claimed in its initial filing that it had already spent \$7 million on demolition and investigations, and that more expenditures were expected.⁹⁵ According to a National Law Review report on Molloy’s ruling, the decision “illustrates the challenges of contracting away CERCLA liability even when contractual negotiations occur between sophisticated parties.”⁹⁶

Under CERCLA, parties could assign environmental liabilities and CERCLA liabilities to other private individuals through an indemnification agreement. ARCO claimed that this was done in the 1985 sales agreement, in which it sold the smelter plant and related company

assets to CFAC. Montana law governed the interpretation of the contract provisions at issue in this case. Citing case law, Molloy noted that to the extent that there was ambiguity, indemnity clauses generally should be liberally construed in favor of the party intended to be indemnified. Furthermore, if the language of a contract was ambiguous, a factual determination needed to be made as to the parties' intent in entering into the contract.⁹⁷

The 1985 sales agreement stated that CFAC would indemnify and hold ARCO harmless from and against "all damages, losses and out-of-pocket expenses arising out of the assumed liabilities, contingent or otherwise, relating to the operation of the smelter business after the closing date, other than obligations or liabilities as to which [ARCO] is obligated to indemnify [CFAC] pursuant to Section 10(a)(iii)." The closing date was Sept. 17, 1985. Section 10(a)(iii) of the sales agreement stated that ARCO would indemnify and hold CFAC harmless from and against "all damages, losses and out-of-pocket expenses... caused by or arising out of obligations or liabilities relating to the smelter business resulting from events or conditions in existence prior to the closing date." But according to the sales agreement, Molloy noted, CFAC could not make a claim with respect to ARCO's indemnity in Section 10(a)(iii) after Aug. 31, 1990, that is five years later, except for tax matters.⁹⁸

As a result of that language, ARCO claimed CFAC assumed broad liability for all contingencies, including CERCLA liability, after Aug. 31, 1990. CFAC, however, claimed that the mere expiration of ARCO's indemnification obligation did not expand CFAC's indemnification obligation. Both parties also claimed that the plain language of the sales agreement unambiguously supported their claims. "The parties' arguments, however, emphasize that the agreement is susceptible to more than one reasonable interpretation, making it ambiguous," Molloy said. "And because that ambiguity cannot be resolved at this stage of proceedings, ARCO's motion is denied."⁹⁹

ARCO argued that the "obligations and liabilities" for which CFAC sought contributions did not accrue until 2015, when the EPA issued an order in the Superfund cleanup matter, or in 2013 at the earliest, when CFAC first incurred investigation expenses in response to the EPA's inquiries. According to ARCO, "the CERCLA liability at issue and CFAC's contribution claim did not arise from pre-closing events, but rather from the EPA's post-closing CERCLA action." Molloy bluntly characterized this argument as "unpersuasive," particularly because the 1985 sales

agreement referred to “events or conditions prior to the closing date.” ARCO also argued that all liability for environmental conditions at the site shifted to CFAC five years after the closing date. But CFAC argued that “the mere fact that ARCO is not obligated to indemnify CFAC for a particular liability does not mean CFAC is obligated to indemnify ARCO for that liability.”¹⁰⁰

“Contrary to the position taken by both parties, the plain language of the contract does not answer this question,” Molloy said. The language used in the sales agreement “does not mention environmental liability,” Molloy said. If the language of the sales agreement was broad enough, environmental liability could be considered included, Molloy said, citing precedent. ARCO insisted the language in the sales agreement was broad enough, but the only reference to hazardous materials in the sales agreement dealt with permits for waste production and disposal, Molloy noted. According to language in the sales agreement, CFAC’s assumption of liability was limited to operation of the smelter business after the closing date. “It is not clear that the parties intended pre-existing CERCLA liability to fall within the gambit of the smelter’s future ‘operation,’” Molloy said. The situation in the 2011 *Stimson Lumber Co. v. International Paper Co.* ruling for a lawsuit over PCB contamination at the former Bonner timber mill east of Missoula was similar, Molloy said. In that case, U.S. Magistrate Judge Jeremiah C. Lynch denied summary judgment because the sales agreement between the two companies did not expressly state that Stimson was to assume International Paper’s statutory environmental liabilities once the indemnification period ended.¹⁰¹

The trial begins

The COVID-19 pandemic and its lingering aftermath caused significant impacts throughout the global economy beginning by early 2020. In addition to businesses shutting down and workers being laid off, schools closing and sporting events canceled, many legal proceedings were put on hold when online conferences were not suitable. On Dec. 9, 2020, the Hungry Horse News reported that Judge Molloy had postponed the CFAC v. ARCO case until June 2021 because of coronavirus concerns. The bench trial had been scheduled to begin one week earlier.¹⁰² Nearly a year later, on Oct. 20, 2021, the Hungry Horse News reported on Molloy’s 158-page findings of fact and conclusions of law. Molloy ruled after a two-week bench trial earlier in the summer that CFAC would be responsible for 65 percent of approved cleanup costs and ARCO would

be responsible for 35 percent. In his complex and lengthy decision, Molloy disallowed a significant portion of CFAC's \$22 million in past claims from the allocation allowed under CERCLA. Based on figures presented in Molloy's ruling, the Hungry Horse News noted, "The cleanup costs are a fraction of what it's estimated the companies made when they owned the plant." ¹⁰³

The seven-day bench trial took place in Missoula, Mont. beginning June 28, 2021. CFAC presented seven witnesses – Andrew Baris, a remediation expert for Roux Engineering Associates; David Batson, an allocation expert; John Stroiazzo, Glencore's project manager at the Columbia Falls facility; William Muno, a cleanup cost expert; Andrew Otis, CFAC's regulatory counsel; Jeffrey Dunn, a rebuttal financial expert; and Kraig Kosena, a rebuttal appraisal expert. ARCO presented six witnesses – Brian Johnson, a strategy manager for ARCO; Marcia Williams, an industrial site closure expert; Peter Jewett, a remediation expert; David Hall, a financial expert; Thomas Stevens, an appraisal expert; and Gayle Koch, a cleanup cost expert. The parties also presented deposition testimony from Steven Wright, CFAC's sole employee and the site manager; Subodh Das, an environmental manager for ARCO in the 1980s; and John R. Lucas, an ARCO attorney involved in the 1985 acquisition. "Notably, neither party deposed or called Brack Duker as a witness in the case," Molloy said, "even though he was a critical player in disposing of ARCO's assets and negotiating the 1985 Acquisition Agreement in favor of his new company." ¹⁰⁴

Molloy's task in deciding this case was to address the plaintiff's and defendant's legal claims; rule on claims relating to the 1985 sale of the smelter company by ARCO, especially assumption of environmental liabilities posed by the sale contract versus statutory rights; address post-sale claims made by CFAC and awareness of groundwater contamination by ARCO, CFAC and the government before, during and immediately after the 1985 sale; address the sources of contaminants at the site and their historical sources; take into account each company's interaction with government agencies involved in the cleanup process; address each of CFAC's past cleanup payments by agency, contractor or service provider to determine which were covered under CERCLA; and decide how to allocate recoverable cleanup costs based on each company's own determination and acceptable practices under CERCLA.

"As a threshold matter, the parties dispute whether CFAC is contractually barred from bringing this action against ARCO," Molloy

concluded. "Based on the evidence presented at trial, the contractual bone of contention is resolved in CFAC's favor. Even so, the proof at trial supports allocating a majority of the site cleanup costs to CFAC under CERCLA's equitable allocation process." ¹⁰⁵

According to CFAC's legal argument, ARCO alone disposed of an estimated 129,000 to 135,000 tons of spent potliner from about 1960 through 1980 in two unlined landfills - the West Landfill and the Center Landfill. In addition, CFAC claimed, ARCO alone disposed of sludge from wet scrubbers composed of 80 percent calcium fluoride in the Wet Scrubber Sludge Pond from the beginning of ARCO's operations at the site in 1955 through about 1979. These onsite spent potliner and fluoride disposals by ARCO were primarily ("if not in fact exclusively," Molloy noted) responsible for elevated concentrations of cyanide and fluoride observed in groundwater downgradient from the two landfills and the sludge pond. The spent potliner and fluoride disposed of by ARCO and the elevated groundwater concentrations, CFAC claimed, led the EPA to place the site on the Superfund's National Priorities List in September 2016. ¹⁰⁶

According to ARCO, the present lawsuit was foreclosed by the 1985 Acquisition Agreement between the parties. But even if it was not, ARCO argued, CFAC sought to recover costs which were either not recoverable under CERCLA or for which it had agreed to indemnify ARCO. Furthermore, ARCO argued, to the extent that any costs were recoverable, CFAC should be allocated a greater responsibility for those costs based on the 1985 Acquisition Agreement, CFAC's failure to exercise due care during its operation and the closure of the facility, CFAC's own discharges of hazardous materials, and the economic benefit CFAC realized or would realize from the site. ¹⁰⁷

Citing precedent, Molloy noted, "Where an ambiguity in a contract exists, the court may turn to extrinsic evidence to determine the intent of the parties." At trial, CFAC and ARCO presented evidence surrounding the Acquisition Agreement. More specifically, ARCO presented testimony of John Lucas, a former ARCO in-house lawyer, and Subodh Das, a former ARCO environmental manager. CFAC did not present any witnesses on this issue. Both parties offered documentary exhibits, including correspondence leading up to the 1985 sale and following the acquisition between 1985 and 1990. ¹⁰⁸

The signatories to the 1985 Acquisition Agreement were Claude Goldsmith, on behalf of ARCO, and Brack Duker, on behalf of MAIC.

Goldsmith was deceased at the time of the trial, Molloy said, and no one remaining at ARCO had personal knowledge of the Acquisition Agreement. Duker was still alive, but he was not called as a witness at trial. Other companies were potentially interested in acquiring the smelter business from ARCO in 1985, including Reynolds and Kaiser. Molloy noted that while Subodh Das did not have any direct contact with Duker, Das indicated he had the impression Duker actively tried to discourage a third-party sale in order to acquire the facility as a “new going concern” – that concern to include existing ARCO employees Jerome Broussard, Thomas Payne, Donald Ryan and Ken Reick. ARCO ultimately sold the smelter business to MAIC for \$1. The sale was not without benefit to ARCO, Molloy pointed out, as the company had decided to withdraw from the primary aluminum business and intended to either sell or liquidate the facility. Despite the sale price of \$1, ARCO would have lost more money liquidating the facility than selling it to MAIC, Molloy said, with a projected savings of \$7 million. ¹⁰⁹

ARCO and MAIC, CFAC's predecessor, entered into the Acquisition Agreement on Sept. 10, 1985. The Acquisition Agreement contained indemnity provisions in favor of both ARCO, as the seller, and MAIC, as the buyer. ARCO insisted at trial that pursuant to those provisions, CFAC agreed not to sue ARCO for environmental conditions at the site after 1990 and/or assumed all environmental liability for the site as of 1990, foreclosing the present action. ARCO presented two defenses based on language contained in Section 10 of the Acquisition Agreement – one, that Section 10(a) acted as a covenant not to sue, barring CFAC's claims for contribution and recovery under CERCLA and CECRA; and two, failing that first defense, that Section 10(b) shifted liability for pre-closing environmental conditions to CFAC at the time of the sale. ¹¹⁰

In response, CFAC argued that the covenant – to the extent there was one – was limited to CFAC's contractual right to seek indemnity, not its ability to pursue a statutory right to recovery or contribution under CERCLA or CECRA. Molloy concluded that CFAC had the better argument. The plain language of Section 10(a) stated that CFAC would not make a claim “with respect to” ARCO's “indemnity” as defined under the Acquisition Agreement. As both parties agreed at trial, CFAC was not making a claim under the indemnification provision. Rather, CFAC's claims were based on independent statutory obligations that could form the basis of a lawsuit regardless of whether CFAC had a contractual right of indemnity against ARCO. ARCO relied on several out-of-jurisdiction authorities to argue that the contractual language “with respect to”

must be broadly construed to include any related matter. In doing so, Molloy said, ARCO ignored the fact that it was essentially arguing that CFAC waived its statutory right to bring a lawsuit under CERCLA. "To be sure, statutory rights created for a private benefit can be waived by contract," Molloy said, citing precedent. "But the waiver of statutory rights requires specificity as 'waiver is the intentional and voluntary relinquishment of a known right, claim or privilege.' Thus, to bar CFAC's claims, the language 'with respect to' must be read to specifically waive independent statutory claims beyond those arising from the indemnification provision itself. Considering ARCO's own argument that 'with respect to' broadens, rather than narrows, the scope of contractual language, such a reading is not tenable." ¹¹¹

ARCO and MAIC also entered into a Supplemental Agreement on Sept. 10, 1985, in which ARCO agreed to place \$4 million into an escrow account. MAIC was authorized to draw upon this account to pay certain operating expenses or liquidating expenses for a period not to exceed five years. If MAIC earned an aggregate amount of \$10 million or more from smelter operations over the five-year period, it was required to repay ARCO. In November 1988, MAIC repaid the \$4 million after it had reached the \$10 million benchmark. ARCO and MAIC also entered into a settlement on Nov. 16, 1988, in which ARCO agreed to pay one-half of the \$310,000 that MAIC had paid for asbestos encapsulation. In exchange, MAIC agreed it would "continue to remain solely responsible for compliance with all environmental, health, safety and other regulations applicable to the operation of the Columbia Falls smelter with reference to the presence of asbestos-containing materials." CFAC also agreed to "defend and hold ARCO harmless against any claims which might be brought by any person with respect to or arising out of the asbestos encapsulation program" and "to waive and hereby release ARCO from any and all claims which Montana Aluminum Investors Corp. may presently have, or may have in the future, with respect to the presence of asbestos containing material at the Columbia Falls smelter." Consequently, CFAC cannot recover contribution for past costs of \$2.85 million related to asbestos abatement of the former Main Plant Building nor future costs for remedial action related to the Asbestos Landfills. ¹¹²

CFAC's post-contract conduct, Molloy said, indicated that while it believed it could not bring an indemnification claim against ARCO after 1990, it did not necessarily believe it was barred from bringing a statutory claim. In response, ARCO presented evidence that CFAC sought to amend the Acquisition Agreement in 1986 and made several

environmentally related indemnification demands prior to 1990. In 1986, CFAC sought to amend the Acquisition Agreement to "waive ARCO's Aug. 31, 1990 deadline for making of claims under Section 10(a)(iii) of the Agreement for all claims related to environmental hazards," among other things. The proposed amendment also requested that ARCO "acknowledge and accept" the environmental claims CFAC had been attempting to assert against ARCO under the terms of the indemnification provision. The draft amendment required ARCO to accept such claims even if "the nature, scope and extent" of the claim was not known by the Aug. 31, 1990 deadline and no actual claim had been made against CFAC before Aug. 31, 1990. The proposed amendment specifically referenced government and state ordered remediation but stopped short of addressing statutory obligations. Instead, the proposed amendment cited the parties' contractual indemnification obligations. Lucas, who received the draft amendment from CFAC, testified that the proposed amendment was "completely inconsistent with the fundamental nature" of the Acquisition Agreement, and ARCO did not agree to the amendment.¹¹³

CFAC also made a number of indemnification demands on ARCO from 1985 through 1990, specifically attempting to assert indemnity claims for costs related to spent potliner in the landfills, cyanide and fluoride in the groundwater, and other environmental issues. On Jan. 4, 1988, Payne sent a letter on behalf of CFAC to ARCO and Lucas advising ARCO that the EPA had visited the smelter site and discussed past practices and closed disposal sites. Payne wrote that "per section 10(a)(iii), we will look to ARCO to indemnify [MAIC] and CFAC for any expenses from this matter which result from conditions in existence prior to September 10, 1985." In Payne's letter, CFAC took the position that the Acquisition Agreement's indemnification obligations extended to pre-1985 environmental liabilities, Molloy noted. On April 12, 1988, Payne sent a letter to ARCO and Lucas notifying ARCO about potential Superfund cleanup requirements at the site in accordance with the Acquisition Agreement. Specifically, the letter advised that a consultant with the EPA requested information about CFAC's waste streams prior to EPA's sampling at the plant, and that the EPA was planning a site investigation.¹¹⁴

Early Superfund questions

On April 18, 1988, Don Ryan sent a letter on behalf of CFAC to the EPA regarding potential placement of the smelter site on the Superfund's

National Priority List, stating, "Any liability for these sites would be the responsibility of ARCO." On April 29, 1988, Lucas wrote to Payne to dispute CFAC's claim to the EPA. Lucas noted that "any potential liability on ARCO's part will depend upon a combination of the factual context as it evolves," adding that he did "not wish to leave an impression that ARCO does not intend to meet its contractual obligations to [MAIC] or that it is, at this point, disclaiming all responsibility with respect to future enforcement obligations which may be instituted with respect to the Columbia Falls site." On Nov. 29, 1988, Payne again wrote to ARCO and Lucas advising that pursuant to the Acquisition Agreement, "[MAIC] is providing ARCO with notice of EPA activities regarding spent potliner wastes" at the site, adding that the EPA now listed spent potliner as a hazardous waste. Molloy noted that Lucas testified at trial that Payne was "once again, giving notice of a possible indemnity claim to [ARCO] based on the spent potliner that [ARCO] may have disposed of at the site."¹¹⁵

On Aug. 24, 1990, days before the Aug. 31, 1990 expiration of ARCO's contractual indemnity, Duker wrote to ARCO and Lucas stating CFAC was "making a claim for damages, losses and out-of-pocket expenses (including attorneys' fees) caused by or arising out of the Columbia Falls Aluminum Reduction Facility resulting from events or conditions in existence prior to Sept. 10, 1985 relating to environmental hazards which have been identified at the plant site in Columbia Falls." Lucas confirmed at trial that many of Duker's claims concerned the same environmental issues in CFAC's lawsuit, including cyanide and fluoride in groundwater, cyanide and fluoride under the Wet Scrubber Sludge Pond, spent potliner in the West Landfill and contamination of the North and South Percolation Ponds.¹¹⁶

Floyd George responded to Duker on behalf of ARCO on Sept. 14, 1990. George kept track of divested assets ARCO had sold in previous years, and he was monitoring the CFAC Acquisition Agreement. Lucas assisted in drafting the letter for George's signature. In the letter, ARCO explained that "to be a claim under the Agreement, it is necessary that by Aug. 31, 1990, CFAC have sustained damages, losses or out-of-pocket expenses caused by or arising out of an obligation or liability relating to the smelter business resulting from conditions existing as of the time of the sale." Because no such damages were listed in Duker's letter, ARCO asserted that CFAC had no valid claim. "Such a potential, contingent environmental risk or hazard, even if it were to occur in the future, is not a claim covered within the provisions of Section 10(a),"

George wrote. "The indemnity sought by your letter is of an entirely different type than that contained in the Agreement. Essentially, CFAC is seeking indemnity for all liabilities which might at any time arise out of conditions existing at the site as of the date of sale. This would be a continuing obligation of much broader scope than that bargained for by the parties. It would have required vastly different language in the indemnifying clause. Instead, what Montana Aluminum Investors Company [sic] received was a limited indemnity designed to protect it during the first five years of operations against losses and other expenses arising out of liabilities and obligations resulting from conditions existing as of the time of sale." ¹¹⁷

According to trial testimony by Subodh Das, ARCO had concerns CFAC might not honor the five-year expiration of the indemnification terms. As an environmental manager for ARCO when the smelter facility was sold to CFAC, Das was charged with assessing potential environmental liabilities CFAC might assert during the five-year period during which ARCO had promised to indemnify CFAC. Das said conversations with his superiors at ARCO from 1988 through 1989 raised concerns that CFAC might not take the five-year environmental responsibility seriously and would continue to return to ARCO about issues it had agreed to forego in the Acquisition Agreement. Das advised his co-workers to take copious notes regarding all the facts and figures at that time. When ARCO's indemnification obligation expired, Das sent a memorandum to ARCO management advising, "There should be a letter written by ARCO to [CFAC] effectively giving notice that the five (5) year obligation on environmental concerns has ended effective Aug. 31, 1990." Molloy noted that, based on evidence presented at trial, no such letter was written despite ARCO's knowledge of CFAC's contrary understanding of its rights and obligations under the Acquisition Agreement. ¹¹⁸

"And, unsurprisingly, CFAC continued to make demands after 1990," Molloy noted. On several occasions after 1990, CFAC sent letters to ARCO seeking indemnification for environmental issues, including "the leaching of cyanide into the groundwater from the spent potliner placed in the landfill" cited in a May 23, 1994 letter. ARCO rejected these indemnification demands for the same reasons articulated in the Sept. 14, 1990 letter. "Ultimately, however, CFAC did not assert a right to sue ARCO under any theory other than for indemnity under the Acquisition Agreement until the run up to this lawsuit," Molloy said. "To the contrary, when the parties discussed CERCLA or CECRA liability, it was

in the context of the non-transferable liability that the statute authorized regulators to impose rather than a private-party claim.”¹¹⁹

The letters exchanged between CFAC and ARCO in the period before, during and following the Acquisition Agreement contain a wealth of information about potential and existing groundwater contamination at the plant site that was not widely known by the general public. But even more evidence of that was produced at trial.

An Oct. 15, 1980 report by Hydrometrics Inc. – commissioned by ARCO to evaluate possible site locations for a new waste disposal system in light of new hazardous-waste regulations – found two samples of exposed spent potliner at the landfills containing 36 and 16 parts per million of cyanide, that “crushed pot bottom extract” contained 0.42 ppm of cyanide, and that the differences in reported total cyanide concentrations between the samples “is attributed to non-uniform contamination of the spent potliners with cyanide.” The report concluded that “significant concentrations of cyanide and fluoride [had been] detected in the shallow groundwater” and “elevated concentrations of both cyanide and fluoride are indicated in Production Wells No. 6 and 7. The source of the contamination may be the cooling water ponds, contaminated groundwater which is migrating from the plant site to the river, or a combination of the two.” In a 1985 report, Hydrometrics concluded that “based on quarterly groundwater sampling and analysis by ARCO staff, the plant has had limited effects on area groundwater and surface water quality.” The 1985 report also stated that “present waste management practices were developed to minimize environmental impacts” and “monitoring to date indicates this objective is being achieved.”¹²⁰

A 1984 Offering Memorandum prepared by Duker prior to the sale of the smelter facility stated, “Two waste landfills are currently on the facility property. Spent potlinings from the reduction process are the main waste disposed onsite. As a result of... a mining waste exemption from the Resource Conservation and Recovery Act (RCRA), these spent potlinings are considered non-hazardous.” Duker’s 1984 Columbia Falls Divestiture Review: Environmental, Safety and Health Summary report stated, “Two onsite landfills are currently in operation: one is a sanitary landfill for non-hazardous wastes; the second is for the disposal of spent cathodes. (Spent cathode materials are likely to receive future classification as hazardous wastes by the EPA.) Three closed onsite landfills are present: the first was a sanitary landfill; the second contains spent cathodes; and the third is believed to have been used for the

disposal of all plant wastes, possibly including hazardous wastes. An open, but inactive, calcium fluoride sludge pond is also present." And Duker's 1984 Due Diligence Review Report stated, "One groundwater monitoring well (TW-1) has elevated levels of cyanide and fluoride.... Two onsite landfills are currently in operation.... The second is for the disposal of spent cathodes from the potlines. This material is currently classified as non-hazardous but is expected to be reclassified as hazardous at some future date.... There are three closed landfills at the facility... the second contains spent cathode materials." ¹²¹

The state and federal government was also aware of potential and existing groundwater contamination at the plant site during that same time period. From the time the plant began operating, wastewater from facility operations was discharged to surface impoundments at the site, from which it then migrated indirectly to groundwater. These discharges were undertaken in accordance with permits issued by the Montana Department of Health and Environmental Sciences (MDHES), which was subsequently renamed the Montana Department of Environmental Quality (MDEQ). ¹²²

When ARCO applied for a groundwater discharge permit around May 1983, the MDHES inquired about the source of "elevated cyanide and fluoride levels in some of the test wells" and was informed it was likely from the "past practice" of discharging wastewater from pot-soaking pits to the North Percolation Ponds. The Aug. 10, 1984 public notice for the issuance of a Montana Groundwater Pollution Control System Permit for the site stated, "The groundwater under the facility may be somewhat contaminated with cyanide and fluoride from historic operations at the site." ¹²³

The permit, issued on Sept. 17, 1984, allowed certain discharges to the surface impoundments and indirectly to groundwater but prohibited degradation of groundwater beyond the property boundary. It also required submission of a hydrogeological report within one year summarizing groundwater conditions at the site and making recommendations regarding the existing monitoring system and continuing management of wastes present at the site. Molloy noted that under this permit, both companies discharged cyanide-containing leachate into the Wet Scrubber Sludge Pond - ARCO twice and CFAC three times. ¹²⁴

In June 1986, the state Water Quality Bureau informed CFAC that an expanded groundwater monitoring program was needed to determine

the impacts of past and current waste-handling practices at the site. CFAC installed additional monitoring wells on the site (as opposed to its perimeter) in the early 1990s. ¹²⁵

In June 1988, Ecology & Environment, Inc., under contract with the EPA, conducted a CERCLA site assessment for the plant site that included installing two monitoring wells, one up gradient and one downgradient. The assessment also reviewed sampling taken from seven existing monitoring wells. The site assessment indicated "a release of cyanide to groundwater and surface water which is also attributable to plant processes." In February 1989, the EPA determined that no further action under CERCLA was required. ¹²⁶

In August 1991, the MDEQ conducted a groundwater inspection at the smelter site and concluded that groundwater was contaminated. Elevated levels of cyanide were detected in seeps discharging from the site into the Flathead River, which the MDEQ determined was an unauthorized discharge of pollutants by CFAC. Molloy noted that while CFAC agreed to increase monitoring and install new sampling wells, the seeps remained active. ¹²⁷

On June 11, 1993, shortly before the TW-17 monitoring well was installed southwest of the West Landfill, the MDHES advised CFAC that "since learning of the presence of buried potliner in the abandoned landfill, the Water Quality Bureau has suspected the abandoned landfill as a greater contributor of groundwater cyanide than either of the north percolation ponds." A 1993 Hydrometrics investigation conducted shortly after the new wells were installed found that by far the site's highest cyanide and fluoride concentrations were observed at TW-17, just downgradient of the West Landfill. ¹²⁸

CFAC applied for a Montana Pollutant Discharge Elimination System permit in 1993 to address contaminated groundwater seeping into the Flathead River. The MDHES issued the permit on May 1, 1994, authorizing process wastewater discharges to specified receiving ponds and to groundwater. The permit required CFAC to cap the West Landfill and investigate site hydrology to track the cyanide concentrations in groundwater from the landfill to the Flathead River. The permit was reissued in 1999 and terminated in 2019 after the plant ceased operations for a decade. ¹²⁹

The EPA issued a violation notice to CFAC on Dec. 4, 1996 under the federal Clean Water Act for the unauthorized discharge of contaminated seepage from the site into the Flathead River. The MDEQ issued a

violation notice to CFAC on Jan. 13, 1997 under the Montana Water Quality Act for the unpermitted discharge of industrial waste to the Flathead River. But instead of addressing the cyanide-contaminated seeps, CFAC obtained permission from the MDEQ to modify its permit to allow for a mixing zone in the Flathead River – the MDEQ would allow cyanide concentrations in part of the Flathead River to exceed state water quality standards. The MDEQ issued a revised permit to CFAC on July 25, 2014 that effectively eliminated the mixing zone. CFAC appealed but the permit was terminated on April 17, 2019 when the smelter plant closed permanently. “However, the discharge of cyanide-contaminated seepage from the site into the Flathead River continues today,” Molloy noted.¹³⁰

Identifying the pollution sources

One of the key elements in Judge Molloy’s decision for allocating remediation costs in the CFAC v. ARCO lawsuit was to look closely at each of the landfills and ponds or other sources to understand how much they contributed to groundwater contamination, which of the parties was responsible for disposing of the hazardous materials at those locations, and how the parties took steps to protect the environment from those hazardous materials.

According to the facts presented in Molloy’s ruling, the 7.8-acre unlined West Landfill was considered a main source of cyanide contamination to groundwater. The landfill extended about 15 to 22 feet below surrounding grade and about 13 to 20 feet above grade. Impacted soil beneath the landfill could be as thick as 115 feet, while groundwater ranged from about 36 feet to 87 feet below surrounding grade. The landfill was used to dispose of spent potliner and other wastes (sanitary, industrial and reportedly solvents) through 1980, although spent potliner disposal reportedly ended in 1970. The landfill was closed with a clay cap in 1981 and a state-ordered synthetic cap in 1994. By June 11, 1980, ARCO had disposed of about 61,800 tons of spent potliner in the landfill, and as of July 1980, detectable amounts of cyanide and fluoride had migrated from the spent potliner in the landfill into underlying soils. By April 22, 1981, ARCO had disposed of approximately 68,000 tons of "total material" in the West Landfill, including 410 tons of cyanide and 13,000 tons of sodium fluoride.¹³¹

“Although no soil or groundwater samples have been collected beneath the West Landfill,” Molloy said, “the long-term persistence of cyanide in groundwater directly downgradient of the landfill coupled with a low-

permeability cap in place since 1994 indicates that impacted material likely extends into and beneath the seasonal high-water table and is serving as a continuing source of contamination.” He added that the EPA had indicated it was not feasible to either leave the landfill as it was or simply upgrade the cap, and the Final Feasibility Study Report recommended a range of alternatives from construction of a slurry wall to excavation of the landfill with onsite consolidation.¹³²

The 10.8-acre unlined Wet Scrubber Sludge Pond was considered a main source of fluoride contamination to groundwater. The total depth of waste material in the pond was about 30 feet, half of which was above grade. Groundwater levels beneath the pond ranged from 60 to 105 feet below grade. The pond was covered with an earthen cap in 1981 and re-vegetated. ARCO disposed of about 450,000 cubic yards of calcium fluoride sludge in the pond from 1955 to 1980. While sludge from the wet scrubbers contained fluoride and not cyanide, both ARCO and CFAC had transferred leachate to the pond at discrete times to prevent overflow of leachate ponds for the East Landfill, and CFAC disposed of pot diggings in the pond in 1993 or 1994. Those materials did contain cyanide.¹³³

The source of the leachate dumped into the Wet Scrubber Sludge Pond was the East Landfill. After construction and expansion of the East Landfill and its associated 900,000-gallon Leachate Ponds in 1980-1982, ARCO discovered that heavy seasonal precipitation could cause the Leachate Ponds to overflow. To avoid contamination of the groundwater during an overflow, transferring the extra leachate to the Wet Scrubber Sludge Pond was viewed as a more environmentally sound option. No witness with personal knowledge of these transfers testified at the trial, Molloy said, but evidence suggested that ARCO likely disposed of excess leachate in the Wet Scrubber Sludge Pond in 1983 and 1984. Conflicting documents describe a total of 800,000 gallons of leachate each time, or 80,000 gallons on one occasion and 80,000 or 100,000 gallons on the second. While ARCO did not inform the state about these leachate disposals, CFAC disclosed them to the MDHES in November 1985.¹³⁴

CFAC disposed of excess leachate into the Wet Scrubber Sludge Pond three times. The 1987 disposal involved about 400,000 gallons with a cyanide concentration of 0.479 milligrams per liter, the 1989 disposal involved about 150,000 gallons with a cyanide concentration of 3 mg/L, and the 1994 disposal involved about 400,000 to 500,000 gallons with a cyanide concentration of 0.44 mg/L. According to Steven Wright, CFAC

received MDEQ approval for all three discharges, but at trial Marcia Williams said the 1994 disposal was not properly authorized. Both ARCO and CFAC used methods to reduce contamination, such as aeration, bleach and UV. Percolation of the leachate through the calcium fluoride sludge was also effective in reducing both cyanide and fluoride concentrations in the leachate disposed of by both parties. ¹³⁵

Another source of cyanide contamination in the Wet Scrubbers Sludge Pond were pot diggings. Around 1993 or 1994, CFAC conducted an experiment to improve reduction pot operation that called for opening up about 120 of the facility's 600 reduction pots to remove muck consisting of undissolved alumina and anode carbon dust. CFAC planned to reuse material dug out from the pots. Other than these specific pot diggings, CFAC continued shipping its spent potliner offsite for disposal. A backhoe was used to remove the muck from the pots, and some of the pot diggings material (the mostly clean cryolite bath) was recycled back into the pots. Pot digging material that could not be re-used was transported to the closed Wet Scrubber Sludge Pond. The pot diggings were not expected to contain spent potliner, and pot diggings were not generally considered hazardous. CFAC did not put a liner under the pot diggings when they were placed in the closed pond, nor did CFAC cover the pot diggings. The experiment was abandoned after digging 120 pots when it was determined the improvements in pot operations did not justify the efforts. ¹³⁶

On Nov. 12, 1997, CFAC personnel discovered pieces of carbon in the pot diggings placed on the Wet Scrubber Sludge Pond. Upon closer inspection, both anode carbon and cathode carbon were found. CFAC investigated the origin of the carbon and concluded that, although care was used when digging the pots, the backhoe inadvertently removed pieces of cathode carbon potliner along with the muck. The next day, CFAC reported its discovery of the cathode carbon to the MDEQ. CFAC paid a fine and was given a violation. Sampling results indicated that total cyanide content of the cathode carbon was below the detectable limit of 0.05 mg/L. CFAC estimated the overall volume of the pot diggings to be 1,800 cubic yards, but the carbon material deemed by the MDEQ to meet the definition of K088 spent potliner, a listed hazardous waste, was estimated to have a volume of between four and six cubic yards and a total weight of 14,340 pounds. CFAC began excavating the carbon material from the pot diggings on Feb. 23, 1998. Results of cyanide sampling at the pot diggings location around the time of the carbon excavation ranged from a non-detect result to a

maximum of 2.1 mg/L. These concentrations were consistent with levels found in soil across the plant site that did not have any cyanide contamination. The MDEQ did not request analysis of fluoride levels. On Oct. 14, 1998, the MDEQ notified CFAC and the EPA that "the state will require no further cleanup action for the waste pile material or soil under the pile." ¹³⁷

The 1.8-acre unlined Center Landfill was located east of the West Landfill. The Center Landfill, historically referred to as the carbon mound or carbon pile, was constructed about 15 feet above surrounding grade. A geophysical survey indicated the thickness of the landfill material at between 15 and 30 feet. Groundwater levels around the landfill ranged from about 57 feet to 139 feet below surrounding grade. By 1980, according to internal ARCO records, ARCO had disposed of about 67,200 tons of spent potliner at the landfill. Around 1980, concurrent with or shortly after construction of the East Landfill, a clay cap was placed on the Center Landfill, in addition to about 18 inches of till. "Although not a primary source, the Center Landfill is considered a secondary source of cyanide and fluoride contamination of the groundwater," Molloy said. ¹³⁸

The 2.4-acre clay-lined East Landfill was built on the northeastern border of the Superfund site, directly east of the Cedar Creek Reservoir Overflow Ditch. It was constructed between two lined leachate ponds. The East Landfill was about 30 feet above grade, with a depth of about 40 feet. Groundwater levels around the East Landfill were about 109 to 130 feet below grade. Spent potliner was dumped into the landfill from 1980 to 1990, with ARCO and CFAC each disposing of spent potliner in the landfill for about five years. The volume of spent potliner in the landfill totaled about 65,042 tons. When it was closed, the landfill was capped with a 6-inch clay layer, a synthetic cap and an 18-inch vegetated cover. The East Landfill was not a contributing source of cyanide and fluoride in groundwater. The 0.6-acre North Leachate Pond had a Hypalon liner and was closed in 1994. The 0.9-acre South Leachate Pond was closed in 1993. Both received stormwater runoff and leachate from the East Landfill and were hydraulically connected to the Wet Scrubber Sludge Pond. Both leachate ponds were aerated to reduce cyanide concentrations. ¹³⁹

The 12.4-acre Industrial Landfill was an inactive, uncovered landfill of unknown depth northwest of the West Landfill. Based on aerial photography, the landfill began operations in the 1980s and received non-hazardous waste and debris until land-filling operations ceased in October 2009. The landfill was contaminated with polycyclic aromatic

hydrocarbons and may contribute to PAH detections in groundwater at the site. Fluoride and cyanide levels immediately downgradient of the landfill indicated that it was not a significant contributing source of cyanide and fluoride in groundwater at the site. The Industrial Landfill was identified as a potential remedial location for disposing of onsite soils after excavation. ¹⁴⁰

The North Percolation Ponds were comprised of two unlined ponds connected by an unlined drainage ditch. The 2-acre Northeast Pond, constructed in 1955, received discharges from various operations within the main plant area until manufacturing ceased in 2009. At the time of the trial, it was used for stormwater drainage. The 8-acre Northwest Pond was constructed around 1972 to receive overflow water from the Northeast Pond. The Remedial Investigation found that the Northeast Pond and its influent ditch typically contained among the highest concentrations of PAHs in sediment, followed by the effluent ditch and the Northwest Pond. ¹⁴¹

High cyanide and PAH concentrations were detected in the highly viscous to solid surface layer of black carbonaceous material found across the majority of the Northeast Pond and intermittently across the ditches and the Northwest Pond. Soil samples gathered around the perimeter of the ponds confirmed the impacts were confined to the footprint of the ponds and the ditch. Cyanide concentrations detected beneath the North Percolation Ponds decreased with increasing depth, indicating the ponds were not a continuing significant source of groundwater cyanide and/or fluoride. The highest-ranked remedial alternative for the North Percolation Ponds called for excavation of about 35,000 cubic yards of contaminated sediments and placing them in the Wet Scrubber Sludge Pond and then capping the Wet Scrubber Sludge Pond. ¹⁴²

The South Percolation Ponds feature was a series of three ponds located near the Flathead River. Wastewater entered the pond system from a concrete pipe and flowed into the subsequent ponds through an unlined ditch. The ponds received discharge water from the sewage treatment plant, contact chilling water from the Cast House, non-contact cooling water from the Rectifier Building and other equipment, wastewater from mold cleaning and steam cleaning in the Cast House, steam-cleaning wastewater from the Fabrication Shop, and stormwater beginning in the early 1960s. The South Percolation Ponds were designed as settlement ponds intended to reduce solids in wastewater. Under the terms of its MPDES permit, CFAC could put authorized contaminants in the pond

system but could not allow contaminants not authorized by the permit to escape, specifically settled solids.¹⁴³

Other areas addressed in Molloy's rulings included two asbestos landfill areas, the Former Drum Storage Area and soils north of the Main Plant Buildings. The asbestos landfills were constructed in the late 1970s or early 1980s and were used from 1993 to 2009, with evidence of an engineered cap or liner. Superficial sampling of surface soils indicated "there is no potential exposure for asbestos by human receptor activity in the area." However, soil-disturbing activities might expose asbestos. The Former Drum Storage Area was used for temporary storage of drums containing listed hazardous substances, primarily spent solvents, for shipment offsite beginning in 1980. There was no indication that spent potliner was ever stored in the area, which was no longer used after 1996. The surface soil of the area was contaminated with PAHs, metals, cyanide and fluoride, but the decrease in concentration with depth and the absence of any observed waste materials suggested this area was not a primary contributor to groundwater contamination. Potential remediation of the Former Drum Storage Area would require removal of soil to other onsite locations, such as the Industrial Landfill. The Main Plant soils also were not considered a significant source of cyanide and fluoride in the groundwater.¹⁴⁴

Divvying up the damages

In deciding how to allocate cleanup costs between ARCO and CFAC, Judge Molloy employed Gore factors, an approach used by other courts. Gore factors were enumerated by then-Rep. Al Gore in an unsuccessful attempt to amend CERCLA in 1980. His amendment was defeated, but with the statute lacking guidance, courts turned to Gore's evaluation system. The six Gore factors included (1) the ability of the parties to demonstrate that their contribution to a discharge, release or disposal of a hazardous waste could be distinguished; (2) the amount of the hazardous waste involved; (3) the degree of toxicity of the hazardous waste involved; (4) the degree of involvement by the parties in the generation, transportation, treatment, storage or disposal of the hazardous waste; (5) the degree of care exercised by the parties with respect to the hazardous waste concerned, taking into account the characteristics of such hazardous waste; and (6) the degree of cooperation by the parties with the federal, state or local officials to prevent any harm to the public health or the environment.¹⁴⁵

To determine government cooperation, Molloy looked at the actions and interactions by the MDEQ, the EPA, ARCO and CFAC. On March 5, 2013, the EPA began a new investigation of the smelter site for possible listing on the Superfund's National Priorities List. Weston Solutions, Inc., under contract with the EPA, conducted a CERCLA site inspection between Sept. 23 and Oct. 1, 2013, that included taking soil, surface water and groundwater samples and reviewing the site's operational history. The EPA issued a Site Reassessment Report in April 2014, based on Weston's work and identified releases of hazardous substances at the site, including from the landfills, the Wet Scrubber Sludge Pond, the North and South Percolation Ponds and other areas.¹⁴⁶

In July 2014, Roux Engineering Associates, Inc. discussed with CFAC its proposal to lead site investigation efforts with the EPA. Roux began its initial work in September 2014. About two months later, CFAC began discussing with the EPA about possibly entering an Administrative Order on Consent to conduct a Remedial Investigation/Feasibility Study for the site under CERCLA, while voluntarily beginning to prepare a remedial work plan. On Feb. 25, 2015, CFAC informed ARCO it would soon begin negotiating an Administrative Order on Consent with the EPA to investigate the contamination at the site, and that it welcomed ARCO's views with respect to the site.¹⁴⁷

On March 26, 2015, the EPA proposed placing the smelter site on the Superfund's National Priority List. ARCO responded to the EPA on May 29, 2015, in opposition to the proposed listing, noting that CFAC "has already taken significant steps to address contamination at the site - including hiring a consultant to investigate the site, forming a Community Liaison Panel, and contracting for the demolition of major buildings to prepare for re-development."¹⁴⁸

On June 9, 2015, the EPA sent a CERCLA Section 122(e) Special Notice letter to ARCO and CFAC requesting that they, as potentially responsible parties, "voluntarily negotiate a consent order" in which the two parties would "perform a remedial investigation and feasibility study... under the EPA's oversight at the site." The EPA also requested that both parties reimburse the EPA's response costs incurred in response to releases and threatened releases of hazardous substances at the plant site. Prior to receipt of the General Notice, ARCO responded to the EPA's Section 104(e) request for the plant site, noting that several documents requested by the EPA had passed with the site and were no longer held by ARCO.¹⁴⁹

CFAC accepted the EPA's invitation to negotiate an Administrative Order on Consent on June 25, 2015, while ARCO declined to participate. At the time of trial, CFAC was in full compliance with the Administrative Order on Consent and had incurred no penalties. On Nov. 23, 2015, the EPA approved CFAC's Remedial Investigation/Feasibility Study Work Plan, and one week later CFAC entered an Administrative Order on Consent with the EPA. CFAC, however, did not agree to reimburse the EPA for CERCLA response costs the agency incurred prior to the date of the Administrative Order on Consent. CFAC was unable to agree on an Administrative Order on Consent with the MDEQ and negotiations with the MDEQ ended in December 2014. According to CFAC's regulatory counsel, Andrew Otis, CFAC chose to proceed with the EPA because he believed it would provide more flexibility and was the better option. The smelter site was added to the National Priority List on Sept. 9, 2016.¹⁵⁰

At the time of the trial, ARCO had not entered an Administrative Order on Consent with the EPA or the MDEQ to address contamination at the site. While ARCO never disputed that it was a potentially responsible party, ARCO took the position that it did not need to negotiate an Administrative Order on Consent with the EPA because CFAC had already publicly stated its intent to enter an Administrative Order on Consent with the EPA, CFAC's environmental consultant had already prepared the Remedial Investigation/Feasibility Study Work Plan, and ARCO believed that it was entitled to indemnification from CFAC under the 1985 Acquisition Agreement.¹⁵¹

Roux submitted its final Remedial Investigation report in February 2020, which the EPA approved on Feb. 27, 2020. The report presented the results of multiple phases of the Remedial Investigation, including a review of the plant site's operational history and a summary of the results of Roux's prior investigations of the different media at the site, including soils, sediment, surface water, porewater and groundwater. The EPA and Roux discussed which remedial alternatives should be retained for detailed review in the Feasibility Study in January and February 2020 and decided to divide the site into six Decision Units. On Oct. 12, 2020, Roux submitted a draft Feasibility Study Report to the EPA for its review, outlining specific possible alternatives for remediation at each of the Decision Units. Roux submitted a revised draft Feasibility Study incorporating the EPA's and the MDEQ's comments on May 25, 2021.¹⁵²

While ARCO did not participate developing the draft Feasibility Study, it did submit a report with comments to the EPA. Neither the MDEQ nor

the EPA accepted any of ARCO's comments, which alleged "data gaps" regarding contamination from the West Landfill. In response, the EPA and the MDEQ stated that "the Remedial Investigation results indicate that the West Landfill and Wet Scrubber Sludge Pond area is the primary source of cyanide and fluoride in groundwater at the site and the Center Landfill is likely a secondary source." ¹⁵³

The EPA approved the Feasibility Study on June 17, 2021. The study included Roux's cost estimates for evaluated alternatives that were expected to achieve the EPA's remedial goals for the site, grouped by Decision Unit, with a low, high and preferred cost. The remediation costs associated with Landfills DU1 and Groundwater DU were expected to be the primary cost drivers, underscoring the parties' dispute over those specific plant site features. At the time of trial, the EPA had not yet selected remedial actions for the plant site and would not do so until after publication of a Proposed Plan and issuance of a final Record of Decision, which was not anticipated until at least 2022. By the time of the trial, neither CFAC nor ARCO had agreed to design or perform the selected remedial action at the plant site. ¹⁵⁴

Summarizing past and present government cooperation by each party, Molloy noted that CFAC emphasized each party's cooperation with the EPA related to the present cleanup action, while ARCO insisted that cooperation should include a party's conduct during the operation of a facility. CFAC was credited for its decision to voluntarily enter an Administrative Order on Consent with the EPA and its consistent cooperation and coordination with the EPA throughout the remediation process. ARCO was invited to participate in this process and, other than submitting comments to the draft feasibility study that were rejected, chose not to participate. ¹⁵⁵

"Despite ARCO's attempt to broaden the temporal scope of this factor, there is also very little evidence that ARCO went out of its way during its operation to cooperate with authorities," Molloy said. "To the contrary, ARCO implemented certain environmentally friendly protections - such as its dry scrubber system - only after the facility emitted so much fluoride that it killed the surrounding vegetation.... Furthermore, while ARCO attempted to prove a history of cooperation with the EPA at other CERCLA sites in Montana, a devastating cross-examination showed that claim to be untenable.... ARCO has fought tooth-and-nail to avoid paying the \$1,027,721,000 it has paid to clean up former industrial sites in Montana. As a result, the sixth Gore factor weighs in favor of allocating more responsibility to ARCO." ¹⁵⁶

Molloy also considered the degree of care exercised by each party with respect to how it handled hazardous wastes. “While this is a relevant factor here, the trial record shows this factor weighs only slightly in favor of allocating more responsibility to CFAC,” Molloy concluded. As Marcia Williams testified and William Muno conceded, when ARCO placed spent potliner in an unlined landfill, it was operating the facility in accordance with prevailing environmental practices. Spent potliner was not regulated as a hazardous waste at any time during ARCO's ownership and operation of the smelter plant. EPA surveys from 1975 to 1978 found that 78 percent of hazardous waste in the United States was disposed of in unlined landfills and only 2 percent in secure landfills. A 1983 EPA report found that only 0.3 percent of active landfills were lined. “Accordingly, the practice ARCO used until 1980 was consistent with industry practice,” Molloy said. Furthermore, ARCO improved environmental conditions at the plant by cutting emissions, reducing solid and liquid waste volumes, and increasing environmental monitoring. “Likewise, CFAC's operation of the facility generally conformed to regulatory requirements and industry practice,” Molloy said. CFAC stopped using unlined landfills and shipped its spent potliner offsite for disposal beginning in 1990. “CFAC's treatment of spent potliner therefore reflected the evolving rules and norms regarding its disposal,” Molloy said.¹⁵⁷

ARCO, however, argued that CFAC failed to exercise due care by failing to address threats to groundwater earlier and by consciously avoiding regulatory obligations. Williams testified that cyanide concentration in groundwater migrating from the West Landfill area was known to CFAC at the time it acquired the smelter plant, and if CFAC had taken action to monitor and address that threat sooner, the current contamination may not have grown as serious. Molloy, however, noted that while CFAC was aware of contamination issues at the time it acquired the plant, CFAC began groundwater monitoring in the late 1980s and installed additional monitoring wells. Furthermore, CFAC increased the frequency of groundwater sampling, which led to remedial action. Monitoring wells installed in the 1990s downgradient from the West Landfill and Wet Scrubber Sludge Pond revealed the extent of the cyanide plume, which in turn led to additional monitoring wells and ultimately the installation of a synthetic cap on the West Landfill in 1994.¹⁵⁸

Following up on ARCO's regulatory argument, Molloy found an instance where CFAC had failed to practice due care. In December 1989, CFAC retained the environmental consulting firm Kennedy/Jenks/Chilton, Inc.

to conduct an environmental site assessment to evaluate operations at the plant and identify potential environmental issues associated with past and present waste management practices. Based on the report, CFAC understood that applying for a hazardous waste storage permit under the Resource Conservation and Recovery Act would open up the facility to further scrutiny, which could lead to public exposure and a review by regulatory agencies of all past and current plant waste disposal practices. "CFAC did not apply for such a permit, and the evidence suggests that CFAC knowingly avoided regulatory requirements and regulatory scrutiny because the alternative would have meant beginning site-wide environmental investigations and implementing Resource Conservation and Recovery Act corrective action measures to remediate some or all the environmental problems that the investigations identified," Molloy said. "And, if this had been done in the proper time frame, it likely would have reduced both the scope and cost of the present CERCLA action. This fact therefore weighs in favor of allocating more responsibility to CFAC." ¹⁵⁹

The fact that CFAC had disposed of overflow leachate from the East Landfill into the Wet Scrubber Sludge Pond three times, along with dumping pot diggings that contained cathode carbon and fluoride into the pond area, meant CFAC was responsible to some degree for contaminating the Wet Scrubber Sludge Pond with cyanide. To prove that CFAC's discrete disposals were not currently contributing to cyanide and fluoride in the groundwater, CFAC relied on the expert testimony of Andrew Baris, a principal of Roux Engineering Associates. Using mass flux analysis to evaluate the potential impact, Baris estimated the total mass of cyanide and fluoride that could have been present in the leachate and pot diggings, then compared that to the mass flux of cyanide and fluoride in groundwater emanating daily from beneath landfills at the site. For the leachate events, Baris estimated the masses of cyanide and fluoride in the leachate comprised a combined 0.01 percent of total cyanide mass and 1.38 percent of total fluoride mass that migrated in groundwater from beneath the landfills since 1994. Furthermore, Baris said, those specific contributions had already migrated through groundwater at the site and would not need for future remediation. ¹⁶⁰

For the pot diggings, Baris calculated that 6 cubic yards of cathode carbon with a cyanide concentration of 0.1 percent contributed 0.03 percent of the total cyanide mass that migrated in groundwater from beneath the landfills since 1998. He performed a similar calculation for

fluoride leaching to groundwater from the Wet Scrubber Sludge Pond since 1998 and concluded that 99 to 99.7 percent of cyanide and fluoride leaching to groundwater could not be attributed to the pot diggings. Baris noted that contamination from CFAC's discrete disposals left the groundwater even faster than his model indicated because he assumed no attenuation of the contamination, even though at least some attenuation was guaranteed. Baris acknowledged that he lacked sufficient information about ARCO's leachate disposal in the Wet Scrubber Sludge Pond for his mass flux model, but if leachate disposed of by CFAC had already fully migrated and/or attenuated, so had contamination from ARCO's earlier leachate disposal. Baris concluded that the primary contributor of cyanide to groundwater was spent potliner dumped in the West Landfill by ARCO prior to 1981. ¹⁶¹

ARCO, relying on the testimony of Peter Jewett, an environmental remedial expert, disagreed with Baris' findings and testified that CFAC's disposals on the Wet Scrubber Sludge Pond were contributing events. Jewett's primary criticism of Baris' analysis was that Baris could not establish the necessary connection between the West Landfill and groundwater. Jewett conceded, however, that cyanide contamination could be coming from impacted soil beneath the landfill, which could be as thick as 115 feet. Jewett noted that evaluations of groundwater contamination should be based on concentration of contamination, not volume of spent potliner. In support of his opinion, he noted that cyanide levels in the plume beneath the smelter site had increased five-fold from 1993 to 2016. He emphasized that no groundwater sampling had been performed beneath the West Landfill or the Wet Scrubber Sludge Pond, which was necessary because the single plume of contamination would be otherwise difficult to attribute to a discrete area. He also criticized the assumptions that mass flux analysis required regarding both the behavior of contaminants and groundwater. "While Jewett testified that he did not disagree with any of Baris' math, he simply said it was beside the point," Molloy said. ¹⁶²

In his ruling, Molloy said, "Ultimately, there is merit to the conclusion that cyanide and fluoride levels in the groundwater sampling wells immediately downgradient from the West Landfill and Wet Scrubber Sludge Pond show that these are the two primary sources of continuing groundwater pollution." Even if Jewett was correct that the impacted soil beneath the landfill or pond caused the continued groundwater contamination - not the features themselves - the contamination originated from the landfill and pond. "Because ARCO was the only

party to dispose of spent potliner on the West Landfill, ARCO is responsible for a majority of the groundwater contamination,” Molloy said. But Molloy was not convinced by Baris’ conclusion that cyanide and fluoride from the leachate and pot diggings had already passed through the groundwater system or attenuated. Molloy noted that Baris “conceded during cross-examination that he did not calculate an error rate and, given the uncertainties in his model, it could often be off by a factor.” Molloy concluded, “Given the parties’ activities on the site and the contamination levels reflected in the groundwater sampling wells, both parties contributed to the groundwater contamination, albeit ARCO more so.” ¹⁶³

Molloy splits the pie

Turning to the allocation of past and future cleanup costs, Molloy explained that CERCLA promoted the timely cleanup of hazardous waste sites and ensured that cleanup costs were borne by those responsible for the contamination. To accomplish these goals, the act imposed strict liability for remediating the release or threatened release of hazardous substances on four classes of people – past and present owners and operators, transporters, and those who arranged for the disposal or treatment of hazardous substances – which were commonly referred to as potentially responsible parties or PRPs. CERCLA offered two complementary yet procedurally distinct forms of relief for privately funded cleanups – cost-recovery and contribution. For costs to be recovered under CERCLA, they must be necessary costs of response and incurred consistent with the 1994 National Contingency Plan, and the party seeking recovery bore the burden of proving necessity and consistency with the National Contingency Plan. ¹⁶⁴

Under CERCLA, a response meant a removal or remedial action. Removal actions were those designed to affect an interim solution to a contamination problem, while remedial actions were designed to affect a permanent solution. Costs were necessary costs of response when an actual and real threat to human health or the environment existed, and when the costs were incurred in a response action addressed to that threat. Response costs did not include recovery of private damages unrelated to a cleanup effort. The National Contingency Plan provided a detailed list of procedures and requirements designed to ensure any party seeking response costs chose a cost-effective course of action to protect public health and the environment. The National Contingency Plan governed all aspects of the response, from discovery of the release

of a hazardous substance through the investigatory process, the decision on whether a cleanup was required and what form it should take, and implementation of the selected response. Plaintiffs were required to maintain and provide an accurate accounting of their claimed costs.¹⁶⁵

At trial, both parties presented expert testimony on recoverable costs, CFAC relying on the testimony of William Muno and ARCO relying on the testimony of Gayle Koch and Marcia Williams. Muno argued that response costs should be interpreted broadly and include all costs claimed by CFAC. Williams testified that many of CFAC's claims were better categorized as operational costs, and Koch testified that CFAC failed to either show costs were necessary or provide accurate documentation for costs incurred. According to Molloy, "As with most things, the answer lies somewhere in the middle."¹⁶⁶

CFAC claimed it incurred \$22.7 million in response costs through March 31, 2021, including public relations, legal services, building demolition and related waste removal, technical support, employee costs, South Percolation Pond bank stabilization and excavation, well sampling, performance of the Remedial Investigation/Feasibility Study, and EPA reimbursement. Of those, ARCO argued only about \$5 million were recoverable under CERCLA. ARCO sought to exclude costs on three primary grounds: (1) costs expended after March 31, 2021; (2) costs not consistent with the National Contingency Plan; and (3) costs without proof of payment. As to ARCO's first argument, pursuant to the parties' pre-trial stipulation, costs incurred after March 31, 2021 were not considered past response costs. The second argument was addressed in the context of CFAC's specific cost requests. As to ARCO's third argument, the absence of final proof of payment was not an absolute bar to cost recovery. As conceded by Koch, while evidence of payment may be indicative of National Contingency Plan requirements that a cost be incurred and supported by accurate documentation, the statute did not explicitly require it.¹⁶⁷

CFAC submitted twenty cost recovery claims from before March 31, 2021 ranging from \$500 to \$8.8 million totaling more than \$22.7 million. Molloy determined that under CERCLA, ARCO partially shared responsibility for some and owed nothing for others. The EPA billed CFAC more than \$1 million prior to Dec. 31, 2019 for oversight costs pursuant to the Administrative Order on Consent, which Molloy determined was entirely recoverable. CFAC sought to recover \$8.8 million paid to Roux for environmental services. According to Koch, only \$8.5 million was

consistent with the National Contingency Plan because some of Roux's billing was related to facility decommissioning and demolition, primarily concrete sampling, and projects designated as litigation support. Molloy sustained both of Koch's challenges, leaving \$8.5 million recoverable under CERCLA.¹⁶⁸

The matter of the \$7.7 million CFAC sought to recover for demolition of the smelter plant buildings by Calbag required more scrutiny. Molloy first noted that the EPA did not review or approve any agreements between Calbag and CFAC, and the demolition and removal of the Main Plant buildings, including removal of asbestos and chemicals from those buildings, was not part of any CERCLA investigation or response action, nor any remedial action selected by the EPA. Furthermore, Calbag's work was not overseen or authorized by the EPA. At trial, CFAC conceded that \$2.8 million sought for Calbag's asbestos abatement work was foreclosed by the parties' 1988 Settlement, leaving CFAC's \$4.5 million claim for concrete crushing and back-filling in connection with demolition of the Main Plant Buildings. But according to Molloy, "To be recoverable, these activities must be necessary to the containment and cleanup of a release or threatened release of a hazardous substance. Costs that are undertaken for other reasons – such as routine maintenance or solely enhancing the use or value of a property – are generally not recoverable."¹⁶⁹

Citing precedent, Molloy noted that "the issue is not why the landowner decided to undertake the cleanup, but whether it was necessary." He noted no evidence was presented at trial showing CFAC's expenses for building decommissioning and demolition were a response to a release or threatened release of hazardous substances. "In fact, the evidence suggests just the opposite," Molloy said. "Stroiazzo's testimony made clear that the Main Plant Building had simply been abandoned when production stopped, describing it as if 'someone turned off a switch and walked away.' The Main Plant Building was therefore in disrepair and needed to be demolished to recoup any value." Calbag's demolition work appeared to result from business decisions focused on preparing the property for future sale and use.¹⁷⁰

Muno testified the smelter buildings would have been removed as part of a final cleanup remedy because ubiquitous contamination prevented their use for any other purpose. "Yet multiple witnesses testified that buildings are rarely removed during CERCLA actions, and generally it is only done if the structure prevents the removal of contaminated soils beneath the building," Molloy said. "CFAC presented no evidence that

building removal was necessary to address contaminated soil beneath the structure. To the contrary, Baris testified that such removal was not necessary to address soil contamination. And, to the extent the concrete itself was contaminated, the record suggests such contamination only became an issue once demolition began and the concrete had to be moved.” CFAC also sought to recover Calbag’s costs related to disposal of hazardous substances, auction of debris, sampling, housekeeping and waste disposal. But according to Williams and Koch, removal and proper disposal of hazardous substances from the smelter buildings at the time of closure was CFAC’s obligation as the owner and operator of the plant. Molloy concluded by ruling none of Calbag’s costs were recoverable under CERCLA. ¹⁷¹

Molloy ruled that \$206,082 of the \$708,872 in attorney fees CFAC paid to three different law firms was recoverable under CERCLA, based on whether the fees were for litigation- or remediation-based services. Citing the U.S. Supreme Court’s 1994 *Key Tronic* ruling, recoverable attorney fees included services similar to those performed by “engineers, chemists, private investigators or other professionals who are not lawyers,” and “these kinds of activities are recoverable costs of response clearly distinguishable from litigation expenses.” Molloy noted that identifying other PRPs was recoverable, but there were only two. At trial, Koch identified numerous descriptions of work entirely unrelated to the CERCLA cleanup effort, such as work on closing down the aluminum reduction works and disposition of the site, as well as internal lawyer conferences. Those included conferences with and among CFAC trial counsel, and lawyers’ telephone calls, meetings and travel concerning undisclosed subjects or containing generic references to strategy. “Koch is correct that fees for such work are excluded by the Supreme Court’s *Key Tronic* exception because they seek to protect CFAC’s interests as a PRP or to reallocate costs from CFAC to ARCO,” Molloy said. “Moreover, Andrew Otis, CFAC’s regulatory counsel, testified that his work for CFAC went beyond cleanup efforts, describing his services broadly as ‘strategic’ assistance.” ¹⁷²

The matter of costs related to work at the South Percolation Ponds required special scrutiny because, as Molloy noted, that work was the first actual remedial work performed at the site even if it was performed prior to the EPA’s decision on a final cleanup plan. CFAC made two sets of claims – for construction of a sheet-pile dam and rip-rap in 2016 through 2018 as a stopgap measure to address erosion and release concerns, and removal of the temporary impoundment and returning

the dam and ponds to their natural state in 2020 under a separate Administrative Order on Consent with the EPA. ARCO challenged the costs related to the stopgap measure, first arguing that proper containment of the sediments within the ponds was a closure obligation, and secondly that because the dam and rip-rap had to be removed to implement the Administrative Order on Consent, they were not consistent with the final remedy as required by the National Contingency Plan. “Neither argument is persuasive,” Molloy said.¹⁷³

Citing Stroiazzo’s testimony, Molloy noted that the Flathead River began to change course in 2014, which threatened the existing dam and ponds in a way that was not previously apparent. “The timing and nature of that threat took the necessary action beyond operation closure obligations,” Molloy said. He went on to rule that under CERCLA certain short-term actions could be taken to address immediate releases or threatened releases. “Here, the sheet-pile dam and rip-rap had to be removed when the South Percolation Ponds were fully excavated as part of the final remedial action,” Molloy said. “Put differently, the stopgap efforts were taken to contain the contamination until it could be addressed more permanently; the sheet-pile dam and rip-rap achieved that goal.” He ruled that Morrison-Maierle’s total costs for engineering work, Montana Helical Piers’ total costs for sheet-pile work and Sandry Construction’s total costs for rip-rap were recoverable response costs.

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Overall, Molloy ruled that the following claims were recoverable under CERCLA – groundwater monitoring by ERM Consulting for residential wells in Aluminum City; groundwater monitoring on the plant site by Hydrometrics, Inc.; peer review of the Draft Feasibility Study by MBS GeoConsulting, Ltd.; offsite disposal of drums containing transformer oil, Pyrotek Pyrocast L-30 refractory material, fire extinguisher powder, joint compound, fire-fighting foam concentrates and other chemicals by Mountain States Environmental; removal and disposal of capacitors containing PCBs by IRS Environmental; printing of public newsletters and public-facing materials by Allegra Marketing; \$380,611 of the \$515,680 sought by CFAC for public relations consulting and communications services by Ann Green Communications and Mary Green Communications; \$32,102 of the \$59,564 sought by CFAC for public relations consulting and communications services by Haley Beaudry; and \$400 of the \$500 sought by CFAC for design and maintenance of the CFAC website by Jacob Hall Design.¹⁷⁵

The following claims were not recoverable under CERCLA – Aqua Terra Restoration for work related to reclamation of an onsite borrow pit and obtaining additional clean backfill to fill basements, tunnels and cavities left by CFAC's crushing and removal of concrete; MWC Viking Pump for dismantling five water production wells and fabrication and installation of extended well, salvage valves and fittings; Sard Verbinen & Co. for public relations consulting and communication services; and the salaries and expenses of two Glencore and CFAC employees involved with the cleanup effort, John Stroiazzo and Steve Wright.¹⁷⁶

Once which costs were determined recoverable under CERCLA, another task was to determine an appropriate allocation for past and future cleanup costs. ARCO argued that the 1985 Acquisition Agreement indemnified it from environmental liabilities arising from operation of the smelter business after Sept. 17, 1985, but Molloy noted that both parties dumped hazardous materials all around the plant site, often on top of each other. “The result would potentially be different, however, if ARCO had shown that there was a site area used solely by CFAC in its operation of the facility,” Molloy ruled. “The cleanup of that area would then be solely attributable to CFAC's operation of the site. To the contrary, however, ARCO has repeatedly argued that the waste streams produced by the parties are not segregable. Ultimately, the parties' agreements only bar recovery of costs related to asbestos; the remaining site costs are not subject to the indemnity terms.”¹⁷⁷

While Molloy turned to Gore factors to determine an equitable allocation of recoverable costs under CERCLA, CFAC proposed a three-phased allocation methodology developed by its expert David Batson. In the first two phases, Batson determined a baseline allocation by considering the first four Gore factors to identify the creation of the risk and how it was managed. In the third phase, Batson considered other equitable factors beyond the initial risk creation, which were typically reflective of the last two Gore factors. In developing a baseline, Batson first determined the quantity of waste deposited by each party at discrete locations on the plant site, what he called the disposal risk contribution. Based on available data, this calculation was possible for the West Landfill, Wet Scrubber Sludge Pond, Center Landfill and East Landfill. For the rest of the plant site, where contaminant volume information was not available, Batson used aluminum production numbers as a proxy for waste disposal, adjusted for years of operation in each site area.¹⁷⁸

With a relative percentage established for disposal risk, Batson next considered ongoing responsibility for management of the plant site and

the waste, what he called the maintenance risk. This calculation considered actions by the parties that either increased risk, such as failing to line or cap landfills, or decreased risk, such as lining, capping or excavating landfills. Batson then turned to other equitable factors, such as care exercised by each party and its cooperation with government, which provided a positive or negative offset. Batson determined the parties were equal in their level of care but proposed an adjustment in CFAC's favor of 5 percent for its cooperation with the EPA throughout the Remedial Investigation/Feasibility Study process. Batson's model assigned a percentage to each plant site area.¹⁷⁹

Molloy was not convinced by Batson's approach. "Ultimately, while the Court is persuaded that ARCO's disposal of spent potliner in the unlined West Landfill is a primary cause of groundwater contamination on the site - and thus a driver of remediation costs - considerations beyond the parties' waste disposal and production volumes favor a site-wide allocation," he said. Molloy also questioned parts of Batson's methodology, especially as it placed the maximum cost burden on ARCO. "As ARCO points out, Batson's allocation was rejected by the court in *El Paso Natural Gas Co. LLC v. United States*, the single other case where Batson's proposed methodology was subjected to judicial review," Molloy noted. In that case, Batson based his allocation methodology on the volume of soil moved during each phase of a mining operation, ultimately assigning 86.77 percent of the liability to the United States and 13.23 percent of the liability to his client. Considering all the facts surrounding the operation, that court rejected Batson's opinion and found "El Paso's proposed allocation to be quite unreliable - contrived to assign maximum responsibility to the United States."¹⁸⁰

Concerned that Batson's methodology drove most of the cleanup costs to ARCO, ARCO pressed him at trial over whether he considered remediation costs in proposing his allocation ratios. Batson denied that cost was a relevant consideration, regardless of which party it favored. Molloy disagreed. "While Batson's response appears genuine, it highlights a shortcoming of his methodology: equitable allocation is about more than just the volume of waste produced," he said, adding that "allocation in this case requires consideration of numerous qualitative factors, many not considered by Batson." Citing the Wet Scrubber Sludge Pond as an example, Molloy noted it only received calcium fluoride sludge and chemically treated leachate that was below background levels from ARCO. "This is important because, as recognized

by CFAC's expert Baris, the sludge has a low solubility and is essentially 'inert,'" Molloy said. But "under Batson's calculation, ARCO is held responsible for 91 million gallons of an inert substance of low solubility," Molloy noted. ¹⁸¹

Batson had not distinguished between toxicity of each parties' waste streams but rather assumed each parties' disposals had the same impact on the groundwater. Furthermore, Molloy noted, Batson gave CFAC an offset for removing pot diggings it had improperly placed on the Wet Scrubber Sludge Pond but didn't increase CFAC's responsibility for disposing of leachate with cyanide concentrations above background levels on the pond. "While ARCO may have disposed of more volume of waste at the Wet Scrubber Sludge Pond, the evidence does not show that ARCO's waste at that location was more responsible for the groundwater contamination simply due to its volume," Molloy said. Other problems with Batson's methodology included not considering the language of the parties' indemnity agreement, the fact that CFAC acquired the facility for \$1 but could sell it for much more, and the difficulty in implementing his cost ratios for a plant site divided into six Decision Units. ¹⁸²

While ARCO did not provide expert testimony on the issue of allocation, it had proposed in its briefings a site-wide allocation on the ground that the parties' site operations were comparable. ARCO wanted other considerations to determine its allocation, such as the terms of the parties' early agreements and the financial benefits each party gained from ownership and operation of the facility and would gain from remediation of the site. Batson disagreed that a site-wide allocation was appropriate, noting that while production activity and waste streams by ARCO and CFAC were similar, risk-driving factors such as volume of disposed of waste were known. Batson said a site-wide allocation would ignore the facts on the ground, but he conceded that site-wide allocations were given to many other facilities, even those with complex operational histories. ¹⁸³

In his ruling, Molloy noted that "ARCO's disposal of 61,800 tons of spent potliner in the unlined West Landfill prior to 1980 stands out as a primary contributor to site contamination. That is especially so given the fact that CFAC only ever disposed of spent potliner in the lined East Landfill and, starting in 1990, disposed of all spent potliner offsite." But the high remediation cost for the Landfills DU1 and Groundwater DU6 was related to the cost of constructing a slurry wall jointly around the West Landfill and Wet Scrubber Sludge Pond. More than half of that

enclosed area would be occupied by the pond, for which CFAC had responsibility for improperly disposing of cyanide-contaminated waste. “Thus, while ARCO may be responsible for the lion's share of the groundwater contamination, the remedial action addresses site features used by both parties,” Molloy said, and “the high cost of remediating those areas cannot be attributed to ARCO alone.” Considering each parties’ use of other contaminated areas on the plant site during normal operations, “the first four Gore factors do not weigh in favor of either party,” Molloy concluded. ¹⁸⁴

Molloy also considered the weight of the Acquisition Agreement in determining allocation of recoverable cleanup costs under CERCLA. “Assessed under the Gore factors alone, the parties' relative contributions to the site warrant an equal assignment of liability,” Molloy said. “But there are qualitative considerations related to this site that require assessing additional equitable factors that tip the scales in ARCO's favor. The additional factor of contractual indemnity and site value and economic benefit warrant assigning greater liability to CFAC. Because the contractual indemnity issue is the most important factor in this case, such an allocation is ultimately appropriate.” While the language of the Acquisition Agreement was not specific enough to waive CFAC's statutory rights, the parties understood these obligations to include the very environmental liabilities raised in this case, Molloy said. “Even if the indemnity provisions are not enforceable as a matter of contract law to bar CFAC's claims, the evidence shows that the parties intended for CFAC alone to have an indemnification obligation to ARCO after Aug. 31, 1990,” Molloy said. Based on proof of the intent of the parties, it was appropriate to allocate more responsibility to CFAC than ARCO, Molloy ruled. ¹⁸⁵

Following the money

The financial benefits each party gained from past ownership and operation of the plant site or which would be gained from remediation of the plant site were also factors to consider in the allocation of recoverable cleanup costs. ARCO produced an estimated 3,222,531 metric tonnes of aluminum between 1955 and September 1985, when it sold the site to CFAC. CFAC produced an estimated 2,866,628 metric tonnes of aluminum between October 1985 and 2009, when it stopped producing aluminum. Accounting and financial consultant David Hall estimated at trial that ARCO expended \$1.1 billion on the facility and gained \$565 million in revenue less production costs, including

depreciation, while CFAC expended \$95 million and gained \$1.054 billion. Hall noted that ARCO made significant capital investments that benefited CFAC. After spending \$65 million to construct the facility, ARCO spent more than \$62 million adding three additional potlines and spent more than \$75 million on environmental improvement projects, including installing Sumitomo reduction pot technology and replacing the wet scrubbers with dry scrubbers. Hall also credited ARCO with \$118 million as undepreciated capital investment for the property, plant and equipment acquired by CFAC in the 1985 transaction. He concluded that ARCO received 35 percent of the facility's financial benefit while CFAC received 65 percent.¹⁸⁶

CFAC's rebuttal financial expert, Jeffrey Dunn, criticized Hall's use of book value to assess the 1985 asset transfer, saying market value was the more important metric. Dunn noted that according to ARCO's internal documents, the company expected to lose money operating the plant for the next few years and therefore needed to liquidate or sell the aluminum smelter business to avoid those losses. Furthermore, Dunn said, ARCO itself valued the facility at only \$5 million at the time. According to Dunn, CFAC was able to continue operating the smelter facility at a profit by moving away from the vertical integration model - owning mines, refineries, smelters and fabrication plants, even transportation assets - to the tolling model, where CFAC simply processed aluminum for third parties which owned the alumina that arrived at the plant and the aluminum that left. "Dunn therefore concluded that CFAC did not receive any net financial benefit at the time of the acquisition," Molloy said.¹⁸⁷

Molloy agreed with Dunn's testimony about the value of the smelter business to ARCO at the time of the sale. But the matter of electrical power sales by CFAC in 2001-2002 during the West Coast Energy Crisis received additional scrutiny. The parties disagreed about whether the \$659 million CFAC made by shutting down aluminum production and selling its contracted Bonneville Power Administration electrical power on the open market should be considered in allocating cleanup costs. Molloy ruled that, "Ultimately, the \$659 million is a benefit divorced from the production of aluminum, which is the source of the cleanup obligation. As a result, it is not appropriate to consider the profits from the sale of electricity in assessing the economic benefit CFAC realized during its operation of the site." Deducting the power sales from CFAC's profit margin reduced CFAC's total profit to about \$279 million, or a relative financial benefit of 33 percent.¹⁸⁸

The parties also disagreed about the plant site's value once it was remediated. ARCO's real estate expert Thomas Stevens testified that after remediation was completed, the property CFAC purchased from ARCO would be worth \$15.5 million. Stevens valued the 807-acre industrial portion of the site at \$3.7 million after remediation. CFAC's real estate expert Kraig Kosenka appraised the 1,000-acre main plant site at \$1.3 million. But both experts agreed it was difficult to find comparable sales. Considering Kosenka's lower appraisal value and that CFAC acquired the site for \$1, Molloy determined that as an allocation factor for cleanup costs, the sale of the property was neutral.¹⁸⁹

With Molloy's determination that CFAC had not exercised sufficient due care with hazardous materials during its operation, and that ARCO had not cooperated fully with government agencies, especially with its operations elsewhere in Montana, Molloy included economic benefits to the other factors and determined an equitable allocation for cleanup costs. "Even though CFAC reaped a lower percentage of the economic benefit from the site than that argued by ARCO, the most important allocation factor remains the parties' 1985 Acquisition Agreement," he said. "Recognizing that mathematical precision is not realistic in the CERCLA equitable allocation process, the proof presented at trial supports the following fair and equitable allocation of recoverable CERCLA response costs for the site: CFAC 65 percent, ARCO 35 percent." These percentages would apply to past and future cleanup costs recoverable under CERCLA as well as economic benefits. Molloy determined the plant site's value to be \$2.25 million and ruled ARCO should receive a credit for \$787,500, or 35 percent of the sale.¹⁹⁰

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