

## Explosions & Fires: 1992-2002

### Sampling of Incidents at Shell Group Companies & Joint Ventures

- 21 Jun 92 *Choon Hong III* oil tanker explodes and burns while unloading xylene at the Port Klang, Malaysia oil depot, run by Tiram Kimia, a Shell joint venture. The fire spread onshore and engulfed three nearby storage tanks. Thirteen workers and crewmen were killed, and more than 200 families living in the port vicinity were evacuated. The ship later sank, spilling its cargo into the bay. A lawsuit was filed by the families of the 13 dead workers in October 1994 charging negligence and seeking \$13 million in damages from Shell. (the final outcome of that case was unavailable at publication). Shell reported that recommendations from an unidentified investigation were adopted at the terminal, with subsequent activities restricted to non-flammable products and blending. Shell also reported that the depot ceased operations in 1997.<sup>1</sup>
- 29 Sep 92 fire at Shell's Deer Park, Texas refinery shuts down the plant's 160,000-barrels-a-day crude distillation unit.<sup>2</sup>
- March 93 fire at Shell's Pernis, Netherlands refinery shuts down polypropylene plant until June.<sup>3</sup>
- 1 Apr 93 explosion of a sludge collection storage tank at Shell's Martinez, California refinery sends 8-by-10-foot tank lid into a power line, cutting the area's electricity supply, causing a blackout.<sup>4</sup>
- 26 Aug 93 fire at Shell's Martinez, California refinery damages a furnace that heats heavy crude oil.<sup>5</sup>
- 8 Oct 93 explosion and fire at a sulfuric acid storage tank at Shell's Martinez, California refinery sends a giant, red cloud of smoke into the area. No injuries or evacuations reported.<sup>6</sup>
- 20 Jan 94 fire at Shell's Pernis, Netherlands oil refinery.<sup>7</sup>
- 27 May 94 a fire at Shell Chemical's Belpre, Ohio plant spreads to a nearby chemical storage tank area, touching off an explosion and ferocious chemical fire, causing four of the big tanks to burn and lose millions of gallons of chemicals. Four workers are killed in the incident and 1,700 people evacuated. The fire burns for about nine hours, and chemical leakage from the site pollutes the Ohio River with a 22-mile plume of ethylene dibromide, killing fish and forcing downstream municipalities to seek alternative water supplies. Shell later agrees to pay OSHA a \$3 million dollar fine for federal safety violations and also settles wrongful death lawsuits with the families of the dead workers, making payments in the range of \$2.1 to \$2.4 million per family.<sup>8</sup>
- 18 Aug 94 fire and explosion at Shell chemical plant at Norco, Louisiana. In February 1995, the US OSHA issues a \$201,600 penalty to Shell in connection with the incident.<sup>9</sup>
- 13 Jan 95 fire at Shell's Geelong refinery in Australia forces closure of catalytic cracker. The fire broke out in a heat exchange unit.<sup>10</sup>
- 10 Jun 95 oil well blow-out & fire occur in the El Isba oil field at Shell Syria venture near the desert town of Deiral-Zur, Syria. Five workers are killed in the incident, with the fire continuing to burn for at least ten days. According to reports, the blow-out and fire resulted when oil and gas that had been seeping from fissures around the well since May 3<sup>rd</sup> – more than a month prior to the blow-out – ignited. A wrongful death suit has been filed by at least one of the families of the dead workers.<sup>11</sup>
- 1 Dec 95 explosion and fire at Shell Oil tank farm at McCamey, Texas kills two workers and injures three others. Two of the workers were airlifted to the burn unit of the University Medical

\***Note:** This 1992-2002 listing breaks out separately “explosions & fires” from those covered under all incidents in Appendix A of *Riding the Dragon*, and also includes *additional incidents* not included in the book or its appendix..

- Center in Lubbock, Texas — Liberato Martinez, 23, with third-degree burns over his entire body, and Jimmie Jimenez, 23, with second- and third-degree burns over 70 percent of his body. Martinez died that night. Two other injured men, with less severe burns, were taken to McCamey Hospital. Robert Leroy Muncy, 40, was killed at the scene. The workers were performing maintenance work at the time of the accident.<sup>12</sup>
- 3 Feb 96 explosion at hydrogen unit operated by contractor Air Products at Shell's Martinez, California refinery; workers evacuated, 2 injured, community rattled.
- 1 April 96 explosion and fire at Shell's Martinez, California refinery, damages two hydro treating units, shakes up local community, and later invokes two violation notices from regional air pollution officials.<sup>13</sup>
- 3 April 96 fire in the desulfurization unit of Shell's Pernis, Netherlands refinery.<sup>14</sup>
- 24 Feb 97 fire at the Pilipinas Shell storage depot at Pandacan, near Manila, in the Philippines occurs after a loading hose disconnects from a truck at the LPG bulk filling station, resulting in property damage and lost work days.<sup>15</sup>
- 22 Jun 97 explosion and fire occur at Shell's Deer Park, Texas chemical plant after a flammable gas leak; blast felt 25 miles away, fire burns for 10 hours. More than 200 emergency responders involved; several workers injured with about 30 receiving medical treatment. A mile-long smoke plume prompts warning to residents from local health officials to stay indoors. Damaged unit inside the plant out of service for more than six months. Nearby residential property also damaged. Joint EPA/OSHA accident investigation report suggests accident was preventable. Shell is subsequently fined by OSHA and EPA for violations and infractions related to the incident.<sup>16</sup>
- 24 June 97 Shell Offshore, Inc., fined \$10,000 by the US Department of the Interior for operational and/or environmental violations. "The gas & fire detection systems were not tested within the required time frames." Fine paid, June 15, 1998.<sup>17</sup>
- 20 Jul 97 small fire erupts at Shell Oil's 150,000 barrel-a-day refinery in Martinez, California; fire occurs in the refinery's lubricant/asphalt plant.<sup>18</sup>
- 13 Aug 97 fire in distillation unit shuts down Shell 28,000 barrels-per-day refinery at Odessa, Texas for about one week.<sup>19</sup>
- 31 Oct 97 flash fire occurs in one of the loading bays at the main fuels terminal of the Pilipinas Shell storage depot at Pandacan, near Manila, in the Philippines – caused by a faulty grounding system.<sup>20</sup>
- 16 Dec 97 fire at Shell Chemical's Geismar, Louisiana plant disables one of plant's three alcohol units; Shell declares *force majeure* on all alcohols and derivatives; unit shut down for weeks.<sup>21</sup>
- 17 Dec 97 electrical fire in 625,000 mt/yr steam cracker unit at Shell Chemical plant at Moerdijk, Netherlands shuts down various petrochemical units at the complex for about a week.<sup>22</sup>
- 19 May 98 explosion and fire at SAPREF oil refinery in Durban, South Africa due to a failure at the alkylation unit. The explosion is heard several kilometers away and the fire is fought for more than six hours. No injuries were reported at the time, but an estimated five tons of hydrogen fluoride (HF), a highly dangerous substance, were released.<sup>23</sup>
- 2 Jun 98 storage tank explosion at Shell's Pernis, Netherlands refinery in Rotterdam kills one person, injures another.<sup>24</sup>
- 15 July 98 Shell Petroleum Development Company pays \$258,000 to owners of farmland destroyed by fire caused by a leak in a gas pipeline in Rivers State, Nigeria.<sup>25</sup>
- 10 Aug 98 hydrogen explosion in a compressor unit at Shell Chemical's Belpre, Ohio plant rattles buildings up to five miles away. A fire followed the blast, but was brought under control by the plant's firefighters within 30 minutes.<sup>26</sup>

- 14 Aug 98 hydrocracking unit at Shell's Deer Park, Texas oil refinery, shut by a fire the week of August 3<sup>rd</sup>, is scheduled to be back on line.<sup>27</sup>
- 27 Aug 98 Environmental Rights Action (ERA) of Nigeria reports pipeline explosion at Well #13 at Shell's Awoba flow station, at Bille, Rivers State, Nigeria. A subsequent fire "set the facility ablaze and the adjacent mangrove forest was inflamed. Several fishing traps and nets around the affected area were burnt." Several people harvesting produce in a nearby mangrove forest were injured in a stampede during the incident.<sup>28</sup>
- 6 Oct 98 fire occurs at Shell's Berre-L'Etang, France refinery as it is being closed down for a turnaround. A gas oil line fails "due to accelerated naphthenic acid corrosion" and ignites. A kerosene air cooler also fails, adding additional fuel to the fire. A crude unit and a reformer are damaged. Losses are estimated at \$22 million.<sup>29</sup>
- 25 Nov 98 six workers are killed at Equilon refinery near Seattle trying to remove residue from a coking unit; a flaming mass of hot liquid poured out of the unit setting off a huge explosion. State investigators later calculated it would have taken 236 days for the ambient air to cool the drum enough to allow the residue to be removed safely.<sup>30</sup>
- 25 Dec 98 explosion and fire at Shell's gas-to-liquids plant at Bintulu, Malaysia.<sup>31</sup>
- 2 Jan 99 US Minerals Management Service reports "small fire" at Shell Offshore, Inc. platform A in block 128 of Garden Banks area in the Gulf of Mexico. Equipment failure is cited as cause; "minor damage" to pipeline pump noted. "...The seals failed, allowing excessive temperature to build up... this ignited the remaining lubricating oil..."<sup>32</sup>
- 15 Jan 99 US Minerals Management Service reports "minor flash fire" at Shell Offshore, Inc. platform JC in block 176 of Eugene Island area in the Gulf of Mexico. Human error cited as cause. "...A welding operation to repair a hand railing on the top deck was in progress at the same time as a natural gas crane was in use. Slag sparks from the welding operation came into contact with the gas being exhausted from the crane. The crane was shut down and the fire was extinguished. No damage was reported."<sup>33</sup>
- 6 Feb 99 eight oil workers suffered severe burns after a Shell Oil pipeline explodes in southern Nigeria, state health authorities reported.<sup>34</sup>
- 7 Feb 99 US Minerals Management Service reports fire, platform damage, and worker injury at Shell Offshore, Inc. platform JA in block 40 of South Marsh Island area in the Gulf of Mexico. Equipment failure & human error cited as cause. Lone platform worker in living quarters is burned and injured after trying to stop liquid escaping from condensate pipe, which ignites, burning the worker and causing him to fall down a 15-foot stairway, sustaining injuries. Automatic emergency shutdown of the platform ensued, but fire continued to burn due to uncontrolled release of hydrocarbons. A pilot flying in the area reported the fire to a nearby Shell facility, and the operator was rescued. Ceramic plungers/pistons #2 and #3 in condensate pump were severely cracked. Condensate gas under 500 psi released uncontrolled to the atmosphere due to an apparent failure of the #1 ceramic plunger/piston in the pump.<sup>35</sup>
- 23 Feb 99 fire at Motiva refinery in Convent, Louisiana damages & shuts down part of the operation for several months, through May.<sup>36</sup>
- 4 Mar 99 a mid-afternoon explosion at the polymerization unit at Equilon's Puget Sound refinery in Anacortes, Washington injures five contract workers. Four of the workers were treated at local hospitals and released that evening. One 18-year-old worker was admitted to Island Hospital with head and neck injuries and held for observation. "He mainly just remembers being blown through the air," said the mother of the man being held after visiting him in the hospital. "First I heard a boom, and then a big cloud of steam came out and a bunch of debris," recounted Mike Lee, another worker at the scene of the explosion. "Everyone hit

- the ground.” The polymerization unit was then down for maintenance, and no cause for the explosion was immediately apparent, although the state had begun an investigation.<sup>37</sup>
- 10 Jun 99 massive fireball and explosion of the Olympic Pipeline near Bellingham, Washington following a gasoline leak of 277,000 gallons kills two ten-year-old boys and another young man. The pipeline, jointly operated by Equilon, ARCO and GATX, was found to have anomalies in the section that ruptured, requiring certain actions that did not occur. In May 2002, EPA and the US Department of Justice filed a civil suit against Shell and Olympic, alleging gross negligence and seeking civil fines of \$18.6 million against each company. The complaint charges that the pipeline rupture was caused by gross negligence in the operation and maintenance of the pipeline.<sup>38</sup>
- 12 Aug 99 fire reported at Motiva's refinery in Convent, Louisiana.<sup>39</sup>
- 24 Aug 99 small fire near the hydrogen unit at Equilon Enterprises' refinery in Bakersfield, California forces reduced runs to the hydrocracker.<sup>40</sup>
- 17 Sep 99 leaking oil from the Ugehelli-Rapele pipeline at Ekakpamre, Urhobo in Delta State, Nigeria, owned by the Shell Petroleum Development Company of Nigeria (SPDC), catches fire. The fire burns for a reported three days over several kilometers of farmland and wetlands, burning up boats, fishing nets, and forests according to some accounts. Among the communities affected are Ekakpamre, Ighwrekreka, Ughevuwughe, Ekrejegbe, and Otor-Edo. Local officials from four of the villages later call the incident “one of the worst environmental disasters to happen in Urhobo country in 40 years of oil exploration.” At an October 2, 1999 press conference these local officials reject claims that sabotage caused the spill and fire. They call for an independent inquiry and compensation to the affected communities.<sup>41</sup> According to SPDC, an immediate investigation of the incident by a joint team, including representatives of the affected communities, concluded that the pipeline had been blown up with explosives placed beneath it. SPDC says it has tried to clean up the site, but is being denied access.<sup>42</sup>
- 24 Mar 00 fire and two explosions at Shell's Godorf oil refinery in Cologne, Germany – the country's fourth-largest – causes more than \$5 million in losses, cutting production by half. The fire started at one of two crude oil distillation stations where a heated oil product leaked, ignited, and set off a small explosion, then a second, larger explosion fed by several tons of oil. About 120 firemen fought the blaze for about three hours. A bilious cloud of smoke rose 1,000 feet into air at the scene, and over a nearby autobahn, which was closed for several hours. No injuries were reported. A small “controlled” fire was allowed to continue burning at the site to consume remaining oil that escaped during the incident. Some people at a nearby shopping center and residents close to the plant complained of irritated eyes and breathing difficulties, although state experts said no dangerous pollution occurred. Water used to fight the blaze was being contained and would be treated before it was released to the nearby Rhine River, according to refinery officials. Shell reported that removal of damaged parts of the crude distiller had begun in mid-April 2000, with new equipment slated to arrive through June, with the unit expected to be shut down for many weeks ahead.<sup>43</sup>
- 27 Apr 00 hundreds of residents living in a Brunei Shell company housing complex near the oilfield town of Seria, Brunei, are forced to abandon their homes following an explosion at one of the company's gas pipelines. The explosion destroys two homes and damages at least two others. “It was truly a miracle,” reported one resident. “The occupants of the two affected houses were out at work when the blast occurred. Luckily, there were also no children playing near the area or vehicles passing by when the incident occurred. . . .” The cause of the explosion was later found to be a corroded pipeline.<sup>44</sup>

- 18 Aug 00 explosion at Motiva's Convent, Louisiana refinery injures nine workers; two treated at the scene with seven others taken to area hospitals, including one transported to the burn unit at Baton Rouge General Hospital. Some evacuation was also reported.<sup>45</sup>
- 26 Oct 00 fire starts in storage tank being demolished at Shell's Deer Park, Texas refinery. The burning tank – which held naphtha, a gasoline component – produced heavy black smoke in the area, prompting the temporary closure of the Harris County Toll road.<sup>46</sup>
- January 01 the Shell/BP joint venture South Africa Petroleum Refinery (SAPREF) in Durban, South Africa has two refinery fires in January – one in early January in the refinery's bitumen blending area, and another on January 23<sup>rd</sup> at the refinery's No. 2 crude distillation unit.<sup>47</sup>
- 23 May 01 gas explosion at the partially Shell-owned (46%) Gorm oilfield in North Sea injures two workers. Rig is a Danish Underground Consortium facility operated by Danish oil and shipping group A.P. Moeller (39%), also partially owned by Texaco (15%). Oil and gas production at the 46,900 bpd operation was suspended following the accident, which occurred just prior to midnight. No oil pollution was reported.<sup>48</sup>
- 6 Jun 01 a Shell pipeline, which passes through the community of Baraale in Rivers State, Nigeria, spills crude oil into the community, forests, and on farmland. According to an Environmental Rights Action field report, local officials reported the leak to Shell and local police, but they were told the community should suffer because the lines were cut by saboteurs. Several months later, in October, the leaking oil caught fire. Again, local officials reported the fire to Shell officials, and they were again told they should pay the consequences of their actions. The fire continued to burn at least through January 2002. Burnt-over farmland is ruined, soot has contaminated drinking water, and some local residents fell ill from thick pall of smoke that hung over the area.<sup>49</sup>
- 17 July 01 a large aboveground storage tank holding spent sulfuric acid at Motiva's Delaware City, Delaware refinery explodes, killing one worker and injuring eight other workers. A fire followed. The tank, which had lifted off its foundation pad in the explosion, also collapsed, releasing more than 600,000 gallons of acid, some into a large bermed area which was later breached, with acid also reaching storm sewers polluting the nearby Delaware River, and killing thousands of fish and hundreds of crab. One week after the accident, Motiva admitted the collapsed tank had a history of leaks and corrosion and was overdue for an inspection. One plant worker had labeled the tank unsafe three weeks before the accident, and a company inspector had called for an immediate shutdown on June 26<sup>th</sup>. In January 2002, US OSHA recommended a \$259,000 fine, citing Motiva for three "willful" and seven "serious" violations. In July 2002, the US EPA and the Delaware Department of Natural Resources and Environmental Control (DNREC), sued Motiva, accusing the company of gross negligence, seeking penalties that could exceed \$50 million. In August 2002, the US Chemical Safety and Hazard Investigation Board (CSB) charged that the accident occurred because of neglected warnings, slipshod equipment changes, and chronic, unrepaired corrosion and leaks in the 415,000-gallon storage tank. "Had any one of these elements been handled more effectively," said CSB chairwoman, Carolyn W. Merritt, "this accident probably would not have occurred."<sup>50</sup>
- 7 Aug 01 well blow-out and fire occur at the Zauliyah-16 well in Oman, 120 km northwest of Haima. Well is operated by Petroleum Development Oman, a 34%-owned Shell company. Fire continued to burn for at least 12 days, through August 16<sup>th</sup>.<sup>51</sup>
- 23 Sept 01 fire at Shell's Pernis, Netherlands refinery shuts down two hydro desulfurization units curtailing production of low-sulfur diesel and gasoil at the refinery for at least two weeks.<sup>52</sup>

- 22 Jan 02 “contained explosion” and fire in sulfur removal unit at Motiva’s Delaware City, Delaware refinery sends thick plume of black smoke into area. One worker reported scrambling away from flames on hands and knees to activate firefighting systems. Gas reportedly ignited in the heater structure of the unit, followed by a fire that burned for an hour and half, shutting down one part of the refinery. A state fire marshal ruled the fire accidental, but the Department of Natural Resources and Environmental Control was conducting a review of the incident.<sup>53</sup>
- 12 Feb 02 an explosion and flash fire at Shell Chemical Co.’s Geismar, Louisiana plant kills one worker and injures another during maintenance and cleaning. Gregory Gibson, 40, died of injuries at the Gonzales Hospital following the incident. He had worked at the plant for four years. At the time, Shell and the Louisiana State Police were investigating the incident.<sup>54</sup>
- 3 April 02 fire at Shell’s Deer Park, Texas plant burns for five hours after an out-of-service crude oil storage tank being cleaned caught fire; no injuries reported.
- 13 May 02 fire at Shell’s Deer Park, Texas chemical plant, in olefins-3 unit sends large plumes of smoke into area, forcing nearby roads, including Texas Highway 225, to be shut temporarily; residents of Pasadena and Deer Park ordered to shelter-in-place.<sup>55</sup>
- 24 July 02 fire at the hydrotreater unit of Motiva’s Port Arthur, Texas refinery shuts unit down for a few days. In August, unit is taken down for early maintenance & repairs.<sup>56</sup>
- 18 Aug 02 storage tank containing 30,000 bbls of residual fuel oil explodes at Houston Fuel Oil Terminal Co., a 50%-owned Shell joint venture specializing in oil handling and storage in Houston, Texas. The explosion and fire produced a dark, billowing cloud of soot and smoke that rose more than a mile into the air. It took five hours and 20 fire and foam trucks to extinguish the blaze. About a dozen workers were evacuated from the site during the fire. Although the tank did not collapse, the roof caved in. “We were very fortunate there were no injuries to our people and that we were able to quickly isolate the fire to one tank,” said Willis Rossler, CEO of the company. There were about 80 other tanks in the area, located along the Houston Ship Channel, which was shut down for a few hours during the blaze. The cause of the explosion was believed to be a failed joint on a pipe supplying the tank. Property damage was estimated in the “millions of dollars.”<sup>57</sup>
- 1 Sept 02 explosion of storage tank – a sulfur pressure vessel – occurs at the Shell/BP South Africa Petroleum Refinery (SAPREF) in Durban, South Africa.<sup>58</sup>

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*Compiled by Jack Doyle for the Environmental Health Fund, November 2002. The incidents listed above are taken from the available public record, government reports, court records, company documents, and third-party reports. It is not a complete and comprehensive listing of all such incidents at Shell companies and joint ventures for the indicated period, or their resolution in every instance. Sources cited are believed to be reliable and accurate.*

## **Endnotes - Addenda #1 - Explosions & Fires**

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