

Admiral Allen replied that this might take some time. It was the Friday afternoon before Memorial Day weekend. But the President pushed, asking, "Can you do it next week?" Admiral Allen, put on the spot, pledged to do his best.<sup>219</sup>

After the meeting, Governor Jindal immediately announced that the President had "agreed that work on the first segment must begin immediately" and that the federal government would decide "within two to three days" whether the additional five segments should proceed.<sup>220</sup> Parish President Nungesser told a similar story to Anderson Cooper on CNN that evening, saying "The President committed by early next week, we will have an answer and I believe that he's going to task BP."<sup>221</sup>

On June 1, Admiral Allen convened a summit in New Orleans "which included members of academia [one from Louisiana State University and a second from the University of New Orleans], federal trustees, fish and wildlife service and NOAA," as well as Governor Jindal and Parish President Nungesser. Although some experts at the summit expressed concern about causing harm to the environment, the discussion focused on the berms' potential to protect marshlands.<sup>222</sup> The politics of the project remained close at hand: Parish President Nungesser walked out, calling the meeting a "Dog and Pony Show,"<sup>223</sup> only to return in time to speak at the end. Governor Jindal continued to express his frustration and pressed for approval of all six reaches covered by the Corps permit.<sup>224</sup> In the face of the spill and in front of the Louisiana politicians, no one directly opposed the berms, and a "preponderance of opinion" at the summit suggested the berms would be an effective response measure.<sup>225</sup>

That evening, following the summit, Admiral Allen and BP's Hayward had dinner together in New Orleans to discuss the berms.<sup>226</sup> The following afternoon, Admiral Allen gave the go-ahead to all six reaches approved by the Corps, to be funded by BP.<sup>227</sup> BP estimated the cost to be \$360 million, double the entire amount it had spent as of early June in "helping the region respond to the oil spill."<sup>228</sup> The Corps pegged the cost at \$424 million.<sup>229</sup>

Louisiana awarded contracts for the project to Shaw Group, a Baton Rouge-based engineering, construction, and environmental services firm, and C.F. Bean LLC, a dredging contractor based in Plaquemines Parish.<sup>230</sup> Shaw estimated that five of the six berm reaches would be completed by November 1, and that the sixth would be completed by the end of November.<sup>231</sup> The National Incident Command estimated that the construction time for all six reaches would be six to nine months.<sup>232</sup> Even if those estimates had been correct, the project would have been nowhere close to complete by the time the government expected BP to kill the Macondo well with a relief well. As it happened, all of the estimates were far too rosy. Only a fraction of the planned reaches would be finished before the spill ended, and very little oil would be captured.

#### **From Containment to Collection (Late May to Early July)**

Following the unsuccessful top kill, BP teams in Houston met through the night of May 28 to assess the operation.<sup>233</sup> Some meetings occurred behind closed doors, without government participation. At one point, Herbst of MMS and Admiral Kevin Cook, who had been dispatched by Admiral Allen to be his representative in Houston, entered a meeting and stated that they had a right to be present. Apparently, government officials

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had not previously insisted on joining these types of meetings, and BP personnel were surprised by the interruption.<sup>234</sup> The failure of the top kill marked a turning point for the government science teams, with the government significantly increasing its oversight of the containment effort.

The next morning, BP presented its analysis of why the top kill failed to stop the flow of oil. The analysis focused on the well's 16-inch casing, the outermost barrier between the well and the surrounding rock for more than 1,000 vertical feet. That casing was purposely fabricated with three sets of weak points, called rupture disks. During the well's production phase, the hot oil coursing through the production casing, which is inside the 16-inch casing, would lead to a buildup of pressure in the well. If the pressure buildup was too high, it could cause the collapse of one of the two casings. The disks were designed to rupture and relieve this potential buildup of pressure before a casing collapsed.

The disks could rupture in two ways. If pressure between the 16-inch casing and the production casing were too high, the rupture disks would *burst outward* before the production casing collapsed. If pressure outside the 16-inch casing were too high, the rupture disks would *collapse inward* before the casing itself collapsed.<sup>235</sup> Once ruptured, the disks would create small holes in the 16-inch casing, bleeding built-up pressure off into the rock. According to BP's top-kill analysis, pressures created by the initial blowout could have caused the rupture disks to collapse inward, compromising the well's integrity.<sup>236</sup> BP believed that the mud it had pumped down the well during the top kill could have gone out into the rock through the rupture disks, instead of staying within the well and pushing oil back down into the reservoir as intended.<sup>237</sup>

Collapse of the rupture disks was only one of BP's possible explanations for the unsuccessful top kill.<sup>238</sup> But the company presented it to the government as the most likely scenario.<sup>239</sup> Although the government science teams did not fully accept BP's analysis of what happened to the mud, they agreed that the rupture disks could have collapsed during the blowout, and that the integrity of the well had to be considered in future containment efforts.<sup>240</sup> In retrospect, government officials have suggested that the top kill likely failed because the rate at which oil was flowing from the well was many times greater than the then-current 5,000 barrels-per-day estimate. Because BP did not pump mud into the well at a rate high enough to counter the actual flow, oil and gas from the well pushed mud back up the BOP and out of the riser.<sup>241</sup>

BP had previously said that, if the top kill failed, its next step might be to install a second BOP on top of the existing one to shut in the well.<sup>242</sup> But now, the company engineers viewed the possibility that the rupture disks had collapsed as a reason to discard capping the well as an option.<sup>243</sup> If BP shut the well in, oil and gas could flow out the rupture disks and into the rock surrounding the well in a "broach" or "underground blowout." From there, the hydrocarbons could rise through the layers of rock and flow into the ocean from many points on the sea floor. This would make containment nearly impossible, at least until the completion of a relief well. Thus, in the aftermath of the top kill, BP and the government focused on trying to collect the oil, with the relief wells still providing the most likely avenue for killing the well altogether.<sup>244</sup>