

Hampton 4M Chronology of On-Site Events

April 23, 1996 Site Assessment Conducted	Former PNM dehydrator pit. Unlined surface impoundment requiring a 45-bbl tank.
April 24, 1996 Pit Remediation Performed	Cessation of discharge from dehydrator occurred. Soil remediation of the former pit was performed, removing approximately 286 cubic yards of soil. Soil was landfarmed at the Hampton 2 well site. Bottom excavation sample at 11.5': 600 ppm benzene; 1300 ppm TPH
December 16, 1996 Vertical Extent Drilling	Drilling was performed to determine the vertical extent of hydrocarbon contamination beneath the former dehydrator pit. Groundwater was encountered at approximately 28' below ground surface. Soil above the water table was saturated with product. Monitor well, MW-2, installed. Approximately 2" of product observed in the bailer. "Gray to greenish gray "clayey" sand at 22-24'. Very hard. Could be prod. sat'd soil (notes from well log, 12/16/96)."
January 13, 1997 Notification	PNM provided notification to the NMOCD w/ copy to Burlington Resources (BR) of groundwater contamination at the Hampton 4M site
January 28, 1997 Free Product in MW-2	PNM gauged monitor well MW-2 and discovered more than 4' of free phase product on the water table.
January 31, 1997 Installation of Monitor Wells MW-3 & MW-4	PNM installed two additional monitoring wells, MW-3 (ND), and MW-4 (800 ppb benzene; 2600 ppb BTEX). Water level measurements, product measurements and groundwater samples for BTEX method 8020 were taken at all wells.
February 4, 1997 On-site Meeting	On-site meeting with the NMOCD, PNM and BR to discuss remediation options at the site.
April 9, 1997 On-site Meeting	On site visit with PNM and BR.
April 14, 1997 Off-site Hydrocarbon Seep Discovered	During a site visit, BR discovered a surface seep of hydrocarbons to the northwest of the well pad. Free phase hydrocarbons were found seeping from the ground surface into a small drainage area. BR notified both NMOCD and PNM.
April 16, 1997 On-site Meeting	A meeting was held on site with NMOCD, PNM and BR to discuss the off-site hydrocarbon seep. NMOCD requested that immediate action be taken to contain the seep. The group agreed that a collection trench should be installed to slow or stop the migration of the hydrocarbons.
April 16, 1997 Archeological Clearance	BR obtained archeological clearance to construct an off-site collection trench to the north of the well location.

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<p>April 17, 1997 Collection Trench Construction</p>	<p>BR constructed a collection trench to the north of the well location. The trench was situated between the hydrocarbon seep and the well location. A sandstone shelf was encountered 6 to 8' below the ground surface. Black to gray saturated soil with signs of hydrocarbons were found on top of the sandstone shelf. PID readings were in the 1,000 to 2,000 ppm range. Water and a small amount of hydrocarbons began collecting in the trench.</p>
<p>April 30, 1997 Tank Discharge Pit Excavation</p>	<p>BR attempted to excavate the area of their former tank discharge pit. Sandstone was encountered at 1' below the bottom of the pit. The excavator could not penetrate the sandstone. A report indicates a PID survey of the soil and sandstone revealed no volatile hydrocarbons. No visual signs of hydrocarbon contamination existed. BR began excavating 9 to 10 test holes over the well pad location. On the southern end of the location sandstone was encountered at 0 to 1' below the surface. Sandstone dipped sharply to the north to a depth of approximately 15' below the surface. No hydrocarbon contaminated areas were found in any of the test holes.</p>
<p>June 4, 1997 On-site meeting</p>	<p>On-site meeting with NMOCD, PNM and BR to discuss further investigation at the site. The group agreed that BR would continue the investigation using a soil boring rig.</p>
<p>June 5, 1997 Soil Borings and Temporary Monitor Wells</p>	<p>BR bored three holes (TPW-1, TPW-2 and TPW-3) on the site just south of PNM's dehydrators and discharge tank. Free phase product was discovered in TPW-2 (2.48' after 4 days) and dissolved phase BTEX contamination in TPW-1 (20 ppb benzene). TPW-3 was a dry hole.</p>
<p>June 6, 1997 Soil Borings and Temporary Monitor Wells</p>	<p>BR continued soil boring on the location. A total of four more points were bored on the southern end of the well pad near BR's equipment and tank batteries (TPW-4: 2000 ppb benzene in groundwater, TPW-5: 5800 ppb benzene, TPW-6: 1600 ppb benzene, and TPW-7: 5300 ppb benzene). All of the temporary wells showed dissolved phase BTEX contamination. TPW-5 and TPW-7 showed total BTEX concentrations in the 30,000 ppb range.</p>
<p>August 25, 1997 Sampling of Private Landowner's Well-EB Well</p>	<p>PNM became aware of an inactive water well drilled down-gradient of the well site on private land. The 4-inch PVC well was purged and sampled to determine if migrating contamination had impacted the well. Results of the analysis for BTEX method 8020 showed ND.</p>
<p>October 29, 1997 Installation of Additional Monitoring Wells</p>	<p>PNM conducted drilling and monitor well installation down-gradient of the well site at the northern edge of BLM land. Upgradient monitor well, MW-1, was installed south of the well site just above the well pad.</p>

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<p>October 30, 1997 Installation of Product Recovery Well</p>	<p>PNM installed a 4-inch product recovery well (MW-6: very hard at 18'; 18-20' weathered SS- 237 ppm HS; 23-25' - sat'd w/ HC) on the northern edge of the well pad directly next to MW-2 where known free product was present. Water levels and sampling of MW-1 (ND) and MW-5 (6000 ppb benzene; 24,000 ppb BTEX) were taken for BTEX method 8020 analysis).</p>
<p>November 11, 1997 Soil Borings</p>	<p>PNM performed soil borings with a hand auger along the wash north of MW-5 (2400 ppb benzene; 9400 ppb BTEX) to try and further delineate the extent of contamination down the wash. PNM temporary well, TMP-1, was also installed down-gradient. Results of the investigation revealed that the contamination had traveled at least as far as the Williams pipeline crossing.</p>
<p>November 12, 1997 Free Product in Recovery Well MW-6</p>	<p>PNM gauged recovery well MW-6 and discovered 4.80' of free phase hydrocarbon on top of the water table.</p>
<p>December 11, 1997 Installation of Additional Monitoring wells</p>	<p>PNM installed monitor well MW-7, the farthest downgradient well, above the WFS pipeline along the right-of-way. PNM also installed monitor well MW-8 (1500 ppm in soil between 10 and 25') on the well pad between former temporary well, TPW-2, and monitor well, MW-4.</p>
<p>January 12, 1998 Product Recovery</p>	<p>PNM started product recovery in product recovery well (MW-6). Product gauging prior to start-up showed 4.72' of product in MW-6 and 4.41' of product in MW-2.</p>
<p>January 12, 1998 Quarterly Monitoring</p>	<p>PNM conducted water/product level measurements in all monitoring wells. Groundwater samples were collected from all wells without free product for BTEX method 8020 analysis (MW-4: 1251 ppm benzene; 1363 ppm BTEX).</p>
<p>April 14, 1998 Quarterly Monitoring</p>	<p>PNM conducted water/product level measurements in all monitoring wells. Groundwater samples were collected from all wells without free product (free product present in MW-2, MW-6 and measurable product for the first time in MW-8: 0.0.37') for BTEX method 8020 analysis.</p>
<p>May 11, 1998 Installation of Monitoring Wells</p>	<p>BR installed monitoring wells MW-9 and MW-10 upgradient of PNM's former dehydrator. MW-9 was installed just south of PNM's dehydrator tank and MW-10 was installed south of PNM's former dehydrator in the area of former TPW-2. MW-10 accumulated approximately 1.5' of product within 24hours.</p>

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<p>July 1, 1998 Quarterly Sampling</p>	<p>PNM conducted water/product level measurements in all monitoring wells. Groundwater samples were collected from all wells without free product for BTEX method 8020 analysis. A soil sample was collected just above the water interface in the northeast corner of the BR excavation for BTEX method 8020 analysis (36 ppm benzene in soil; 2126 ppm BTEX in soil).</p>
<p>July 2, 1998 Product Sampling</p>	<p>PNM collected product samples from various sources on site for PIANO analysis to try and match up the source of the product.</p>
<p>July 8, 1998 Site Visit Survey Crew</p>	<p>PNM and representatives of PNM conducted a site visit to familiarize everyone with the site. Daggett surveyors met PNM to survey in new wells and various points around the well site.</p>
<p>July 9, 1998 Geo-technical Sampling</p>	<p>PNM collected soil samples from the BR excavation just above the water table for sieve analysis and moisture content. Groundwater samples were also collected from TMP-1 and the surface of the hydrocarbon seep.</p>
<p>October 5, 1998 Quarterly Sampling</p>	<p>PNM conducted water/product level measurements in all monitoring wells. MW-4 shows 0.63' product.</p>
<p>October 8, 1998 PNM On Site for Installation of SB-1 and SB-2</p>	<p>PNM present on site when BR installs SB-1 and SB-2.</p>
<p>November 5, 1998 Free Product Recovery System Removal</p>	<p>PNM receives notice that free product system in MW-6 has been removed.</p>
<p>November 9, 1998 PNM Conducts Final Sampling at Site</p>	<p>PNM conducts final groundwater sampling after notification from BR of plans to commence site wide excavation at the Hampton 4M.</p>
<p>November 10, 1998 PNM On Site During BR Excavation</p>	<p>PNM present on site when BR begins excavation in area of PNM's former pit location.</p>
<p>November 11, 1998 PNM On Site During BR Installation of Downgradient Well/Excavation</p>	<p>PNM present on site and at location of BR's installation of furthest downgradient groundwater monitoring well.</p>