

**Appendix J**

**ENVIRONMENTAL RELEASES DURING LINE 96  
CONSTRUCTION**

## Environmental Releases during Line 96 Construction

During construction of Line 96 in October 2011, several spills and environmental releases of fluids related to construction occurred. These incidents were observed and recorded by environmental monitors over the course of construction. Under the *Processing PRC 421 Oil at Las Flores Canyon* alternative of the proposed Revised PRC 421 Recommissioning Project (Project), construction of a new pipeline from the EOF to the Receiving Station at LFC would involve many of the same construction activities as construction of Line 96. In particular, horizontal directional drilling at several sites in order to run the pipeline underground would create potential for spills and “frack-outs”, which could release and expose people and the environment to hazardous materials.<sup>1</sup> Construction of the new pipeline, especially in regard to horizontal directional drilling at the same locations, may result in similar incidents. Therefore, this EIR analysis accounts for lessons learned from the environmental monitoring activities that took place during drilling operations performed for the construction of Line 96, as documented below in Table 1.

**Table 1 Spills and Environmental Releases during Line 96 Construction**

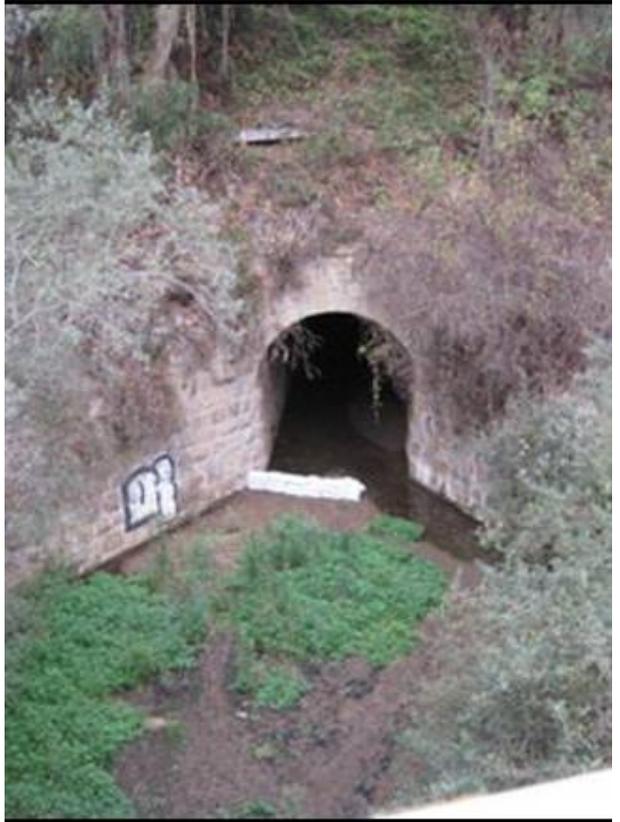
Date	Location	Size/ Material	Description from Daily Monitoring Report	Photo Documentation of Incident Setting from Monitoring Report
Oct 4, 2011	Dos Pueblos Horizontal Directional Drill site	<1 pint, hydraulic fluid	A small volume of hydraulic fluid (<1 pint) spilled from a piece of rental equipment at the Dos Pueblos HDD site. The incident was immediately brought to the attention of the EQAP Environmental Monitor. Affected soil was shoveled into a labeled container for appropriate handling and disposal.	
Oct 10, 2011	Underground	700-800 gallons, drilling fluids	The Mud Engineer noted a reduction in circulation from 40 to 30 gallons/minute, resulting in approximately 7-800 gallons of lost returns....No surface release of drilling fluids was detected.	

<sup>1</sup> During normal drilling operations, drilling fluid travels up the borehole into a pit. When the borehole becomes obstructed or the pressure becomes too great inside the borehole, the ground fractures and fluid escapes to the surface. This is referred to as a “frack-out” or “frac-out.”

Date	Location	Size/ Material	Description from Daily Monitoring Report	Photo Documentation of Incident Setting from Monitoring Report
Oct 11, 2011	Road shoulder, east side of Dos Pueblos Canyon	2 X 10 gallons, drilling fluids	<p>There were two small (approx. 10 gallons each) releases of drilling fluids (“frac-outs”) on the east side of Dos Pueblos Canyon. Both events occurred along the road shoulder of the Dos Pueblos Canyon highway off-ramp, within 150 feet of the exit pit and well away from Dos Pueblos Creek. Both releases were quickly detected, contained, and cleaned up.... No evidence of drilling fluids was observed within the creek. (Note: location was over 100 yards from the creek)</p>	
Oct 14, 2011	Road shoulder, east side of Dos Pueblos Canyon and Storm drain outlet	(2 events) Unknown amount, drilling fluids	<p>At approximately 2:45 PM, drilling fluids began surfacing on the road shoulder.... A pit was excavated at this location and mud was recovered with a vacuum truck as it filled the excavation.</p> <p>At approximately 6:00 PM, monitors observed drilling fluids at a storm drain outlet down-gradient from the exit pit. The contractor had proactively installed a temporary barrier here prior to initiating the pilot bore and this was effective in containing the drilling fluids. A storm drain inlet, also equipped with temporary containment barrier, is located a few feet down-gradient from this outlet. This second drain discharges directly into Dos Pueblos Creek, approximately 150 feet to the west.</p> <p>Reaming was immediately stopped when the fluids were detected in the storm drain....It was decided that operations would be suspended at</p>	

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			<p>that point, in view of the uncontrolled fluid release and difficulties imposed by darkness. Operations were suspended at 7:00 PM and the site was secured (clean-up, plating or otherwise covering open excavations)....Monitors were stationed at the creek throughout the reaming process and no evidence of drilling fluids within the riparian zone was observed.</p>	
Oct 15, 2011	"point of previous release" from October 14, 2011	Unknown, drilling fluids	<p>Drill mud surfaced at the point of previous releases and was effectively contained and cleaned up. There was no evidence of drilling fluids entering the storm drain system.</p>	

Date	Location	Size/ Material	Description from Daily Monitoring Report	Photo Documentation of Incident Setting from Monitoring Report
Oct 17, 2011	West of Dos Pueblos Canyon	< 0.5 cup, hydraulic fluid	A very small leak of hydraulic fluid (<1/2 cup) occurred shortly after trenching began. The leak was immediately contained. The Site Safety Officer documented the incident with a CARE Form and supervised cleanup.	
Oct 24, 2011	Ellwood Offshore Facility	4-6 ounces, hydraulic fluid	A small leak of hydraulic fluid (4-6 ounces) occurred beneath the clamp used to secure the casing as it was fitted. The leak was detected almost immediately. Containment and cleanup were efficient and effective.	

Date	Location	Size/ Material	Description from Daily Monitoring Report	Photo Documentation of Incident Setting from Monitoring Report
Oct 26, 2011	Culvert passing beneath the highway and UP Railroad	Unknown, potentially up to 117 gallons (6-inch diameter hole for 80 feet), drilling fluid	<p>A sudden loss of circulation of drilling fluids was noticed by the operator of the bore machine at about 12:30 PM. The Drilling Foreman directed that the machine be immediately shut off....Upon inspection of the culvert passing beneath the highway and UP Railroad, a slight increase in turbidity of water at the mouth of the culvert was observed. Closer inspection .... revealed a slow, low-volume release of fine sediments from a crack in the floor of the culvert, approximately 150 feet from its north (upstream) end. Water downstream was also slightly cloudy as noted above. Several small fish, tentatively identified as Tidewater Goby were observed in shallow pools within the culvert, downstream from where the sediments were originating.</p> <p>Upon further examination .... it was determined with some certainty that the sediments were originating from the bore hole. At this point (approximately 1:00 PM) the volume of affected water was estimated at about one gallon. Initial attempts at containment included a barrier of sand bags to isolate stream flow from the frac-out. A second barrier of sand bags had been proactively installed downstream, at the mouth of the culvert. A monitor was stationed the downstream end of the culvert ensure that no one entered the "wet" portion the channel. This was done to prevent inadvertent injury to gobies as a result of foot traffic associated with frac-out response. Entering from the north end of the culvert posed no such risk – there were no fish</p>	

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			<p>in this portion of the channel.</p> <p>An aquatic biologist holding a Federal Recovery Permit for tidewater goby was called out to make a positive identification and to assess overall health of the fish. She identified the fish as Tidewater Goby. She reported seeing 12-15 fish in the culvert; all of these appeared unaffected by the increase in turbidity.</p> <p>The drilling crew and Environmental Monitors worked throughout the afternoon to improve containment at the point of the frac-out. Stream flow was diverted away from the point where sediment was being released by means of rows of sand bags covered in plastic (the plastic formed a better seal against the concrete floor of the culvert). The frac-out point was then enclosed with a ring of plastic-covered sand bags encircled with a straw wattle and two rows of synthetic boom for filtration. At 6:00 PM it was determined that no further measures could or should be implemented without agency consultation. The crew and monitors left the site at about 6:00 PM.</p> <p>The volume of the drilling mud released cannot be accurately determined. When first noticed, it amounted to a small “trickle” (see estimate of 1 gallon of affected water), but the release was steady for at least 5-6 hours. After 6:00 PM when sediment controls were completed, the mud was effectively contained, but water was still seeping from the crack in the floor of the culvert. When inspected the following morning, water flowing through the containment/filtration</p>	

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			<p>device was clear. The volume of drilling fluids potentially released would have amounted to what was injected into the 6-inch diameter pilot hole for a distance of about 80 feet (distance that the drill bit had been advanced before circulation was lost). Much of the bentonite likely remained in the annulus once down-hole pressure was relieved.</p> <p>It appears that the drill head penetrated an aquifer, or perhaps intercepted base flow beneath the culvert. There is a natural "spring" that issues from a crack in the floor of the culvert from which the drilling mud was released. The groundwater likely mixed with drill mud from the annulus due to pressure and gradient and the water at the surface remained cloudy until that pressure equalized.</p>	