**Green Pond Oil Spill**

**The program opens with busy shots of Newark, New Jersey. Shots of a mountain stream follows as The narrator begins.**

**Narrator:** Newark, New Jersey is like most metropolitan areas. The day begins and it's business as usual. Also, like most metropolitan areas, many conveniences are taken for granted**.**

Take the the city's drinking water, which flows from mountain streams 50 miles northwest of the city, it's clean and clear.

But remarkably, crude oil spilled almost 100 years ago recently began threatening that water supply.

**An animated graphic / map showing the location of the old pipeline pumping stations "zooms" in to the Green Pond site. The perspective then moves into the old 3 sided storage tanks, illustrating how the oil leaked into the soil.**

**Narrator:** The story goes like this. Back in 1881 the first major oil pipline in the nation was built from Olean New York to Bayone New Jersey. Every 28 miles along the 315 mile pipeline, pumping stations were erected to help maintain optimum pressure in the pipeline.

The Newfoundland, New Jersey pumping station was conveniently situated between a rail line and the Pequannock River. And like the other pumping stations along the line, the Newfoundland station utilized a number of large, 3 sided bottomless oil tanks as part of its reinjection system.

Over time oil from these bottomless tanks seeped into the underlying soils along with oil that was ocasionally spilled from the pipeline.

**The animation ends and Mike Solecki, an On Scene Coordinator (OSC) for the US EPA is introduced and comments on the tanks.**

**Mike:** They uh, actually did not have bottoms, they used the, the existing soil. They would compress the soil around and, and they would put a confining layer of water on the bottom of the tank and then they would float the oil on the water.

**Mike: (cont.)**And uh, kind of a crazy way to do it, but uh, they uh, you've got to remember the state of mind back in the 1800s was, "Well we pulled the oil out of the ground what's wrong with putting it back in the ground?"

**Shots of the Charlottesburg Resevoir are screened as the narrator and Mike Solecki continue to detail the chain of events.**

**Narrator:** Flash ahead 100 years. The Pequannock River is now dammed to form Newark's Charlottesburg Resevoir. The pipeline and pumping station are just an 80 year old memory. But one thing still remains, over 120, 000 gallons of crude oil.

The problem literally surfaced with a change in the weather in the winter of 1998.

**Mike:** What happened was we had so much rain instead of snow, it raised the groundwater to the point where the, the head pressure of the water was able to break through whatever confining layers were down in the subsurface and cause the oil to flow out into the river.

**Shots of the EPA team working at the site are shown as the narrator and Terrence Johnson of REAC explain the recovery plan.**

**Narrator:** After hydrogeologic and geophysical investigations confirmed the size of the plume and groundwater flow conditions, a recovery plan was formulated to intercept the flow of oil into the Pequannock River.

**Terrence**: The idea of recovering product here is to reduce the product thicknesses in the subsurface formation to an extent where it does not pose a threat for release to the stream, to, to the Pequannock River which, which adjoins the site. So the idea is to reduce the product thicknesses so that the plume is no longer mobile.

We put in an active product recovery system with groundwater injection to clean the site up.

**Technical Annimation of how the recovery system works is screened as Terrence contiunues.**

**Terrence**: This consists of uh, water and an oil pump on the same vertical shaft, with the water pump being the lower of the two pumps. The water pump recovers water, creates a cone of depression, and increases the hydraulic gradient towards the well. **Terrence: (cont.)**Product flows into the cone of depression at an increased rate due to the increased hydraulic gradient.

The oil pump then recovers the oil that's in the, in the cone of depression and as the reservoir that in the, in the system is filled, the sensor picks that up and pumps the product above ground to a holding tank.

**The Annimation ends and more shots of the team working the site are shown, along with shots of the surrounding area including the railroad station, the old cemetary, and the Pequannock River.**

**Narrator:** Estimates put the recoverable volume of oil at 40 to 50,000 gallons. Any residual product that remains will be relatively immobile, and won't pose a threat to the watershed or the land surrounding the site, which has additional historical and environmental significance.

**Mike:** The railroad that runs through here is the New York Susquehanna and Western. Uh, it was one of the original, one of the original rail lines uh, in North Jersey.

The Newfoundland Station is only a, a couple hundred feet from here, which is also on the historic registry for, landmarks under the railroad uh, preservation societies.

**Mike: (cont.)** Also there's was an old family cemetery that was here that became a part of the 25th New Jersey Infantry burial

grounds uh, which is only a 20 or 30 feet from the outskirts of our oil, um, There's actually graves marked back there from the early 1700s through the Revolutionary War up until World War I, So we have that.

**Narattor:** Clean, clear water is also required to support The Pequannock River's native trout population, which is one of the only remaining natural trout fisheries left in the state.

For all these reasons and the continued supply of clean water to Newark, the team has plans to ramp up the recovery rates and shorten the time needed to immobilize the plume.

**Terrence**: We're, we're in the process of upgrading the system right now. Currently, we have one well pumping, operating as a pilot system. We've analyzed that data and realized that we need 2 to 3 wells operating at the same time to efficiently recover product and at the same time bring the plume under hydraulic control.

**Narrator:** With the additional wells on line, any threat to the Pequannock River or the Charlottesburg reservoir should be eliminated. Then hopefully, in another 100 years the cleanup at the Newfoundland pumping station will be remembered as the right thing to do for the environment and the people of Newark.