



Environmental Response Plan

July 2002

The following program plan describes the Department planned environmental response to Pascoag Utility District/ Main Street Mobil contamination problem. The plan was submitted to the Environmental Protection Agency in June in response to receipt of a notice of eligibility of a one million dollar grant from the EPA. The grant funds will be available upon approval of the Department's program plan by the EPA.

Level 3

Main Street Mobil/Pascoag Utility District

BACKGROUND

Pascoag is one of many villages in the town of Burrillville in the rural northwest corner of the state. Public water was drawn from a wellfield that the Pascoag Utility District used to service over 4000 people. Around 400,000 gallons of water per day were pumped from the wellfield. A new well (Well 3A) was installed and went on line in the spring of 2001 to supplement an existing well (Well 3). The quarterly sampling that is required by the Rhode Island Department of Health (DOH) for all new public wells was being conducted and no contamination had been found in the May sampling. MTBE was a target compound in this quarterly monitoring. During the summer, a resident of Pascoag found that the water from his tap tasted bad, had a sample tested in late August and elevated MTBE was reported. DOH sampling confirmed that finding and thus began a five-month nightmare for the residents and businesses of Pascoag.

The discovery of this drinking water emergency and the ensuing multi-agency response occurred throughout the Labor Day weekend. Emergency Response personnel from the Office of Compliance and Inspection were the DEM's first responders. On Labor Day, personnel from the DEM's Underground Storage Tank Management Program were called to the office to pore through DEM files in order to identify and review the files of all registered UST facilities storing gasoline and all known LUST sites in Pascoag. The DEM initiated an investigation that week, sampling existing monitor wells and installing additional wells with a Geoprobe in areas that the file reviews identified as potential source sites. This effort yielded enough information to narrow the list of most likely sources to two, the Burrillville DPW and Main Street Mobil. Both sites were approximately 1700 feet from the impacted public wells, the DPW to the northeast and the Mobil station to the southwest.

Main Street Mobil, an operating gasoline station with three 6000 gallon gasoline USTs, became the most likely source. Free phase product and high dissolved concentrations of gasoline constituents including MTBE had been found in a Geoprobe well that DEM installed in the sidewalk directly in front of the station. An ICO was issued on September 13th to the owners and operators of the Main Street Mobil station to test the UST systems for leaks and conduct an

investigation in both the overburden and bedrock. The USTs tested tight on September 19th. The operators hired an environmental consultant who did install overburden wells and a recovery well on-site and did recover some product, but did not install the required bedrock wells.

On November 2nd the two operators, Potter Oil, Inc. and Medea LLC filed voluntary bankruptcy under Chapter 7 (liquidation) of the U.S. Bankruptcy Code. As a result, DEM assumed all emergency response and remediation activities associated with the release.

Emergency Response

When the contamination was discovered, the concentration of MTBE in the wellfield was around 350-400 ppb, an order of magnitude above the drinking water health advisory level of 40 ppb established by the DOH for MTBE. The DOH issued health advisories that the Pascoag water should not be used for drinking, cooking or bathing small children. Bottled water was provided by various organizations. The DEM arranged for delivery of bottled water, first to the Pascoag Utility District for customer pickup and then to homes where 60 gallons/month were provided, assuming four people per household. Larger households could get 15 gallons/month for each additional person.

Frequent sampling of the public wells by the DOH had showed a continuing rise in MTBE concentration in the wellfield. Concentrations rose to over 600 ppb by the end of September, to 1100 ppb by the end of October and to a high of 1700 ppb by the end of December. The DOH issued health advisories to limit showering time and ventilate to reduce exposure to MTBE vapors and to reduce overall water use in an effort to minimize the pumping of the wells which was drawing MTBE to the wellfield. Beginning at the end of September, public water from Harrisville, a village just east of Pascoag, was piped into the Pascoag distribution system at a rate of 100,000 gallons a day to dilute the MTBE contamination. While this reduced the concentration of MTBE, it still remained elevated, on the order of several hundred ppb. A carbon filter system was installed in the wellfield in mid-November, reducing MTBE concentrations from 1200-1700 ppb to under 100 ppb and in some cases to under 40 ppb. The health advisories issued by DOH remained in effect. Carbon filtering of the contaminated Pascoag well water was expensive, requiring frequent carbon replacement, and was only meant to be a short term action.

The long-term solution was provided by the neighboring village of Harrisville. The Harrisville Fire District had been planning for a new well field for some time. In response to the Pascoag emergency, they accelerated the permit application process, installed three wells in Eccleston field and were ready to provide water to Pascoag by the beginning of the new year. However, disagreement arose between Harrisville and Pascoag as to the administration of the water districts. Harrisville required that the two water districts merge before Harrisville would provide water to Pascoag. Pascoag was concerned about the degree of representation they were afforded in the merger that was proposed. On January 11th, the Court ordered that Pascoag shut down its wells and that Harrisville supply water to Pascoag. The details of the merger could be worked out later. Harrisville residents had voted to approve the proposed merger, but on January 14th, the residents of Pascoag voted it down. The good news was that water was flowing from Harrisville to Pascoag. Coliform bacteria was detected during system flushing but it quickly cleared and on

January 19th, the residents and businesses of Pascoag finally, at long last, had clean drinking water flowing through their taps.

Investigation and Remediation (Phase I)

The investigation of the area impacted by this release began immediately after discovery of the contamination in the public wells. While a consultant working for the Pascoag Utility District installed monitor wells in the wellfield, the operator's consultant and then DEM's technical contractor installed monitor wells in the area of Main Street Mobil. It became clear that due to the presence of free phase product on-site and off-site around the Mobil station, the DEM had to prioritize the removal of the source. DEM's investigation and remediation efforts to date have focused on the source area. Multiple monitor wells, both overburden and bedrock have been installed. A soil vapor extraction system was successfully pilot tested and a full system has been installed on-site and is in operation. A total of over 1200 gallons of product had been recovered from the site as of mid-January. A trench for the recovery of free product and contaminated groundwater was installed and in operation by the end of January. An abandoned 2000 gallon gasoline tank containing about 500 gallons of product was discovered during installation of the recovery trench. Analysis of that product has identified it as leaded gasoline, not then a source of the MTBE that contaminated the Pascoag wells. The DEM is conducting weekly gauging and sampling of monitor wells with analytical services provided by the EPA laboratory.

Indoor air issues had arisen in November. The DEM responded to odor complaints from Bradford Manor, which houses the elderly, from a small school administration building and from a private residence, all downgradient of the station. Venting and sealing cracks abated the problems at the school building and the manor. An air filtration unit was necessary in the basement of the residence to reduce benzene concentrations and an air exchange unit was later added by a consultant the homeowner hired.

Investigation and Remediation (Phase II)

With this level of effort funding in the amount of \$1M, DEM intends to complete additional plume characterization and install one or 2 additional remediation systems. Specifically, the following actions are contemplated:

1. The on-site remediation system described previously has successfully removed virtually all free phase product, and significantly reduced dissolved phase contamination. Minor system enhancements will be provided, most notably one or 2 more recovery wells into bedrock where venting has little if any impact. This system as altered will continue to operate until levels of contamination are reduced to acceptable levels.
2. Between June 11th and June 17th, 2002, the four 6,000 gallon capacity underground storage tanks previously used to dispense gasoline and diesel fuel were permanently removed from service as planned. The kiosk, canopy, tank pad, dispensers and all other ancillary components were also removed. Approximately 1,000 cubic yards (1,500 tons) of heavily contaminated soil were excavated and stockpiled for offsite disposal. The stockpile has been sampled for offsite disposal and is expected to be transported within a month. The tank grave was backfilled to grade with clean sand and gravel.

3. A drilling program is currently being designed by DEM staff. One of our Category II contractors will be tasked with the installation of additional monitoring wells to the East, West, and North of the existing plume definition. Also, additional wells will be installed as potential recovery wells in areas off-site already identified as highly contaminated with dissolved MTBE.
4. Pump Testing at several locations midway between the site and the Pascoag wells will be conducted to determine whether significant contamination can be removed in this manner. As previously outlined, most of the contamination in this area is in the bedrock rendering venting and/or sparging ineffective. This plume appears to be suited to pump and treat technology due to the highly directional nature of the groundwater flow under pumping conditions, as is evidenced (unfortunately) by the persistence of high MTBE levels in the Public Supply wells even under sustained heavy pumping.

Based on the results of the pump testing, treatment alternatives will be evaluated.

5. Pump Testing at Public wells 3 and 3A will be conducted. Using carbon filtration units already present from the emergency treatment system, wells #3 or 3A will be pumped for 10 – 14 days (until the Carbon is exhausted) to determine current contamination levels. The intent is to replicate the withdrawal rate of the wells prior to being taken out of service in January of 2002 and see what the current conditions are. Regardless of what other remediation steps are taken ultimately these wells will have to be pumped at a significant rate for a long period of time and consistently produce water meeting drinking water standards before they are allowed to be reactivated as Public drinking water sources. Data from this testing will be used to evaluate the best available treatment alternative.
6. When the above steps are concluded, DEM staff will propose a long term Corrective Action Plan. At that time, our technical assistance contractors may be invited to submit proposals.

Third Party Impacts - DEM will continue to monitor all occupied structures within the plume for vapor intrusion on a regular basis. The Town of Burrillville, in conjunction with the Pascoag Utility District has agreed to identify any homes with private wells that they feel may be at risk, and DEM will provide the appropriate monitoring.

Public Participation - When/if DEM receives the level of effort award, DEM will outline this plan at a Public Meeting of the Burrillville Town Council and solicit comments from the Public at large. It is anticipated that another Public meeting would be scheduled when the long-term Corrective Action Plan is completed and proposed. DEM will continue to update the fact sheet on its Web page as significant developments occur.