

NAPL TAPS Review and Recommendations

Nov 7, 2014

Site: RACER NAPL at Saginaw Malleable Iron in Saginaw, CRA presentation

Facility/Site ID#: 730000016

District: DEQ PM: Sue Kaelber-Matlock

Purpose of Review or Recommendations Sought: Are the plans to stop active recovery of NAPL in the SW area and the quench pit area acceptable? Are the monitoring plans for the quench pit area and the SW NAPL area acceptable?

Brief NAPL use and background: General Motors used quench oil and other petroleum related products at the Saginaw Malleable foundry for 70+ years.

In the SW NAPL area, outside the building footprint, GM captured and treated oil and groundwater using recovery wells and GAC filters. From 1997 to 2007, 3,700 gallons of NAPL was removed from the area. In 2007, the building was demolished and the electricity to the site was shut off. Manual bailing and monitoring have occurred since 2007. Only trace amounts of mobile LNAPL have been found since 2010. Further evaluation, using the DEQ NAPL policy and the RACER LNAPL Decision Tree, has found that the "remaining LNAPL is effectively immobile, unrecoverable and stable/non-migrating overall". However because trace amounts of mobile LNAPL have been found and the groundwater table has risen dramatically since the building demolition, RACER is proposing 2 years of continued quarterly monitoring for NAPL and depth to groundwater at 11 locations. If mobile NAPL is found, manual bailing or absorbent booms will be used to capture it. In addition, if mobile NAPL is found, RACER proposes to submit an investigation plan to the DEQ within 60 days. RACER also proposes to file a DEQ restrictive covenant that will limit the entire property to non-residential and generally prohibit groundwater use.

The quench area is located within the footprint of the former building. The quench area contained three quench pits; each filled with 25,000 gallons of oil, and was investigated during the 1997 RI. Thirteen monitoring wells were installed in the area. Between 1997 and 2002, 6,500 gallons of NAPL were removed from the area. The quench pits were removed from the site in 2010. The RAP, approved in 2009, called for NAPL monitoring and recovery in the quench area. Currently, monitoring and recovery of NAPL continues. Recent evaluation of the NAPL indicates that the "transmissivity results are below the draft MDEQ de minimus recoverability criterion" and that "the LNAPL is present at residual saturation levels". RACER is proposing 2 years of quarterly monitoring at the two downgradient monitoring wells and the nearby sewer manholes and filing a DEQ approved restrictive covenant to notify future land owners of the NAPL presence and to ensure that land use changes do not alter site conditions.

Review and Recommendations:**Review:**

Upon presentation of the site data and activities, there are a few main summary points that were taken from the meeting that are the basis of the recommendations and will be summarized below.

- There are two main areas that were discussed that contain NAPL of similar compositions (quench area and southwest area). There are dissolved compounds in the groundwater in the southwest area; however, there did not seem to be dissolved compounds in the quench area.
- The area (footprint) containing NAPL is much larger in the southwest area; however, the saturation of NAPL is much higher in the quench area.
- To date, a large volume of NAPL has been recovered from the site (approximately 8,700 gallons from the southwest area and approximately 64,000 gallons from the quench area). Hydraulic recovery of NAPL in the southwest area has ceased while hydraulic recovery of NAPL is ongoing in the quench area from one well. The proposed metric for recovery is to reduce the NAPL transmissivity (Tn) to less than or equal to 0.5 ft²/day.
- In 2007, the building was demolished and since, the groundwater elevation has risen substantially. The mobility of the NAPL has decreased since the rise in groundwater elevation (possibly before) and several of the monitoring wells screens are fully submerged.
- An extensive network of sewer piping exists on site. Some of these lines have been bulk headed and isolated. With the rise in the groundwater elevation, many of these sewers are below the groundwater surface. In the southwest area, these sewers still drain water adjacent to the known NAPL areas – the water is discharged to a surface impoundment(s). In 2014 NAPL was observed in three (3) of the manholes, indicating mobile NAPL is still present.
- PCBs were detected in the NAPL, but in the media sampling (soil, groundwater) PCBs were not detected.

The current proposal for response to NAPL (quench area), is to continue hydraulic recovery in well QPTW-10 (quench area) until the Tn is below the transmissivity of 0.5 ft²/day; monitoring of the sewer manholes for mobile NAPL; and monitoring of the nearby wells for mobile NAPL. All NAPL activities will cease after 4 consecutive rounds of data with no mobile NAPL OR the Tn is below 0.5 ft²/day everywhere. An institutional control(s) will be utilized to control exposures.

The current proposal for response to NAPL (southwest area) is to monitor nine (9) manholes and the storm water pond for the presence absence of NAPL. If NAPL is present in the storm water pond, it will be recovered.

Recommendations:

Most of the CSM and understanding the location of the NAPL body is predicated on historic investigations and older monitoring well data that may or may not be constructed in the appropriate locations. Further, since the demolition of the building occurred, the hydraulics of the site have changed, but the monitoring has not. In one point of the meeting, RACER was concerned that if all storm sewers were bulk headed, then there could be some daylighting. It is unclear if there was a concern for additional mobile NAPL "daylighting" or contaminated groundwater daylighting. Significant uncertainties as to the size and location of the NAPL bodies exist at the site. To the end, it is recommended that an investigation, using direct lines of evidence, be conducted to better depict the location of the NAPL body in each location. This data can guide appropriate monitoring point depth/location and better evaluate the potential saturational risks to the receptors (sewers) or ground surface. There is mobile NAPL remaining in the southwest area as indicated by the presence of NAPL in the sewer manholes discovered in 2014, the location and extent of this is currently unknown.

The determination of the length of time for monitoring is a bit premature at this point given the uncertainties in the nature and extent of the NAPL body, potential receptors nearby (sewers), and the current dynamic groundwater conditions. Once a better delineation has occurred and possibly stable site hydraulics, a more informed decision can be made for the length of time required for monitoring.

For the institutional controls (IC), it should be noted and discussed where any bulk headed sewer lines are located that may contain NAPL (this was also questioned as to being an abandoned container and will need to be discussed further) and where the NAPL body is located. In locations where NAPL will remain, if future site plans warrant additional sewer construction, sewer construction/material requirements should be added to the IC. Based on the data presented, it also seems that the site hydraulics largely control the mobility of the NAPL and may allow for "daylighting". The site groundwater hydraulics should be discussed in the IC to ensure the site conditions don't change without evaluation. This could either be stopping water removal (increase in groundwater elevation) or building construction (decreasing groundwater elevation).

In summary, the plans of using the Tn metric for ceasing hydraulic recovery in the quench area would be acceptable, provided a clear depiction of the NAPL body and all risks were abated. At this time, determination cannot be made on the monitoring plans until better delineation is provided.

Amanda A. Aubrey 12/19/14

District NAPL TAPs Representative / Date

Michelle Long 12/15/14

NAPL TAPs Leader / Date