

Attachment 11

Proposed OU IV Post Closure Groundwater Monitoring

The OU IV AOC 5 (AS/SVE) Monitoring Program consisted of a network of twenty-two wells. Nine of these twenty-two wells are also part of the OU IV AOC 6 (Building 650 Sump Outfall) Monitoring program as shown in Table 1. The OU IV AOC 6 Program monitors radionuclide contamination (primarily Sr-90) migrating south-southwest from the former sump outfall.

Table 1. OU IV AOC 5 and AOC 6 Monitoring Program Overlap

| Well ID | OU IV AOC 5 Program | OU IV AOC 6 Program |
|---------|---------------------|---------------------|
| 076-02 | X | |
| 076-04 | X | |
| 076-05 | X | X |
| 076-06 | X | |
| 076-07 | X | X |
| 076-08 | X | |
| 076-09 | X | X |
| 076-18 | X | |
| 076-19 | X | |
| 076-21 | X | |
| 076-22 | X | X |
| 076-23 | X | |
| 076-24 | X | X |
| 076-178 | X | |
| 076-179 | X | |
| 076-180 | X | |
| 076-181 | X | X |
| 076-182 | X | X |
| 076-183 | X | X |
| 076-184 | X | X |
| 076-185 | X | |
| 076-186 | X | |

Well locations are shown on Figure 1 and a summary of VOC and Semi-VOC detections since January 1, 2002 is included as Table 2. The following is a summary of the current status and post-closure plans for the OU IV AOC 5 (AS/SVE) monitoring wells:

076-02

This well is located immediately upgradient of the site of the 1977 fuel oil/solvent spill. The only contaminant detected in samples from this well during the past year has been chloroform at concentrations less than 2 μ g/L. Chloroform is a common laboratory contaminant. The MCL for chloroform is 5 μ g/L. There have been several estimated detections of semi-VOCs in this well, all of which were barely above detectable levels.

Due to the absence of any significant contamination sampling will be terminated and this well will be abandoned.

076-04

This well is located in the area of the 1977 fuel oil/solvent spill and has historically contained the highest VOC concentrations in this area, primarily BTEX compounds. Following shutdown of the AS/SVE system in January 2001 a rebound of several VOC parameters was observed following a period of approximately two years during which VOC levels remained below MCLs. System pulsing, followed by enhanced biodegradation using an oxygen release compound (ORC), was performed between February and July 2001. Subsequent to these supplemental actions, VOC concentrations decreased in this well to below MCLs with the exception of detections of 1,2,4-trimethylbenzene (6 μ g/L) and m/p xylene (6 μ g/L) in October 2002. Subsequent sampling has been non-detect for these parameters. There have been several detections of semi-VOCs [naphthalene, bis (2-ethylhexyl) phthalate] at or just below detection limits since 2001. This well will continue to be monitored for VOCs and semi-VOCs for the next year. If concentrations remain below MCLs for a one-year period, the sampling frequency will be reduced to semi-annual for a period of up to five years.

076-05

This well is located along the western perimeter of the 1977 spill and is also monitored under the OU IV AOC 6 Program. There have been no detections of VOCs or semi-VOCs above MCLs since February 2000. Monitoring of this well for organic compounds will be terminated. This well is in the vicinity of the leading edge of a strontium-90 plume originating from the Building 650 Sump Outfall. The well will continue to be monitored on a semi-annual basis for radionuclides as strontium-90 has been detected up to 4 pCi/L during the past year.

076-06

This well is located along the eastern perimeter of the 1977 spill. Historical VOCs and semi-VOCs have been detected at concentrations below MCLs including 2-methylnaphthalene, cymene, n-butylbenzene, n-propylbenzene, and tetrachloroethylene. 1,2,4-Trimethyl benzene was detected at concentrations exceeding the MCL of 5 μ g/L during 2002. This compound was not detected during the first round 2003 sampling. Due to the continued presence of VOCs exceeding MCLs this well will continue to be sampled for VOCs and semi-VOCs for the next year. If concentrations remain below MCLs for a one-year period, the sampling frequency will be reduced to semi-annual for a period of up to five years.

076-07

This well is located southeast of the 1977 spill area. There have been no detections of VOCs or semi-VOCs above MCLs since sampling began in 1997. Sampling of this well for organic compounds will be terminated. This well will continue to be monitored semi-annually for radionuclides as part of the OU IV AOC 6 Program.

076-08

This well is located south of the 1977 spill area. There have been no detections of VOCs or semi-VOCs above MCLs since sampling began in 1997. Sampling of this well for organic compounds will be terminated and the well abandoned.

076-09

This well is located immediately north of Brookhaven Avenue and downgradient of the AS/SVE capture zone. There have been no detections of VOCs or semi-VOCs since February 2000, when cis-1,2-dichloroethylene was detected above the MCL of 5 $\mu\text{g/L}$ at 5.2 $\mu\text{g/L}$. Contaminants migrating downgradient from this vicinity will ultimately be captured by the OU III Middle Road Pump and Treat system. Sampling of this well for organic compounds will be terminated however, this well will continue to be sampled semi-annually for radionuclides as part of the OU IV AOC 6 Program.

076-18

This well is located to the southeast of the 1977 spill and is also monitored as part of the Major Petroleum Facility (MPF) monitoring program. The only VOC or semi-VOC detection exceeding MCLs was bis (2-ethylhexyl) phthalate for one round in 2001 and one of the two 2002 rounds. This compound was not detected during the first round of 2003. Bis (2-ethylhexyl) phthalate is a common laboratory contaminant. This well will continue to be monitored for VOCs and semi-VOCs semi-annually as part of the MPF monitoring program.

076-19

This well is located to the southeast of the 1977 spill and is also monitored as part of the Major Petroleum Facility monitoring program. The only VOC or semi-VOC detection exceeding MCLs since 1999 was 16 $\mu\text{g/L}$ of 1,2-dichloroethene in April 2002. There have been no subsequent detections of 1,2-dichloroethene in this well. This well will continue to be monitored for VOCs and semi-VOCs semi-annually as part of the MPF monitoring program.

076-21

This well is located south of the 1977 spill. There have been no VOC or semi-VOC detections exceeding MCLs since 2000. Sampling of this well for organic compounds will be terminated and the well abandoned.

076-22

This well is located south of the 1977 spill and is also sampled for radionuclides under the OU IV AOC 6 Program. There have been no VOC or semi-VOC detections exceeding MCLs since 2000. Sampling of this well for organic compounds will be terminated however, the well will continue to be sampled semi-annually for radionuclides.

076-23

This well is located to the east of the 1977 spill and is also downgradient of suspected VOC source areas in the vicinity of the Central Steam Facility and the MPF. This well is also sampled for VOCs and semi-VOCs as part of the MPF Monitoring Program. There have been no VOC or semi-VOC detections exceeding MCLs since November 2001. The well will continue to be sampled semi-annually for VOCs and semi-VOCs as part of the MPF Monitoring Program.

076-24

This well is located upgradient of the 1977 spill. There have been no detections of VOCs or semi-VOCs in this well historically. The well is also part of the OU IV AOC 6 Program and will continue to be monitored for radionuclides semi-annually under this program.

076-178

This well is located south of the 1977 spill area and is clustered with 076-179. There have been no VOC or semi-VOC detections exceeding MCLs since 1998. Sampling of this well for organic compounds will be terminated and the well abandoned.

076-179

This well is located south of the 1977 spill area and is clustered with 076-178. There have been no VOC or semi-VOC detections exceeding MCLs since 1998. Sampling of this well for organic compounds will be terminated and the well abandoned.

076-180

This well is located south-southwest of the 1977 spill and is clustered with wells 076-181 and 076-182. There have been no detections of VOCs or semi-VOCs in this well exceeding MCLs since June 2000. Sampling of this well for organic compounds will be terminated and the well abandoned.

076-181

This well is located south-southwest of the 1977 spill and is clustered with wells 076-180 and 076-182. It is also sampled for radionuclides under the OU IV AOC 6 Program. The only VOC or semi-VOC detections in this well exceeding MCLs were for bis (2-ethylhexyl) phthalate during the two 2001 sampling rounds. This compound has not been detected since that time. Sampling of this well for organic compounds will be terminated however, the well will continue to be sampled semi-annually for radionuclides.

076-182

This well is located south-southwest of the 1977 spill and is clustered with wells 076-180 and 076-181. It is also sampled for radionuclides under the OU IV AOC 6 Program. There have been no VOC or semi-VOC detections in these wells exceeding MCLs since 2000. Sampling of this well for organic compounds will be terminated however, the well will continue to be sampled semi-annually for radionuclides.

076-183

This well is clustered with 076-184 and is located immediately north of Brookhaven Avenue. It is also sampled for radionuclides under the OU IV AOC 6 Program. The only VOC or semi-VOC detection exceeding MCLs since 1997 was a single detection of bis (2-ethylhexyl) phthalate in 2000. This compound was not detected prior to this occurrence or since. Sampling of this well for organic compounds will be terminated however, the well will continue to be sampled semi-annually for radionuclides.

076-184

This well is clustered with 076-183 and is located immediately north of Brookhaven Avenue. It is also sampled for radionuclides under the OU IV AOC 6 Program. The only VOC or semi-VOC detection exceeding MCLs since 1997 was a single detection of bis (2-ethylhexyl) phthalate in 1999. This compound was not detected prior to this occurrence or since. Sampling of this well for organic compounds will be terminated however, the well will continue to be sampled semi-annually for radionuclides.

076-185

This well is clustered with 076-186 and is located to the southeast of the 1977 spill and south of the MPF and Central Steam Facility. The well is downgradient of the AS/SVE system capture zone. cis-1,2-dichloroethylene has been detected in this well at concentrations ranging up to 26 ug/L. Contaminants migrating downgradient from this vicinity will ultimately be captured by the OU III Middle Road Pump and Treat system. This well will continue to be monitored for VOCs on a semiannual basis.

076-186

This well is clustered with 076-185 and is located southeast of the 1977 spill and south of the MPF and Central Steam Facility. The well is downgradient of the AS/SVE system capture zone. There have been no VOCs detected exceeding MCLs since February 2000. Several semi-VOCs were detected during the February 2002 sampling round but were not detected previously or since that time. Sampling of this well for organic compounds will be terminated and the well abandoned.

A summary of plans for OU IV AOC 5 (AS/SVE) monitoring wells is provided in Table 3.

Table 3. Planned OU IV AOC 5 Monitoring

| Well ID | Continued Post-Closure Monitoring for VOCs/semi-VOCs under OU IV AOC 5 Program | Continued Monitoring for Radionuclides under OU IV AOC 6 Program | Continued Monitoring for VOCs/semi-VOCs for MPF Program | No further Monitoring/Well Abandonment |
|---------|--|--|---|--|
| 076-02 | | | | x |
| 076-04 | x | | | |
| 076-05 | | x | | |
| 076-06 | x | | | |
| 076-07 | | x | | |
| 076-08 | | | | x |
| 076-09 | | x | | |
| 076-18 | | | x | |
| 076-19 | | | x | |
| 076-21 | | | | x |
| 076-22 | | x | | |
| 076-23 | | | x | |
| 076-24 | | x | | |
| 076-178 | | | | x |
| 076-179 | | | | x |
| 076-180 | | | | x |
| 076-181 | | x | | |
| 076-182 | | x | | |
| 076-183 | | x | | |
| 076-184 | | x | | |
| 076-185 | x | | | |
| 076-186 | | | | x |