



U.S. DEPARTMENT OF
ENERGY

OFFICE OF
**ENVIRONMENTAL
MANAGEMENT**

Well MIDDLE-2051 Path Forward

Presentation to Citizens Advisory Board

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- Beginning in November 2015, the solvent perchloroethylene (PCE) was detected in MIDDLE-2051 water samples
 - The detections varied from one-tenth to hundreds of times the federal drinking water standard
- DOE, USGS, and Fluor Idaho aggressively investigated this anomaly due to the potential impact to the aquifer and public's interest in groundwater protection
- Upon follow-up sampling, it was concluded that the tubing fluid is contaminated with PCE -- and PCE is not believed to be present in the aquifer surrounding the well
 - All three agencies (USGS, DEQ, and DOE/ICP) now have validated data from the June sampling event; all results consistent across the participants
- The agencies agreed to implement the New Site Identification process from the Operable Unit 10-08 ROD to further study this phenomenon

Timeline of Events Date to Date

Sept. 2005	MIDDLE-2051 well installation completed under direction of Westbay tech rep Mark Lessard
Sept. 2005	MIDDLE-2051 groundwater sampling event; all VOCs were non-detect
May-Jun 2006	Groundwater sampling event; no VOCs detected in GW samples (all zones)
June 2006	Groundwater sampling event; no VOCs detected in GW samples (all zones)
June 2006	Well Completion Report for new Westbay wells MIDDLE-2050A and -2051 (RPT-178)
Nov. 12, 2013	Groundwater sampling event; no VOCs detected in GW samples (upper two zones)
Nov. 10, 2015	Groundwater sampling event; PCE detected in GW samples (upper two zones)
Jan. 11, 2016	ICP collected equipment rinsate blanks from WB sampling probe; no VOCs detected
Mar. 3, 2016	L&V Report submitted to Agencies containing Nov. 2015 WAG 7 lab results
Mar. 28, 2016	Confirmation sampling event; PCE detected in GW samples (upper two zones)
June 8, 2016	USGS, DEQ and ICP co-sampling event; PCE detected in GW samples from deepest two zones
June 10, 2016	Post Register article "Agencies look to solve INL groundwater mystery"
June 30, 2016	USGS Confirmation sampling event (deepest zone only); PCE detected

Timeline of Events Date to Date (cont'd)

July 5, 2016	ICP performed reconnaissance from US-20 Rest Area along river channel to MIDDLE-2051
July 7, 2016	USGS US-20 Rest Area Well sampling event; no VOCs detected in water samples
July 18, 2016	USGS performed downhole videolog in MIDDLE-2051
July 19, 2016	USGS sampled tubing fluid from bottom of well MIDDLE-2051; PCE detected
Aug. 4, 2016	NSID Part A form for MIDDLE-2051 investigation submitted to DOE-ID, DEQ and EPA
Aug. 17, 2016	Post Register reporter contacts USGS for follow-up on MIDDLE-2051 investigation
Aug. 18, 2016	Conference call with Post Register reporter regarding PCE detections in MIDDLE-2051
Aug. 19, 2016	Post Register article "Mystery continues over water contamination"

New Site Identification Process Will Help Guide the Investigation

- The New Site Identification (NSI) Process includes:
 1. Making an initial assessment of a potentially contaminated site and
 2. Determining if an action is required. Possible responses could include: (a) no action, (b) no further action with institutional controls, (c) remedial action or further investigation, or (d) assigning the site to another (cleanup area) for management
- Although not an environmentally contaminated site (i.e., there is not a release to the environment), using the NSI process will ensure a methodical, disciplined process is used to investigate MIDDLE-2051
 - All documentation generated during this process will be placed in the Administrative Record for public reading
- Using the NSI process provides a contract mechanism to have Fluor study this issue

Questions to be answered:

- How did the well become contaminated?
- Could there be problems with other Westbay wells?
- Can the well be rehabilitated satisfactorily?
- What preventative measures or process improvements can be made?

Key Steps

- Further examine MIDDLE-2051 to help guide this investigation – USGS, ICP
- Examine other Westbay wells and sample tubing fluid – USGS
- Determine historic access of MIDDLE-2051 – USGS, ICP
- Inspect and sample equipment used in the well – ICP
- Inspect and sample location where equipment is stored – ICP
- Examine well construction materials – ICP

Fall 2016

- Sample other key WB wells/tubing fluids to check for introduced contamination – USGS
- Assess past sampling WB pressure measurements – USGS & ICP/Fluor
- Examine seals on WB sample probes – USGS & ICP/Fluor
- Evaluate USGS tubing fluid sample results – USGS & ICP/Fluor
- Videolog remaining WB wells – ICP/Fluor
- Finalize Field Sampling Plan – ICP/Fluor with Regulatory Agency approvals

Winter 2016/2017

- Equipment sampling – collect grease, smear and swipe samples for VOC analysis – ICP/Fluor

Spring 2017

- Evaluate results from equipment samples – USGS & ICP/Fluor
- Collect casing sediment sample from 2051 – ICP/Fluor
- Collect dark stain samples from 2051, if possible – ICP/Fluor
- Collect tubing fluid samples from additional WB wells for VOC analysis (provide logic in FSP) – ICP/Fluor
- Collect sediment samples from additional WB wells, if necessary – ICP/Fluor

Summer 2017

- Evaluate results from fluid and sediment samples – USGS & ICP/Fluor
- Follow up sampling, as needed – USGS & ICP/Fluor
- Remove/replace contaminated tubing fluid from impacted WB wells; perform other well rehab tasks as needed – USGS & ICP/Fluor
- Issue final report – ICP/Fluor with Regulatory Agency approvals

NOTE: Some activities are weather/winter dependent

Conclusion

- PCE is present in the MIDDLE-2051 tubing fluid and is not believed to be in the surrounding aquifer
- The contaminated tubing fluid is not a threat to the aquifer
- Since the discovery of PCE in the well, DOE, USGS, and Fluor Idaho – in consultation with the State of Idaho and EPA – have invoked the New Site Investigation process to methodically investigate the cause
- NSI documentation will be available to the public
- MIDDLE-2051 is a valuable resource to the Environmental Management Program and also USGS's aquifer characterization research; it will be rehabilitated if possible