Site Hazard Assessment
Recommendation for No Further Action

428 N. Hartford Drug Lab
428 N. Hartford Street
Kennewick, WA 99336
Benton County

Parcel ID=1-3699-408-0055-001
Section 1, Township 8N, Range 29

7783848

Ecology Facility/Site ID: No.~~778348~~
Date: July 14, 2009

Background

428 North Hartford Street is located in a residential area in the northern part of Kennewick, WA. Kennewick is located in the in southeastern portion of the state. The house and detached garage at 428 North Hartford is owned by Keith Hutto and has been used as a rental property since 1998. According to Kennewick Police Department (KPD) documents, the tenants living at the residence were issued search warrants on April 6th, May 25th, and August 3rd of 2001. The search warrants were issued due to supposed illegal drug manufacturing on the site. Methamphetamine (meth) drug manufacturing materials were found at the site on April 6th and August 3rd. The house and garage on the property were declared unfit for use by the Benton-Franklin Health District (BFHD) due meth manufacturing on April 24, 2001. Following this date, at least one previous tenant continued to live at the property illegally on a sporadic basis. The residence remained under the "unfit" condition until both the house and garage had been decontaminated by Morse Environmental, Inc (Auburn, WA). On November 10, 2003 the BFHD released the house to allow habitation. In December 2003 the current tenant moved into the house and has occupied it to the present time.

Previous Site Investigations

On April 6, 2001 Kennewick police officers, along with officers from the Tri-City Drug Task Force, raided the residence and found evidence that meth was being manufactured using the anhydrous ammonia/lithium metal/pseudo-ephedrine reduction method (also known as the "Nazi" method). Evidence included a propane tank containing anhydrous ammonia, mason jars containing solvents, rock salt, ¼ inch rubber tubing, Red Devil Lye, and gray material which tested positive for meth. Most of the drug-making materials were found in the detached garage. Officers also noticed that there appeared to be areas in the southwest corner of the property where materials had been recently buried. In addition, the area smelled of ammonia. They dug several holes and found a small back pack but no other materials. Later the same day, Mark Layman and Richard Bowman of the Washington State Department of Ecology, Central Regional Office (DOE-CRO) arrived at the scene in response to an Environmental Report Tracking System (ERTS) notification filed by KPD (ERTS C517470). Investigators were taken to the southwest

corner of the back yard where four shallow holes had been dug. They noticed that there was a dark staining of the soil that covered an area approximately 24 by 15 feet. Air samples were taken that indicated a high concentration of volatile organic compounds. The soil pH was tested and determined to be pH=11 indicating anhydrous ammonia or sodium hydroxide contamination. Because the pH was so high, their recommendation was that the top six inches of soil be removed and then back-filled with soil. Investigators probed the soil some more but nothing else was found. Detectives processed and removed the lab components while DOE removed the tank containing the anhydrous ammonia. There did not appear to be any further information regarding the cleanup of the soil. When I interviewed Mr. Hutto on April 9, 2009, he said that no soil was removed from the property.

KPD raided 428 North Hartford Street again on May 25, 2001. On this occasion, there was not evidence of drug manufacturing. The property was raided again on August 3, 2001. Detectives found materials indicating the methamphetamine manufacturing was again taking place by the using the "Nazi" method. They found mason jars with clear acid solution, coffee filters, rock salt, muriatic acid and a hydrogen chlorine gas generator. Materials were found in or around the outside of the garage. The drug lab was reported to DOE (ERTS C520110) and Jeff Lewis responded to the call. He removed 0.5 gallons of flammable liquids and 0.5 gallons of corrosive liquid acids. Police showed Lewis the holes in the soil that Bowman had previously tested. Police suspected that there were materials still buried there. It was unclear from the report if any action was taken to determine if materials were still buried there.

At a later date, the DOE recommend that an initial investigation be performed to determine if materials may still be buried at the site. BFHD was contracted to perform the initial investigation. On August 17, 2004 Clifford Bates of BFHD, along with the City of Kennewick staff, used a metal detector to locate any buried metal containers on the site. In the area originally identified as a burial site (southwest side of house), the investigators found a buried fire extinguisher which they believed was used to store anhydrous ammonia. The tank was later removed by the Tri-City Metro Drug Task Force. Mr. Bates took a soil sample near the burial site and had the BFHD lab check the pH. The pH of the soil was 5.8 which is much less than the pH taken on April 6, 2001(pH=11). Mr. Bates noted that the soil was not "stained" as was previously noted on April 6, 2001. On August 24, 2004 Mr. Bates submitted his Initial Investigation report to DOE-CRO. In his report he stated that evidence was found that indicated illegal dumping of hazardous waste on the property and that there may be a potential threat to human health or the environment. His recommendation was that a Site Hazard Assessment needed to be performed.

Site Hazard Assessment

In early April 2009 I obtained permission from the property owner of 428 North Hartford Street in order to gain access. I also obtained permission from the current tenant, Mureta Hayes, and on April 6, 2009 I visited the site to perform a Site Hazard Assessment (SHA). The home is in a residential area in north Kennewick. The home is supplied city water and sewer as are other homes in the neighborhood. There is a city park

approximately 250 feet to the west and the closest surface water is the Columbia River which is approximately 1550 feet to the northwest. The yard was partly dirt with weeds and grass growing in some areas. The tenant said she did not water the yard very often but that due to all of the rain this spring the weeds and grass were growing well. In some areas the vegetation was very lush which could possibly be due to the nutrient effects of ammonia by-products that were discarded in the yard from the meth production. The yard was level with the exception of some excavation next to and under the southwest side of the house. In this area the ground slopes toward the underside of the house. It appeared that at one point a renovation project was started in this area of the house but never completed.

When I interviewed Ms. Hayes she told me she was present on August 17, 2004 when Mr. Bates performed his initial investigation of the property. She said that they did a very thorough search. They searched the entire backyard with the metal detector and the fire extinguisher was the only item that they located. I asked her if she felt that her health was in jeopardy due to the meth lab activities that had occurred in the past and she responded that she did not. Ms. Hayes has two young grandchildren that live with her and they play in the yard occasionally. I could not see any visible signs of staining in the soil but it was difficult to tell as there was vegetation and debris covering part of the yard. I did not smell any odors such as ammonia or organic solvents.

I collected four soil samples from depth of approximately six inches. Sites where the soil samples were collected from are shown in Figure1. Samples A and B were taken in the approximate location where the fire extinguisher was discovered and samples C and D were taken near the south side of the garage. The soil was mixed with a small amount of deionized water and then the pH was tested using pHydrion paper (Micro Essential Laboratory). All samples had a pH in the range of 5-6. According to Bob Stevens at the Washington State Agricultural Cooperative, soils in the Kennewick area typically have pH in the range of 7.2-8.0. However, he said that fertilizers, such as anhydrous ammonia, will be eventually be broken down by microbes over time producing nitrates. The nitrates are more acidic and can reduce the soil pH.

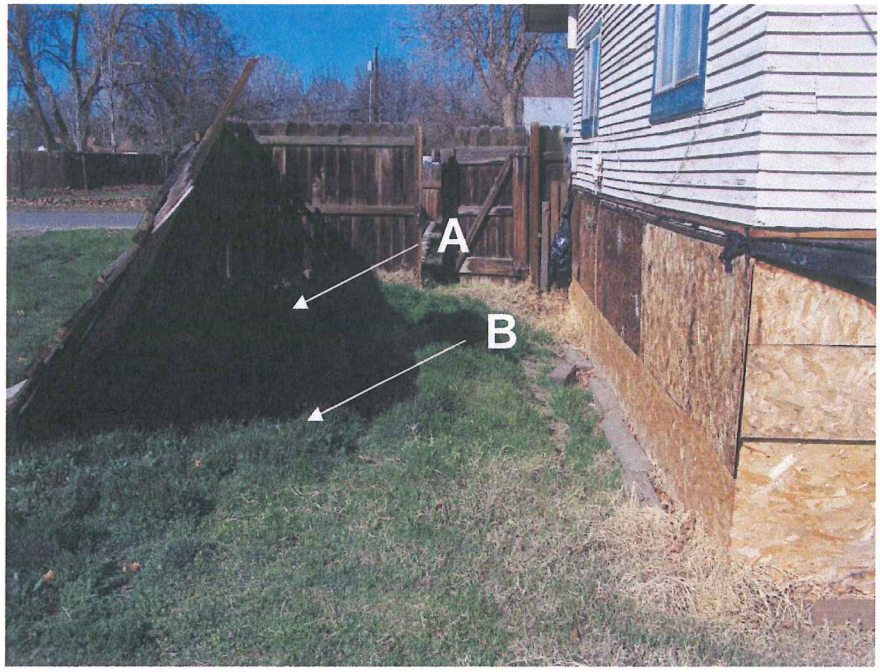

Figure 1. Top photo taken of southwest corner of the house at 428 N. Hartford Street where a fire extinguisher was found in 2004. Bottom photo shows detached garage where meth was produced. Labels "A-D" show approximate locations where soil samples were taken for site hazard assessment on April 7, 2009.

Pathway Information
According to reports listed in this SHA, **Soils** at the site were contaminated at one time by chemicals used in meth production. Possible contaminants may have been acids, bases, organic solvents and lithium. Chemicals that were listed in police documents include anhydrous ammonia (one above ground tank and one buried tank), muriatic acid, 2 quarts of unknown acid (pH=1), Red Devil Lye, 14 blister packs of pseudo ephedrine (30 mg tabs),and lithium batteries.

The **Surface Water Pathway** is not likely a significant route of potential exposure at this site due to the fact that the nearest surface water is approximately 1600 feet away and annual precipitation in this area is only 6-8 inches.

The **Air Pathway** is also likely not of any significant concern due to the fact that the organic solvents have more than likely evaporated in the eight years since meth production was halted.

No incidences of encounters with **Groundwater** were noted when minor digging was performed at the site. Large volumes of waste are not typically generated during meth production so it is unlikely that groundwater contamination occurred. In addition, homes in the area use drinking water supplied by the City of Kennewick.

Conclusions and Recommendations
I consulted with Will Strand and Mark Layman of the DOE-CRO in regards to this SHA. Both have experience with meth lab cleanup and the hazardous chemicals that are used to produced meth. KPD believed that the method of meth production use at the SHA site was the "Nazi" method. According to Will Strand the main chemical hazards resulting from this method would be from organic solvents (like acetone), acids (hydrochloric), anhydrous ammonia, and lithium. He stated that due to the fact the there has been no meth activity at the property for approximately eight years that the threat to human health and environment would be minimal. Solvents have probably evaporated; acids and bases in the soil have more than likely been diluted due to rain, irrigation, and changes in soil chemistry. I was also told that lithium oxidizes to harmless forms when exposed to moisture. Mr. Bates' team did a thorough search of the property in 2004 and removed the one item they found. In addition, Mr. Bates data and my soil data indicate that the soil pH is not extreme (~5-6) and would not be considered hazardous.

It is recommended that this site receive no further action under MTCA, based on WAC 173-340-310(5)(d)(ii): that a release of a hazardous substance has occurred at the site, but in the department's judgment, does not pose a threat to human health or the environment.

References
L.E.A.D. Task force Investigative Report (Case No. 01-003352), written by Detective R. Beghtol, April 16, 2001.

Kennewick Police Department Supplemental Report Narrative (Case No. 01-07729) written by Detective Simon Mantel, April 13, 2001.

Tri-City Metro Drug Task Force Narrative/Supplemental Report (TF #01-088A.TB) written by Detective T. Boehmler, August 8, 2001.

Initial Investigation Field Report (pertaining to ERTS C520110 and C517470)written for Site 428 N Hartford, Kennewick, WA by Clifford Bates, August 17, 2004.

Site Assessment Report for the Suspected Meth Lab Site Located at 428 N. Hartford, Kennewick, WA, Written by Jeffrey D. Brown for Action Environmental, Inc., May 23, 2001.

Morse Environmental, Inc. (Auburn, WA) Laboratory Results, Report No. 2003-7, February 4, 2002.

"Notice of Property Release..." document for 428 N. Hartford, Kennewick, WA, file #011072, Benton-Franklin Health District, November 17, 2003.

Environmental Reports Tracking System, DOE-CRO #C517470, Investigators Mark Layman and Ric Bowman, April 6, 2001.

Environmental Reports Tracking System, DOE-CRO #C520110, Investigator: Jeff Lewis, August 3, 2001.