U.S. EPA Final Decision

For
Flexible Products Company Site
A Wholly Owned Subsidiary of The Dow Chemical Company

EPA I.D. No. ILD 043 912 922

July 2011

Final Decision on the Selected Remedy for Contaminated Soil and Groundwater at the former Flexible Products Company Site in Crest Hill, Illinois

INTRODUCTION

Pursuant to the Resource Conservation and Recovery Act (RCRA), the U. S. Environmental Protection Agency (EPA) is issuing this *Final Decision* to select the appropriate corrective measures for past releases of hazardous waste from the former Flexible Products Company (FPC) facility ("Site") located in Crest Hill, Illinois. The former Flexible Products Company is a wholly owned subsidiary of The Dow Chemical Company (Dow). This Final Decision selects the remedy to be implemented at the Site based on the Administrative Record including any public comments. EPA's *Statement of Basis* for the proposed remedy was available for public review and comment from November 26, 2010 through January 3, 2011. No public meeting was requested by the public, and no comments were received during the 40-day public comment period. The documents that are included in the Administrative Record are listed in the attached *Index to the Administrative Record* (Attachment 1).

FACILITY CONDITIONS, RISKS POSED, AND INTERIM MEASURES TAKEN

The Site is located at 2050 North Broadway in Crest Hill, Lockport Township, Will County, Illinois. The Site encompasses approximately 9 acres at the northwestern corner of North Broadway Street and Chaney Avenue (Figure 1). Dow currently owns the Site and has entered into a Voluntary Corrective Action Agreement with EPA to perform corrective action at the Site under RCRA. The earliest use of the Site was as a limestone quarry beginning in the 1800s. Lumbering operations followed in the 1920s through the 1960s. In the early 1970s, a trucking company initiated filling of the quarry. Records indicate that a variety of materials, including construction debris, slag, trees, tar paper from a warehouse fire, petroleum tank bottoms, sludges, and asphaltic materials, were used to fill the quarry. These waste disposal operations occurred between 1970 and 1973. Subsequent waste disposal was performed by owners of the Site in the later 1970s and early 1980s. This material consisted of roadway debris and excess soils or construction materials generated during facility upgrades or work in the vicinity of the Site. Cross-sections developed for the Site in 2003 indicate that only a portion of the center of the quarry was filled with "waste" materials that have introduced the environmental conditions associated with the Site. For structural reasons, manufacturing operations at the Site have largely been conducted outside the footprint of the former quarry.

Former manufacturing operations at the Site consisted principally of polyurethane foam production on the eastern half of the property. Polyurethane foam was made by reacting isocyanate with certain types of polyol to create a tough, but rigid, plastic material.

Dow purchased the Site in 2000 and continued the polyurethane foam operations conducted by previous owners. Following a transition period, Dow completed final shutdown of the polyurethane foam operations in September 2004. Demolition of most of the former manufacturing buildings and ancillary equipment at the Site (for example, tanks and piping), along with the surrounding concrete, was completed in early 2006. All of the surrounding concrete and demolition materials were properly managed off-site. Three buildings remain at the Site, Building 2 (a limestone building), Building 10 (a warehouse), and the Office Building, along with a parking lot (Figure 2). In addition, a small shed is located just north of the Office Building and on the south-central perimeter of the Site. All other structures have been demolished. A stormwater retention basin is located on the north side of the Site.

Facility Conditions

Hydrogeological Setting

The geology in the vicinity of the Site consists of a thin veneer of unconsolidated sediments that overlay Silurian Age dolomite bedrock. In the Joliet area, bedrock is primarily dolomite. Regionally, this portion of Will County has bedrock exposed along the banks of much of the Des Plaines River, with glacial outwash and fluvial sediments in the river bed. Lower in the section, the dolomite becomes more thinly bedded, contains more silt, and has less chert. Bedrock at the Site is more or less horizontal and thinly bedded weathered cherty dolomite, which is overlain by less than a foot to over 20 feet of fill material. The Des Plaines River and parallel Chicago Sanitary and Ship Canal (Figure 1) are the dominant geographic features in the area. The topography of the immediate area slopes east toward the Des Plaines River valley. The surface topographic relief near the City of Crest Hill ranges from near 670 feet above mean sea level (MSL) in the southwest portion of Crest Hill to approximately 540 feet above MSL at the banks of the Des Plaines River to the east. The west side of the Site has a vertical exposure of Silurian dolomite, and the ground surface elevations at the Site range from approximately 605 feet above MSL at the top of the bedrock in the west to approximately 580 feet MSL at the lowest portion of the Site in the stormwater retention basin in the center of the Site.

Surface water drains to the center of the Site and into the stormwater retention basin, which is a remnant of previous quarrying operations. There is no outlet for water in the stormwater basin. Groundwater in the unconsolidated material and shallow bedrock form a single aquifer, and groundwater flows through the bedrock via bedding planes, fractures, weathered surfaces, and solution features eastward towards the Des Plaines River.

The ground surface along the entrance, the Office Building, and around the manufacturing complex is paved with asphalt and concrete, and the remainder of the Site surface is covered with gravel. The northeastern portion of the Site contains a 0.25-acre stormwater retention basin that is surrounded by wooded vegetation. Off-site stormwater, received from the residential area to the west, and all facility stormwater, drains to the stormwater retention basin. There is no off-site drainage of stormwater at the Site. The western boundary of the Site contains a vertical exposure of dolomite bedrock that is 5 to 15 feet high. This vertical bedrock exposure is the visible remains of previous stone quarrying operations.

Ecological Setting

The Site is developed and is covered by buildings, gravel, or pavement (concrete or asphalt) over the vast majority of the property (Figure 2). The Site is zoned industrial and is surrounded by developed properties—single family homes, commercial property, a railroad line, and a public highway. There is a small upland vegetated border along a portion of the western boundary of the Site. The northeastern portion of the Site contains a 0.25-acre stormwater retention basin that receives runoff from the Site grounds. The basin is surrounded by wooded vegetation and is the extent of any potential ecological habitat at the Site.

Investigation Results

A RCRA Facility Investigation (RFI) was performed at the Site in order to determine the nature and extent of contamination, as well as the need for interim measures. The RFI is the initial investigation in the Corrective Action Process. During the RFI, soil, groundwater, surface water, sediment from the retention pond, and groundwater were sampled and the results were compared against human health and/or ecological screening criteria. If certain chemicals are above the screening criteria, then those chemicals are considered to be contaminants of concern and are assessed further in the risk assessment. Current conditions at the Site are well understood, based on over 20 years of work to evaluate the Site's history, physical environment, and contaminant distribution and movement in soil, sediment, indoor and outdoor air, and groundwater at the Site. This information was summarized and presented in the Current Conditions Report (CCR). Environmental samples and geologic and hydrogeologic information collected during these investigations were used to formulate the conceptual site model, as documented in the CCR. Several supplemental investigations have been completed since the CCR was completed. A vapor intrusion and indoor air investigation at existing buildings was completed in fall 2008. A bedrock and groundwater investigation was completed in 2009. These investigations confirmed the Site conceptual model at the Site.

At this Site, soil data were compared to risk-based screening levels indentified in the EPA regional screening table. EPA industrial risk-based concentrations (RBCs) were used to compare Site soil concentrations to risk-based human health criteria. Maximum contaminant levels (MCLs) and risk-based soil to groundwater screening levels were used to evaluate the effects of soil on groundwater. Sediment data also were compared to regional screening levels (RSLs) in the EPA regional screening table. EPA industrial RBCs for soil were used to compare Site sediment concentrations to risk-based human health criteria. Sediment results were compared to screening levels for industrial soil because human health screening levels have not been established for sediment. An additional assessment of the sediments was conducted considering a trespasser exposure scenario. In addition, sediments were compared to Region 5 ecological screening levels (ESLs) for sediment to evaluate exposure to ecological receptors. All surface water data were compared to both the EPA MCL and/or tap water criteria and the EPA National Ambient Water Quality Criteria (AWQC) for Wildlife to evaluate effects to both human and ecological receptors. Although the surface water will not be used as a drinking water source, the drinking water criteria are considered to be conservative human health screening criteria. The lower (more stringent) of the EPA MCL and EPA RSL tap water RBC was used to evaluate Site groundwater data for risks to human health. When both values existed, the lower value was used for the screening. Subslab vapor, indoor air, and outdoor air samples collected at the Site were compared to EPA RSLs

for industrial air. Using the draft guidance on vapor intrusion, constituent concentrations based on 10^{-5} target risk levels were used to evaluate the data.

Based on the RFI and subsequent investigations, in 2010 the FPC Site achieved a "yes" determination for both the Human Health and Groundwater Environmental Indicator (EI) Reports. The EI Reports are used by the RCRA Corrective Action program to indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. The Site achieved a "yes" determination for the human health EI indicating that there are no unacceptable human exposures to contamination that can reasonably be expected under current land and groundwater use conditions at the Site. In addition, the Site achieved a "yes" determination for the migration of contaminated groundwater EI. This indicates that the migration of contaminated groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original area of contamination.

The process for identifying human health and ecological risks consisted of establishing criteria, comparing investigation results to criteria, identifying potentially complete pathways under current and planned future land uses, and assessing whether complete pathways are significant. The risks identified for the Site are summarized below.

Human Health Risks

During the RFI and after contaminant levels were identified, a human health risk assessment was performed to determine the potential for health problems to occur if the contamination was not addressed. Based on that risk assessment, in 2010 EPA determined that human health exposures to contaminated soil and groundwater are currently under adequate control at the Site and that several complete exposure pathways at the Site are not significant. However, there are several complete exposure pathways that represent potential future human health and environmental risks and, therefore, warrant corrective action. These potentially complete human health exposure pathways (under commercial/industrial land use conditions) include the following:

Table 1: Surface soil direct contact for potential future construction workers and trespassers

Constituents of Interest in Surface Soil (0-2 ft bgs) that Exceed USEPA Regional Screening Levels for Industrial Soil*

Analyte	Frequency			Screening Level	Units	Surface Soil Maximum Detected Concentration
	Number of Samples	Number of Detections	Screening Level Exceedance			
METALS						
Arsenic	21	21	21	1.6	mg/kg	18
Benzo (a) anthracene	21	12	1	2.1	mg/kg	4.1
Benzo (a) pyrene	21	11	7	0.21	mg/kg	4.9
Benzo (b) fluoranthene	21	12	1	2.1	mg/kg	8.4
Dibenzo (a,h) anthracene	21	3	1	0.21	mg/kg	0.98
Indeno (1,2,3-c,d) pyrene	21	8	1	2.1	mg/kg	4.2

* This table summarizes contaminant of interest (COI) data from Table 4-1 and Table C-1 (Appendix C) of the Crest Hill CCR.

The human health EI identifies arsenic and eight semivolatile organic compounds as contaminants of interest (COIs) that exceed EPA human health industrial risk-based concentrations (RBCs). The vast majority of the locations where soil exceeds the screening levels for Site COIs are within the filled quarry. Some surface soil exceedences were documented near the perimeter of the Site within the former manufacturing area, although the buildings in this area have been demolished and the surface has been covered with gravel.

Analytical results from shallow soil samples collected from less than 2 feet BGS from the Site were evaluated as part of the human health risk assessment using EPA's ProUCL program to determine the 95% upper confidence limit on the mean (95% UCL). As shown in Table 1, the following analytes have maximum concentrations that exceeded the industrial RBC screening criteria in surface soil: arsenic and 5 PAHs [benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, dibenzo(ah)anthracene, and indeno(1,2,3-cd)perylene]. The statistical calculations using EPA's ProUCL program determined the 95% UCL for total arsenic to be 8.5 mg/kg, which is below the published Illinois statewide background arsenic concentration (13 mg/kg for Counties Within Metropolitan Statistical Areas, TACO Appendix A, Table G).

Evaluation of PAH surface soil data for benzo(a)pyrene and benzo(b)fluoranthene determined that the results were not normally or log normally distributed. Therefore, the 95% UCL calculations resulted in values that were similar to the maximum detected PAH concentrations that were detected at one sampling location (OBG-2-17). The maximum PAH concentrations detected at location OBG-2-17 for benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, dibenzo(ah)anthracene, and indeno (1,2,3-cd) perylene exceed industrial RBC screening criteria based on 10^{-6} target risk, but are all less than RBCs based on 10^{-4} target risk. It is noted that sample OBG-2-17 was collected at a depth of approximately 10 inches bgs, and this area was subsequently covered with gravel after the adjacent buildings were demolished. Furthermore, location OBG-2-17 is within the designated area where cover disturbance and subsurface excavations will be restricted via institutional controls. Lastly, the single near surface soil sampling location that exceeded RSL screening criteria and is located outside of the restricted excavation area (OBG-2-13) had a benzo(a)pyrene concentration of 0.41 mg/kg, which is far below the published Illinois statewide background concentration for this compound (2.1 mg/kg for Metropolitan Areas [Will County], TACO Appendix A, Table H).

These circumstances support a conclusion that detected concentrations of arsenic, benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, dibenzo(ah)anthracene, and indeno (1,2,3-cd) perylene in shallow soil at the Site are typically below published statewide background levels, are below industrial RBCs based on 10^{-4} target risk levels, and the areas affected by these detected concentrations of contaminants generally will receive additional exposure protection through institutional controls. Therefore, there are no significant human health risks for potential construction workers and trespassers associated with exposure to surface soil.

Table 2: Subsurface soil direct contact for potential future construction workers

Constituents of Interest in Subsurface Soil (>2 ft bgs) that Exceed USEPA Regional Screening Levels for Industrial Soil

Analyte	Frequency			Screening Level	Units	Subsurface Soil Maximum Detected Concentration
	Number of Samples	Number of Detections	Screening Level Exceedance			
METALS						
Arsenic	22	19	9	1.6	mg/kg	9.2
3,3'-Dichlorobenzidine	25	1	1	3.8	mg/kg	4.3
Benzo (a) anthracene	25	12	6	2.1	mg/kg	390
Benzo (a) pyrene	25	11	10	0.21	mg/kg	260
Benzo (b) fluoranthene	25	11	6	2.1	mg/kg	270
Benzo(k)fluoranthene	25	9	1	21	mg/kg	200
Chrysene	25	12	1	210	mg/kg	340
Dibenzo (a,h) anthracene	25	7	6	0.21	mg/kg	92
Indeno (1,2,3-c,d) pyrene	25	9	3	2.1	mg/kg	240

- * This table summarizes COI data from Table 4-1 and Table C-1 (Appendix C) of the Crest Hill CCR.

Exposure pathways to on-site subsurface soils are not complete because pathways are controlled through safe work permitting processes that require identifying hazards and applying health and safety precautions for activities performed at the Site including, but not limited to, excavation and construction activities. In addition, these pathways will be further controlled via institutional controls. Therefore, there are no significant human health risks for potential future construction workers associated with exposure to subsurface soils.

Table 3: Sediment direct contact for potential trespassers

Constituents of Interest in Sediment that Exceed USEPA Regional Screening Levels for Industrial Soil

Analyte	Frequency			EPA RSL – Cancer Screening Level	Units	Maximum Detected Sediment Concentration
	Number of Samples	Number of Detections	Screening Level Exeedance			
METALS						
Arsenic	3	3	3	1.6	mg/kg	22
Benzo (a) pyrene	3	2	1	0.21	mg/kg	0.87

- * This table summarizes COI data from Table 4-1 and Table C-5 (Appendix C) of the Crest Hill CCR screened against industrial soil criteria.

The sediment human health direct contact pathway was evaluated based on exposure to sediments at the retention basin at the Site. The human health risk assessment determined that the estimated excess lifetime cancer risk for exposure to COIs is below the EPA risk management range of 10^{-6} to 10^{-4} and the cumulative hazard index for lifetime noncancer risk was less than 1. Because the use of the retention basin is not expected to change, this is also representative of future conditions. Therefore, there are no significant human health risks for potential future trespassers associated with exposure to retention basin sediments.

Table 4: Groundwater direct contact for potential future construction workers

Contamination found in groundwater that exceeds USEPA MCL Screening Levels

	MCL	Groundwater Maximum Detected Concentration	Location of Maximum Result	Interior/Bedrock
Total METALS (ppm)				
Arsenic	0.01	0.0895 J	ERM-3	Interior
Lead	0.015	6.5 J	ERM-3	Interior
Manganese	NA	6.3	MW-8r	Interior
Mercury	0.002	0.0018	ERM-3	Interior
Thallium	0.002	0.0058 J	ERM-3	Interior
PCBs (ppb)				
Aroclor-1242	NA	0.08 J	MW-15	Interior
Aroclor-1254	NA	0.07 J	MW-15	Interior
SVOCs (ppb)				
Benzo (a) anthracene	NA	0.263	MW-8r	Interior
Benzo (b) fluoranthene	NA	0.382	MW-8r	Interior
Dibenzo (a,h) anthracene	NA	0.381	ERM-5	Perimeter (Bedrock)
Indeno (1,2,3-c,d) pyrene	NA	0.296	MW-8r	Interior
Naphthalene	NA	24	MW-15	Interior
VOCs (ppb)				
1,1-Dichloroethane	NA	2.98 J	MW-13A	Interior
1,2,4-Trimethylbenzene	NA	17	MW-15	Interior
Benzene	5	2.81 J	MW-13B	Interior
Chloroform	NA	1.18 J	MW-18	Perimeter (Bedrock)
Ethylbenzene	NA	2.7	MW-15	Interior

- *This table summarizes COI data from Table 4-1 and Table C-4 (Appendix C) of the Crest Hill CCR and Table 4 from the bedrock and groundwater investigation report (CH2M HILL 2009).

Potential exposure pathways to an on-site facility worker or construction worker from constituents in groundwater are not complete. The City of Crest Hill provides potable water to the Site and groundwater is not used. In addition, groundwater contact is controlled through safe work permitting processes by the owner, Dow, and will be further controlled via other institutional controls at the Site. These processes require identifying hazards and applying health and safety precautions for activities performed at the Site including, but not limited to, excavation and construction activities. Therefore, there are no significant human health risks for exposure of potential future construction workers associated with exposure to groundwater.

In addition to the pathways identified above, the following are potentially complete human health pathways under future conditions:

- Exposure to groundwater as a drinking water source; and
- Exposure to indoor air for workers in existing Building 2 and future occupied structures that may be constructed on the Site.

These potentially complete human health pathways are evaluated and considered under the Alternatives Analysis.

Ecological Risks

EPA's Ecological Risk Assessment (ERA) Guidance was followed to determine whether contaminants at the Site posed a risk to ecological receptors. An ecological risk assessment is the process through which scientists evaluate the likelihood that adverse ecological effects might occur, or are occurring, due to exposure to one or more stressors, such as contamination. The process begins with a Screening Level Ecological Risk Assessment (SLERA) which is an evaluation to determine whether a more comprehensive risk assessment is needed.

The Site is developed and is covered by buildings, gravel, or pavement (concrete or asphalt) over the vast majority of the property (Figure 2). The Site is zoned industrial and is surrounded by developed properties—single family homes, commercial property, a railroad line, and a public highway. There is a small upland vegetated border along a portion of the western boundary of the Site. This area has limited habitat quality and is not of significant size. Therefore, the terrestrial pathways are considered incomplete or insignificant based on limited and degraded upland habitat. The retention basin was evaluated for ecological considerations relating to potential sediment and surface water exposures to transient wildlife. The following factors are important considerations relative to the retention basin:

- The retention basin has limited habitat quality because of its shallow nature, stagnant conditions, and fluctuating water levels due to its use as a stormwater management feature;
- The surrounding vegetated upland border has limited habitat quality because of the size of the area, its proximity to the Site and residential areas, and presence of debris;
- No viable benthic community or fish population are expected, although transient wildlife may use the retention basin as a water source; and
- The retention basin is planned to be used to manage stormwater for the foreseeable future.

Based on these factors, no complete non-transient ecological pathways were identified, and the aquatic pathways are considered incomplete or insignificant. Ingestion of surface water by transient wildlife is considered the only complete pathway. The SLERA compared surface water data to EPA's ambient water quality criteria (AWQC) for wildlife and determined that there is no potential unacceptable risk.

Interim Measures Taken

None.

CORRECTIVE MEASURES ALTERNATIVES CONSIDERED

Remedial action objectives (RAOs) have been identified to address potentially complete human exposure pathways for COIs at the Site. These objectives, listed below, were developed in consideration of both the current and reasonably expected future land use scenarios at the Site:

- Prevent Site reuse as residential property;
- Prevent incidental direct human exposure (ingestion, inhalation, and dermal contact) to COIs in soils and sediments that exceed established screening levels;
- Prevent future human ingestion of, and direct contact with, groundwater that contains COIs exceeding EPA screening levels;
- Prevent potential future exposures to soil vapor migrating from the quarry into new occupied structures that may be constructed at the Site; and
- Prevent exposure to soil vapor within existing buildings that exceed EPA screening levels.

Based on the remedial action objectives, and the findings of the human health and ecological risk assessments, the following four remedial alternatives were analyzed to address soil, groundwater, and sediment contamination at and from the FPC Site.

Alternative No. 1 – NO ACTION

Alternative No. 1 consists of no action at the Site including no changes to current Site status leaving the Site available for reuse consistent with current zoning. This alternative was retained as a baseline for the assessment of other alternatives, but because it is not protective of human health or the environment, it is not considered further in this analysis.

Alternative No. 2 – Management and Monitoring with Potential Non-Aqueous Phase Liquid (NAPL) Recovery

Alternative No. 2 consists of institutional controls to prevent groundwater use, institutional controls to restrict land use to its current industrial/commercial land use designation, protection against vapor intrusion into any future occupied structures, and continued maintenance of the cover over the former quarry. The existing cover over wastes in the former quarry would be managed and maintained to prevent direct contact. A groundwater monitoring plan would be followed to ensure conditions remain stable and impacted groundwater does not migrate off-site. As NAPL has been found in several of the on-site wells during previous sampling events, a NAPL removal plan has been developed that would address any NAPL detected at the Site in future groundwater monitoring events. In addition, Building 2 would be demolished to eliminate potential vapor intrusion risks.

Alternative No. 3 – Engineered Landfill Cover and Monitoring

Alternative No. 3 consists of institutional controls to prevent groundwater use, institutional controls to restrict land use to its current industrial/commercial land use designation, protection against vapor intrusion into any future occupied structures, and continued maintenance of the cover over the former quarry. An engineered cover would be installed over the former quarry to prevent direct contact and minimize infiltration. A groundwater monitoring plan would be followed to ensure conditions remain stable and impacted groundwater does not migrate off-site. A NAPL removal plan would be followed to address any detected NAPL. In addition, Building 2 would be demolished to eliminate potential vapor intrusion risks.

Alternative No. 4 – Remove Wastes from the Former Quarry and Dispose Off-site

Alternative No. 4 would consist of excavating and removing all the wastes from the former quarry and disposing them at an off-site RCRA landfill. In addition a groundwater monitoring plan would be followed to ensure effectiveness of the remedy on groundwater conditions. A NAPL removal plan would be followed to address any detected NAPL.

SELECTED REMEDY

EPA selects the following corrective measures as the remedies to address contaminated soil, groundwater, and sediment at the FPC Site.

Alternative No. 2 – Management and Monitoring with Potential NAPL Recovery

Alternative No. 2 consists of institutional controls to prevent groundwater use, institutional controls to restrict land use to its current industrial/commercial land use designation, protection against vapor intrusion into any future occupied structures, and continued maintenance of the cover over the former quarry. An environmental covenant setting forth appropriate activity and use restrictions and which meets the requirements of the Illinois Uniform Environmental Covenants Act, 765 ILCS Ch. 122, shall be recorded at the Site. The existing cover over wastes in the former quarry shall be managed and maintained to prevent direct contact. A groundwater monitoring plan shall be followed to ensure conditions remain stable and impacted groundwater does not migrate off-site. As NAPL has been found in several of the on-site wells during previous sampling events, a NAPL removal plan has been developed that would address any NAPL detected at the Site in future groundwater monitoring events. In addition, Building 2 shall be demolished to eliminate potential vapor intrusion risks.

This section profiles the selected remedy against the four threshold criteria and five balancing criteria.

Selected Remedy – Alternative 2: Management and Monitoring with Potential NAPL Recovery

1. Overall protection

This remedy provides adequate protection of human health and the environment by eliminating, reducing, or controlling risk to human health through engineering and/or institutional controls. The selected remedy will manage and maintain the existing cover over the wastes in the former quarry to prevent direct contact. A groundwater monitoring plan will be put into place that will be used to demonstrate that conditions within the quarry are stable and that impacted groundwater is not migrating offsite. Any NAPL detected in the groundwater will be removed and properly characterized per the NAPL removal plan and treated/disposed of in accordance with all applicable local, state and federal rules. Building 2 will be demolished to eliminate potential vapor intrusion risks. Institutional controls to restrict land use to its current industrial/commercial land use designation and prevent groundwater use will be effective methods to protect human health when combined with the proposed engineered controls.

2. Attainment of media cleanup standards

The selected remedy will meet the respective media cleanup standards of federal and state environmental laws.

3. Controlling the sources of releases

The periodic removal of NAPL, as detected during groundwater monitoring events, provides an effective source control program to ensure the long-term effectiveness and protectiveness of this remedy. The selected remedy reduces, but does not eliminate potential future risk of exposure.

4. Compliance with applicable standards for waste management

Waste generated during the implementation of the remedy will be properly characterized and treated/disposed of in accordance with all applicable local, state and federal rules.

5. Long-term reliability and effectiveness

Under the selected remedy, the groundwater monitoring plan will be used to demonstrate that conditions within the quarry are stable and that impacted groundwater is not migrating offsite. NAPL detected in the groundwater will be removed and properly characterized and treated/disposed of in accordance with the previously approved groundwater monitoring plan and NAPL removal criteria detailed in the Corrective Measures Proposal and in accordance with all applicable local, state and federal rules. Building 2 will be demolished to eliminate potential vapor intrusion risks. The cover over the former quarry will be managed and

maintained to prevent direct contact. Institutional controls to restrict land use to its current industrial/commercial land use designation and prevent groundwater use will be effective methods to protect human health when combined with the engineered controls under the selected remedy.

6. Reduction of toxicity, mobility, or volume of wastes

The selected remedy will reduce toxicity through the removal of NAPL as it is detected. It will not result in any reduction in the volume of the waste found in the quarry, but will be effective in monitoring the mobility of the waste through the groundwater monitoring plan. In addition, demolishing Building 2 and maintaining the cover over the former quarry will aid in reducing the toxicity or mobility of the wastes.

7. Short-term effectiveness

The implementation of the selected remedy poses a limited risk to workers due to potential exposure to contaminants during demolition activities. Potential exposures may consist of direct contact or inhalation of excavated materials. However, any work performed will be conducted by trained personnel, in accordance with a site-specific health and safety plan which meets the requirements of 29 C.F.R. § 1910.120. The site-specific health and safety plan will be designed to mitigate any potential exposure, and appropriate PPE would be utilized.

8. Implementability

The selected remedy can be implemented with little or no difficulty by administrative processes, availability of equipment or availability of manpower. Institutional needs for this alternative are limited. City ordinances will be followed with respect to working hours, noise and utilization of public roads for transportation. Additionally, state and federal department of transportation regulations will be followed for the transportation of any contaminated materials.

9. Cost

The present cost of implementing the selected remedy, Alternative No. 2, is $520,000. This estimate assumes a $310,000 estimate for the first 2 years of remedy implementation, followed by an estimated $70,000 per year for remedy maintenance for subsequent years 3 to 5. This estimate includes the demolition of Building 2, implementation of institutional controls, and implementation of the groundwater monitoring plan.

Corrective Measures Implementation

Dow must submit a corrective measures implementation workplan to EPA for approval within 90 days after the date of this Final Decision. This workplan must provide a detailed description and schedule of all construction and/or demolition needed to implement the selected remedy. In addition, it must detail the operation, maintenance and monitoring of the remedy, including the long term plan for maintenance of existing quarry cover and a plan for

the implementation of site wide institutional controls. This workplan will include details on the implementation of the previously approved groundwater monitoring plan and NAPL removal criteria plan. A detailed cost estimate must be included at the time of submittal of the corrective measures implementation workplan. The previously submitted cost estimate should be reviewed and updated as necessary, and included as part of this workplan.

PUBLIC PARTICIPATION ACTIVITIES

For more detailed information on anything in this document, please refer to the FPC Statement of Basis found in Attachment 2 of this document and the Administrative Record located at the Crest Hill Public Library. EPA held a 40-day public comment period to receive comments on the Statement of Basis, from November 26, 2010 to January 3, 2011. The option to request a public meeting was available; however no requests were received for a public meeting. The public was notified of this public comment period in the Times Weekly Newspaper, as well as through direct mailings to local citizens and community officials. No comments were received by EPA during the 40-day public comment period.

ADMINISTRATIVE RECORD

A copy of the Administrative Record for the selected remedy in this Final Decision Response to Comments is available for review at the following locations:

Crest Hill Public Library
1298 Theodore Street
Crest Hill, IL 60403
Ph # (815) 725-0234

EPA, Region 5
Land and Chemicals Division Records Center
77 West Jackson Boulevard, 7th Floor
Chicago, Illinois 60604-3590
Ph # (312) 886-0902
Hours: Mon-Fri,
8:00 a.m. - 4:00 p.m.

An Index to the Administrative Record is provided in Attachment 1. The Administrative Record for this Final Decision includes: (1) the Statement of Basis, 2) the public comments (if any) received on the proposed remedy, (3) the Voluntary Corrective Action Agreement that required FPC to remediate the Site, (4) all work plans and reports relating to the cleanup of the Site including the Corrective Measures Proposal, and (5) all relevant correspondence and reports from or submitted to EPA relating to the contamination at the Site.

DECLARATION

Based on the information in this Final Decision and Response to Comments and the Administrative Record compiled for this corrective action at the Site, EPA has determined that the selected remedies at the FPC Site are appropriate and will be protective of human health and the environment.

Margaret M. Guerriero
Director
Land and Chemicals Division
U.S. Environmental Protection Agency, Region 5

9/9/11
Date

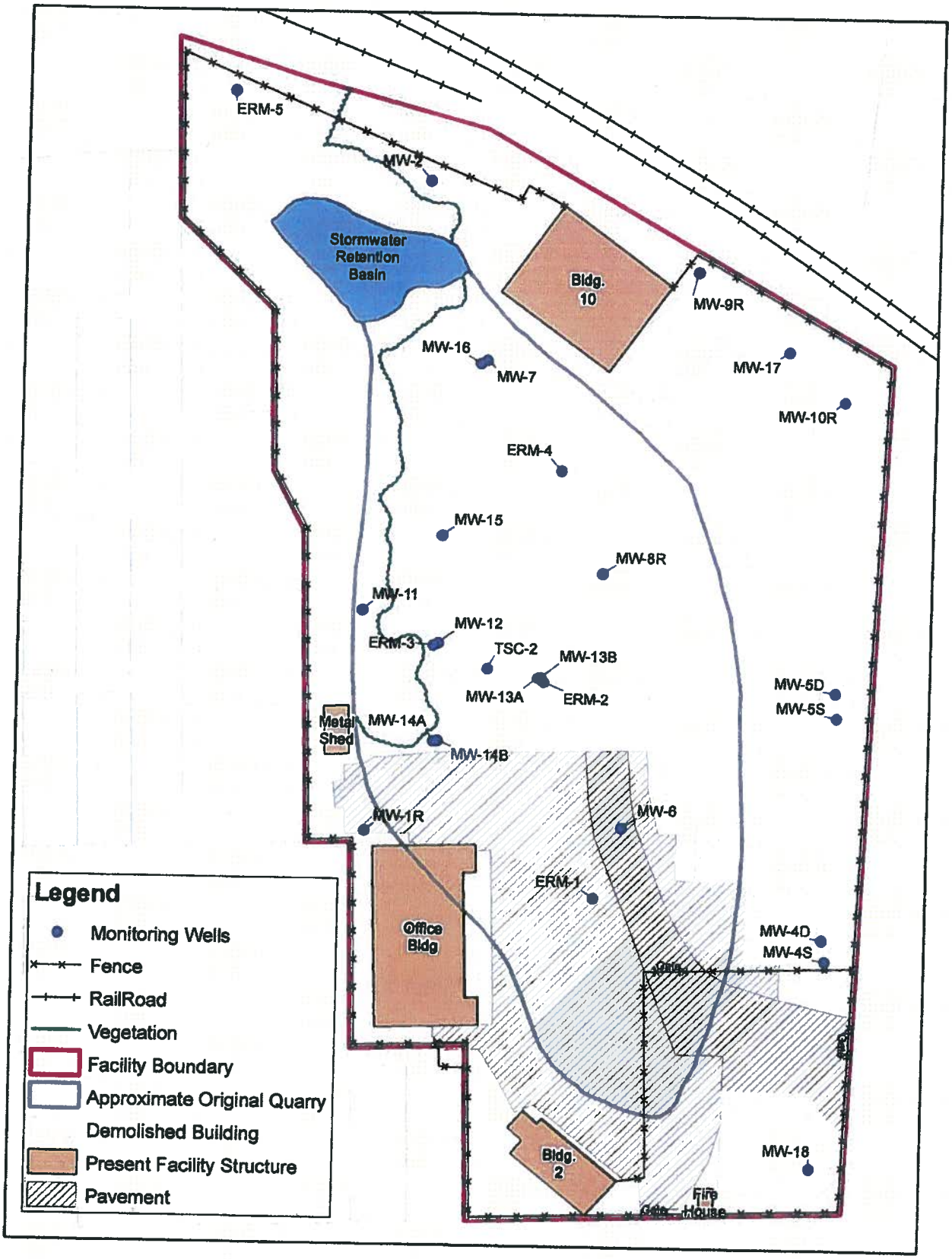
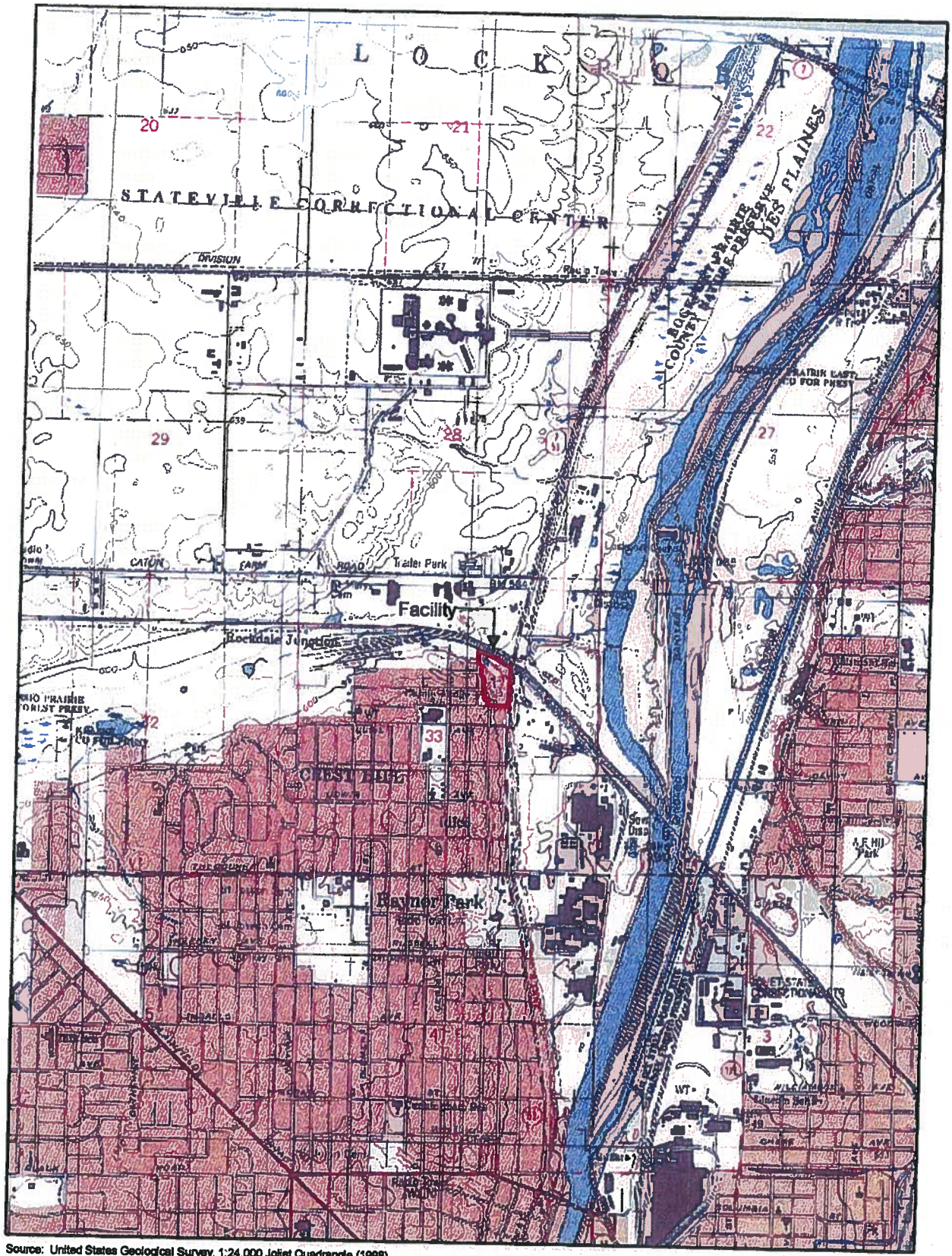


Figure 2
Facility Features Map

Flexible Products Company
Crest Hill, Illinois

CH2MHILL



Source: United States Geological Survey, 1:24,000 Joliet Quadrangle (1998)

N

0 50 100

Miles

Figure 1
Facility Location Map

Flexible Products Company
Crest Hill, Illinois

CH2MHILL

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In addition to the documents listed above, EPA relied upon many of the RCRA Corrective Action Guidance and Policy Documents in making its Final Decision for the Flexible Products Company (FPC), a Wholly Owned Subsidiary of The Dow Chemical Company - Crest Hill, Illinois.

The RCRA Corrective Action Guidance and Policy Documents can be found at:
http://www.epa.gov/reg5rcra/ca/guidance.htm