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EPA Superfund
Record of Decision:

GALEN MYERS DUMP/DRUM SALVAGE
EPA ID: IND980999635
OU 01
OSCEOLA, IN
09/29/1995

<IMG SRC 05952780>

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Galen Myers Dump/Drum Salvage
Penn Township, Indiana

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the Galen Myers Dump/Drum Salvage Superfund site (Galen Myers site) in St. Joseph County, Indiana, which was chosen by the Indiana Department of Environmental Management (IDEM) in accordance with the Indiana State Cleanup Law, Indiana Code 13-7- 8.7-1 et. seg., the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986, and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the administrative record for this site.

This decision document also serves as the United States Environmental Protection Agency's (U.S. EPA) concurrence with and adoption of the remedial action decision for the Galen Myers site, as approved by IDEM, and pursuant to sections 104(d) of CERCLA, SARA, and to the extent practicable, the NCP. IDEM has provided U.S. EPA with documentation to demonstrate that the State's selection of the remedy conforms with the requirements of CERCLA, the NCP to the extent practicable and Cooperative Agreement V005072-01-7 between U.S. EPA and IDEM.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this Record of Decision, may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE REMEDY

This remedial action is the final remedial action for the Galen Myers site. This remedial action addresses the soil and ground water contamination detected. The soil remedial action addresses soil areas identified to be a source of continuing contamination to the ground water. The ground water remedial action involves natural attenuation of ground water and long-term monitoring. The ongoing U.S. EPA removal action extending an alternate water supply to the affected or potentially affected residents addresses threats to human health.

The major components of the selected remedy include:

- Excavation and disposal at a permitted disposal facility of an estimated 1100 cubic yards of soil in areas which exceed 0.11 mg/kg of Trichloroethene;
- Completion of the U.S. EPA removal action providing an alternate water supply to the residential area;
- Natural attenuation of ground water;
- Installation of additional ground water monitoring wells;
- Long-term monitoring of the ground water and the St. Joseph River; and,
- Institutional controls, such as prohibiting installation of wells on the site or in the residential area affected by the Trichloroethene contaminated ground water.

DECLARATION

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost effective. This remedy utilizes permanent solutions. However, because treatment of the principal threats of the site was not found to be practicable, due to concerns regarding implementability, this remedy does not satisfy the statutory preference for treatment as a principal element.

Because this remedy will result in hazardous substances remaining on site above health-based levels, a review will be conducted within five years after commencement of remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

Based on the information described above, U.S. EPA concurs with the decision IDEM has made in the exercise of the State's authority in selecting this remedy under an agreement between U.S. EPA and IDEM pursuant to Section 104(d) of CERCLA for implementation of the remedy.

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SUMMARY FOR THE RECORD OF DECISION

I. Site Name, Location, and Description

The Galen Myers Dump/Drum Salvage site (Galen Myers site) is located at 11303 Edison Road, near the town of Osceola in Penn Township, St. Joseph County, Indiana. See Figure 1. The site is approximately 5 acres in size and currently is heavily vegetated. The site contains an aluminum-sided storage shed and an adjacent unused animal pen. The storage shed has been converted into a temporary residence and is sometimes used by the current owner of the property, Mr. Robert Lee. See Figure 2.

The site is situated in a mixed-use area consisting of residential subdivisions, agricultural fields, and a few commercial properties. The site is bounded by Edison Road to the south. On the northern border of the site is a secondary growth deciduous forest, which according to aerial photographs was previously an orchard. A private residence is located adjacent to the site to the west and a commercial business is located on the east side of the site. The majority of the area's residences are located in subdivisions to the south, starting about .25 mile south of the site.

Soils in the vicinity of the site belong to the Oshtemo Series. Soils within this series are deep, well-drained, and range from nearly level to strongly sloping soils that have formed on glacial outwash plains and terraces. Oshtemo soils have moderately rapid permeability and a low available water capacity.

The site is underlain by unconsolidated Pleistocene-aged glacial deposits of the Atherton Formation. The unconsolidated material generally consist of sand and gravel deposits; however, many silty clay and clay layers were observed at various depths. This is a sole source aquifer that is used by the area residents for drinking water and other residential purposes. The site seems to be situated on the northern edge of a buried bedrock valley. The stratigraphy changes substantially both north and south of the site. The silty clay layers present beneath the site become increasingly thinner toward the deeper portions of the valley (south) Near the center of the valley (near the St. Joseph River), the sand and gravel attains its greatest thickness and many of the clay layers pinch out.

II. Site Operational History

Mr. Galen Myers, former owner of the property, operated a drum reclamation operation from about 1970 to 1983. Mr. Myers acquired 55-gallon drums from local industries and recycled the drums into trash containers. The operation involved removing the tops of drums and dumping the drum contents into on-site, unlined pits and onto the ground surface from the driveway.

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III. Site Enforcement Activities

The St. Joseph County Health Department (SJCHD) first investigated the site in 1981, in response to nearby residents' complaints. The inspectors observed dumping and storage activities on the site and requested that Mr. Myers cease operation. The SJCHD submitted a complaint to the Indiana State Board of Health (ISBH) Land Pollution Control Division regarding activity at the site. On April 5, 1983, the ISBH inspected the property and observed drummed solid and liquid wastes, some of which appeared to be paint waste, scattered throughout the site. The ISBH requested U.S. EPA inspect the site. U.S. EPA tasked the Region V Technical Assistance Team (TAT) to conduct a site assessment. On June 3, 1983, TAT investigated the site and found numerous empty and several partially full drums throughout the property. The Myers family indicated their intent to dispose of the drums since the business was no longer in operation; however, no efforts were made to clean up the property.

The ISBH inspected the site again on April 24, 1984 and discovered 10 drums of flammable waste, some of which were on their sides and badly deteriorated. The ISBH also observed 30 bad1y deteriorated drums stored behind the former residence on the site. Based on the condition and quantity of the drums on tne property, and that the site seemed to be abandoned, the ISBH requested that the Galen Myers site be reevaluated by U.S. EPA for

a removal action.

On June 27, 1984, TAT conducted a site investigation and collected soil and ground water samples. Based upon this information, U.S. EPA determined that a removal action was necessary and began a removal action on February 11, 1985. Wastes disposed of under the removal action included 1,800 pounds of flammable solids, 30 cubic yards of nonhazardous crushed drums, and 56 cubic yards of nonhazardous soils. Residential well water samples collected from both on-site and adjacent wells indicated trace levels of volatile organic compounds (VOCS), including trichloroethene and 1,1,1-trichloroethane, all under the removal action levels. Also at this time, some drums were claimed by identified potentially responsible parties and were removed by May 13, 1985.

IDEM (previously ISBH Division of Land Pollution Control) conducted sampling of on-site soils in November 1986 and determined that on-site soils still were significantly contaminated with VOCs and semi-volatile organic compounds (SVOCS). Eleven residential well samples were collected during this same time and indicated high levels of trichloroethene (TCE). While confirmatory sampling took place, U.S. EPA provided bottled water to affected residents. To remove the threat of VOC contamination to the affected residents, U.S. EPA installed filtration units at eight (8) residences under a second removal action. IDEM has installed additional filtration units since the second removal action, and currently maintains 29 residential filtration systems.

A search for potentially responsible parties has been completed and none have been found. IDEM and U.S. EPA will consider any additional information identified regarding potentially responsible parties.

During the implementation of the remedial investigation (RI), IDEM conducted residential well sampling independent of the RI to monitor TCE migration. In 1993, IDEM collected samples from homes in the area south of U.S. 20/McKinley Hwy. that had not been previously sampled, and TCE was detected. Later in 1993, IDEM requested that U.S. EPA consider the Galen Myers site for an emergency removal action to expedite a permanent solution for the residents who had carbon filtration systems, and residents who could be potentially exposed to TCE. U.S. EPA approved this action and authorized funds to construct an extension of the Mishawaka Utilities water supply to the affected and potentially affected areas. An On-Scene Coordinator was assigned by U.S. EPA to work on the project. Currently, the waterline has been constructed and work has begun to build the pump stations necessary for this extension. Hookups of the homes to the active watermain is planned for October or November, 1995. The alternatives considered for the cleanup of the Galen Myers site include this removal action as a component of the alternatives.

IV. Community Relations Activities

The residential community to the south of the Galen Myers site has been directly affected by the ground water contamination associated with the site. IDEM has conducted residential well sampling on a semi-annual basis to monitor the effectiveness of the 29 carbon filtration systems. During the sampling activities, IDEM staff have kept the residents updated on the site activities.

In May 1993, a fact sheet explaining the Superfund process, describing the site and RI activities was mailed to local residents, local officials, the media and other interested parties. A public meeting was held May 26, 1993 at the Penn High School in Penn Township to kickoff the remedial investigation activities and answer questions regarding the subsequent field sampling activities. Seventy-one people attended the meeting.

In April 1994, IDEM s ent a fact sheet to the public to announce the U.S EPA removal action providing an alternate water supply to the affected and potentially affected residential areas. A public meeting was held April 27, 1994, to discuss the status of the RI and the U.S. EPA removal action. Subsequently, in August 1994, IDEM sent a letter to the eligible residences notifying them of the forms to be signed and a sign-up meeting was held on August 16, 1994 at the New Life Baptist Church in Penn Township. Followup letters to the non-responsive residents were also sent.

The requirements of CERCLA regarding public participation in the remedy selection process were met by issuing the proposed plan fact sheet to the public August 4, 1995. The public comment period commenced August 8, 1995 and ended September 7, 1995. A pubic meeting was held August 15, 1995 at Penn High School to accept written and oral public comments on the proposed plan. A court reporter was in attendance to provide a transcript of the public meeting. Thirty-three people were in attendance. Based upon a request by the St. Joseph River Basin Commission, the comment period was extended to September 14, 1995. A response to the comments received is included in the Responsiveness Summary, which is part of this Record of Decision.

V. Scope and Role of Response Action

The remedial action at this site addresses two areas, on-site soils and ground water. This is the final remedial action for the Galen Myers site. The major components of the remedial action include the following:

- Excavation and Disposal at a permitted disposal facility of an estimated 1100 cubic yards of soil in areas which exceed 0.11 mg/kg of TCE in on-site soils;
- Completion of the U.S. EPA removal action providing an alternate water supply to the residential area;
- Natural Attenuation of ground water;
- Installation of additional ground water monitoring wells;
- Long-term monitoring of the ground water and the St. Joseph River; and,
- Institutional controls.

The threat to human health posed by the ground water is addressed by the U.S. EPA removal action providing an alternate water supply to the area. The ground water contamination will be addressed by long-term monitoring to monitor natural attenuation of the ground water and discharge to the St. Joseph River.

The function of the soil remedial action is to address a potential continuing source of contamination to the ground water.

VI. Summary of Site Characteristics

Site Geology and Hydrogeology

The primary surface water feature in the area is the St. Joseph River, located approximately 1.25 miles south of the site. The St. Joseph River flows westward in this portion of the county. The site is part of the Great Lakes watershed. The regional flow of ground water near the site is to the south towards the St. Joseph River.

A small pond that is used for irrigation for the nursery is located approximately 1,000 feet north of the site. According to aerial photographs, this pond was constructed in the mid-1980s.

The area surrounding the site is relatively flat with subtle relief. The elevation of the adjacent land areas is approximately 760 feet mean sea level (MSL). Natural surface drainage from the site is southward, toward the St. Joseph River.

The area is located within the Kankakee Outwash and Lacustrine Plain physiographic unit of the northern Moraine and Lake Region of Indiana (Physiography, A. F. Schneifer, 1966). According to the Regional Geologic map of the 15 X 25 Chicago quadrangle (Indiana Geological Survey, 1970), this physiographic unit is characterized by glacial sand and gravel deposits derived from episodic, late Wisconsinan glacial advances and retreats. The majority of this glacial materials was deposited as outwash in broad valley trains and outwash plains, and is identified as the Atherton Formation. Review of the Regional Geologic Map shows that valley train deposits of the Atherton formation closely follow the trend of the St. Joseph River and subsequently the Kankakee River drainage system. Coupled with the bedrock elevation data obtained during the RI, this information seems to suggest that a northeast-southwest trending bedrock valley occurs south of the site. Within this valley, outwash deposits can extend to depths of 200 feet below ground surface (bgs). Deposits of clay and silt can occur within the Atherton formation. These deposits can occasionally be relatively thick and occur across large areas, but are more often thin and limited in areal extent.

The unconsolidated deposits are underlain by the Devonian-aged Ellsworth Shale and the Mississippian-aged Cold Water Shale. These are greenish-gray shales with alternating beds of red shale and black shale, and both contain occasional lenses of dolomite or limestone. The thickness of these bedrock units typically range between 300 and 425 feet.

The source of ground water in the area is the glacial outwash sand and gravel of the Atherton Formation. This unit consists of well-graded, course-grained sand sediment. The high degree of sediment grading results in very high hydraulic conductivity and aquifer transmissivity. Typical hydraulic property values for the Atherton formation have been obtained from a report of a nearby investigation titled "Hydrologic and Chemical Evaluation of the Ground Water of a nearby investigation titled "Hydrologic and Chemical Evaluation of the Ground Water Resources of Northwest Elkhart County, Indiana" (T.E. Imbrigiotta and A. Marten Jr., 1981). Based on results of this investigation, average ranges of hydraulic conductivity and transmissivity were obtained. The lower values represent sand deposits and the high values represent gravel deposits. Average values of hydraulic conductivity range from 80 ft/day 10-2cm/sec) to 400 ft/day (1.4 X 10-2cm/sec). Average values of transmissivity range from 4,000 ft#/day to 175,000 ft# /day. Typical well yields in local municipal water wells are on the order of 700 to 800 gallons per minute (gpm).

From studies completed for other sites in the area, ground water flow within the Atherton Formation is typically dictated by the presence of the pre-glacial bedrock valleys described previously. It is within these buried valley systems that the Atherton formation achieves its greatest depths (approximately 200 to 400 feet bgs). Ground water tends to first flow toward the buried valleys and then southwestward along their axes. Locally, shallow ground water is also affected by the presence of the St. Joseph River, which flows southwestward along the axis of the buried valley until its route turns northward in South Bend, Indiana. Based on the results of the above-mentioned hydrologic report, the St. Joseph River is a gaining stream; therefore shallow ground water in the area discharges to the river.

Residents in the vicinity of the study area obtain their household water from private wells. According to residential well logs obtained from the Indiana Department of Natural Resources (IDNR), most of the residential wells located in the investigative area are installed between 25-65 feet of the unconfined outwash sand and gravel aquifer. IDNR records indicate that two irrigation wells exist within a 0.5 mile radius of the site and that six additional high capacity wells exist within a 3-mile radius of the site. Due to the extremely high transmissivity of the aquifer underlying the site, these wells are not close enough to the site to alter ground water flow. This is supported by the ground water elevation and flow pattern reported in the RI.

Nature and Extent of Contamination

RI sampling was performed both on-site and off-site in the residential areas to the south from July 1993 to October 1994. Twenty-one (21) monitoring wells were installed and sampled, and 65 residential wells were sampled to determine the extent of ground water contamination.

Surface soil, subsurface soil, test pit and soil vapor samples were collected to determine if residual contamination remained after the U.S. EPA removal actions of the early and mid-1980s.

Ground water Contamination:

TCE was identified as the contaminant of concern for ground water. RI sample results confirm that TCE-contaminated ground water is migrating downgradient (to the south), towards the St. Joseph River. RI samples were collected from lead-screen augers, residential wells and monitoring wells to determine the extent of contamination.

The organic compounds detected above Maximum Contaminant Levels (MCLs) in residential well samples include TCE, methylene chloride, bis(2-ethylhexyl)-phthalate and 1,2-dichloropropane. The highest detection of TCE in residential wells was in RW-14 at 2,700 micrograms per liter (ug/1). The inorganics detected above MCLs in residential well samples were antimony and thallium. Inorganics detected in residential wells were compared to background samples. Ground water monitoring wells MW-10 and MW- 11 were installed upgradient of the site to determine background. VOCs, including TCE were not detected. Inorganics were detected in the background wells and were used as a comparison with the downgradient results. Inorganics which exceeded background in residential wells are antimony, potassium and sodium. See Figures 3 and 4 for the sample locations and results.

Lead Screen Auger (LSA) samples were collected from three locations that were later converted into monitoring wells. LSA sample LS03-02 showed the highest level of TCE at 31 ug/1 between 25 and 30 feet below ground surface.

Twenty-one ground water monitoring wells were installed and sampled during 1994. The sampling events occurred in May and October of 1994. See Figures 3 and 4 for monitoring well locations and results. The highest detection of TCE was 4,800 ug/1 in MW 15. TCE was detected in the shallow monitoring wells only. TCE was detected at a maximum depth of 16 feet on-site in MW-09, and off-site at a maximum depth of 28.6 in MW-03. Based on site conditions, the estimated velocity of TCE in ground water is 192 feet/year. Ground water is the primary contaminant pathway for the site. See Figure 5 for a summary map of the TCE plume.

Soil Contamination:

A geophysical survey was conducted and identified several subsurface anomalies. Test pits were excavated to investigate the anomalies and identify any buried sources of contamination (i.e., drums, tanks) at the site. Soil samples were collected and detected TCE. However, based on the investigation results, there are no buried sources at the site. Buried household debris were noted, however, it is not expected to be a significant source of ground water contamination.

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Soil sample results identified a remaining source area of TCE contamination at the former disposal pit area. Results from a test pit, surface soil sample and soil borings were used to estimate the areal extent of contamination. Sample results from across the site were evaluated in the risk assessment to determine the baseline risk for a residential and construction scenario. See the discussion of the risk assessment for the results from this evaluation.

To determine if the contaminants detected in the soils posed a residual threat to ground water through leaching, soil screening levels were developed to evaluate whether the contaminants would leach out of soil and cause an exceedance of Federal Safe Drinking Water Act - maximum contaminant levels (MCLs) in the ground water. The soil screening levels were used as preliminary remediation goals (PRGs) for soil. Below is a discussion of the surface soil, test pit, and soil boring results as compared to the PRGs. See Figures 6 and 7 for a summary of soil results exceeding PRGs.

Surface soils were sampled during the RI to identify surficial areas of contamination. The results indicate that there are no "hot spots" (area of high surficial contamination) for organics. VOCs, SVOCs, pesticides and inorganics were detected. The inorganics that exceeded the background levels were aluminum, antimony, arsenic, barium, beryllium, calcium, chromium, cobalt, iron, magnesium nickel, potassium, sodium and zinc. The inorganics detected in surface soils that exceeded the PRGs were arsenic in SS-07, SS-19 and SS-24, antimony in SS-04 and SS-21, chromium in SS-06, and iron in SS-24. None of the organic results exceeded the PRGs.

Samples were also collected from test pits. These results are shown in Figure 8. The organic compounds detected in the test pits that exceeded the PRGs were TCE in TP-01. The inorganics detected in test pits that exceeded the PRGs include iron in TP- 01, antimony in TP-02 and TP-05, and arsenic in TP-05.

Soil borings were completed near the test pit locations and near surface soil areas to determine the vertical extent of soil contamination. The organic compounds detected in the soil borings that exceeded the PRGs were TCE in SB-05 and SB-04; methylene chloride in SB-04, SB-05, SB-06, SB-07 and SB-08; and, 1,2-dichloropropane in SB-04. The inorganics detected in soil borings that exceeded the PRGs include arsenic in SB-04, SB-05, SB-06, SB-07, and SB-08; antimony in SB-05 and SB-08; and, iron in SB-05, and SB-06.

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A soil vapor survey, or PETREX survey, was also conducted to indicate the extent of soil contamination and to indicate potential ground water contamination. The PETREX survey did not compare well with the analytical results for soils. There were certain areas south of U.S. 20/McKinley Highway that did compare well with ground water sample results. See the RI for further information and maps.

There are no surface water bodies or sediments on-site. Samples were collected from the irrigation pond about 1000 feet north and upgradient of the site. A few organics were detected at low concentrations and may be associated with a diesel pump located at the pond, used for irrigation purposes.

VII. Summary of-Site Risks

A risk assessment for the Galen Myers site, conducted by Roy F. Weston, Inc. and approved by IDEM, in consultation with U.S. EPA, has determined that there are potential risks to public health from contact with contaminated ground water. The ecological assessment determined that while site soils may pose potential risks to wildlife, the potential for adverse impacts occurring is limited due to the close proximity of better sources of habitat.

This section summarizes the result of Weston's baseline risk assessment. The procedures and results are presented in detail in the RI report in Appendix D, Baseline Risk Assessment, Galen Myers Dump/Drum Salvage, Osceola, Indiana (WESTON, 1995). The baseline risk assessment was prepared according to the U.S. EPA guidelines for risk assessments at Superfund sites. This methodology is presented in the U.S. EPA Risk Assessment Guidance or Superfund (RAGS) - Volume I: Human Health Evaluation Manual U.S. EPA, 1986b), and RAGS

Part B - Risk-Based Preliminary Remedial Goals (U.S. EPA, 1991a).

The purpose of the risk assessment was to analyze the potential human health threats and ecological impacts resulting from chemical releases at the Galen Myers site and to determine levels of chemicals that can remain on site and still be protective of public health and the environment. In accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), a baseline risk assessment should evaluate the potential human health and environmental impacts associated with a site under a no-action alternative (i.e., in the absence of remedial action). For the Galen Myers site, the no-action alternative was defined for residential use of the Galen Myers site and for residential users of ground water downgradient of the site. The risk assessment includes a qualitative and quantitative evaluation of potential human health risks associated with exposure to chemicals in ground water and soil.

Human Health Risk Assessment:
Based on known site conditions, it was assumed that a resident on the Galen Myers site and a residential user of ground water to the south of the site could be exposed to VOCs, SVOCs, pesticides, and inorganics in ground water and soil. Current risks for ground water exposure were quantified by evaluating risks associated with each off-site residential well sampled during the RI. Future risks were quantitatively evaluated by using on-site monitoring well data to represent future residential well data. For soils, a quantitative evaluation of risks were performed for residential use of the site and for excavation activities at the site.

The carcinogenic risks and noncarcinogenic risks associated with current residential exposure to ground water are summarized in Table 1-A and 1-B. Of the 65 residential wells sampled, total lifetime cancer risks were below the 10-6 "point of departure" at 34 residences and were within the 10-6 to 10-4 range at 22 residences. Carcinogenic risks may be acceptable for these residences. Total lifetime cancer risks exceeded 10-4 at nine residences, six of which have carbon filtration systems. Receptors at these residences will not be exposed to contaminants at levels found in unfiltered water (only results from unfiltered samples were evaluated in the risk assessment) if the filters are properly used and maintained. For the remaining three residences, the total lifetime cancer risk is due to exposure to arsenic, which may occur naturally at levels that pose a risk. The potential health risks associated with future use of ground water (i.e., development of on-site residential wells) were similar to or only slightly higher than the risks determined for current ground water use.

Noncarcinogenic risks associated with exposure to ground water were also evaluated by calculating the Hazard Index (HI). The HI is a comparison of the exposure from the site to a reference value. This is then a ratio of exposure to toxicity. If the HI is greater than 1, there may be noncarcinogenic risks associated with the exposure. For the adult and child scenario, the HI was greater than 1 in each case. See Table 1-A for a summary of the noncarcinogenic risk evaluation results.

A supplement to the Baseline Risk Assessment was also completed to evaluate potential risks associated with the use of residential wells for outdoor (non-drinking water) purposes. The scenarios used in this supplement included considering exposure to the center-of-the-plume contamination by ingestion of garden vegetables and fruits irrigated with contaminated ground water; by swimming in a pool filled with contaminated ground water; and by washing a car with contaminated ground water or by children running under a garden sprinkler. The center-of-the-plume contaminant concentration was used in the supplement to represent the highest exposure reasonably expected to occur.

The results of the supplement indicate that overall lifetime excess cancer risks for outdoor (non-ingestion) uses of ground water exceed acceptable levels under the reasonable maximum exposure conditions for cancer risks. There is a potential for adverse noncarcinogenic effects associated with the swimming pool and garden produce exposure scenarios only. See Table 1-B for a summary. Trichloroethene is the major contributor to the risk for all the scenarios evaluated. It should also be noted that there is uncertainty associated with the risk estimates they may result in overestimation of the risks calculated for the supplement to the risk assessment.

Carcinogenic health risks associated with direct exposure to soil contamination were found to be within or below the range from 1 X 10-6 X 10-4 set by the NCP, and all noncarcinogenic health risks were well below an HI of 1. See Table 2-A and 2-B for a summary.

All ground water contaminants that exceeded acceptable risk levels had established MCLs. In addition, risks associated with soil exposure did not exceed acceptable levels. Therefore, development of health risk-based preliminary remediation goals (PRGs) for soil and ground water was not necessary.

Based on data gathered in the Remedial Investigation and risks identified in the Baseline Risk Assessment and

the Supplement to the Baseline Risk Assessment, actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this Record of Decision, may present an imminent and substantial endangerment to public health, welfare, or the environment.

Ecological Assessment
The objectives of the ecological assessment were to characterize and estimate the potential for adverse impacts to ecological receptors from the site contamination. The focus of the ecological assessment was to evaluate potential impacts from chemicals detected in the site soils. Semi-volatile organic compounds and inorganics showed an exceedance of a Hazard Index of 1 for the indicator receptor used in the risk assessment. Although the Hazard Index was greater than 1, there is a low potential for exposure due to the presence of more suitable habitat surrounding the site.

The site provides some open land habitat, though much of the site has been disturbed. The disturbance from use of the site as a temporary residence by the current property owner and scattered debris such as junked cars and other item across the property has influenced current habitat conditions. The terrestrial wildlife inhibiting the Galen Myers site includes birds, invertebrates, amphibians, mammals, and plant common to northeast Indiana. There are several state-listed species within Osceola Township, which include the American badger, the Cooper's hawk and grooved yellow flax.

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Table 2-A

Total Carcinogenic Risks - Soil Exposure
Galen Myers Site
Osceola, Indiana

Soil Exposure Route	Resident - Lifetime RME	Resident - Lifetime RAE	Construction Worker RME	Construction Worker RAE
Incidental Ingestion	1.6E-05	1.9E.06	1.6E-06	6.9E.08
Dermal Contact	1.1E-04	2.1E-06	1.8E-06	1.6E.07
Particulate Inhalation	5.6E.09	7.1E-10	4.0E-10	1.6E-10
Vapor Inhalation	1.2E-08	1.2E.09	2.0E-07	6.7E-08
Total Cancer Risk-a	1E-04	4E-06	4E-06	3E-07

RME - Reasonable Maximum Exposure
RAE - Representative Average Exposure

Table 2-B

Total Noncarcinogenic Hazard Indices - Soil Exposure
Galen Myers Site
Osceola, Indiana

Soil Exposure Route	Resident Child RME	Resident Child RAE	Resident Adult RME	Resident Adult RAE	Construction Worker RME	Construction Worker RAE
Incidental Ingestion	0.25	0.10	0.027	0.011	0.22	0.018
Dermal Contact	0.087	0.004	0.057	0.0026	0.026	0.0033
Particulate Inhalation	0.00031	0.000013	0.000027	0.00001	0.00061	0.00052
Vapor Inhalation	0.000053	0.000014	0.000091	0.000026	0.024	0.015
Total Hazard Index-a	0.3	0.1	0.08	0.01	0.3	0.04

A screening-level evaluation was conducted for the short-tailed shrew, a potential receptor whose exposure to site conditions was considered high. A short-tailed shrew was assumed to be exposed to chemicals of potential concern in surface soils through the ingestion of soil and earthworms.

Of the organic contaminants, hazard quotients for bis-2-ethylhexyl phthalate (BEHP), benzo(a)pyrene (BAP), 4,4-DDT slightly exceeded the benchmark. These chemicals may be attributable to laboratory contamination (BEHP), non-point sources such as automobiles and burned garbage and debris (BAP) or residual concentrations from agricultural and post management activities in the surrounding areas (DDT). Thus the organics may not be site-related contaminants. Of the inorganics, hazard quotients for aluminum, antimony, arsenic, barium, chromium, cobalt, nickel, and zinc exceeded the benchmark by up to two orders of magnitude. While these inorganic parameters may be bioconcentrated, none are expected to biomagnify significantly through the terrestrial food chain.

There has been no historical documentation on the use or dumping of those metals associated with the Galen Myers drum salvage operation. However, metal debris has been scattered throughout the site and burn pits have been observed at several locations on the property.

Overall, while there is potential for the inorganic to be bioconcentrated and to be toxic to numerous species, the risk to terrestrial receptors are expected to be low based on low contaminant concentrations, low frequency of detection and low potential for exposure. The expected low potential for exposure is due to this inferior habitat provided by the site and the close proximity of more suitable habitat near the site. Thus, whilesome exposures are expected to occur, this exposure would most likely be limited in magnitude.

VIII. Description of Alternatives

Remedial action objectives and preliminary remediation goals (PRGS) were developed to define the goals of the remedial action, and to determine the extent of remediation needed at the Galen Myers site. The contaminant of concern identified by the Feasibility Study (FS) is TCE in ground water and soil. Remedial action objectives were obtained from federal and state applicable or relevant and appropriate requirements (ARARs),

and soil screening levels used to determine PRGs. Risk based levels for human health were determined to not be necessary here for soil cleanup as the risk assessment determined that human health impacts from soil exposure were within the 1 X 10-4 to 1 X 10-6 risk range and under the Hazard Index of 1. The Safe Drinking Water Act Maximum Contaminant Level ARAR will be used for the cleanup level for the contaminant of concern identified in the FS report.

The general remedial action goals for the Galen Myers site are:

! Protection of human health from exposure to TCE through ground water.

! Compliance with ARARs.

! Eliminate on-site soil source areas that threaten contamination of ground water.

The FS identified and evaluated alternatives that could be used to address threats and/or potential threats to the study area. These alternatives also include some components that are common to all alternatives. The common components are the U.S. EPA removal action providinq an alternate water supply; and institutional controls. The estimated cost of the U.S. EPA removal action is $3.2 million. This cost is not included in the cost estimates given below for the alternatives. Institutional controls refer to preventing future human health exposure to ground water contamination by controllinq installation of residential wells in the affected area. The St. Joseph County Health Department has a Draft Ground Water Protection Ordinance that is planning to issue as a final Ordinance. A section of the Ordinance can be utilized for this area as an institutional control to prevent future well installation in the affected area.

The following ground water cleanup goals were established for the Galen Myers Dump/Drum Salvage based upon ARARs:

Trichlorethene - 5 ug/l

Breakdown products of Trichloroethene which may occur in the future:

1,1-dichloroethene - 7 ug/l
cis-1,2-dichloroethene - 70 ug/l
trans-1,2-dichloroethene - 100 ug/l
1,1,2-trichloroethane - 5 ug/l
1,2-dichloroethane - 5 ug/l
1,2-dichloroethene - 70 ug/l
vinyl chloride - 2 ug/l

The following soil cleanup goal was established for the Galen Myers site based upon the potential for contaminants to leach out from soil and cause an exceedance of the cleanup goal for ground water for the contaminant of concern, TCE:

Trichloroethene - 0.11 mg/kg

Alternatives were developed separately for soil and ground water. The ground water alternatives are described below:

Ground water Alternative 1-No Action
Estimated Present Worth Cost: $ 0
Estimated Construction Timeframe: Immediate

Although the U.S. EPA removal action providing an alternate water supply is currently ongoing, it was not considered here because it is not yet completed. The remaining construction includes two pump stations necessary for the project. Once the pump stations are completed, the homes will be connected to the active watermain. The No Action alternative consists of no further activities being conducted at the Galen Myers site. This alternative will not address potential public health threats identified in the risk assessment from exposure to the ground water. The inclusion of the no action alternative is required by CERCLA to give IDEM and U.S. EPA a basis for comparison with the other alternatives.

Ground water Alternative 2-Alternate Water Supply, Natural Attenuation and Monitoring
Estimated Present Worth Cost: $ 1.57 million
Estimated Construction Timeframe: 2-4 months

Operation and Maintenance: Assume 30 years for cost purposes

This alternative includes completion of the U.S. EPA provision of an alternate water supply, which in serving 201 residences adjacent to and south of the site. See the shaded area representing the extent of the service area in Figure 9. The alternate water supply provides a permanent solution for the homes that currently have carbon filtration systems installed on the residential wells.

Under this alternative, the ground water cleanup goals would be reached by natural attenuation. Natural attenuation relies on natural subsurface processes such as leaching, dilution, volatilization, biodegradation, adsorption, and chemical reactions with subsurface materials to reduce contaminant concentrations. An analysis of the timeframe to reach the cleanup goals was completed in the FS. Based on flushing efficiency estimates, it is estimated that it would take approximately 160 years to achieve TCE cleanup goals in ground water. Ground water modeling would also be completed to determine the discharge concentrations to the St. Joseph River. Also included in Alternative 2 is installation of fifteen additional wells at 8 locations to monitor the plume migration. The monitoring wells would be sampled and analyzed annually for VOCs, SVOCs and inorganics (pesticides and polychlorinated biphenyls are not included in the SVOC list). Semi-annual sampling for VOCs would be conducted near the leading edge of the plume to monitor migration of VOCs. Monitoring of the St. Joseph River for VOCs would also be completed.

Institutional controls would be implemented to restrict further well installation in the affected or potentially affected areas. The St. Joseph County Health Department has developed a draft Ground water Protection Ordinance that would address institutional controls. Major ARARs for this alternative include the Safe Drinking Water Act MCLs and Indiana Surface Water Quality Standards. Natural Attenuation would address meeting MCLs eventually in the ground water. It is anticipated that Surface Water Quality Criteria will be met when the TCE plume discharges into the St. Joseph River due to the high dilution capacity of the River compared to the concentration of the TCE plume.

Ground water Alternative 3A-Pump and Treat System with Containment Objective, Alternate Water Supply and Monitoring.
Estimated Present Worth Cost: $ 2.0 million
Estimated Construction Timeframe: 1-2 years
Operation and Maintenance: Assume 30 years for cost purposes

Alternative 3A includes completion of the U.S. EPA alternate water supply as described in Alternative 2. Under this alternative contaminated ground water would be contained from migrating southward to the St. Joseph River by installation of a ground water pump-and-treat system. The objectives of this alternative are to remove the human health risk posed by TCE- contaminated ground water to ground water users in the TCE plume area, and to prevent the TCE plume from migrating further downgradient.

A hydraulic barrier at the leading edge of the TCE plume would be implemented by lowering the ground water levels near a line of extraction wells, thus diverting ground water flow toward the extraction wells. This barrier would prevent the TCE plume from reaching the St. Joseph River. A typical process flow schematic of the pump and treat system is depicted in Figure 10. The locations of extraction wells, treatment building, the discharge pipeline path, and the monitoring well network are shown in Figure 11. The extracted water would be treated in an above ground treatment system through air stripping the TCE from the contaminated water. The treated water would then be discharged to the St. Joseph River via an NPDES permitted outfall. The estimated time to reach cleanup goals in the ground water is 100 years.

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In addition, this alternative will also involve installation of nine additional ground water monitoring wells, routine monitoring and institutional controls. Major ARARs for this alternative include the Safe Drinking Water Act MCLs and Indiana Surface Water Quality Standards. Pumping and Treatment would address meeting MCLs eventually in the ground water. It is anticipated that Surface Water Quality Criteria will be met when the treated water is discharged under a NPDES permit to the St. Joseph River due to the effectiveness of air stripping.

Ground water Alternative 3B-Pump and Treat System with Accelerated Cleanup Objective, Alternate Water Supply and Monitoring.
Estimated Present Worth Cost: $2.8 million
Estimated Construction Timeframe: 3-4 years
Operation and Maintenance: Assume 30 years for cost purposes

Alternative 3B uses the same technology as Alternative 3A, however, it involves a more expanded pumping system than 3A. Pumping wells would be installed at four locations along the length of the TCE plume. The objective of this pumping is to contain the contaminated ground water from migrating further downgradient, and reach the cleanup goals in a shorter timeframe. The extracted water would be treated in an above ground treatment system through air stripping the TCE from the contaminated water, and would then be discharged to the St. Joseph River at a NPDES permitted outfall. The estimated time to reach cleanup goals in the ground water is 25 years.

In addition, this alternative will also involve ground water monitoring and institutional controls. The locations of extraction wells, treatment building, the discharge pipeline path, and the monitoring well network are shown in Figure 12. Nine additional wells would be installed and monitoring would be completed.
The U.S. EPA removal action providing an alternate water supply would also be completed under this alternative.

Major ARARs for this alternative include the Safe Drinking Water Act MCLs and Indiana Water Quality Standards. Pumping and Treatment would address meeting eventually in the ground water. It is anticipated that Surface Water Quality Criteria will be met when the treated water is discharged under a NPDES permit to the St. Joseph River due to the effectiveness of air stripping.

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Ground Water Alternative 4A- Air Sparging and Soil Vapor Extraction System with Containment Objective, Alternate Water Supply and Monitoring
Estimated Present Worth Cost: $ 1.9 million
Estimated Construction Timeframe: 1-2 years
Operation and Maintenance: Assume 30 years for cost purposes

Like Alternative 3A, Alternative 4A involves creating a barrier system at the leading edge of the TCE plume. The technology used under 4A is air sparging and soil vapor extraction. This system creates a treatment zone for volatile organic compounds in the aquifer at the southern end of the plume. The objectives of this alternative are to remove the human health risk posed by TCE- contaminated ground water to ground water users in the TCE plume area, and to prevent the TCE plume from migrating further downgradient. This barrier prevents the TCE plume from reaching the St. Joseph River. The estimated time to reach cleanup goals in the ground water is 100 years.

Air sparging involves injecting air by a series of wells into the aquifer, causing the TCE to volatilize from the water phase to the air phase. The air is then captured by extraction vents located above the ground water level in the subsurface. The FS showed that a 5-well system would be needed to treat the plume. See Figure 13 for the air sparging and soil vapor extraction well locations. A typical process flow schematic of the air sparging and soil vapor extraction system is depicted in Figure 14. Nine additional monitoring wells would be installed and monitoring would occur. Also, institutional controls and completion of the U.S. EPA removal action providing an alternate water supply would be implemented under this alternative.

Major ARARs for this alternative include the Safe Drinking Water Act MCLs and the Clean Air Act (CAA) Standards for air emissions. Air sparging and soil vapor extraction would address meeting MCLs eventually in the ground water. It in anticipated that the air emissions from the soil vapor extraction will meet the CAA standards, however, carbon treatment would be used if necessary.

Ground water Alternative 4B-Air Sparging and Soil Vapor Extraction System, with Accelerated Cleanup Objective, Alternate Water Supply and Monitoring
Estimated Present Worth Cost: $3.5 million
Estimated Construction Timeframe: 2-3 years
Operation and Maintenance: Assume 30 years for cost purposes

Like Alternative 3B, Alternative 4B involves expanding the air sparging and soil vapor extraction system along 4 locations along the TCE plume length to expedite the cleanup timeframe. It is estimated that ground water cleanup goals may be attained in 25 years. As described above in Alternative 4A, ground water is treated in place by injecting air into the aquifer, causing the TCE to volatilize from the water phase to the air phase. The objective here is to place the sparging locations in places to reduce the cleanup time. The air is captured by extraction vents located above the ground water level in the subsurface. See Figure 15 for

the air sparging and soil vapor extraction well locations. The estimated time to reach cleanup goals in the ground water is 25 years.

Eleven additional ground water monitoring wells would be installed and monitoring would occur. Also, the U.S. EPA removal action and institutional controls would be implemented under this alternative.

The objectives of this alternative are to remove the human health risk posed by TCE contaminated ground water to ground water users in the TCE plume area, reduce the time for cleanup, and to prevent the TCE plume from migrating further downgradient.

Major ARARs for this alternative include the Safe Drinking Water Act MCLs and the Clean Air Act (CAA) Standards for air emissions. Air sparging and soil vapor extraction would address meeting MCLs eventually in the ground water. It is anticipated that the air emissions from the soil vapor extraction will meet the CAA standards, however, carbon treatment would be used if necessary.

The alternatives evaluated for addressing soil contamination problems at the site are:

Soil Alternative 1- No Action
Estimated Present Worth Cost: $ 0
Estimated Construction Timeframe: Immediate

The risk assessment showed that risks from human exposure to site soils were within the 1 X 10-6 to 1 X 10-4 risk range. However, the soils do pose a residual threat to ground water through leaching. Contaminants leaching out of soil may migrate to ground water and cause exceedances of Federal MCLs. This alternative consists of no further activities being conducted at the Galen Myers site. The inclusion of the no action alternative is required by CERCLA to give IDEM and U.S. EPA a basis for comparison with the other alternatives.

Soil Alternative 2- Natural Attenuation
Estimated Present Worth Cost: $ 213,000
Estimated Construction Timeframe: one month
Operation and Maintenance: Assume 30 years for cost purposes

Natural attenuation relies on natural subsurface processes such as leachinq, dilution, biodegradation, volatilization, chemical reactions with subsurface materials to reduce contaminant concentrations. Because the threats identified by the site soils are not by direct exposure, but to ground water through leaching, this alternative includes the installation of two shallow and two deep wells that will be located at the southern end of the site.

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These wells along with the existing on-site wells will be sampled annually to monitor the effectiveness of natural attenuation. If the ground water monitoring determines that the ground water has been impacted by the chemicals in the soils, then implementation Soil Alternative 3 may be necessary. Estimation of time needed to attain PRGS by natural attenuation in soil is very difficult determine. However, it is not expected to significantly increase cleanup time for ground water.

Major ARARs include meeting MCLs in ground water eventually through natural attenuation of soils.

Soil Alternative 3- Excavation and Off-Site Disposal
Estimated Present Worth Cost: $ 164,000 (non-hazardous)
$ 806,000 (hazardous)
Estimated Construction Timeframe: one month

The excavation and off-site disposal alternative involves excavating soil in areas where soil exceeds the cleanup goal of 0.1l mg/kg of TCE. This area is identified on Figure 16 and is preliminarily defined by TP-01, SB-04 and SB-05. The volume of soil requiring excavation is estimated at 1,100 cubic yards. Soil would be excavated and taken to an off-site permitted disposal facility by truck. Further sampling to delineate the areal extend of the soil areas requiring excavation would be completed. Results of laboratory analysis would determine if the soil is a hazardous waste or non-hazardous. The disposal options are affected by this determination as is the cost of the alternative.

Major ARARs that affect this alternative depend on the determination as to whether the soil is a hazardous

waste or nonhazardous. RCRA rules regarding proper handling and disposal of hazardous wastes would apply if the soil is characteristically hazardous. Indiana rules regarding special waste would apply to the soils if nonhazardous.

IX. Summary of the Comparative Analysis of Alternatives

The National Contingency Plan requires evaluation of alternatives based on nine criteria by which technical, economic, and practical factors associated with each remedial alternative must be judged. The nine criteria are categorized into three groups: threshold criteria, primary balancing criteria, and modifying criteria. The nine evaluation criteria are summarized below along with a comparative analysis of the alternatives evaluated in detail in the Feasibility Study.

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A. Threshold Criteria must be satisfied in order for an alternative to be eligible for selection. The two threshold criteria are: 1) overall protection of human health and the environment and 2) compliance with applicable or relevant and appropriate requirements (ARARs):

1) Overall Protection of Human Health and the Environment addresses whether a remedy provides adequate protection of human health and the environment and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

Ground water Alternatives: Alternatives 2, 3A, 3B, 4A and 4B would each equally protect human health through completion of the alternate water supply by the U.S. EPA removal action and institutional controls. Alternative 1, No action, does not protect human health as risks posed by residential use of ground water would continue.

Alternatives 3B and 4B are most protective of the environment, because these alternatives reduce TCE levels in ground water at a much faster rate as compared to other alternatives. Alternatives 3A, 3B, 4A, and 4B are more protective of the environment than Alternative 2, because these alternatives prevent further downgradient migration of the TCE plume and thus prevent TCE- contaminated ground water from reaching the St. Joseph River. However, under Alternative 2 it is expected that when the TCE plume reaches the St. Joseph River, the levels of TCE will not cause a threat to human health or the environment due to the dilution capacity of the St. Joseph River.

Soil Alternatives: All the alternatives are equally protective of human health as the risk assessment showed that the risks from contact with the soils are within the 1 X 10-4 to 1 X 10-6 risk ranqe criteria and the hazard index is less than 1. Although some ecological risk was calculated by exposure to site soils, the likelihood of exposure is limited due to better habitat located in close proximity to the site.

Alternative 3 is the most protective of the environment because soils the cleanup criteria for TCE would be excavated and transported off site for disposal at a permitted disposal facility. Alternative 2 (natural attenuation) would require ground water monitoring to ensure that the chemicals in site soils are not significantly impacting ground water. For Alternative 1 (no action), the overall protection of the environment is uncertain, because of the long-term potential for contaminants exceeding the cleanup goal for soil to leach into the ground water.

2) Compliance with Applicable or Relevant and Appropriate Requirements (ARARs) addresses whether a remedy will meet all of the ARARs constituted by other Federal and State environmental laws and/or justifies a waiver. The selected remedy must meet this criteria or waiver of the ARAR must be attained.

Ground water Alternatives: Chemical-specific and action-specific ARARs were reviewed and evaluated in the Feasibility Study. There are no known location-specific ARARs for the site. Alternatives 2, 3A, 3B, 4A, and 4B meet all of their respective chemical-specific and action-specific ARARs. Alternative 1 (no action) does not meet chemical-specific ARARs. The major ARARs include the Safe Drinking Water Act, the Clean Water Act, Indiana Water Quality Standards, the Clean Air Act and Indiana Emission Standards for Hazardous Air Pollutants and Volatile Organic Compound Rules. However, although Alternative 2 is expected to meet ARARs when the TCE plume reaches the St. Joseph River, there is some remaining uncertainty regarding compliance with surface water quality ARARs. Modeling of the ground water discharge and monitoring of the St. Joseph River would be completed under Alternative 2 to evaluate whether surface water quality ARARs would be met.

Soil Alternatives: Chemical-specific and action-specific ARARs were reviewed and evaluated in the Feasibility Study. There are no known location-specific ARARs for the site. Chemical-specific ARARs were not identified

for soil cleanup and action-specific criteria would be met in Alternative 3. Action-specific criteria include the Resource Conservation and Recovery Act if the soils are hazardous waste and Indiana Special Waste Management Requirements for disposal of nonhazardous waste. Therefore, all the alternatives meet this criteria. However, soil screening levels were developed to determine if the residual soil contamination was a pathway through leaching which may cause exceedances of MCLs in ground water. Alternative 3 addresses this potential exceedance of an ARAR for TCE in ground water by removing the soil source areas. Alternative 1 does not address this pathway and Alternative 2 addresses the soil source areas through natural attenuation and ground water monitoring.

B. Primary Balancing Criteria are used to weigh major tradeoffs among alternatives:

3) Long-term Effectiveness and Permanence refer to expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, after cleanup goals have been met.

Ground water Alternatives:
Alternative 1 does not protect human health and does not meet ARARs, one of the two threshold criteria, thus it is not included in the discussion of the primary balancing criteria or the modifying criteria. Alternatives 2, 3A, 3B, 4A, and 4B provide adequate long-term effectiveness and permanence through the U.S. EPA removal action providing an alternate water supply. The potential for residual TCE contamination to remain in ground water after the conclusion of remedial activities is very low. However, periodic ground water monitoring after the conclusion of remedial activities may be necessary to evaluate residual TCE contamination.

Alternative 3B provides the highest degree of long-term effectiveness and permanence because the pump-and-treat system is an established technology, and the network of extraction wells would actively flush TCE in the aquifer and provide for a greater control to account for any changes in the TCE plume direction, depth, or other characteristics. Alternative 3A is also a pump- and-treat system, but its long-term effectiveness is reduced because it has a smaller network of extraction wells and requires a longer time to flush one pore volume of ground water. Both of these alternatives provide long-term effectiveness and permanence by providing an alternate water supply and a hydraulic barrier to prevent further downgradient migration of TCE plume. The effectivness of Alternative 3A and 3B would be reduced if the extraction wells are not placed at the desired locations, because of problems associated with property access/easements. Prediction of the time needed to achieve cleanup is difficult. The system may need to be replaced or expanded over time to achieve cleanup levels.

The main component of Alternatives 4A and 4B is the air sparging and SVE system. Proper control of air flow is essential for the effectiveness of this technology. Site-specific pilot studies would be needed for effective design. Alternative 4B is more effective than Alternative 4A because it actively remediates a greater area of the TCE plume. Both Alternatives 4A and 4B provide long-term effectiveness and permanence by supplying an alternate water supply and a barrier to prevent further migration of the TCE plume. The effectiveness of Alternatives 4A and 4B would be reduced if the air sparging wells are not placed at the desired locations because of potential problems associated with property access/easements. Prediction of the time needed to achieve cleanup levels is difficult. The system may need to be replaced or expanded over time to achieve cleanup levels.

Alternative 2 relies on natural attenuation, alternate water supply, and ground water monitoring. Ground water monitoring is critical for verifying the long-term effectiveness of this alternative. A periodic review may be necessary to verify that the remedy remains protective.

Soil Alternatives: Alternative 3 provides the greatest long-term effectiveness and permanence, because the soils exceeding the PRG determined for TCE are removed from the site. Ground water monitoring would be needed to monitor the long-term effectiveness and permanence of Alternative 2. Alternative 1 does not offer long-term effectiveness and permanence.

4) Reduction of Toxicity, Mobility, or Volume through Treatment is the anticipated performance of the treatment technologies a remedy may employ.

Ground water Alternatives: All of the alternatives except Alternatives 1 and 2 reduce toxicity, mobility, and the volume of TCE-contaminated ground water through active treatment system. Alternative 2 relies on natural attenuation to reduce toxicity. Alternatives 3A, 3B, 4A, and 4B transfer TCE from ground water to atmospheric air. Based on TCE concentrations in ground water, the air emissions are expected to be insignificant (less than 0.1 lb/hr). However, if needed, off-gas treatment can be combined with these alternatives to ultimately

destroy TCE.

Soil Alternatives: No treatment would be implemented under any of the alternatives. Alternatives 1 and 2 rely on natural attenuation to reduce toxicity, mobility, and volume of contaminants in soil. Alternative 3 reduces the toxicity, mobility, and volume of contaminants in soil by excavation and off-site disposal. Based on the analytical results to determine if the soil is hazardous waste or nonhazardous, the excavated soil may require off-site treatment prior to disposal.

5) Short-term Effectiveness addresses the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period until cleanup goals are achieved.

Ground water Alternatives:. Alternative 2 is anticipated to have the greatest short-term effectiveness. Alternative 2 also presents the least amount of risk to workers, the community, and the environment during implementation. The time required for implementation would be shorter than for any of the other alternatives. It is anticipated that only a few months would be required to complete the U.S. EPA alternate water supply and the ground water monitoring system. However, this alternative would require the greatest amount of time to reduce TCE levels in ground water.

Alternatives 3A and 4A also pose minimal risk during the implementation of remedial actions, because the wells and the treatment system for these alternatives would be installed at the leading edge of the TCE plume (uncontaminated ground water). Alternative 3A would require predesign field activities (aquifer pumping test, etc.) and detailed design prior to the implementation. It is anticipated that Alternative 3A could be implemented in one to two years. Alternative 4A would require a more extensive pilot study prior to its design and implementation. It is anticipated that Alternative 4A could be implemented in one to two years. Both alternatives 3A and 4A would require approximately the same amount of time to achieve cleanup levels (approximately 100 years).

For Alternatives 3B and 4B, there is potential for workers to be exposed to airborne TCE during the construction or installation of the remedial equipment, as well as during operation of the treatment equipment. The air emissions are expected to be extremely low. Health and safety air monitoring may be needed during installation of equipment. Alternative 3B would require predesign field activities (aquifer pumping test, etc.) and detailed design prior to the implementation. It is anticipated that alternative 3B could be implemented in three to four years. Alternative 4B would require a more extensive pilot study prior to its design and implementation. It is anticipated that Alternative 4B could be implemented in two to three years. Both alternatives 3B and 4B would require approximately the same amount of time to achieve cleanup levels (approximately 25 years).

Soil Alternatives: Alternatives 1 and 2 would not meet PRGs in the short-term. However, there would be no impacts to the workers, community, or the environment during implementation of these alternatives. Alternative 3 would meet the PRGs in the short-term (several days). There is a potential for workers to be exposed to contaminants during excavation activities. Air monitoring, proper personal protective equipment, and dust control measures may be needed to minimize worker exposure for Alternative 3.

6) Implementability is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.

Ground water Alternatives: Alternative 2 would be the simplest alternative to construct and operate. The components of Alternative 2 (alternate water supply and ground water monitoring) are also needed for other alternatives. Alternatives 3A, 3B, 4A, and 4B are also easy to implement, based on technical feasibility and the availability of various services and materials required during its implementation. However, these alternatives may not be easily implementable administratively, due to potential problems associated with property access/easements. All of the alternatives involve construction in a residential area. Due to the nature of the TCE plume, long and narrow, well placement is an important factor to the effectiveness of the system.

Construction and operation requirements for Alternatives 3A and 4A are fairly simple. These alternatives require installation of wells at the leading edge of the TCE plume. Alternative 3A would require placement of a discharge pipeline to the St. Joseph River. Alternative 4A would require proper control and monitoring to capture sparged vapors. Alternative 3B and 4B have more construction and operation requirements because they have more wells and require installation of remedial components at various locations along the length of the plume. Alternatives 3B and 4B would also have more problems associated with acquiring property access/easements. Alternative 3B would require placement of piping to carry extracted and treated water large

distances. Implementation of Alternative 4B would have to avoid placement of sparging and SVE wells in the vicinity of buildings.

Soil Alternatives: No implementation is needed for Alternative 1. Implementation of Alternative 2 is fairly simple, as it would require only installation and sampling of some additional monitoring wells. Alternative 3 is also readily implementable, based on the technical and administrative feasibility and the availability of services and materials required for excavation and off-site permitted disposal facility.

7) Cost includes estimated capital and O&M costs, also expressed as net present worth costs assuming 30 years of O&M.

Ground water Alternatives: - The following cost estimates do not include the cost of the U.S. EPA removal action extending an alternate water supply to the residential area south of the site. Alternative 2 has the lowest total cost ($1,571,000). The total costs of Alternatives 3A and 4A are $2,042,000 and $1,934,000, respectively. Alternatives 3B and 4B have higher costs than Alternative 3A, because these alternatives have a shorter time of cleanup. Alternative 3A costs $2,800,000. Alternative 4B has the highest total cost ($3,542,000), O&M cost ($2,291,000) and capital cost ($1,251,000). The cost details of all of the alternatives are included in Appendix F of the FS report.

Soil Alternatives: There is no cost for Alternative 1. Alternative 2 is estimated to cost $213,000 which includes a present worth cost of $154,000 for O&M. Alternative 3 is estimated to cost $164,000 for excavation and disposal if the soil is determined to be nonhazardous waste. If the soil is determined to be a characteristically hazardous waste, the cost of Alternative 3 increases to a total of $806,100 for the excavation and disposal of soil designated as a hazardous waste. There are no costs for O&M for Alternative 3.

C. Modifying criteria are usually taken into account after public comment is received on the Feasibility Study report and the Proposed Plan. These criteria are:

8) Support Agency Acceptance (U.S. EPA) reflects aspects of the preferred alternative and other alternatives that the support agency favors or objects to, and any specific comments regarding Federal ARARs or the proposed use of waivers.

U.S. EPA has been involved throughout the remedial investigation feasibility study and concurs with the selected remedy- Alternative 2 for Ground water and Alternative 3 for Soils.

9) Community Acceptance summarizes the public's general response to the alternatives described in the Proposed Plan and in the Feasibility Study report based on public comments received.

The selected remedy is the same remedy that was issued in the Proposed Plan fact sheet. Community Acceptance of the selected remedy is discussed in detail in the Responsiveness Summary which is included as Appendix B. In summary, although the majority of the written and oral comments were in favor of the selected remedy, there were concerns expressed regarding the impact of the contaminants on the St. Joseph River and comments given preferring a more active treatment system to be implemented such as Alternative 3B or 4B to reduce the time to reach cleanup goals.

X. The Selected Remedy

Based on consideration of the requirements of CERCLA, the detailed analysis of the alternatives, and public comments, IDEM and U.S. EPA Region V have selected Alternative 2 for ground water and Alternative 3 for soils as the most appropriate final remedial actions for the Galen Myers Dump/Drum Salvage site in Penn Township, Indiana.

The decision between Ground water Alternative 2 and 3A was difficult. Concerns regarding implementability of an active treatment system in the residential area, relatively similar (same order of magnitude) cleanup times and cost were the major factors in determining whether to select Alternative 2 or Alternative 3A to address ground water. The FS report estimated that Alternative 2 takes 160 years to reach cleanup goals, while alternative 3A takes 100 years. There are still implementation concerns inherent to 3A that are not a concern with 2 due to the narrow shape of the TCE plume. Well placement and access to property are highly important to the effectiveness of a pump and treat system. Long-term effectiveness, cost and implementation concerns were balanced against treatment. Treatment as a principle element was not practicable at this site when all the criteria used by IDEM are evaluated due to the practicability of installing a pump and treat system in the residential area, and similarities in long-term effectiveness between Alternative 3A and

Alternative 2.

The selected final remedy for this site is the same preferred alternative presented in the Proposed Plan developed and issued by IDEM. Details of the components of the remedy may be altered as a result of the remedial design and field conditions encountered during construction and facility startup. As viable potentially responsible parties have not been identified to date, IDEM will submit an application to U.S. EPA for funding to perform the design, construction, and long-term remedial action phases and any modifications necessary to implement the selected remedy.

The selected remedy is summarized below:
Institutional Controls Restrictions on new well installation in the plume area and south to the St. Joseph River will be implemented to protect human health from exposure to the TCE plume. The St. Joseph County Draft Ground water Protection Ordinance is continuing to be developed by the St. Joseph County Health Department. This Ordinance calls for a permit system for residential well installations. The Ordinance may be utilized in the future as an institutional control enforced by the local government for prohibiting future well installations at the site or in the area affected by the site.

Natural Attenuation and Monitoring
Ground water and contaminant transport modeling will be conducted to refine the proposed ground water monitoring well locations indicated in the FS to monitor the migration of the TCE plume and to monitor the natural attenuation of the aquifer for eventual attainment of cleanup goals in the aquifer. The FS estimated that it would take 160 years to reach cleanup goals in the aquifer by natural attenuation.

The contaminant transport modeling will also be completed to determine the concentrations of contaminants, including TCE, in the ground water when discharged to the St. Joseph River and compare these to State of Indiana Water Quality Standards under 327 IAC 2. Periodic monitoring of the St. Joseph River upstream and downstream of the predicted discharge area determined by the contaminant transport modeling will also be completed. The frequency of this monitoring will be determined during remedial design.

Approximately 15 additional ground water monitoring wells will be installed. A shallow and mid-level depth well nest will be installed at seven locations along the TCE plume migration path. One mid-level depth well will be installed next to the current shallow well, MW-19. Monitoring of the ground water will be conducted semi-annually. The total well network will be monitored once per year for VOCs, SVOCs and Inorganics. Certain wells located at the southern edge of the plume will be monitored on a semi-annual basis for VOCs to monitor the migration of TCE contaminated ground water and to identify breakdown products of TCE. This will be conducted until the levels in the ground water reach the cleanup goals given in Section VIII of the ROD.

Completion of the U.S. EPA Alternate Water Supply Removal Action U.S. EPA estimates that completion of the removal action will occur in October or November, 1995. This safe source of drinking water was offered to 201 residents in the community south of the Galen Myers site. Currently, 88% of the residents have completed the paperwork necessary to be connected to the alternate water supply.

Excavation and Off-site Disposal of Soil Exceeding the Soil Cleanup Goal On-site soils exceeding the cleanup goal of 0.11 mg/kg for Trichloroethene will be excavated and transported to a permitted off-site disposal facility. The soil area identified to exceed the cleanup goal is found near TP-01, SB-04 and SB-05. Further sampling will be conducted to refine the areal extent of contamination in this area. The FS estimated the volume of soil requiring excavation and disposal to be 1100 cubic yards. Sampling will be conducted to determine if the soil is a characteristically hazardous waste, or is considered nonhazardous. The excavated soil will be treated on-site if necessary and properly transported to a permitted disposal facility for final disposal.

XI. Statutory Determinations

The selected remedy must satisfy the requirements of Section 121 of CERCLA by protecting human health and the environment and complying with ARARs. CERCLA Section 121 also requires that the selected remedial action be cost effective; utilize permanent solutions and alternate treatment technologies to the maximum extent practicable; and satisfy the preference for treatment as a principle element of the remedy, or provide an explanation as to why the preference is not satisfied. Below is a summary of how the selected remedy meets these statutory requirements:

Protection of Human Health and the Environment

Implementation of the selected remedy will eliminate potential risk to human health from exposure to ground

water through provision of an alternate water supply and institutional controls. The remedy will reduce risk to within the acceptable range of 1 x 10-4 to 1 x l0-6 excess cancer risk and the hazard indices for non-carcinogens will be less than one. Institutional controls will be pursued through the St. Joseph County Health Ordinance Department draft Ground water Protection Ordinance. This can be utilized to prohibit private residential well installation in the affected area.

No unacceptable short-term risk or cross-media impacts will be caused by implementation of the selected remedy.

Compliance with ARARs

The selected remedial action will meet all identified applicable or relevant and appropriate Federal and more stringent State requirements. The ARARs are classified as chemical, action and location-specific. There were no known location-specific ARARs identified for the site. The ARARs are listed below:

Chemical-Specific ARARs:

- 40 CFR 141: Safe Drinking Water Act (SDWA) National Primary Drinking Water Standards. MCLs are applicable and proposed MCLs are to be considered. The MCL for TCE Is 5.0 ug/l. Non-zero Maximum Contaminant Level Goals (MCLGs) are applicable and non-zero proposed MCLGs are to be considered.

- 40 CFR 143: Safe Drinking Water Act (SDWA) National Secondary Drinking Water Standards

- 40 CFR 131: Clean Water Act. Water Quality Criteria for the discharge of contaminants in the St. Joseph River.

- 327 IAC 2: State of Indiana Water Quality Standards

- 327 IAC 2-1-7: State of Indiana Interim Ground water Quality Standards

- 327 IAC 8-2: State of Indiana Public Water Supply Drinking Water Standards

Action-Specific ARARs:

- 40 CFR 50: National Primary and Secondary Ambient Air Quality Standards (NAAQS). During excavation and grading, fugitive dust emission must not exceed NAAQS requirements for particulate matter.

- 40 CFR 261.: Resource Conservation and Recovery Act (RCRA) is applicable for definition and identification of hazardous wastes for identifying proper disposal of wastes and may be relevant and appropriate for sampling activity; delegated program in Indiana is implemented at 329 IAC.

- 40 CFR 262: RCRA is applicable for generators of hazardous wastes if such materials are disposed off site. This may be applicable if the soil is determined to be a hazardous waste. Delegated program in Indiana implemented at 329 IAC 3.1.

- 40 CFR 263: RCRA is applicable for transporters of hazardous wastes, may be applicable if site soils are hazardous waste. Delegated program in Indiana is at 329 IAC 3.1.

- 40 CFR 268: RCRA is applicable for soil excavation and treatment residuals if soils test TCLP hazardous (LDRs) if those materials are to be moved or placed outside of an area of contamination and/or are to be disposed off site; delegated program in Indiana is implemented at 329 IAC 3.1. Solid and Special Waste Management Regulations are applicable if soils tests determine the soi1s are not a hazardous waste by the TCLP test.

- 40 CFR 122.44(l): National Pollutant Discharge Elimination system (NPDES) Permit Regulations. Administrative requirements of monitoring of discharge to ensure compliance by monitoring mass, volume, and frequency of discharge events is relevant and appropriate for discharge of ground water to the St. Joseph River. Delegated program in Indiana is implemented at 327 IAC 15.

- 326 IAC 6: State of Indiana Particulate Rules. Fugitive dust emissions or particulate matter

emissions are subject to the rules.

- 326 IAC 8: Volatile Organic Compound Rules establishing emission standards for volatile organic compounds.

- 326 IAC 14: Emissions Standards for hazardous Air Pollutants. Site specific operating requirements for emissions of air pollutants.

Location-specific ARARs: None

To Be Considered Criteria (TBCs): None

Cost Effectiveness

Cost effectiveness is determined by evaluating the overall effectiveness proportionate to costs, such that the selected remedy represents a reasonable value for the money to be spent. The estimated net present worth value of the selected remedy for ground water is less than half of the costs associated with the most expensive alternative (Ground water Alternative 4B), which includes installation of an air sparging/soil vapor extraction system in four areas along the length of the plume. The Alternatives nearest in cost to the selected remedy (alternative 2 - $1.57 million) are Alternative 3A ($2.0 million) and 4A ($1.9 million) for ground water. The time for Alternative 3A or 4A to reach cleanup goals is 100 years and the time for Alternative 2 to reach cleanup goals is estimated at 160 years. All three alternatives provide the same level of protection by provision of the alternate water supply. For approximately $400,000 more in net present worth, Alternative 3A does not provide a significant reduction in the amount of time to reach cleanup goals.

Regarding soils, Alternative 3, if classified as special (non-hazardous) waste, costs $50,000 less than Alternative 2. Alternative 3 also eliminates a continuing source of contamination to ground water. If testing determines that the soils are hazardous waste, the cost for disposal rises to $806,000. The alternatives may need to be reconsidered if the testing determines that the soils are hazardous waste.

Utilization of Permanent Solutions and Alternative Treatment Technologies or Resource Recovery Technologies to the Maximum Extent Practicable

The selected remedy provides the same degree of long-term effectiveness and permanence when compared to the other alternatives. The selected remedy treats the principal threat posed by ground water contamination by provision of an alternate water supply. Also, excavation of site soils which are a continuing source of contamination to the ground water provides a permanent solution regarding the source area at the site. The small amount of soil (about 1100 cubic yards) and the relatively low concentrations of TCE did not justify using on-site or off- site treatment systems. It is more cost-effective to remove the soils and dispose of them at a permitted disposal facility.

As stated previously, all the Ground water Alternatives, with the exception of Alternative 1-No Action, provide overall protection of human health and the environment and meet ARARS. The U.S. EPA removal action providing an alternate water supply will protect human health from exposure to contaminated ground water. ARARs would be met eventually in the ground water through natural attenuation or an active treatment system. Ground water Alternatives 3B and 4B will be more effective in the short term than ground water Alternatives 2, 3A or 4A. Ground water Alternative 2 is easier to implement than Ground water Alternatives 3A, 3B, 4A and 4B because there is not the need to construct treatment system in the residential areas. Due to the narrow size of the plume, the area in which to place extraction or air sparging system is limited. Access to property may be a large factor in the implementation of Ground water Alternatives 3A, 3B, 4A or 4B. Ground water Alternative 2 presents the least amount of risk to workers, the community and the environment during implementation.

Ground water Alternative 2 is estimated to achieve cleanup levels in 160 years, while Ground water Alternatives 3A and 4A are estimated to take 100 years. Ground water Alternatives 3B and 4B are estimated to achieve cleanup levels both in about 25 years, however, they both have issues regarding implementation that make 3B and 4B less desirable. Ground water Alternatives 3B and 4B require placement of extraction wells or air sparging systems in four locations along a residential area. Again, the plume is very narrow and well placement is very important to the effectiveness of 3B or 4B. Property access in the residential areas may have impacts to the effectiveness. Ground water Alternative 3B requires placement of piping to carry extracted and treated water large distances, and Ground water Alternative 4B would have to avoid placement of sparging and SVE wells in the vicinity of homes, which may reduce its effectiveness. Ground water alternatives 3A and 4A are easier to implement, and have less short-term risks than Ground water Alternatives

3B and 4B.

Ground water Alternative 4A is more costly than Ground water Alternative 3A for the same benefits of treatment, long-term effectiveness and implementability.

Ground water Alternative 2 provides the same protection for human health as Ground water Alternative 3A due to the alternate water supply. The amount of time to achieve cleanup goals is 160 years for Ground water Alternative 2 and 100 years for Ground water Alternative 3A, for a cost difference of $430,000. Ground water Alternative 3A can be implemented in one to two years and there are implementation concerns regarding availability of land in the residential area for proper placement of extraction wells. Ground water Alternative 2 can be implemented in 2-4 months and does not have the same implementation concerns. Therefore, Ground water Alternative 2 provides the best balance of tradeoffs among the alternatives with respect to the evaluation criteria.

Regarding Soil Alternatives, both Soil Alternatives 2 and 3 fully meet the nine criteria in the NCP, with the exception that Soil Alternative 2 relies upon natural attenuation instead of treatment to achieve cleanup goals and Alternative 3 relies on excavation and disposal instead of treatment to achieve cleanup goals. The short-term risks are higher for Soil Alternative 3 than for Soil Alternative 2 due to excavation activities and trips by trucks to an off-site disposal location. However, Soil Alternative 3 would reduce the threat to the aquifer immediately after excavation, while Soil Alternative 2 would rely on natural attenuation for a longer term cleanup. The community and workers would be exposed to chemical during excavation activities for Soil Alternative 3, while Soil Alternative 2 involves monitoring well installation only.

The selected remedy utilizes a permanent solution. For the reasons described above, IDEM found that utilizing treatment to the maximum extent practicable was not practicable for the Galen Myers site ground water contamination due to similar times for reaching cleanup goals; access to property implementation concerns and the cost difference between Ground water Alternatives 2 and 3A. Regarding the contaminated soils, the low volume does not justify utilizing treatment to the maximum extent practicable.

U.S. EPA concurrence and community acceptance further support the decision that Ground water Alternative 2-Alternate Water Supply, Natural Attenuation and monitoring, and Soil Alternative 3- Excavation and Off-site Disposal provide the best balance of trade-offs with respect to the nine criteria used by IDEM for remedy selection.

Preference for Treatment as a Principal Element

The selected remedy for soil contamination did not use treatment as a principal element due to the low volume of soil estimated to be removed. It was not cost-effective to treat the soil on-site for the volume determined during the soil screening process. The soil is anticipated to be nonhazardous and would not require treatment before disposal at a permitted disposal facility.

The selected remedy for ground water contamination also did not use treatment as a principal element due to the impracticability of installing an effective pump and treat system in the residential area, among other factors. As described in the previous section, concerns regarding the implementibility, the similarities in long-term effectiveness and cost differences as the major factors in determining if treatment as a principal element was practicable for this site. The selected remedy does not meet the preference for treatment but is the best balance of the criteria used by IDEM to select a remedy for the Galen Myers site.

Documentation of Significant Changes

IDEM determined that no significant changes to the remedy, as it was in the Proposed Plan, are necessary.

RESPONSIVENESS SUMMARY
GALEN MYERS DUMP/DRUM SALVAGE
PENN TOWNSHIP, ST.JOSEPH COUNTY, INDIANA

RESPONSIVENESS SUMMARY OVERVIEW

The Indiana Department of Environmental Management (IDEM) in accordance with CERCLA Section 117, 42 U.S.C. Section 9617 held a public hearing on August 15, 1995, and a public comment period from August 8, 1995 through September 7, 1995 to allow interested parties to comment on the Feasibility Study and IDEM's Proposed Plan for remedial action at the Galen Myers Dump/Drum Salvage (Galen Myers) Superfund Site. Based upon a request by the St. Joseph River Basin Commission, the comment period was extended to September 14, 1995.

Listed below are summaries of the community relations activities conducted for the Galen Myers site, public comments received from oral comments at the public meeting and IDEM responses and written comments received during the comment period and IDEM responses.

COMMUNITY RELATIONS ACTIVITIES SUMMARY

The residential community to the south of the Galen Myers site has been directly affected by the ground water contamination associated with the site. IDEM conducted residential well sampling on a semi-annual basis to monitor the effectiveness of the 29 carbon filtration systems. During the sampling activities, IDEM staff kept the residents updated on the site activities.

In May 1993, a fact sheet explaining the Superfund process, describing the site and RI activities was mailed to local residents, local officials, the media and other interested parties. A public meeting was held May 26, 1993 at the Penn High School in Penn Township to kickoff the remedial investigation activities and answer questions regarding the subsequent field sampling activities. Seventy-one people attended the meeting.

In April 1994, IDEM sent a fact sheet to the public to announce the U.S. EPA removal action providing an alternate water supply to the affected and potentially affected residential areas. A public meeting was held April 27, 1994, to discuss the status of the RI and the U.S. EPA removal action. Subsequently, in August 1994, IDEM sent a letter to the eligible residences notifying them of the forms to be signed and a sign-up meeting was held on August 16, 1994 at the New Life Baptist Church in Penn Township. Followup letters to the non-responsive residents were also sent.

The requirements of CERCLA regarding public participation in the remedy selection process were met by issuing the proposed plan act sheet to the public August 4, 1995. The public comment period commenced August 8, 1995 and ended September 7, 1995. A public meeting was held August 15, 1995 at Penn High School to accept written and oral public comments on the proposed plan. A court reporter was in attendance to provide a transcript of the public meeting. Thirty-three people were in attendance.

COMMENTS FROM THE AUGUST 15, 1995 PUBLIC HEARING

Overall, nine (9) attendees gave oral comments at the public hearing.

1. COMMENT- Three (3) commentors were supportive of the Proposed Plan, Alternative 2 for ground water and Alternative 3 for soils. One of the commentors expressed "wholehearted disagreement" regarding the requirement of the U.S. EPA removal action that a waiver of right to remonstrate form for future annexation had to be signed by each of the residents.

AGENCY RESPONSE, The waiver of right to remonstrate form was required by the City of Mishawaka as a condition to connecting the waterline extension to the Mishawaka Utilities water supply.

2. COMMENT: Two commentors expressed support for Alternative 4B because "anything less is a band-aid on a problem that will cause generations of problems....Anything less than Alternative 4B would simply not be addressing the purpose and the need that is caused by this problem." and "anything that can stop this in its tracks from spreading to our aquifer, to our river, to our home and our property sites, I think is crucial."

AGENCY RESPONSE: There is a preference for treatment under Section 121 of CERCLA. However, when evaluating all the criteria used by the agency to select a remedy, IDEM cannot minimize the impact of implementability on this project. The trichloroethene (TCE) plume in this area is very narrow. Pumping or air sparging well placement is very important to the effectiveness of an active treatment system for this site. IDEM remains concerned about the practical implications of not gaining access to the residential or other privately held property needed in order to place the air sparging wells in the necessary locations. This complication is multiplied 3 times for placement of air sparging wells in 4 locations for ground water alternative 4B. When considering the nine criteria from the National Contingency Plan (NCP) used by the agency to make a cleanup decision, IDEM found that Alternative 2 for ground water is the best balance of trade-offs among the alternatives.

3. COMMENT: Also, there were concerns expressed by the same commentors mentioned above about the safety of children playing in the St. Joseph River where the discharge from the aquifer would be under Alternative 2.

AGENCY RESPONSE: The discharge to the St. Joseph River is expected to meet the Indiana Surface Water Quality Standards and should not pose any risk to swimming in the River. Monitoring will be conducted in the forecasted discharge area for verification.

4. COMMENT: One commentor questioned "...But how do you want to come in here and make a change for us that we're not in favor of? Isn't the input supposed to be from people that you're serving if you're government employees? ..."

AGENCY RESPONSE: The purpose of the public comment period and the public meeting is to offer the public a chance to comment on the proposed plan. Community acceptance is determined after the public comment period.

5. COMMENT: One commentor stated that "This county isn't the easiest one to work with by any means." and later stated concerns regarding local taxes and the frustration felt by the community.

AGENCY RESPONSE: This comment does not address the proposed plan.

6. COMMENT: One commentor stated that he would like the agency consider a proposal to change Alternative 2: "consider formally responding to "Alternative 2-B, which would be to implement a staged hookup to the water system. If you are going to be monitoring the area, it appears to me that, if you're hooking everyone up to the water system regardless of the monetary, it's non-value added; and that could be a cost savings."

AGENCY RESPONSE: Although an interesting concept, IDEM and U.S. EPA need to perform work according to the laws, rules and policies set for removal actions, such as the alternate water supply. This concept is not workable according to current laws, rules and policies.

7. COMMENT: The last commentor wondered if there would be a response to the questions posed during the comment period.

AGENCY RESPONSE: This responsiveness summary is the formal written response to the comments generated during the public comment period.

AGENCY RESPONSE TO WRITTEN COMMENTS RECEIVED DURING PUBLIC COMMENT PERIOD

8. COMMMENT: Five (5) written comments were received which supported the selected remedy. The comments which represent all five are paraphrased as given below:

"I think the measure have been taken that will be the most effective, i.e. soil removal and a water system installed. No more should be done. Nature will take care of the rest, much like the Whiteford Site" and "I am in support of both Alternative 2 and alternative 3. I am appreciative of having city water supplied which is an immediate and permanent solution to the drinking water problem..." and "We endorse ground water alternative 2. We endorse ground water alternative 3. No monitoring wells allowed on our property".

AGENCY RESPONSE: Thank you for the comments supporting the selected remedy for the Galen Myers site.

9. COMMENT: "There has been a comment on using wells to aerate the water to remove the chemicals as they are doing in Granger area. This sounds good to me. My question is why not let the people who have good wells use them for sprinkling systems for their lawns. This would serve the same purpose. They would have a direct hook-up to sprinkling system, so how could that harm the city water supply"

AGENCY RESPONSE: IDEM is concerned that although there are some wells that are not impacted currently, the TCE plume may migrate vertically or horizontally to reach those wells in the future. Also, the supplemental risk assessment showed that there is a potential to exceed the acceptable risk range for carcinogenic or cancer-causing risk due to exposure to TCE-contaminated ground water by casual uses such as washing cars and swimming pool use. The potential for plume movement and cross-connections between residential wells and the City of Mishawaka water supply is a concern to the agency. The Office of Water Management requires well abandonment as a requirement of receiving a permit to extend a waterline. Water from wells could back-up into the City water utility and cause contamination of the City water supply.

10. COMMENT: "Alternative 3A or 3B would be satisfactory"

AGENCY RESPONSE: When evaluating the alternatives against the nine criteria listed in the NCP, IDEM determined that Alternative 2 for ground water provides the best balance of trade-offs with respect to the nine criteria.

11. COMMENT: "As I understand this problem - if it were a governmental and legal requirement that any and all homes, businesses or water users to have 90-100 foot wells either newly drilled - or redrilling of existing wells to requirement depth the problem would be solved, therefore, saving money, headaches, annexation, etc.

If I am wrong in my understanding, I would support Plan 3B."

AGENCY RESPONSE: The TCE contamination was found in the shallow monitoring wells (from 15-40 feet deep), however, TCE can migrate downward as the specific gravity of TCE is heavier than water. Thus, although deeper wells may not be contaminated currently, there is the potential for TCE to migrate downward in the future. The silty clay layer found from approximately 60-80 feet deep throughout the aquifer is a semi-confining layer. It may keep TCE from migrating deeper, but there is uncertainty associated with this semi-confining layer. IDEM would also be concerned about drilling new wells through the existing plume area. The new wells may act as a preferred pathway causing the contamination to migrate downward to previously uncontaminated areas. When evaluating the alternatives against the criteria listed in the Superfund law, IDEM determined that Alternative 2 for ground water is the best balance of trade-offs from all the criteria.

Note: The St. Joseph County Health Department (SJCHD) submitted written comments to IDEM with detailed questions and/or comments the Remedial Investigation Report, the Feasibility Study (FS) and the Proposed Plan. The specific comments outlined in the letter were mainly in regards to the groundwater cleanup alternatives. The specific comments are addressed below. In some cases the comment has been paraphrased or summarized. See the administrative record for the comments submitted to TDEM from SJCHD.

12. COMMENT: #1. "Figure 2-6 of the Feasibility Study Report...It would be appropriate to review the data used to develop Figure 2-6 to verify that a correct representation of the water table is depicted....These calculations indicate that the steepest gradient exists between the railroad tracks and Birchtree Drive. This may be due to the withdrawal of ground water by the numerous houses in this area relative to other areas of the site."

AGENCY RESPONSE: The water level depicted in Figure 2-6 of the FS report is based on the water levels in the deep wells at each soil boring location (e.g. MW-07, MW-04, MW-01 and MW-13). It may have been more appropriate to also indicate the water levels in the shallow wells at each location. The steeper gradient between the railroad tracks and Birchtree Drive may be related to the withdrawal of water by numerous houses, or more likely the natural gradient of the aquifer. The natural gradient of the aquifer can be verified after the area houses are connected to the U.S. EPA removal action providing an alternate water supply.

13. C0MMENT: #2 The commentor noted "If Ground water Alternative 2 is selected as the remedial action alternative we recommend the following:...". The commentor recommends collecting samples from residential wells outside the U.S. EPA waterline service area, collecting samples from residential wells for residents who chose not to hookup to the U.S. EPA waterline, and focusing this sampling in the area north of US 20/McKinley Highway. The commentor also recommends installing monitoring wells along Barksdale street and south of Avon street. The commentor states that it is possible that once the residents are connected to the alternate water supply that there may be plume movement to the residents outside the waterline service area.

AGENCY RESPONSE: IDEM will determine the monitoring well placement and the sampling plan during the design process for the remedial action. IDEM will use ground water modeling to refine the proposed well locations used to describe Alternative 2, and will consider the location stated in the comment. The monitoring well network should be an effective system for monitoring plume migration. Alternative 2 currently includes biannual sampling of several well nests along the western perimeter of the plume and should detect westerly migration. Western migration of the plume is very unlikely since the intermittent use of residential wells and their relatively low pumping rates will have a minimal impact on the current flow direction of the plume. However, IDEM will consider the option of collecting samples from residential wells if it is determined that the monitoring well network is insufficient to monitor possible plume migration, or if it is determined that collecting samples from residential wells is an effective supplement to the monitoring well network.

14. COMMENT: #3. "It is recommended that the maximum contaminant level (MCL) and/or reference doses (RFD's) be used instead of back ground levels of inorganics and other contaminant to determine whether a health hazard exists for potential downgradient ground water users." The commentor then proceeded to state examples from the risk assessment where background levels were used and issues regarding turbidity in MW-11, which was used in the calculation of background concentrations for the site.

AGENCY RESPONSE: IDEM uses U.S. EPA guidance to conduct risk assessments for Superfund sites in the State of Indiana. The Risk Assessment Guidance for Superfund (U.S. EPA, July 1989) states that background sampling is conducted to distinguish site-related contamination from naturally occurring or other non-site related levels of chemicals. For example, pesticides which are not naturally occurring may be ubiquitous in agricultural areas. Metals are also present at naturally occurring levels in soils and ground water. Therefore, based on the background sampling results, the elevated levels of metals in monitoring well samples are likely due to naturally occurring levels in ground water. Furthermore, if metals were disposed of at the Galen Myers site,

the metals would migrate along a similar pathway as the TCE. The TCE pathway or plume area affecting residential users is being supplied with an alternate water supply and therefore would also address elevated levels of inorganics.

15. COMMENT: #4. "The selection of ground water alternative 2 is questioned for the following reasons:...". Each of the reasons is listed with a specific agency response below:

“A. Several pesticide have been found in both installed MW's and existing residential wells....These pesticides have been found in the MW's at levels exceeding their respective health advisories and/or MCL's (Lindane, Dieldrin)."

AGENCY RESPONSE: The Remedial Investigation (RI) report was reviewed and the residential well analytical results did not indicate levels exceeding MCLs or health advisories for either Lindane (MCL- 2. 0 ug/l) or Dieldrin (1 X 10-4 cancer risk level- 2.0 ug/l). The risk assessment evaluated risks for the current users of the ground water, the residential well results. The contaminant of concern identified from the risk assessment was TCE. TCE was the major contributor to the carcinogenic risk posed by the site (74%) and contributed also to the non-carcinogenic risk. However, if pesticides were disposed of at the Galen Myers site, the pesticides would migrate along a similar pathway as TCE. The TCE pathway or plume area will be supplied with an alternate water supply.

"B. Alternative 2 is not more protective of the environment than an Air Sparging/Soil Vapor Extraction (AS/SVE) system. section 6.4.2.1."

AGENCY RESPONSE: IDEM agrees that treating the plume before it reaches the St. Joseph River is more protective than Alternative 2, however, IDEM has determined that it is unlikely that Alternative 2 will cause an exceedance of surface water quality standards in the St. Joseph River. Modeling and sampling will be conducted to verify this determination.

"C. "There is some uncertainty as to the ability of Alternative 2 (natural attenuation) to comply with surface water quality ARAR's when the TCE plume reaches the St. Joseph River." (Section 6.4.2.2) An AS/SVE system will meet all of the respective ARAR's."

AGENCY RESPONSE: IDEM agrees that treating the ground water TCE plume by air sparging and soil vapor extraction before it reaches the St. Joseph River will comply with ARARs. Although there is some slight uncertainty, IDEM has determined that Alternative 2 will also comply with ARARs and not cause an exceedance of surface water quality standards in the St. Joseph River. Modeling and sampling will be conducted to verify that Alternative 2 is compliant with ARARs.

"D. Long term effectiveness of protection of down gradient aquifer users is not assured with ground water Alternative 2. Especially vulnerable are those persons who have chosen to continue to use their own private well water."

AGENCY RESPONSE: An alternate water supply has been offered to the residents determined by U.S. EPA and IDEM to be currently impacted or potentially impacted by the TCE plume. The alternate water supply will be available in the future to those users who have chosen not to hookup to the alternate water supply now. IDEM and U.S. EPA have conducted meetings, issued fact sheets, sent letters and gone door-to-door to inform the residents of the contamination and to offer the alternate water supply hookup as a permanent solution. Institutional controls will be used to prevent further wells from being installed in the area.

"E. All the alternatives except Alternatives 1 and 2 reduce toxicity, mobility and the volume of TCE contaminated ground water through treatment" ... "It is worth noting that a AS/SVE system would also dilute the TCE concentration in the ground water through the cleansing process."

AGENCY RESPONSE: The treatment alternatives reduce mobility and volume of TCE concentrations in ground water through treatment by air stripping or air sparging. TCE would be emitted into the atmosphere by air stripping from groundwater or by soil vapor extraction emissions. With Alternative 2, the TCE is reduced over time in the aquifer through attenuation and discharge to the St. Joseph River.

"F. Although Alternative 2 presents the least amount of risk to workers, the community and the environment during implementation (Section 6.4.2.5), it may present the greatest risk to potential down gradient aquifer users." The commentor also notes from the Feasibility Study that the air emissions from construction, implementation and operation of an AS/SVE system are expected to be very low.

AGENCY RESPONSE: IDEM disagrees that Alternative 2 presents risk to potential down gradient users. The users can utilize the alternate water supply for a safe source of drinking water. The potentially affected residents were included in the water supply service area. IDEM agrees that air emissions are expected to be low from operation of an AS/SVE system in this plume area.

"G. There is also a philosophical disagreement with IDEM's selection of Alternative 2 for ground water remediation. As a regulatory agency this decision creates a conflict when IDEM or the EPA may require a private entity to remediate ground water to MCL's or a similar treatment level. It would be preferable for IDEM to adopt the philosophy of non-degradation for ground water resources when considering remedial alternatives. That is a solid basic philosophy."

AGENCY RESPONSE: IDEM used CERCLA, CERCLA guidance and the nine criteria established by the National Contingency Plan (NCP) to determine a site-specific remedy for the Galen Myers site. IDEM developed cleanup alternatives and analyzed the alternatives with respect to the nine criteria to determine the remedial action which was the best balance of trade-offs with respect to the nine criteria.

16. "#5. It is recommended that IDEM remediate the Galen Myers Dump/Drum Salvage Site contaminant plume, utilizing a combination of AS/SVE systems and natural attenuation." The commentor then gave specific details as to how this hybrid alternative could be implemented at the Galen Myers site.

AGENCY RESPONSE: IDEM did not consider this alternative during the Feasibility Study. IDEM requested that the contractor preliminarily analyze this alternative. The Birchtree location still would have implementation concerns

ADMINISTRATIVE RECORD INDEX
FOR THE
GALEN MYERS DUMP/DRUM SALVAGE
SUPERFUND SITE

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), requires the establishment of an Administrative Record (AR) upon which the President shall base the selection of a response action (SARA; Sec. 113(k)(1)). IDEM has compiled the following official Administrative Record Index for the Galen Myers Dump/Drum Salvage site located in Penn Township, St. Joseph County, Indiana. This index with associated actual file will be updated by IDEM periodically.

ADMINISTRATIVE RECORD INDEX
GALEN MYERS DUMP/DRUM SALVAGE SITE SUPERFUND SITE
OSCEOLA, ST. JOSEPH COUNTY, INDIANA

AUGUST 1995 UPDATE #2

PG'S	DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT TYPE	DOC NO.
3	6/29/92	Letter about on site activities located at 11303 Edison Road	IDEM Pat Carrasquero	Larry Nolen	Correspondence	1
1	3/29/93	Letter about Final Draft of Community Relations Plan for Galen Myers Dump/Drum Salvage Superfund Site.	IDEM Pat Carrasquero	USEPA Romona Smith	Correspondence	2
1	3/29/93	Letter about Final Draft of the Health and Safety Plan for Galen Myers Dump/Drum Salvage Superfund Site.	IDEM Pat Carrasquero	USEPA Romona Smith	Correspondence	3
8	5/19/94	Letter stating that the U.S. Geological Survey owns a network of 51 wells and will allow IDEM to use the wells in St. Joseph County.	USGS Randall Bayless	IDEM Krista Duncan	Correspondence	4
1	11/22/94	Letter about the Baseline Risk Assessment for Galen Myers.	IDEM Krista Duncan	USEPA Romona Smith	Correspondence	5
1	12/1/94	Letter about surface water and sediment samples collected from the St. Joe River	IDEM Krista Duncan	Weston Inc. Richard Mehl	Correspondence	6
1	2/24/95	Letter about the Draft Remedial Investigation Report	IDEM Krista Duncan	USEPA Romona Smith	Correspondence	7
1	2/24/95	Letter about the Draft Remdial Investigation Report for Galen Myers Dump/Drum Salvage Site.	IDEM Krista Duncan	U.S.D.O.I Dan Sparks	Correspondence	8
1	3/7/95	Letter about the submittal of three copies of the "Risk Assessment Revision O. Response to Comments".	IDEM Krista Duncan	U.S.E.P.A Romona Smith	Correspondence	9

ADMINISTRATIVE RECORD INDEX
GALEN MYERS DUMP/DRUM SALVAGE SITE SUPERFUND SITE
OSCEOLA, ST. JOSEPH COUNTY, INDIANA

AUGUST 1995 UPDATE #2

PG'S	DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT TYPE	DOC NO.
6	3/22/95	Letter about about the review and comments on the Galen Myers Remedial Investigation Report.	U.S.E.P.A Romona Smith	IDEM Krista Duncan	Correspondence	10
17	3/29/95	Letter about the Draft Remedial Investigation Report for Galen Myers.	IDEM Krista Duncan	Weston Inc. Richard Mehl	Correspondence	11
1	4/3/95	Letter about the submittal of Alternatives Array Document.	IDEM Krista Duncan	U.S.E.P.A Romona Smith	Correspondence	12
3	4/4/95	Letter with additional RI Report Comments.	IDEM Krista Duncan	Weston Inc. Richard Mehl	Correspondence	13
1	5/1/95	Letter about the revised Remedial Investigation Report for Galen Myers.	IDEM Krista Duncan	U.S.E.P.A Romona Smith	Correspondence	14
13	5/4/95	Response to comments for the Remedial Investigation Report (Revision O) for Galen Myers.	Weston Inc. Richard Mehl	IDEM Krista Duncan	Correspondence	15
4	5/8/95	Letter about comments generated by IDEM after review of Alternatives Array Document for Galen Myers.	IDEM Krista Duncan	Weston Inc. Richard Mehl	Correspondence	16
4	5/15/95	Letter of USEPA comments regarding the Galen Myers Alternatives Array Document.	U.S.E.P.A Jeff Gore	IDEM Krista Duncan	Correspondence	17
1	6/1/95	Letter about revised Remedial Investigation report.	IDEM Krista Duncan	Weston Inc. Richard Mehl	Correspondence	18
1	6/7/95	Letter about submittal of draft Feasibility Study report.	IDEM Krista Duncan	U.S.E.P.A Romona Smith	Correspondence	19
1	6/8/95	Letter about enclosed draft Feasibility Study Report for Galen Myers.	IDEM Krista Duncan	St. Joe Health Dept. Eric Michael	Correspondence	20

ADMINISTRATIVE RECORD INDEX
GALEN MYERS DUMP/DRUM SALVAGE SITE SUPERFUND SITE
OSCEOLA, ST. JOSEPH COUNTY, INDIANA

AUGUST 1995 UPDATE #2

PG'S	DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT TYPE	DOC NO.
1	6/15/95	Letter about preliminary revisions to the Feasibility Study for review.	IDEM Krista Duncan	U.S.E.P.A Jeff Gore	Correspondence	21
5	6/23/95	Letter about comments on the draft Feasibility Study Report for Galen Myers Dump/Drum Salvage Site.	IDEM Krista Duncan	Weston Inc. Richard Mehl	Correspondence	22
1	6/30/95	Letter with addtional Comments on the draft Feasibility Study report for the Galen Myers Dump/Drum Salvage Site.	IDEM Krista Duncan	Weston Inc. Romona Smith	Correspondence	23
1	7/27/95	Letter about submitting the Final RI Report and Supplemental Risk Assesssment Report	IDEM Krista Duncan	USEPA Romona Smith	Correspondence	24
1	8/2/95	Letter about concurrence with the final RI Report and Supplemental Risk Assessment Report.	USEPA Jeff Gore	IDEM Krista Duncan	Correspondence	25
9	1/25/94	Memorandum request for a Consistency Exemption to increase the ceiling beyond the $2 Million Statutory Limits to Implement a Removal Action at the Galem Myers	USEPA Jeff Gore	USEPA Valdas Adamkus	Memoranda	26
28	5/1/94	Ecological site reconnaissance Survey and Pond Water and Sediment Sampling Memorandum	Weston Inc. Richard Mehl	IDEM Krista Duncan	Memoranda	27
2	6/21/94	Memorandum on Earthworm Sampling.	Weston Inc. Richard Mehl	IDEM Krista Duncan	Memoranda	28
50	12/29/94	Monitoring Well Sampling Memorandum (Second Round) for Galen Myers RI/FS.	Weston Inc. Richard Mehl	IDEM Krista Duncan	Memoranda	29
1	2/24/95	Memorandum about Draft Remedial Investigation Report for Galen Myers Dump/Drum Salvage Site.	IDEM Krista Duncan	IDNR Stephen Jose	Memoranda	30

ADMINISTRATIVE RECORD INDEX
GALEN MYERS DUMP/DRUM SALVAGE SITE SUPERFUND SITE
OSCEOLA, ST. JOSEPH COUNTY, INDIANA

AUGUST 1995 UPDATE #2

PG'S	DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT TYPE	DOC NO.
1	4/26/95	Memorandum about ARARs Pertinent for proposed Remedies at the Galen Myers Dump/Drum Salvage Site.	IDEM Tena Hopkins	IDEM Krista Duncan	Memoranda	31
1	5/4/95	Memorandum about ARARs Pertinent for the Proposed Remedies for Galen Myers Dump/Drum Salvage Site.	IDEM Arthur Carter	IDEM Krista Duncan	Memoranda	32
1	5/11/95	Memorandum about ARARs for Galen Myers Dump/Drum Salvage Site.	IDNR Steve Jose	IDEM Krista Duncan	Memoranda	33
3	5/18/95	Memorandum that was faxed about the ARARs review for Galen Myers Dump/Drum Salvage Site.	IDEM Krista Duncan	Weston Inc. Richard Mehl	Memoranda	34
2	5/23/95	Memorandum about ARARs Pertinent for the Proposed Remedies at the Galen Myers Dump/Drum Salvage Site.	IDEM George Ritchotte	IDEM Krista Duncan	Memoranda	35
2	7/13/95	U.S.E.P.A Pollution Report. (POLREP #9)	USEPA Ken Theisen	IDEM Krista Duncan	Memoranda	36
98	12/93	Draft Ground Water Protection Ordinance.	St. Joe County Health Dept.	General Publication	Plans/Studies/ Reports	37
2	12/27/94	One drinking water sample for Galen Myers Dump/Drum salvage site.	St. Joe Co. Health Dept.	IDEM Krista Duncan	Plans/Studies/ Reports	38
664	June 1995	Remedial Investigation Report for Galen Myers Dump/Drum Salvage Site.	Weston Inc.	IDEM	Plans/Studies/ Reports	39
400	July 1995	Feasibility Study Report for Galen Myers Dump/Drum Salvage Site.	Weston Inc.	IDEM	Plans/Studies/ Reports	40
65	July 1995	Supplemental Baseline Risk Assessment Report for Galen Myers Dump/Drum Salvage Site.	Weston Inc.	IDEM	Plans/Studies/ Reports	41

ADMINISTRATIVE RECORD INDEX
GALEN MYERS DUMP/DRUM SALVAGE SITE SUPERFUND SITE
OSCEOLA, ST. JOSEPH COUNTY, INDIANA

AUGUST 1995 UPDATE #2

PG'S	DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT TYPE	DOC NO.
4	5/15/95	Letter regarding the waterline extension removal action currently being conducted at Galen Myers.	IDEM Krista Duncan	Ronald & Peggy Hale	Correspondence	42
3	5/16/95	Newspaper Clippings about the waterline installed at Galen Myers dump/Drum Salvage Site.	Mishawaka Newspaper	General Public	Community Relations	43
1	4/3/95	Submittal of Alternatives Array Document for Galen Myers Dump/Drum Salvage Site.	IDEM Krista Duncan	USEPA Romona Smith	ARARS	44
2	4/11/95	Request for Applicable or Revelant and Appropriate requirements (ARARS).	IDEM Kathy Prosser	USEPA Valdas Adamkus	ARARS	45
4	5/8/95	Draft Alternatives Array Document for Galen Myers Dump/Drum Salvage Site.	IDEM Krista Duncan	Weston Inc. Richard Mehl	ARARS	46

ADMINISTRATIVE RECORD INDEX
(GALEN MYERS DUMP/DRUM SALVAGE SITE) Superfund Site
OSCEOLA, ST. JOSEPH COUNTY, INDIANA

FEBRUARY 1995 UPDATE#1

PAGES	DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT TYPE	DOC NO
6	12-12-84	Administrative order for Galen Myers Dump	USEPA Region V	Themen S. Danielson	Orders/ Decrees	1
29	5-29-93 to 4-22-94	Consent for Access To Property	Various Property Owners	Krista Duncan IDEM	Orders/ Decrees	2
1	10-28-94	Second Round of Monitoring well Sampling	Roy F. Weston Inc	Krista Duncan IDEM	Plans Studies Reports	3
12	10-19-94	Test Pit Deliverable	Roy F. Weston Inc	Krista Duncan IDEM	Plans Studies Reports	4
1	10-5-94	Aerial/Topographical Map Deliverables	Roy F. Weston Inc	Krista Duncan IDEM	Plans Studies Reports	5
14	8-9-94	Geophysical Survey	Roy F. Weston Inc	Krista Duncan IDEM	Plans Studies Reports	6
4	7-1-94	Test Pits Memorandum	Roy F. Weston Inc	Krista Duncan IDEM	Plans Studies Reports	7

ADMINISTRATIVE RECORD INDEX
(GALEN MYERS DUMP/DRUM SALVAGE SITE) Superfund Site
OSCEOLA, ST. JOSEPH COUNTY, INDIANA

FEBRUARY 1995 UPDATE#1

PAGES	DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT TYPE	DOC NO
170	7-1-94	Monitoring Well Installation and Sampling Memorandum	Roy F. Weston Inc	Krista Duncan IDEM	Plans Studies Reports	8
82	6-1-94	Residential Well Narratives	Roy F. Weston Inc	Krista Duncan IDEM	Plans Studies Reports	9
50	5-1-94	Surface Soil Sampling Memorandum	Roy F. Weston Inc	Krista Duncan IDEM	Plans Studies Reports	10
31	5-1-94	Strategraphic Boring Memorandum	Roy F. Weston Inc	Krista Duncan IDEM	Plans Studies Reports	11
143	5-1-94	Residential Well Sampling Memorandum	Roy F. Weston Inc	Krista Duncan IDEM	Plans Studies Reports	12
4	5-1-94	Construction Permit Groundwater Monitoring Well	Krista Duncan IDEM	Engineering Dept/ St. Joseph Co.	Plans Studies Reports	13
16	4-18-94	SAS Request for total Metals and Cyanide in Earthworms	Roy F. Weston Inc.	Krista Duncan IDEM	Plans Studies Reports	14

ADMINISTRATIVE RECORD INDEX
(GALEN MYERS DUMP/DRUM SALVAGE SITE) Superfund Site
OSCEOLA, ST. JOSEPH COUNTY, INDIANA

FEBRUARY 1995 UPDATE#1

PAGES	DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT	DOC NO
47	2-15-94	Galen Myers RI/FS Surface Soil Sampling	Roy F. Weston Inc	Rex Osborn IDEM	Plans Studies Reports	15
61	12-13-93	Galen Myers RI/FS Petrex Deliverable	Roy F. Weston Inc	Rex Osborn IDEM	Plans Studies Reports	16
289	7-21-93	Quality Assurance Project Plan for	Roy F. Weston Inc	Rex Osborn IDEM	Plans Studies Reports	17
2	6-3-92	Ashley Run Subdivision Penn Township proposed	Valley Engineering	Rex Osborn IDEM	Plans Studies Reports	18
10	1-31-92	Preliminary Health Assessment for Galen Myers Dump	Indiana St Board of Health	Rex Osborn IDEM	Plans Studies Reports	19
10	4-26-91	Four Drinking Water Samples multiple address on Caldwell St	Environmental Health Laboratories	Grama Bhagavan Envir/Lab	Plans Studies Reports	20
14	3-28-90	On-Scene Coordinators Report- Removal Action Galen Myers	Bob Bowden IDEM	Hans Weisner IDEM	Plans Studies Reports	21

ADMINISTRATIVE RECORD INDEX
(GALEN MYERS DUMP/DRUM SALVAGE SITE) Superfund Site
OSCEOLA, ST. JOSEPH COUNTY, INDIANA

FEBRUARY 1995 UPDATE#1

PAGES	DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT	DOC NO
17	4-5-85	On/Scene Coordinators Report for Immediate Removal for Galen Myers	Jack Barnette IDEM	Tim Fields IDEM	Plans Studies Reports	22
1	11-1-94	Activated Carbon Filtration Units at Galen Myers Site	Krista Duncan IDEM	Ken Thiesen	Correspondence	23
3	9-19-94	Water Line Extension Emergency Removal Action, Phase I Design	Krista Duncan IDEM	Ken Theisen	Correspondence	24
2	7-17-94	Comment/Approval for Final Work Plan for Galen Myers	Krista Duncan IDEM	Richard Mehl/Roy Weston Inc	Correspondence	25
1	7-13-92	Receipt of RI/FS Workplan for Galen Myers	Karen Yeates USEPA	Pat Carrasquero	Correspondence	26
2	7-8-94	Proposed Development of two subdivisions south of Galen Myers	IDEM	St. Joseph Health Dept	Correspondence	27
1	5-15 84	Follow-up Inspection at Galen Myers Property	David Lamm ISBH	Bill Sanders USEPA	Correspondence	28

ADMINISTRATIVE RECORD INDEX
(GALEN MYERS DUMP/DRUM SALVAGE SITE) Superfund Site
OSCEOLA, ST. JOSEPH COUNTY, INDIANA

FEBRUARY 1995 UPDATE#1

PAGES	DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT	DOC NO
1	8-22-88	Construction Fire at Galen Myers Site	John Kassis IDEM	Emergency Response IDEM	Memoranda	29
2	9-20-94	Sign-up sheet for Galen Myers Availability meeting	Krista Duncan IDEM	Superfund Section IDEM	Community Relations	30
1	9-14-94	Waterline Construction near Galen Myers Site	IDEM	News Release	Community Relations	31
2	4-28-94	Newspaper Article about tainted water at Galen Myers Site	South Bend Tribune	News Release	Community Relations	32
5	4-27-94	Public Meeting for Water line Extension at Galen Myers Site	IDEM News Letter	General Public	Community Relations	33
1	4-7-94	Galen Myers getting water line (Newspaper Article)	South Bend Tribune	News Release	Community Relations	34
1	3-29-94	Update of activities at Galen Myers Site	Krista Duncan IDEM	Osceola Town Council	Community Relations	35

ADMINISTRATIVE RECORD INDEX
(GALEN MYERS DUMP/DRUM SALVAGE SITE) Superfund Site
OSCEOLA, ST. JOSEPH COUNTY, INDIANA

FEBRUARY 1995 UPDATE#1

PAGES	DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT	DOC NO
2	May, 1993	Galen Myers/Drum Salvage Site. Fact Sheet	IDEM	General Public	Community Relations	36
2	May 1993	Galen Myers/Drum Salvage Site. Fact Sheet	IDEM	General Public	Community Relations	37
4	5-26-93	Attendance Sheet for RI/FS Public Meeting	IDEM	IDEM	Community Relations	38
1	2-18-89	State Officials probing well pollution at Galen Myers Site. (Newspaper Article).	South Bend Tribune	General Public	Community Relations	39

GALEN MYERS SUPERFUND SITE
OSCEOLA, INDIANA

MAY, 1993

PAGES	DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT TYPE	DOCUMENT NO.
118	12/1992	Work Plan for Galen Myers Dump/ Drum Salvage Site, Osceola, Indiana	Roy Weston, Inc.	Rex Osborn, IDEM	PLANS/STUDIES/ REPORTS	1
322	3/1993	Site Health and Safety Plan for Galen Myers Dump/Drum Salvage Site	Roy Weston, Inc.	Rex Osborn, IDEM	PLANS/STUDIES/ REPORTS	2
45	5/1993	Final Community Relations Plan for Galen Myers Dump/Drum Salvage in Penn Township, Indiana	Roy Weston, Inc.	Rex Osborn, IDEM	COMMUNITY RELATIONS	3

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