

## **WILLIAMS/ (MAGELLAN) DES MOINES TERMINAL** (Des Moines, Iowa)

### **GENERAL DESCRIPTION**

The site is located on approximately 116 acres in the East 1/2 of Section 17, T78N, R23W, at 2503 SE 43rd Street, Pleasant Hill in Polk County, Iowa. The site was entered on the Registry in August 1990. The Complex handles and stores various petroleum products. The site has been in continuous operation since the early 1930s. Presently the site consists of 47 aboveground tanks and several tank car and truck loading racks. All the tanks are contained within berms. Additional steps have been taken since a 1997 spill to prevent future releases. This includes a tank trending program with regular static checks, the installation of fiberglass over all the metal tank bottoms, and providing cathodic protection to all tanks and lines.

The Des Moines terminal is under new ownership. On April 23, 2003 Williams Co announced the sale of Williams Energy Partners, LP. The Des Moines Terminal was included in this sale. The terminal is now owned by **Magellan Pipeline Company** and will be referred to as the **Magellan Des Moines Terminal**.

### **SITE CLASSIFICATION**

The site is classified "b" in accordance with 455B.427.3. Hazardous substances have been disposed of at the site, posing a significant threat to the environment.

### **TYPE AND QUANTITY OF HAZARDOUS WASTE**

Spills of over 2,000,000 gallons of petroleum products at and near the site have caused widespread contamination both on-site and off-site of the Des Moines River alluvial aquifer. In January 1982, a pipeline break on the east side of the site released approximately 840,000 gallons of diesel fuel that flowed into the swamp that forms the southeast corner of the site. As part of the cleanup of this off-site spill the swamp was drained of water, which may have contributed to contamination of sediments in the swamp. Other on-site spills occurred in March 1986 and July 1990. During the 1986 spill, an estimated 11,760 gallons of diesel were released from a leak in Tank 620. During the 1990 spill, an estimated 3,000 gallons of diesel were released from Tank 618 (located on the eastside of Tank 620). The largest spill appears to have occurred in 1997 when 1,260,000 gallons of gasoline were released from piping associated with Tank 1310. This tank is located on the northeast part of the site and much of the free product of the release migrated offsite to the east.

### **Southwest Corner Area**

The presence of free product and groundwater contamination on the southwest part of the site was initially discovered in August 1982. Two monitoring wells were installed as part of limited investigation of a suspected gasoline leak. The sample results indicated the presence of floating free product in the area. Subsequently, a three phase hydrogeologic investigation was performed in 1983. This included the installation of one, then another five, and finally an additional fifteen groundwater monitoring wells, to track the extent of free product and the contaminated groundwater plume. The results of monitoring in December 1989 and February 1990 indicated free product was moving off-site to the southwest. Another site investigation was conducted in September 1990 to determine the extent of this migration. The investigation included the installation of three more monitoring wells.

### **Other Sources**

From 1935 to 1979, the Williams Pipe Line Company disposed of approximately 2,600 gallons of leaded petroleum tank bottom sludge at the site. During September 1989, the EPA conducted a Site Investigation (SI) which was limited to a consideration of the potential impact of the tank bottom sludge disposal. The EPA was unable to identify the suspected sludge disposal areas during their investigation.

## **SUMMARY OF PUBLIC HEALTH AND ENVIRONMENTAL CONCERNS**

The site is situated in a rural-industrial setting adjacent to the eastside of Des Moines, Iowa. The site is located approximately 2,000 feet north of the Des Moines River and lies within its floodplain. The threat of off-site migration of contaminants by flooding is limited by a 100-year flood levee maintained by the U.S. Army Corps of Engineers. The Des Moines Municipal Water System intakes are approximately ten miles upstream of the site. The site overlies the alluvial sediments of the Des Moines River flood plain. These sediments are predominantly sand and gravel sediments of the unconfined alluvial aquifer

A wetland area referred to as the "swamp" is located within the southeast corner of the site. The swamp contains a shallow "burn" pond on its west end near Highway 46. Occasional overflow from the swamp discharges east to the Des Moines River. The swamp has been subjected to oil spills and other waste disposal activities. Sediment samples collected from the swamp in November 1990 and January 1991 showed total extractable hydrocarbon (TEH) levels as high as 17,000 ppm. Many of the sample results had chromatographic profiles similar to the laboratory diesel fuel standard.

## **SUMMARY OF ASSESSMENT, MONITORING OR REMEDIAL ACTIONS**

There are two major remediation area at the Magellan Des Moines Terminal designated as the Northeast Area and the Southern Area. The following is a summary of the current status of the projects and changes that were implemented in 2007.

### **NORTHEAST AREA**

Four systems are operational in the northeast area, Systems 1, 2, and 3, and the Air Lift Circulation (ALC) Trench. Systems 1, 2, and 3 consist of a series of 93 wells that can operate in Soil Vapor Extraction (SVE) or sparging mode or a combination of both.

Soil Vapor Extraction (SVE) remediates the unsaturated soil by recovering volatiles from the soil with airflow and by adding oxygen to the unsaturated zone to enhance bioremediation. Air Sparging (AS) remediates the dissolved phase impacts by adding oxygen to the groundwater to enhance bioremediation and strip VOCs from the groundwater. Due to a significant decline in the mass recovery of petroleum hydrocarbons a proposed implementation of in-situ biosparging instead of continuing with soil vapor extraction.

The other system in the Northeast Area is the Air Lift Circulation (ALC) Trench system. The objective of this remediation system is to capture and remediate the groundwater that is migrating from the Northeast Area of the terminal toward the Des Moines River. There was a fifth remediation system in the Northeast Area called the Levee Air Sparge System. This system was shut down in March 2003.

#### **Mass Recovered**

To date free product recovery in the Northeast Area is as follows; 576,828 gallons of free product were recovered during emergency response actions, Systems 1, 2, & 3 have recovered 222,390 gal in the liquid phase, and 627,816 gallons as vapor phase.

### **SOUTHERN AREA**

The southern area remediation system consists of four operational areas that were installed in two phases. Phase 1 included the Manifold System with 24 Soil Vapor Extraction (SVE)/Density-Driven Convection (DDC) wells and the Train Rack System with 15 SVE/DDC wells. Additionally, SVE wells from the former perimeter SVE/AS remediation systems were incorporated into the phase 1 system. Phase 2 includes the Central System with 28 SVE/AS wells and the Western System with 16 SVE/AS wells. The Phase 2 systems are in the interior areas of the southern portion of the terminal bordered by the Phase 1 system wells. Soil Vapor Extraction (SVE) remediates the unsaturated soil by recovering volatiles from the soil with airflow and by adding oxygen to the unsaturated zone to enhance bioremediation.

**2007: The total mass of petroleum hydrocarbons recovered in the Southern Area since the start up of the Phase 1 recovery systems (Feb. 2003) is 39,401 gallons. To date free product recovery in the Northeast Area is as follows, 576,828 gallons. Systems 1, 2, & 3 recovered 222,390 gal in the liquid phase, and 627,832 gallons by vapor phase.**