

US EPA ARCHIVE DOCUMENT

**RCRA Showcase Pilot
Region 7**

**Former Amoco Refinery Site
Sugar Creek, Missouri**

Cooperative approach between the Missouri Department of Natural Resources the Environmental Protection Agency Region VII, and
Amoco

Overview

The Former Amoco Refinery in Sugar Creek, Missouri is a complex site with respect to its size, location, and contaminants. Several federal, state and local agencies are involved in ongoing investigations at the site. These agencies include the Environmental Protection Agency (EPA), the Missouri Department of Natural Resources (MDNR), the Agency for Toxic Substances and Disease Registry (ATSDR), the Missouri Department of Health (MDOH), and the Jackson County Health Department. Additional groups which are interested in the site include the City of Sugar Creek, Technical Outreach Services to Communities (TOSC), the Independence Water Department, the Missouri Department of Transportation (MoDOT), and the local community.

The Amoco Refinery in Sugar Creek was an active refinery from 1904 until it closed in 1982. When the refinery closed, the entire site encompassed approximately 450 acres. During active refinery operations, the site was involved in the refining of crude oil and the manufacturing of a full range of petroleum products including gasoline, jet fuel, kerosene, furnace oil, liquified petroleum gases, petroleum coke, sulfur, and propylene polymers. During its operation, the site contained refinery production process equipment, tank facilities for the storage of products, and a wastewater treatment facility for the treatment of waste streams generated onsite. Several reported releases to the environment, which have impacted soils and groundwater beneath the site, occurred during the operational lifetime of the refinery. In addition, groundwater contamination has migrated offsite beneath a residential area (Norledge Area) immediately south of and adjacent to the former refinery. The refinery was demolished in the early to mid 1980's, and currently, an asphalt plant and a light petroleum storage and load-out facility are located at the site.

In June of 1989, the EPA issued to Amoco a Final Administrative Order On Consent (Consent Order) pursuant to Section 3008 (h) of the Solid Waste Disposal Act, as amended by the Hazardous and Solid Waste Amendments of 1984, 42 U.S.C. § 6928 (h). The Consent Order requires Amoco to conduct a comprehensive investigation of environmental contamination both on the facility and of contamination that has been released from the facility. Amoco is then required to use the information from the environmental investigation to develop and evaluate possible cleanup measures. The EPA, or the state, will then make a final determination as to what cleanup actions are necessary for the former refinery.

In 1990 Amoco and the MDNR entered into a Stipulation and Consent Decree to cleanup three petroleum sludge holding areas: the Sludge Pit, the Sludge Pond, and the Wastewater Treatment Lagoon. Work on these areas began in 1990. Biotreatment was accomplished with a static biopile, landfarming, and composting. A desorption and recovery unit was also utilized briefly. Between 1991 and 1998, 179,959 cubic yards of sludge and contaminated soils were treated, treated soil was placed in a lined landfill with a leachate collection system. Starting in 1998, the landfill was graded, capped, and seeded. This was completed in August 1999, the closure certification was submitted, and final MDNR acceptance of closure occurred in August of 2000.

Who are the pilot participants and what is their role?

The pilot participants in the project include the EPA and the MDNR which are the regulatory agencies overseeing remedial activities. Currently the EPA and MDNR have reached an agreement where MDNR is the technical lead for the EPA consent agreement with EPA providing oversight and technical support to MDNR. The City of Sugar Creek is involved due to its interest in redevelopment of the Former Amoco Refinery and is instrumental in the Amoco Focus Group. The roles of the health agencies, ATSDR and MDOH, are to provide support to the agencies and the community with regard to health issues at the Former Amoco Refinery and in the surrounding neighborhoods. TOSC acts as a technical liaison to community members and prepares site related information for the City of Sugar Creek newsletter. MoDOT is interested in the Former Amoco Refinery due to a proposed freeway which may cross a portion of the site. The Independence Water Department is involved due to a monitoring network set up near their well field to monitor water quality near their well field. The Jackson County Health Department has conducted an independent study of the occurrence of cancer in the community and is currently conducting, in cooperation with ATSDR, an ongoing study of the occurrence of multiple sclerosis in the area.

What makes this project innovative?

There are several aspects which make this project innovative in its approach. These include how the site is investigated, the types of remedial/interim measures systems installed and how the stakeholders communicate. The EPA, MDNR and Amoco have adopted a phased approach to investigating the site. The purpose of the phased approach is to focus and speed up investigations and remediation of the site in a manner which coincides with the objectives of the Reuse Plan, the objectives of EPA and MDNR to protect human health and the environment, and to meet Environmental Indicator (EI) goals of unacceptable human exposures under control and migration of contaminated groundwater under control. The phased approach allows targeting of areas that may pose the greatest potential for risk and address these areas first. This also allows focusing the investigation and remediation in areas which will support the attainment of EI goals. In addition, the EPA, MDNR and Amoco support the implementation of current and future remedial alternatives which blend with the goals of the Reuse Plan. These include an Enhanced Fluid Recovery System in the Norledge area which utilizes horizontal wells and the potential use of phytoremediation technologies to meet specific remedial goals. The Reuse Plan

was a collaborative effort between the City of Sugar Creek, the residents of Sugar Creek and Amoco to set forth guidelines for the redevelopment of the site. Another way this project is innovative in its approach is the formation of the Amoco Focus Group. The Amoco Focus Group is comprised of City officials, representatives of various federal and state agencies, TOSC, and community representatives. The purpose of the focus group is to act as an information sharing forum with all interested parties. The focus group meets every quarter at a minimum and occasionally more frequently.

What are the benefits of this project?

The benefits of the pilot project include a cleaner healthier environment and in turn economic benefits associated with reuse of the Former Amoco Refinery . The Reuse Plan envisions the Former Amoco Refinery being used as a light industrial area which would attract new business to Sugar Creek and the surrounding community. These businesses would in turn provide new job opportunities in the area and would encourage people to work and live in the area. Potential recreational areas have also been discussed which may include access to the Missouri River.

How have you involved stakeholders in developing this project?

One of the major activities to encourage involvement of the stakeholders in developing this project was the formation of the Amoco Focus Group. This group was formed by the City of Sugar Creek for the purpose of promoting open dialogue between all stakeholders involved. This group meets regularly to discuss ongoing activities and progress and to provide an outlet for community involvement. The focus group is comprised of members of all the interested stakeholders and is open to the public to attend. In addition, Amoco and the City of Sugar Creek sponsored a series of community work groups for the purpose of developing the Reuse Plan. The EPA and MDNR have also supported ATSDR and MDOH, while they complete their independent health studies in the area. As part of this support the EPA and MDNR have collected specific environmental data requested by these agencies which allowed them to complete their studies. The EPA, MDNR and Amoco have also requested that ATSDR complete independent health consultations on environmental data collected during ongoing investigations. To promote good communication on both technical and managerial issues the EPA, MDNR and Amoco conduct frequent meetings and conference calls to resolve issues in an expedited manner. MDNR has consulted with, and participated in planning meetings with, the MoDOT on the highway project. Amoco has opened a community center in Sugar Creek which is staffed by a full-time public affairs person to facilitate public relations activities. The EPA, MDNR, ATSDR, MDOH and Amoco have all sponsored public meetings and/or informational sessions in order to promote public awareness. The EPA and MDNR also conducted a series of community interview in Sugar Creek.

What is the potential for applying this innovative approach to other sites?

Due to the size of the Former Amoco Refinery, and the many technical issues associated with the site, the potential for using some of the initiatives on other site projects is very good. Amoco has several sites across the nation where the innovations employed at this Former Amoco Refinery could be used.

What are the proposed project milestones and associated dates?

The overall goals of the pilot site is to expedite cleanup of the site and return the Former Amoco Refinery to productive use as soon as possible. As part of this overall goal, the first priority milestone is to complete the Norledge Area RFI and CMS by the end of the calendar year 2001. The Norledge area is the residential area above the offsite plume and is presently the area of highest priority. In addition, Amoco has made it a corporate goal to meet the 2005 EI goals for all of it's GPRA baseline Former Amoco Refineries. The Amoco Sugar Creek refinery Former Amoco Refinery is one of Region 7's GPRA baseline facilities. Additional interim goals are to control hydrocarbon seeps into Sugar Creek and the West Bluffs Tributary. Control of these seeps are essential to attaining the EI goals.

How and when will pilot progress be measured and reported?

Pilot progress is measured and reported in several different ways. As part of the Consent Agreements with EPA and MDNR Amoco submits quarterly progress reports. These reports require periodic sampling of wells and reporting of Interim Measures performance monitoring. In addition, future corrective/interim systems will require performance monitoring and reporting of individual systems. The Amoco Focus Group also provides an opportunity for reporting progress to interested stakeholders and the community.

A showcase pilot update will be prepared semiannually. Target dates for the pilot update will be December and June of each year. These reports will be forwarded to Dana Tulis and Gina Bowler of OSW.

Both the MDNR and EPA will oversee the pilot project.

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