



Beckman Instruments Superfund Site

U.S. ENVIRONMENTAL PROTECTION AGENCY • REGION 9 • AUGUST 2005

Porterville, CA

U.S. EPA Proposes to Amend Existing Groundwater Cleanup Plan

The United States Environmental Protection Agency (U.S. EPA) is proposing to amend the existing cleanup plan for **volatile organic compounds*** (VOCs) in **groundwater** at the Beckman Instruments Superfund Site (Site) located in Porterville, California. This fact sheet, known as a Proposed Plan, describes the groundwater cleanup alternatives that have been evaluated and identifies **Monitored Natural Attenuation** (MNA) as U.S. EPA's preferred alternative. (Figure 1 on page 2 shows the location of the Beckman study area.)



How to Comment on the Proposed Plan

U.S. EPA places a high value on input from the community and will be accepting comments on the Proposed Plan from **August 1, 2005 through August 30, 2005**. During that period, you can submit comments by mail postmarked or email-dated no later than August 30, 2005 to the following contact:

Patricia Bowlin, Remedial Project Manager
U.S. EPA Region 9 (SFD-7-3)
75 Hawthorne St.
San Francisco, CA 94105
E-mail: bowlin.patricia@epa.gov

Before selecting the final remedy for the impacted groundwater, U.S. EPA will consider all significant comments, both oral and written, on this Proposed Plan. U.S. EPA will respond to public comments in the document called the Amended **Record of Decision** (ROD). The public will be notified through the local newspaper when it is available for review at the Site's information repositories (see page 6 for locations).

Public Meeting

U.S. EPA has scheduled a public meeting to present this Proposed Plan and to receive both oral and written comments. A court reporter will be present to accurately document oral comments.

Location: ----- City of Porterville Library
Community Room
41 West Thurman Avenue
Porterville, CA

Date: ----- August 9, 2005

Time: ----- 6:30 p.m. to 8:00 p.m.



*All words in **bold** are defined in the Glossary on page 7.

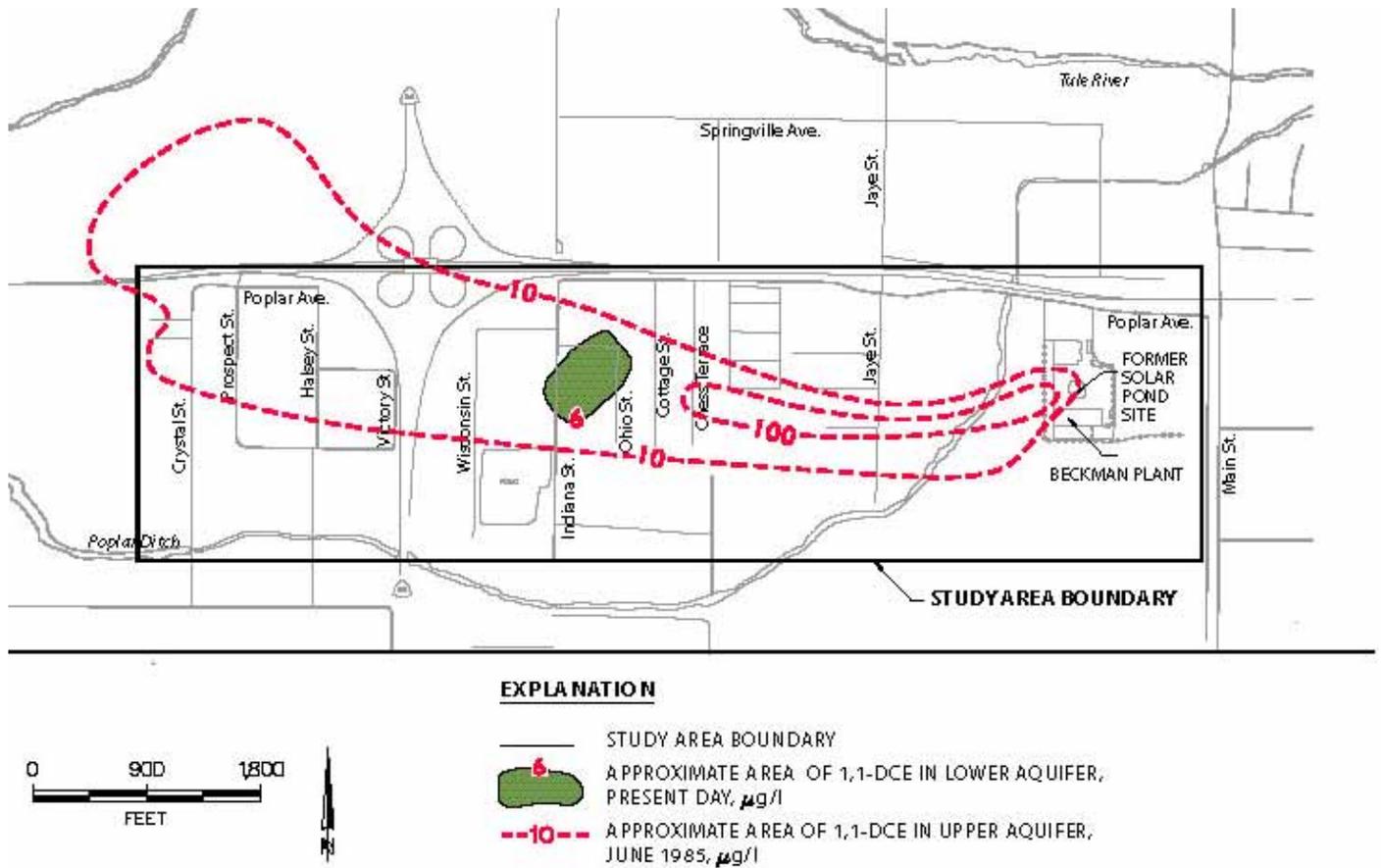


Figure 1: Beckman Instruments Study Area, with approximate extent of former and current contamination plumes

Purpose of Proposed Plan

U.S. EPA and the California EPA Department of Toxic Substances Control (CalEPA-DTSC) have been involved in cleanup activities at the Site since the mid-1980s. U.S. EPA is the lead agency at the Site and is responsible for coordinating cleanup activities. CalEPA-DTSC provides project input in their role as a support agency. In September 1989, U.S. EPA issued the original Record of Decision (ROD) that addressed soil contamination in the source area and groundwater contamination in the upper aquifer, upper aquitard, and lower aquifer. This Proposed Plan is intended to revise the cleanup strategy selected in the 1989 ROD for groundwater contamination in the upper aquitard and lower aquifer.

U.S. EPA, in consultation with CalEPA-DTSC, has developed this Proposed Plan to allow the public to review and comment on the cleanup alternatives currently being considered. (See page 1 on how to comment.) The Proposed Plan was written in accordance with section 117(a) of **Comprehensive Environmental Response, Compensation,**

and Liability Act (CERCLA) and section 300.430(f)(2) of the **National Oil and Hazardous Substances Pollution Contingency Plan (NCP)**. The purpose of the Proposed Plan is to: (1) provide basic Site background information; (2) identify U.S. EPA's preferred alternative for continuing remedial action for the remaining impacted groundwater and the reasons for the preference; (3) describe the other cleanup options considered; (4) solicit public review and comment on all the alternatives considered; and (5) provide information on how the public can be involved in the remedy selection process.

Cleanup Alternatives Considered

In this Proposed Plan, U.S. EPA is evaluating three alternatives: (1) No Action; (2) Extraction and Treatment (the current remedy); and (3) Monitored Natural Attenuation (MNA). This evaluation is based on groundwater data and other information attained since the 1989 ROD was issued.

To be considered a possible remedy for a hazardous waste problem, a cleanup alternative must meet U.S. EPA's

two basic or “threshold” criteria: 1) protect human health and the environment, and 2) comply with laws and requirements of other government agencies with regulatory authority over the site. These authorities are collectively known as Applicable or Relevant and Appropriate Requirements (ARARs). Of the three alternatives evaluated in this Proposed Plan, only two meet the threshold criteria: Extraction and Treatment and MNA. In addition to the two threshold criteria, there are seven other criteria that U.S. EPA must consider when evaluating a remedy (see Figure 3, Nine Cleanup Criteria on page 4).

U.S. EPA'S Preferred Alternative

U.S. EPA is proposing to change the cleanup strategy for the Site because the groundwater has been successfully cleaned up in all areas except for a few isolated areas in the upper aquitard and lower aquifer where VOC concentrations above the cleanup goals still exist (see Figure 1). The current information on the movement of impacted groundwater and the declining contaminant concentrations warranted reevaluation of the original remedy, which was to pump and treat the contaminated groundwater. After evaluation of the three cleanup alternatives to address the residual groundwater contamination at the Site, U.S. EPA prefers Alternative 3, Monitored Natural Attenuation (MNA), as the remedy that provides the best balance among U.S. EPA's nine cleanup criteria (see Figure 3).

Alternative 3 involves the reduction of groundwater contamination in the upper aquitard and lower aquifer through naturally occurring physical and chemical processes, such as **dispersion** and **dilution**. The primary natural attenuation processes that are occurring at the Site are lateral and downgradient dispersion, dilution via the flow of clean water from the upper aquifer and upper aquitard into the lower aquifer, and additional dilution by upgradient recharge of the lower aquifer. U.S. EPA will closely monitor the groundwater to ensure that the reduction in VOC concentrations in groundwater continues to occur.

Site Characteristics

There are three hydrogeologic layers at the Site: the upper aquifer, the upper aquitard and the lower aquifer (see Figure 2). The remaining groundwater contamination at the Site is only present in the upper aquitard and the lower aquifer, both of which are described below.

The upper aquitard separates the upper aquifer from the lower aquifer and slows down the vertical movement of groundwater from the upper aquifer to the lower aquifer. The top of the upper aquitard lies approximately 50 feet below land surface (bls) near the Beckman plant and ranges in thickness from approximately 20 to 60 feet in the study area. Depths to groundwater in the upper aquitard range from approximately 18 to 23 feet bls.

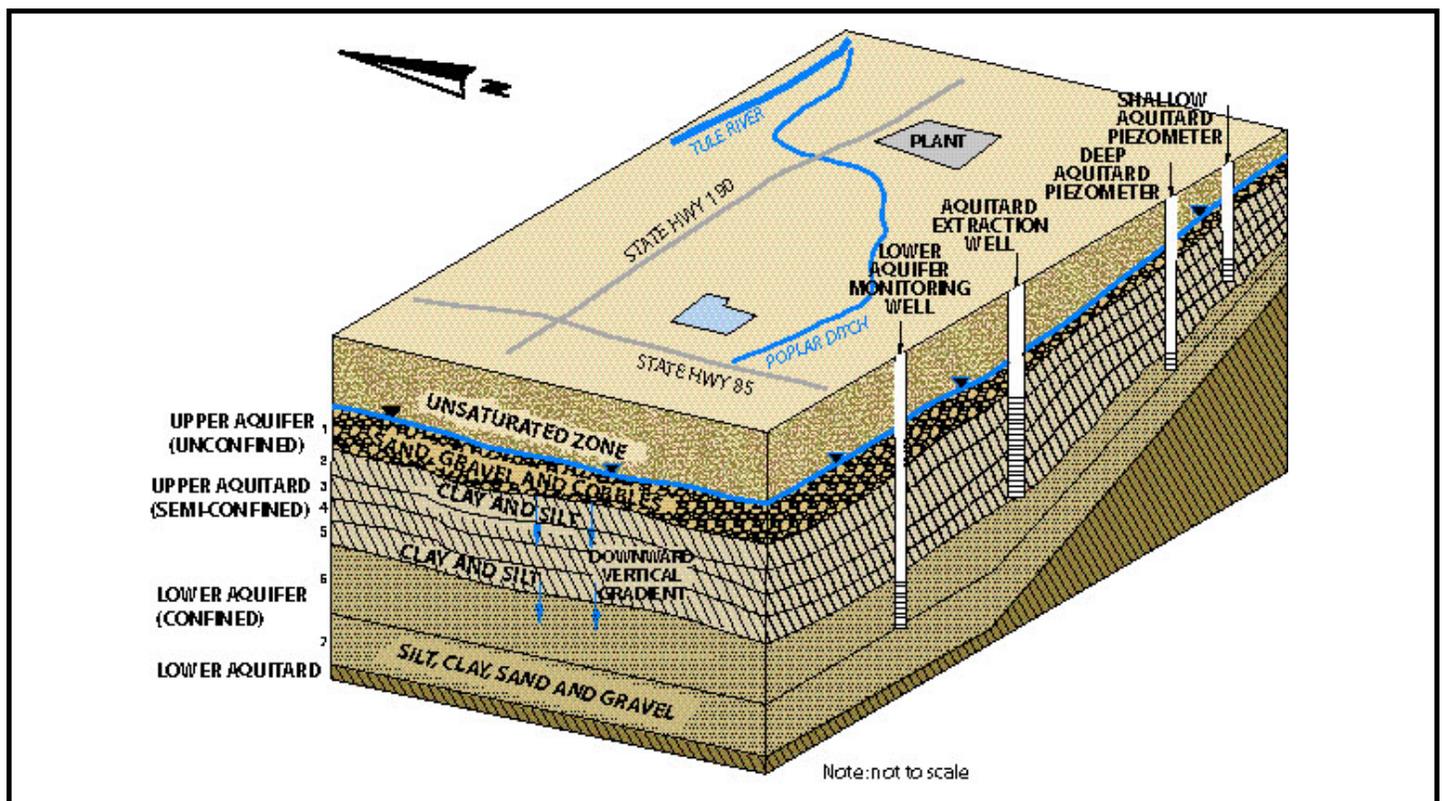


Figure 2: Hydrogeologic layers at the Site

The lower aquifer lies below the upper aquitard with the top of the lower aquifer ranging in depth from approximately 70 to 130 feet bls. Depths to groundwater in the lower aquifer range from approximately 27 to 33 feet bls. Groundwater flow direction in the lower aquifer is south-southwest near the Beckman plant and west-southwest in the remainder of the study area. The lower aquifer within the study area receives recharge from the upper aquifer in the form of vertical leakage through the upper aquitard.

Site Cleanup Actions Previously Selected and Groundwater Cleanup Status

In September 1989, U.S. EPA issued the Site ROD which specified that the upper aquifer, upper aquitard and lower aquifer groundwater be cleaned up by pumping and treating the contaminated groundwater. The upper aquifer groundwater pump and treat system operated from 1985 until 1990 when ROD cleanup goals were achieved. In 1990, the contaminated soils were removed from the Site and disposed of at a regulated facility.

The ROD-selected remedy in the upper aquitard and lower aquifer was carried out from August 1991 until April 1999 when clean up goals were reached in most of the upper aquitard and lower aquifer. Small, localized areas of the upper aquitard and lower aquifer remained above the cleanup goal for 1,1-dichloroethylene (1,1-DCE). Further focused operation of the pump and treat system in these areas of the upper aquitard and lower aquifer failed to show progress toward achieving the cleanup goal due to the inability to accelerate contaminant removal from the upper aquitard.

Since 1999, groundwater concentrations of 1,1-DCE have generally remained stable or decreased. In September 2003, U.S. EPA's Five-Year Review of the Site remedy concluded that an engineered remedy, such as pump and treat, would not be cost-effective in cleaning up the remaining groundwater contamination at the Site.

Summary of Site Risks

To help determine whether action is needed to protect human health and the environment at a site, U.S. EPA typically conducts a Risk Assessment to evaluate the potential risk of exposure to toxic chemicals and the possible effects.

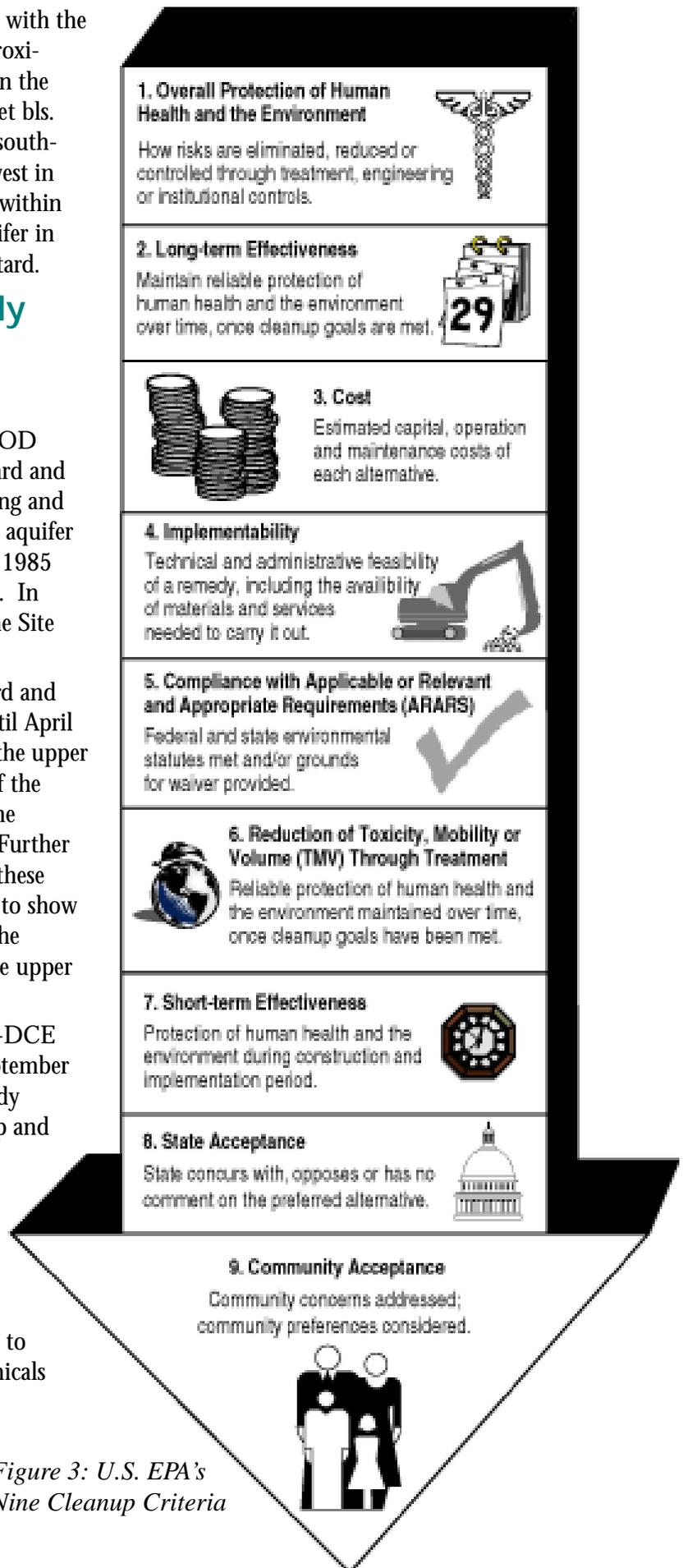


Figure 3: U.S. EPA's Nine Cleanup Criteria

For the Beckman Instruments Superfund Site, the groundwater risk assessment was conducted in the late 1980s. The risk assessment is included as part of the **Administrative Record** and is available for review at the Site's information repositories (see page 6 for locations).

Groundwater is considered the sole potential pathway of exposure for humans. Connections to municipal water sources, remedial actions, and institutional controls on well drilling have all combined to virtually eliminate the potential for human exposure to the contaminated groundwater.

Remedial Action Objectives

U.S. EPA's objectives for the actions considered in cleanup of groundwater include: (1) protect human health and the environment by continuing to eliminate exposure to contaminated groundwater; and (2) reduce contamination in groundwater to concentrations that meet cleanup goals and return groundwater to beneficial use. This Proposed Plan evaluates three alternatives which are described below.

Cleanup Alternatives and Evaluation

Alternative No. 1 No Further Action

Capital Costs = \$ 0
Annual Operations and Maintenance Costs = \$ 0
Present Worth Costs = \$ 0

CERCLA requires evaluation of the "no action" alternative as a baseline to allow comparison of alternatives. Under the no action alternative, no remedial action would be implemented. Continued reduction in VOC concentrations and some reduction of volume, toxicity and mobility as a result of natural attenuation would likely take place. Risk would also likely be reduced with time, but it would be unquantified because no data would be collected.

The remedial action objectives would not be met under the "no action" alternative due to the fact that VOC concentrations in the isolated areas would not be monitored to assure that contamination was not migrating to unaffected areas. Groundwater would not be monitored and this would increase the potential for the public to be inadvertently exposed to contaminated groundwater. This alternative is therefore not protective of human health and the environment. Therefore, U.S. EPA does not consider the no action alternative a potential remedy for the Site.

Alternative No. 2 Resumption of Extraction and Treatment

Capital Costs = \$ 631,000
Annual Operations and Maintenance Costs = \$ 98,000
Present Worth Costs (15 years) = \$ 1,698,000

The pump and treat alternative would require the existing system to pump from the lower aquifer and treat the extracted water by air stripping. The treated groundwater from the air stripping facilities would be used for agricultural irrigation or discharged to infiltration basins located near the Tule River as before. Routine monitoring of the groundwater before and after treatment would be con-

ducted to assess operational conditions and ensure cleanup goals are met.

This was U.S. EPA's selected alternative in the 1989 ROD because it offered overall protection to human health and the environment and because there were no other alternatives that were equally or more protective at that time. Since then, the groundwater contamination has been greatly reduced. Costs for this remedy are significantly higher than the estimated cost of Alternative 3, U.S. EPA's preferred alternative.

Alternative No. 3 Monitored Natural Attenuation (MNA)

Capital Costs = \$ 94,000
Annual Operations and Maintenance Costs = \$ 28,000
Present Worth Costs (15 years) = \$ 399,000

Newly installed wells, in addition to existing monitoring wells, will be sampled to monitor the progress of decreases in VOC concentrations. The effectiveness of the monitored natural attenuation (MNA) remedy will be periodically evaluated in accordance with U.S. EPA's MNA guidance. MNA achieves protection of human health by keeping current institutional controls in place that minimize the potential for human exposure to contaminated groundwater that exceeds U.S. EPA's cleanup goals. MNA protects groundwater resources by carefully monitoring to ensure containment and reduction in contaminant concentrations over time due to naturally occurring processes.

There are only two relatively small isolated areas of concern that remain above the cleanup goals. The 1,1-DCE cleanup goal is the primary remaining remedial action objective. The groundwater monitoring program will allow regular and routine comparison of the concentrations of 1,1-DCE to the cleanup goal of 6 micrograms per liter (µg/l).

Comparison of Alternatives

To select the preferred alternative, U.S. EPA evaluated the three potential remedial action alternatives against the nine criteria designed to measure the effectiveness and acceptability of each alternative. Table 1 summarizes U.S. EPA's evaluation of the alternatives against the nine criteria. As a result of this evaluation, U.S. EPA currently prefers Alternative No. 3, Monitored Natural Attenuation.

Table 1 - Comparison of Alternatives

CRITERIA	ALT. No. 1 NO ACTION	ALT. No. 2 Extraction & Treatment	ALT. No. 3 Monitored Natural Attenuation U.S. EPA's Preferred Alternative
Protectiveness	No	Yes	Yes
Compliance with ARARs	No	Yes	Yes
Long-term Effectiveness	No data would be collected to determine effectiveness	Effective and permanent	Effective and permanent
Reduction in toxicity, mobility, or volume	No data would be collected to determine reduction	Reduction will occur in less than 15 years	Reduction will occur in less than 15 years
Short-term Effectiveness	No data would be collected to determine effectiveness	Effective in the short term	Effective in the short term
Implementability	No implementability issues	Additional capital improvements needed to implement	Straightforward to implement
Cost (15-years Present Worth)	\$ 0	\$ 1,698,000	\$ 399,000
State Acceptance	No	Yes	Yes
Community Acceptance	Unknown	Previously supportive	Expected to be acceptable

Based upon information currently available, U.S. EPA believes Alternative No. 3 meets the threshold criteria and provides the best balance among the alternatives evaluated. U.S. EPA expects the preferred alternative to satisfy the following statutory requirements of CECLA Section 121(b): (1) be protective of human health and the environment; (2) comply with ARARs; (3) be cost-effective; and (4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. The preferred alternative would not satisfy the preference for treatment as a principal element. The preferred alternative can change in response to public comment and new information.

INFORMATION REPOSITORIES

The Administrative Record and other information on the Beckman Instruments site can be found at:

City of Porterville Library

41 West Thurman Avenue
Porterville, CA 93257
(559) 784-0177

Hours: Mon. – Thurs. 10am -- 8pm



Superfund Records Center

95 Hawthorne Street
San Francisco, CA 94105
(415) 536-2000

Hours: Mon. – Fri. 8:30am – 4pm

SITE BACKGROUND

The Beckman Instruments Superfund Site (Site), which includes the Beckman plant and surrounding study area, is located near the southern limit of Porterville, California. The Site is roughly bounded by the Tule River to the north, the Beckman plant property line to the east, Poplar ditch to the south, and Newcomb Drive to the west (Figure 1). Land use within the study area is varied and includes residential, commercial, industrial, and agricultural uses. Groundwater in the vicinity of the Site has been used for both domestic and agricultural purposes.

The Beckman plant, located at 167 West Poplar Avenue, has manufactured electronic instrument parts and circuit boards since 1967. From 1974 until early 1983, Beckman discharged manufacturing process wastes, including spent solvents, acid solutions, and heavy metals, to an on-site solar evaporation pond. In conjunction with closure of the solar pond, Beckman initiated groundwater-monitoring activities and discovered plant chemicals in the groundwater below the solar pond in 1983. After discovery of the groundwater contamination, Beckman provided alternative water supplies to approximately 300 residences located near the plant. As an additional groundwater protection measure, eight private wells that were screened in both the upper and lower aquifers were sealed or replaced to further limit the spread of contamination.

The State directed Beckman to determine the extent of the groundwater contamination. By mid-1985, Beckman determined that the contamination had moved westward 9,000 feet down gradient of the Site (see Figure 1) and began operating a groundwater extraction and treatment system to stop the western migration of the groundwater plume. A second containment and reclamation system began operation in the eastern portion of the Site area in July 1987 to contain the contaminant source area and to remediate upper aquifer groundwater.

U.S. EPA added Beckman Instruments to the **National Priorities List (NPL)** in June 1986. In September 1989, U.S. EPA issued a Record of Decision (ROD) for the Beckman Instruments Superfund Site that presented the selected remedy for the contaminated groundwater and soil.



IS MY DRINKING WATER SAFE?

YES! Groundwater in the impacted area is not used for drinking water. All drinking water provided by the City of Porterville meets current Federal and State drinking water standards.

GLOSSARY

Volatile organic compound (VOC): A carbon-containing chemical compound that evaporates (volatilizes) readily at room temperature.

Groundwater: Water found beneath the earth's surface that fills pores in soil, sand, and gravel to the point of saturation.

Monitored natural attenuation (MNA): A method to clean up pollution at Superfund sites that relies on natural processes to clean up or attenuate pollution in soil and groundwater.

Record of Decision (ROD): A document explaining the cleanup actions that will be implemented at a contaminated site.

Aquifer: An underground layer of soil, sand, or gravel that can store and supply groundwater to wells and springs.

Aquitard: A subsurface layer of relatively impermeable material (usually clay) that typically divides groundwater-bearing zones into separate aquifers.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A federal law first passed in 1980 and subsequently amended that created a trust fund, known as Superfund, to investigate and clean up abandoned or uncontrolled hazardous waste sites.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP): The federal government's blueprint for responding to both oil spills and hazardous substance releases.

Dispersion: A physical process involving the break-up and scattering of molecules of a chemical substance resulting in a reduction in the concentration level of the chemical.

Dilution: A physical process involving the reduction of concentration of a chemical substance due to its mixing with another substance, in this case clean groundwater.

Administrative Record: A complete body of documents that forms the basis for U.S. EPA's selection of the preferred alternative.

National Priorities List (NPL): A federal list of hazardous waste sites eligible for investigation and cleanup under CERCLA. NPL sites are commonly referred to as Superfund sites.

U.S. EPA CONTACTS • 75 Hawthorne Street • San Francisco, CA 94105

Jackie Lane

Community Involvement Coordinator
U.S. EPA Region 9 (SFD-3)
Direct Line (415) 972-3236
Fax Line: (415) 947-3528
Toll Free Number: (800) 231-3075
lane.jacqueline@epa.gov

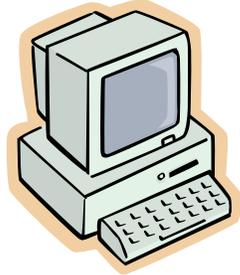
Patricia Bowlin

Remedial Project Manager
U.S. EPA Region 9 (SFD-7-3)
Direct Line (415) 972-3177
Fax Line: (415) 947-3526
Toll Free Number: (800) 231-3075
bowlin.patricia@epa.gov

Proposal to Amend Beckman Cleanup Plan

See EPA's Web site:

<http://www.epa.gov/region9/waste/sfund/index.html>



For your convenience, you may request a copy of this fact sheet in Spanish
by calling the following number: (800) 231-3075

Para su comodidad, se puede pedir una copia de este folleto en español
llamando este numero: (800) 231-3075

Printed on 30% Postconsumer



Recycled/Recyclable Paper

U.S. Environmental Protection Agency, Region 9
75 Hawthorne Street (SFD-3)
San Francisco, CA 94105-3901
Attn: Jackie Lane (Beckman 8/05)

Official Business
Penalty for Private Use, \$300

Address Service Requested