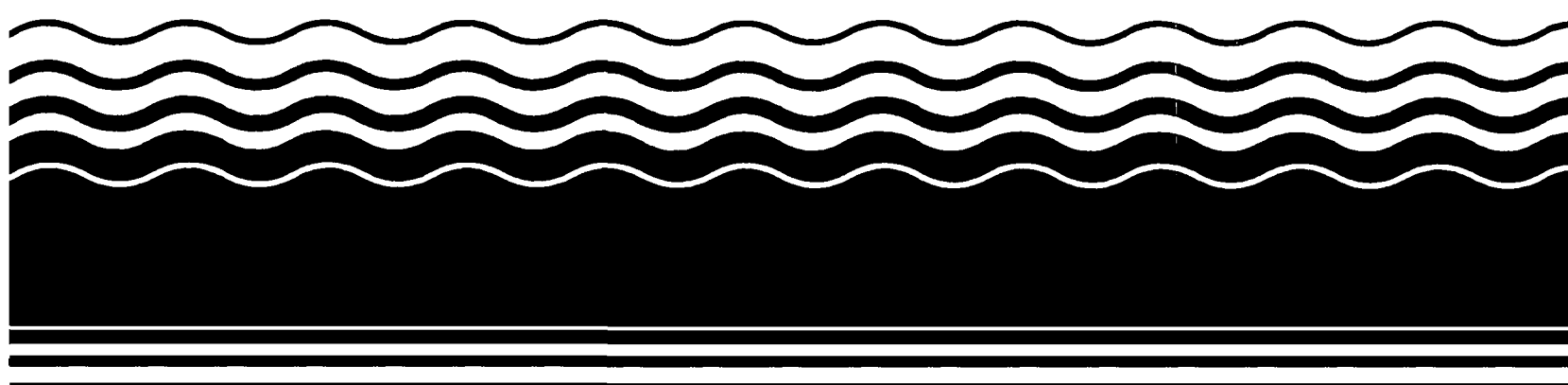


**PB96-963128  
EPA/ESD/R05-96/313  
March 1997**

**EPA Superfund  
Explanation of Significant Difference  
for the Record of Decision:**

**Electro-Voice, Inc. Site,  
Buchanan, MI  
5/23/1996**



**EXPLANATION OF SIGNIFICANT DIFFERENCE  
ELECTRO-VOICE SITE  
BUCHANAN, MICHIGAN**

**April 16, 1996**

**1.0 INTRODUCTION**

The Electro-Voice, Inc. ("EV") Site (the "Site" or the "EV Site") is located in southwestern Michigan in the southeastern corner of the City of Buchanan, Berrien County, Michigan, approximately six miles west of Niles, Michigan.

The United States Environmental Protection Agency ("U.S. EPA" or the "Agency") is the lead agency for the implementation of the Remedial Investigation/Feasibility Study ("RI/FS"), the initiation of Remedial Action for Operable Unit One for the Site, and enforcement activities, including the preparation of this Explanation of Significant Differences ("ESD"). The Michigan Department of Environmental Quality ("MDEQ"), previously known as the Michigan Department of Natural Resources ("MDNR"), is the support agency.

The Comprehensive Environmental Response, Compensation and Liability Act of 1980 ("CERCLA") as amended by the 1986 Superfund Amendments and Reauthorization Act ("SARA") states, in Section 117(c), that:

after adoption of a final remedial action plan--

- (1) if any remedial action is taken,
- (2) if any enforcement action under section 106 is taken, or
- (3) if any settlement or consent decree under section 106 or section 122 is entered into,

and if such action, settlement, or decree differs in any significant respects from the final plan, the President or the State shall publish an explanation of the significant differences and the reasons such changes were made.

The June 1992 Operable Unit One Record of Decision ("ROD") for the EV Site established Cleanup Standards for several chemicals present at levels that exceeded health-based risk levels or exceeded taste and odor thresholds. The Cleanup Standards were developed pursuant to MDEQ's Type B criteria under the Michigan Environmental Response Act 307 of 1982, as amended ("Michigan Act 307"). In 1995, the State of Michigan amended Part 201 of the Natural Resources and Environmental Protection Act, 1994 PA 451, (formerly Michigan Act 307), to allow for cleanups based on current and future land use. The state criteria have been revised and are now referred to as residential, industrial, and commercial, either generic or limited, cleanup criteria. Subsequently, U.S.

EPA has reevaluated land use at the EV Site and has determined that limited industrial<sup>1</sup> land use cleanup criteria is appropriate for the Site. The primary activity at the Site is industrial in nature and the current zoning of the property is industrial.

Due to the changes in Part 201 to allow for cleanups based on current and future land use as well as a request from EV, U.S. EPA has reevaluated the Cleanup Standards and revised them to reflect the current state and federal regulations. Initial soil Cleanup Standards shall be established using risk-based soil cleanup concentrations which satisfy a  $10^{-5}$  risk (carcinogens) and a hazard quotient ("HQ") of 1 (non-carcinogens) for industrial land use. Final soil Cleanup Standards shall satisfy a cumulative  $10^{-5}$  cancer risk and a HQ of 1. Initial Cleanup Standards for on-property groundwater shall be the Maximum Contaminant Levels ("MCLs") in the Federal drinking water standards promulgated under the Safe Drinking Water Act 40 CFR 141. In addition to achieving MCLs, final on-property groundwater Cleanup Standards shall also comply with a cumulative  $10^{-5}$  cancer risk and a HQ of 1.

U.S. EPA has determined that these changes to the Cleanup Standards are protective of human health and the environment and are acceptable changes to the First Operable Unit ROD. U.S. EPA proposes to make these changes pursuant to Section 117(c) of CERCLA, 42 U.S.C. Section 9617(c), and offers an explanation of the significant differences that will now be incorporated into the final remedial action.

This ESD is being issued to document a significant change from the June 1992 ROD and the May 1995 ESD. This ESD will become part of the permanent Administrative Record file for the Site, and will be kept at the Site repositories and the U.S. EPA Region V offices for public display.

The Administrative Record for the EV Site is available for public viewing at the U.S. EPA Region V offices, 77 West Jackson Boulevard, Chicago, Illinois, and is also available for public inspection at the following Site repository:

Buchanan Public Library  
117 West Front Street  
Buchanan, Michigan

Further information may be obtained from the Remedial Project Manager, Eugenia Chow at (312) 353-3156 or the Community Relations Coordinator, Denise Gawlinski at (312) 886-9859, both located at 77 West Jackson Boulevard, Chicago, Illinois 60604.

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<sup>1</sup> The term "limited industrial" is used because the groundwater is not currently, nor will it be in the future, the source of drinking water at the property.

## 2.0 SUMMARY OF SITE HISTORY

The EV Site is located at 600 Cecil Street in the City of Buchanan, Berrien County, Michigan. EV is a manufacturer of audio equipment. Current activities at the facility include painting, electroplating, assembly, die casting, and machining. EV has been in operation at its present location since 1946.

The Site consists of the EV building and parking area, a former dry well area where disposal of paint wastes and solvents occurred, a former lagoon area where disposal of electroplating wastewaters occurred, a former fuel tank area, and a groundwater volatile organic compound ("VOC") contaminant plume which extends from the EV property boundary one-half mile north to McCoy Creek.

The population of Buchanan in 1980 was approximately 5,140. The EV facility is surrounded on three sides by residential homes and on the fourth side by an elementary school. All residents are connected to the city water supply. The city wells are located approximately 4,000 feet west of the EV facility and are not considered to be threatened by the EV contaminant plume because groundwater flow is to the north.

In 1952, EV constructed two clay-lined lagoons for disposal of liquid wastes from the electroplating operation at the plant. EV discharged plating waste to the lagoons from 1952 to 1962.

A dry well was installed in 1964 for disposal of wastes produced during painting operations. The dry well consisted of a pit in the ground which was backfilled with gravel. A gravity drain pipe connected a sink inside the building to the dry well. The sink was used to clean equipment associated with the paint shop.

In 1973, a subsurface tank (20,000-gallon capacity) was installed immediately west of the dry well to collect discharge from the paint shop. In 1975, the subsurface tank was removed and replaced with an upright buried tank of similar capacity. The second tank was removed in 1983. An aboveground tank, with a capacity of 1,000 gallons, was placed near the dry well and was identified as the methyl ethyl ketone ("MEK") tank. The MEK tank has also been removed from the Site.

Two partially buried fuel-oil tanks were excavated and removed from the Site during July 1987. These tanks had been on-site since 1930. EV used the tanks from 1946 to 1960 for storage of No. 6 fuel oil.

In March 1979, plating waste solution was released into the north lagoon as a result of a ruptured drain pipe. EV reported this incident to the MDEQ, which began an investigation of the Site shortly after the incident was reported. The MDEQ requested a review of the on-site plating waste treatment and conducted an inspection of the EV facility in March 1979.

In 1979, EV hired a contractor to develop a program for removal and abandonment of the two lagoons. In January 1980, four groundwater monitoring wells were installed around the lagoons to

determine if liquid waste had leaked from the lagoons, thereby contaminating groundwater in the area.

In September 1980, the north lagoon and its contents were removed. The area was then backfilled. The south lagoon was backfilled (no contaminated materials were removed) and graded to the natural surface topography of the area.

On July 29, 1982, a Hazard Ranking System ("HRS") score was developed for the EV Site. On September 8, 1983, the EV Site was proposed for inclusion on the National Priority List ("NPL"), and the proposal became final on November 21, 1984.

In October 1987, EV entered into an Administrative Order by Consent to conduct the RI/FS at the EV Site. The RI report was completed in 1990 and the FS report was finalized in 1991.

### **3.0 U.S. EPA'S SELECTED REMEDY IN THE JUNE 1992 ROD**

In June 1992, U.S. EPA issued the Operable Unit One ROD which included institutional controls; SVE and excavation and landfilling of a sludge layer in the dry well area soils; Michigan's Act 64 cap on the lagoon area soils; pump and treat of on-property groundwater; and monitoring of the contaminated off-property groundwater. The Cleanup Standards in the 1992 ROD for the dry well area soils and the on-property groundwater were developed pursuant to MDEQ's Type B criteria under Michigan Act 307. Michigan's Type B cleanup criteria were developed assuming residential land use and a  $1 \times 10^{-6}$  excess lifetime cancer risk level for each carcinogenic compound.

According to the 1992 ROD, a combination of SVE, excavation, solidification and off-site landfilling of the sludge layer identified in the dry well area soils would be used to clean up the dry well area soils. This ROD recognized that excavation, solidification and off-site landfilling of the sludge layer may have been required to meet Cleanup Standards for semi-volatile contaminants. Lagoon area soils would be capped with a Michigan Act 64 cap.

For the on-property groundwater, the 1992 ROD specified that it would be pumped, treated and discharged to a POTW. The off-property groundwater (from the EV property to McCoy Creek), would be monitored. A second operable unit ROD will address remedial alternatives for the off-property groundwater.

The 1992 ROD also recognized and discussed the Subsurface Volatilization and Ventilation System ("SVVS") treatability study to be conducted on the dry well area soils and the on-property groundwater. This ROD recognized that, based on U.S. EPA's evaluation of the effectiveness of the SVVS system at the EV Site, the Agency would consider utilizing this system to remediate the dry well area soils and on-property groundwater at the EV Site.

In June 1993, U.S. EPA issued an ESD revising the list of Cleanup Standards for on-property groundwater and dry well area soils. In this ESD, 1,1-Dichloroethene ("1,1-DCE") and alkylbenzene

were deleted from the Cleanup Standards for on-property groundwater, and beryllium was deleted from the Cleanup Standards for the dry well area soils. These chemicals were deleted from the Cleanup Standards because they were not identified as potential chemicals of concern in the Risk Assessment. 1,1-Dichloroethane ("1,1-DCA") was added to the Cleanup Standards for groundwater because it was identified as a potential chemical of concern in the Risk Assessment. Finally, the ESD revised the Cleanup Standard for xylenes based on Michigan's taste and odor threshold values.

In May 1995, based on positive results from the SVVS treatability study, U.S. EPA issued an ESD which selected SVVS to provide the final cleanup of the dry well area soils, the dry well area sludge, and the on-property groundwater. Continued monitoring of the on-property groundwater indicates that all on-property groundwater Cleanup Standards specified in the 1992 ROD are currently being achieved as a result of the operating SVVS and natural attenuation.

#### **4.0 DESCRIPTION OF SIGNIFICANT DIFFERENCES**

##### Dry Well Area Soils

In response to a request from EV, following changes in Part 201 of the Natural Resources and Environmental Protection Act to allow cleanup criteria to be based on current and future land use, U.S. EPA has reevaluated Cleanup Standards and land use at the EV Site. As a result of this reevaluation, both Cleanup Standards and land use will be revised to reflect the current state and federal regulations. U.S. EPA has determined that the limited industrial land use scenario is appropriate for the EV Site. Michigan's Part 201 specifies the limited industrial land use scenario as appropriate for the Site if 1) the primary activity at the site is industrial in nature and access to the site is reliably restricted consistent with its use; and 2) current zoning of the property is industrial. The EV Site currently satisfies both of these conditions. Furthermore, U.S. EPA determined that the Cleanup Standards shall be revised to risk-based cleanup levels which satisfy a risk of  $10^{-5}$  (carcinogens) and an HQ of 1 (non-carcinogens) for industrial land use.

U.S. EPA's *Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual, Part B: Development of Risk-Based Preliminary Remediation Goals ("RAGS")* 1989, was used to develop the risk-based dry well area soils initial Cleanup Standards in Table 1. Potential future industrial exposure routes that were evaluated include ingestion, inhalation, and dermal absorption of contaminants in soil. After these initial Cleanup Standards have been achieved in the dry well area, EV shall perform a risk evaluation in accordance with U.S. EPA RAGS to verify that the cumulative risk associated with the dry well area soils satisfies a  $10^{-5}$  cancer risk and a HQ of 1. If the contaminant levels remaining in the dry well area soils satisfy a cumulative  $10^{-5}$  cancer risk and a HQ of 1, they shall become the final Cleanup Standards.

As discussed in the National Contingency Plan ("NCP"), acceptable exposure levels are concentration levels which generally satisfy a cancer risk range between  $10^{-4}$  and  $10^{-6}$ . U.S. EPA has determined that Cleanup Standards based on a  $10^{-5}$  cancer risk are acceptable for the Site because they are protective of human health, and they would be cost-effective. It is anticipated that an expansion of

the SVVS in the dry well area will not be required with the revised dry well soil Cleanup Standards. EV estimates that the revised dry well area soils Cleanup Standards would result in a cost savings of approximately \$565,000.

Closure sampling shall be performed in accordance with the MDEQ Guidance Document, *Verification of Soil Remediation, Part 1, Small Soil Cleanup Verification*, which incorporates a biased sampling strategy. If based on the soil sampling results, it appears that the initial soil Cleanup Standards have not been achieved, operation of the SVVS will continue.

U.S. EPA has consulted with MDEQ and subsequently determined that compliance with Michigan's Part 201 site specific criteria for limited industrial land use will be satisfied using the values below. Therefore, U.S. EPA has changed the soil Cleanup Standards for each of the following chemical contaminants:

Table 1 - Dry Well Area Soils

Chemical	ESD Initial Cleanup Standards (µg/kg)	1992 ROD Cleanup Standards (µg/kg)
Arsenic	17,000	0.4
Benzene	64,000	20
Benzo(a)anthracene	6,200	100
Benzo(a)pyrene	620	100
Benzo(b)fluoranthene	6,200	100
Benzo(g,h,i)perylene	16,000,000 <sup>2</sup>	100
Benzo(k)fluoranthene	62,000	100
Bis(2-ethylhexyl)phthalate	320,000	40
Chrysene	620,000	100
Dibenz(a,h)anthracene	620	100

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<sup>2</sup>Since toxicity values were not available for this compound, U.S. EPA's RAGS could not be used to calculate a risk-based cleanup concentration. Therefore, for this compound the MDEQ generic industrial cleanup criteria has been utilized.

Table 1 (cont'd)

Chemical	ESD Initial Cleanup Standards (µg/kg)	1992 ROD Cleanup Standards (µg/kg)
Ethyl Benzene	6,800,000	1,400
Indeno(1,2,3,cd)pyrene	6,200	100
Naphthalene	6,000,000	600
PCB-1254	590 <sup>3</sup>	1,000
Styrene	770	20
Tetrachloroethene	37,000	14
Toluene	14,000,000	16,000
Trichloroethylene	170,000	60
Total Xylenes	140,000,000	6,000

Groundwater

At a minimum, the on-property groundwater shall satisfy chemical specific MCLs in the Federal drinking water standards promulgated under the Safe Drinking Water Act 40 CFR 141. However, since MCLs have not been established for several chemicals of concern in the on-property groundwater, the final Cleanup Standards shall be determined by verifying that a  $10^{-5}$  cancer risk and an HQ of 1 water has been satisfied<sup>4</sup>. Once the MCLs (as shown in table 2) have been achieved, EV shall perform a risk evaluation in accordance with U.S. EPA RAGS to verify that the cumulative risk associated with the on-property groundwater satisfies a  $10^{-5}$  cancer risk and an HQ of 1. Chemicals of concern at EV for which MCLs have not been established include 2-butanone, chloroethane, chloromethane, 1,1-DCA, and naphthalene.

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<sup>3</sup>Risk-based cleanup standard is lower than Type B criteria possibly due to changes in toxicity values and exposure assumptions.

<sup>4</sup>Although the NCP defines acceptable exposure levels as concentration levels which generally satisfy a cancer risk range between  $10^{-4}$  and  $10^{-6}$ , Michigan's Part 201 cleanup standards require that cleanup standards satisfy a  $10^{-5}$  cancer risk.



Table 2 - On-Property Groundwater

Chemical	ESD Initial Cleanup Standards (MCLs) (µg/L)	1992 ROD Cleanup Standards (µg/L)
Benzene	5	1.00
Bis(2-ethylhexyl)phthalate	6	2.50
1,2-Dichloroethane	5	0.40
Cis-1,2-Dichloroethene	70	70.00
Trans-1,2-Dichloroethene	100	140.00
Ethyl Benzene	700	70.00
Toluene	1,000	800.00
1,1,1-Trichloroethane	200	600.00
Trichloroethylene	5	3.00
Vinyl Chloride	2	0.02
Xylenes (total)	10,000	300.00 <sup>5</sup>

The Operable Unit Consent Decree and Statement of Work (“SOW”) provides for the operation of the SVVS until it has been demonstrated that the groundwater performance standards have been achieved throughout the entire on-property contaminant plume. The demonstration shall consist of two years of consecutive quarterly groundwater monitoring during which none of the contaminants exceeds any Cleanup Standard in any of the wells in the monitoring network. The SOW provides for the continued operation of the SVVS until U.S. EPA approves EV’s petition to terminate its operation. After the SVVS has been shutdown, the SOW further specifies that EV shall sample and analyze select monitoring wells for a period of five years. If the post-shutdown analytical data shows that any Cleanup Standard is exceeded, subject to one confirmation sample, EV shall reactivate the SVVS immediately.

These changes do not fundamentally alter the overall approach intended by the remedy presented in the ROD and they will be incorporated into the Remedial Action to be implemented at the Site.

## 5.0 STATE CONCURRENCE

The MDEQ concurs with this ESD and has no additional comments.

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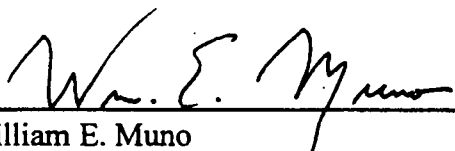
<sup>5</sup> Cleanup Standard established in U.S. EPA’s June 1993 ESD.

## 6.0 AFFIRMATION OF STATUTORY DETERMINATIONS

U.S. EPA has determined that the selected remedy, with the changes described above, will remain protective of human health and the environment, will comply with federal and state requirements that are applicable or relevant and appropriate to this remedial action, and will be cost-effective. In addition, the revised remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this Site.

## 7.0 PUBLIC PARTICIPATION ACTIVITIES

The Administrative Record is available for review at the repository listed in Section 1.0.



William E. Muno  
Superfund Division Director

5/23/96

Date