addressed questions from the audience concerning health effects, aquifer characteristics, onsite landfill impacts, sampling efforts, remedial alternatives, and monitoring.

In May 1988 EPA signed a Record of Decision (ROD) selecting a remedy for the Alpha Chemical Corporation Site. The ROD called for placing a low permeability cap over the small unlined pond and long-term monitoring of the surface and groundwater to ensure that the remedy is effective and that the landfill continues to meet the applicable and relevant or appropriate requirements (ARARs). (Section 121(d)(2)(A) of CERCLA, 42 U.S.C. $\S 9621(d)(2)(A)$, requires with respect to any contaminant that will remain on site after the remedy is complete, that the degree of cleanup must meet all ARARs.)

A consent decree between EPA and ARC was entered into court in May 1989, requiring ARC to perform the remedial design/remedial action (RD/RA) and to record appropriate deed restrictions. The remedial design consisted of capping the unlined pond with a synthetic low permeability cap. The cap design ensured that surface runoff would be diverted and vertical infiltration would be prevented.

The remedial action involved removing water from the unlined pond and filling with clean clay soil. A synthetic low permeability liner and layers of drainage material, filter fabric, and topsoil were placed over the compacted fill material. Drainage swales were installed around the cap to prevent vertical infiltration. The cap surface was seeded and drainage ditches sodded to preclude erosional damage to the cap. Construction of the cap over the unlined pond required two weeks and was completed on September 15, 1989. EPA sent out fact sheets to inform the public that remedial construction had been completed. During the following year, ARC decided to sod the cap as an extra measure of precaution against the threat of erosion.

The ROD identified groundwater and surface water cleanup standards for five indicator chemicals at the site. One of these chemicals, 1,2-dichloropropane, was not detected in groundwater at the time the ROD was written and another chemical, benzoic acid, did not have a groundwater cleanup value; therefore, the ROD required periodic monitoring for only three contaminants, ethylbenzene, styrene, and total xylenes. Quarterly groundwater samples taken from two monitoring wells have been analyzed for these three compounds since the remedial action construction was complete in September 1989. Six

other wells selected for monitoring in the Remedial Design/Remedial Action Project Operations Plan (POP) were eliminated from the monitoring requirements since the three contaminants being monitored in these wells were consistently below contingency levels, often at non-detect levels. Prior to site close out, it was confirmed that 1,2-dichloropropane was still not present in the groundwater.

When the ROD was issued in 1988, the Agency had established **Recommended Maximum Contaminant** Levels (RMCLs) for four of the five groundwater contaminants at the Alpha Chemical Corporation Site. These RMCLs were also used as the contingency levels, or cleanup goals, in the POP and are shown in the table below. Since then EPA has established MCL Goals (MCLGs) and MCLs for these four contaminants at the site. The fifth contaminant, benzoic acid, did not have a RMCL nor does it have a MCLG or MCL. The protective groundwater values for the four contaminants have changed as follows:

Contaminant	Rec- om- mend- ed MCL (ug/l)	MCL goal (ug/l)	MCL (ug/l)
1,2- Dichloropropane	6	0	5
	440	10,000	10,000
	140	100	100
	680	700	700

In addition, the ROD required groundwater monitoring to ensure that source control (the cap and landfill) achieved the clean-up standards identified in the ROD as ARARs. The Agency is now confident that the remedy, as carried out pursuant to the ROD, is, and will continue to be, protective of human health and the environment, because the post-ROD, more protective MCL levels have been attained at this Site for 1,2dichloropropane and styrene. In addition, the other two contaminants of concern, xylene and ethylbenzene, have attained RMCLs, which are the clean-up standards established in the ROD.

The Agency has groundwater monitoring data showing that groundwater downgradient of the landfill has attained all ARARs, as identified in the ROD. Monitoring results have shown that groundwater concentrations of xylene have

consistently been below the RMCL and MCLG for 10 years in all monitoring wells being monitored. Since one detection at 100 ug/l in 1990, styrene has been below both the RMCL and the MCLG in all groundwater samples. Concentrations of ethylbenzene in the groundwater have been below the RMCL and MCLG since 1991, with the exception of a detection of 690 ug/l in December 1992 and 1200 ug/l in June 1994. Overall monitoring results clearly show these minor exceedances are isolated cases. This data demonstrates the effectiveness of the source control remedy selected in the ROD as the preferred alternative for protecting human health and the environment at the Site.

The ROD also required surface water monitoring to be conducted to confirm surface water ARARs were being attained and specified surface water values for ambient criteria for protection of fresh water life for the five contaminants. Prior to site close out, all five contaminants were confirmed to be below the surface water values cited in the ROD. Current ARARs for surface water are the Florida Surface Water Quality Criteria and the Federal Ambient Quality Criteria; however, no state or federal criteria values have been designated for any of the five contaminants. Freshwater quality screening values for 1,2dichloropropane and ethylbenzene have been established by Region IV Waste Management Division and these two contaminants have not been found in surface water above the screening values. In addition, the three VOCs constantly being monitored over the long-term have either not been detected or were detected at low levels in surface water samples.

As required by the consent decree, ARC has recorded approriate deed restrictions for the property.

In summary, sampling results from all monitoring wells and surface water collections confirm that the contaminants have decreased to levels below ARARs and that all appropriate actions have been taken to ensure that the Site remains protective of human health and the environment. ARC's inspections of the cap have indicated that the remedy is performing as designed.

EPA completed a Five-Year Review at the Site to determine whether the cap remains effective in 1994. Review activities included a Site visit, a reassessment of the ARARs, and sampling. The Five-Year Review and monitoring results have demonstrated that the remedy at Alpha Chemical Corporation Site has been effective at

¹Zero level MCLGs are not used as ARARs, instead the MCL is used if applicable and appropriate. 40 CFR 300.430(e)(2)(i)(C).