

Attachment A

*Addendum to Elf Atochem Acid Plant Area Remedial
Investigation and Feasibility Study Work Plan
Appendix B: Quality Assurance Project Plan*

Introduction

This attachment will serve as an addendum to the Quality Assurance Project Plan (QAPP) in Appendix B of the Remedial Investigation and Feasibility Study Work Plan (Exponent, 1998). This document has been prepared to include additional treatment system effluent monitoring analytical requirements in the project scope.

Data Quality Objectives

Effluent samples collected for reporting requirements will be analyzed by Test America in Portland, Oregon, following quantitative data quality objectives provided in Table 1. Internal monitoring of effluent will be accomplished using field test methods. Data quality objectives for internal monitoring are provided in Table 2.

Field quality control samples, including duplicates and blanks will be collected as per the QAPP at a frequency of at least 1 set of quality control samples for every 20 field samples.

*Table 1
Laboratory Quality Objectives
Groundwater Source Control Measure
Arkema Inc.
Portland, Oregon*

Parameter	Analytical Method	ODEQ MQL ¹	Effluent Quality Objective
Organochlorine Pesticides (ug/L)			
DDD	USEPA 8081A	0.01	<0.01
DDE	USEPA 8081A	0.01	<0.01
DDT	USEPA 8081A	0.01	<0.1
Metals (ug/L)			
Arsenic	USEPA 6010B	0.05	<10
Chromium, hexavalent	USEPA 7196A	10	<10
Inorganics (mg/L)			
Chlorate	USEPA 300.1	NA	<0.015
Perchlorate	USEPA 314	0.004	<0.015
pH (s.u.)	Field Method	NA	6.5 to 8.5
Other Parameters (mg/L)			
Nitrogen, Ammonium	USEPA 350.1	1	<10
Nitrogen, Total Kjeldahl	USEPA 351	NA	
Phosphate, Total as P	USEPA 365.1	0.01	<1
Total Suspended Solids	SM 2540D	NA	<25
Total Volatile Solids	USEPA 160.4	NA	<25

Notes

(1) - Method Quantitation Limit (MQL) based on values published by Oregon Department of Environmental

mg/L = milligrams per liter

ug/L = micrograms per liter

s.u. = standard units

NA = data not available

USEPA = United States Environmental Protection Agency

SM = Standard method

Table 2
Field Methods Quality Objectives
Groundwater Source Control Measure
 Arkema Inc.
 Portland, Oregon

Parameter	Measurement Method	Detection Range	Detection Limit
Metals (ug/L)			
Arsenic	Titrate - color	0 - 500	<10
Chromium, hexavalent	Titrate - color	100 - 1,500	<10
Iron, total	Titrate - color	0 - 5,000	NA
Iron, dissolved	Titrate - color	0 - 5,000	NA
Other Parameters (mg/L)			
pH (s.u.)	Combination Meter	1 - 12	NA
Nitrate as N	Titrate - color	0.1 - 2.5; 1 - 50	<20
Nitrogen, Ammonium	Titrate - color	0.1 - 2.5; 1 - 50	<20
Phosphate, Total as P	Titrate - color	0 - 1; 0 - 5; 0 - 50	<1
Total Suspended Solids	Combination Meter	1 - 400,000	<25

Notes

mg/L = milligrams per liter
 ug/L = micrograms per liter
 s.u. = standard units
 NA = data not available