ATTACHMENTS

RECORD OF DECISION

ALUMINUM COMPANY OF AMERICA SITE
RIVERDALE, IOWA

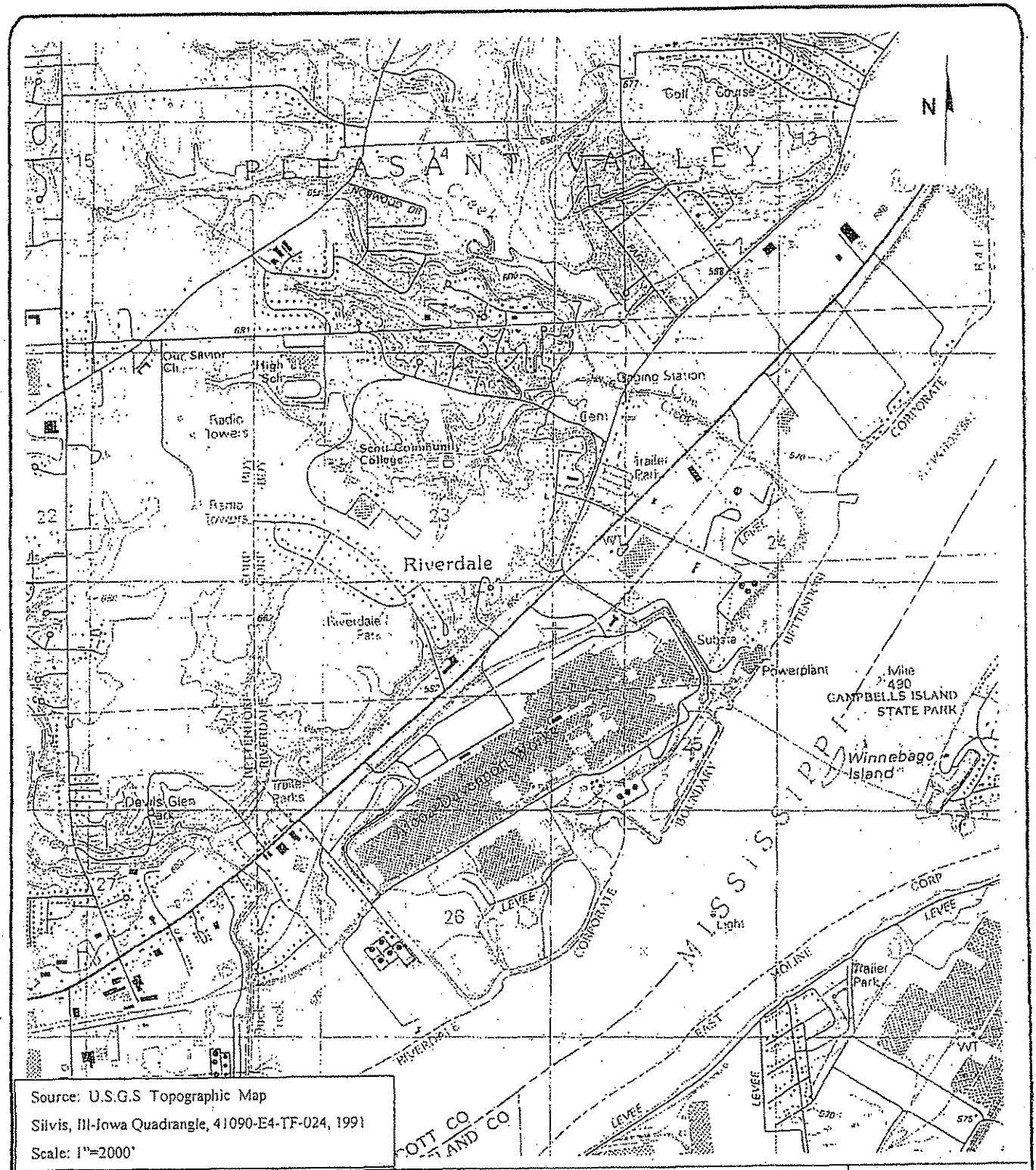
and

MISSISSIPPI RIVER POOL 15 SITE
near RIVERDALE, IOWA

Prepared by:

United States Environmental Protection Agency
Region VII
901 North 5th Street
Kansas City, KS 66101

September 2004



Source: U.S.G.S Topographic Map
Silvis, Ill-Iowa Quadrangle, 41090-E4-TF-024, 1991
Scale: 1"=2000'

Figure 1

Location and Physical
Setting of Alcoa-Davenport Works
Riverdale, Iowa

MISSISSIPPI RIVER POOL 15

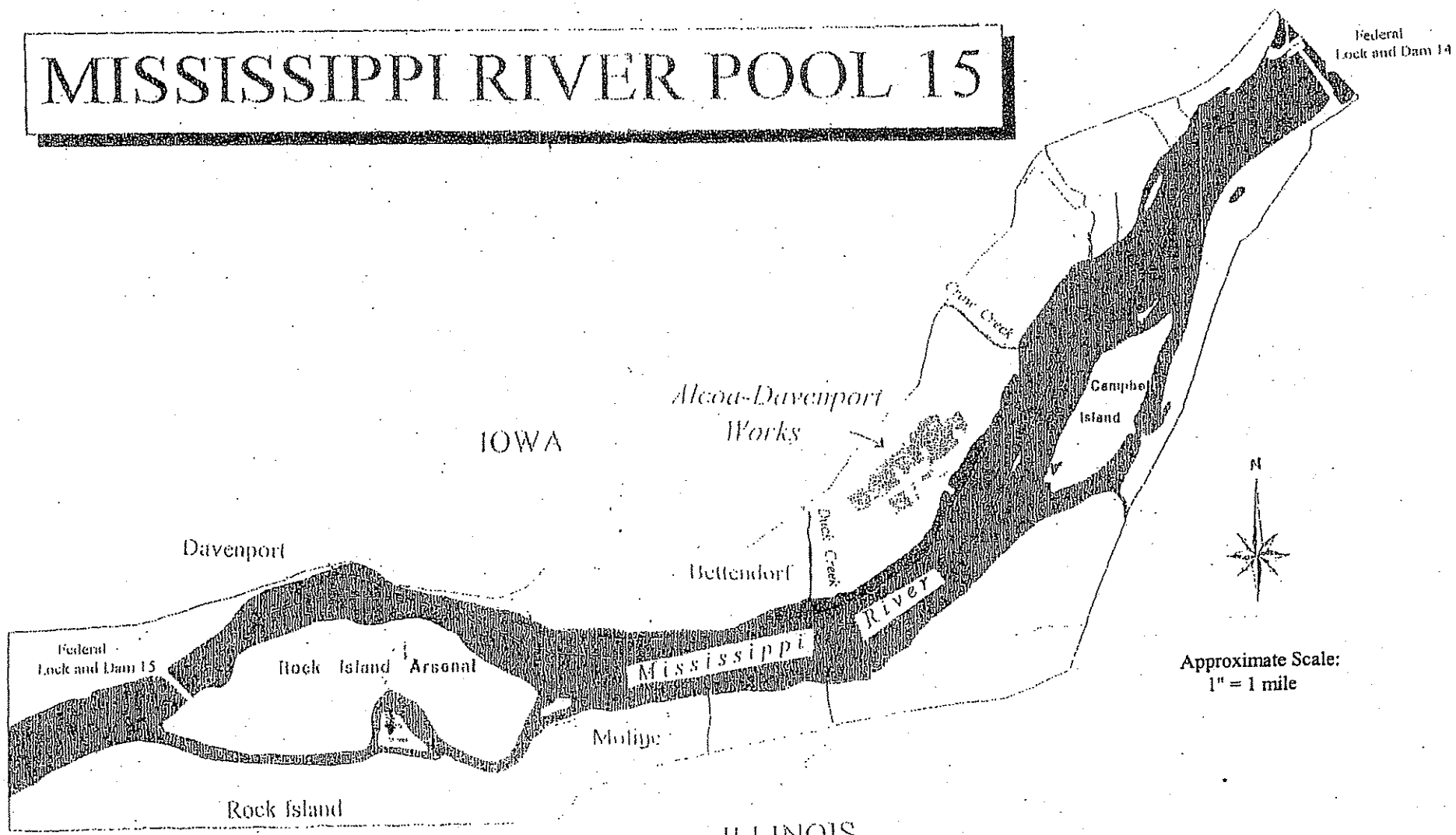
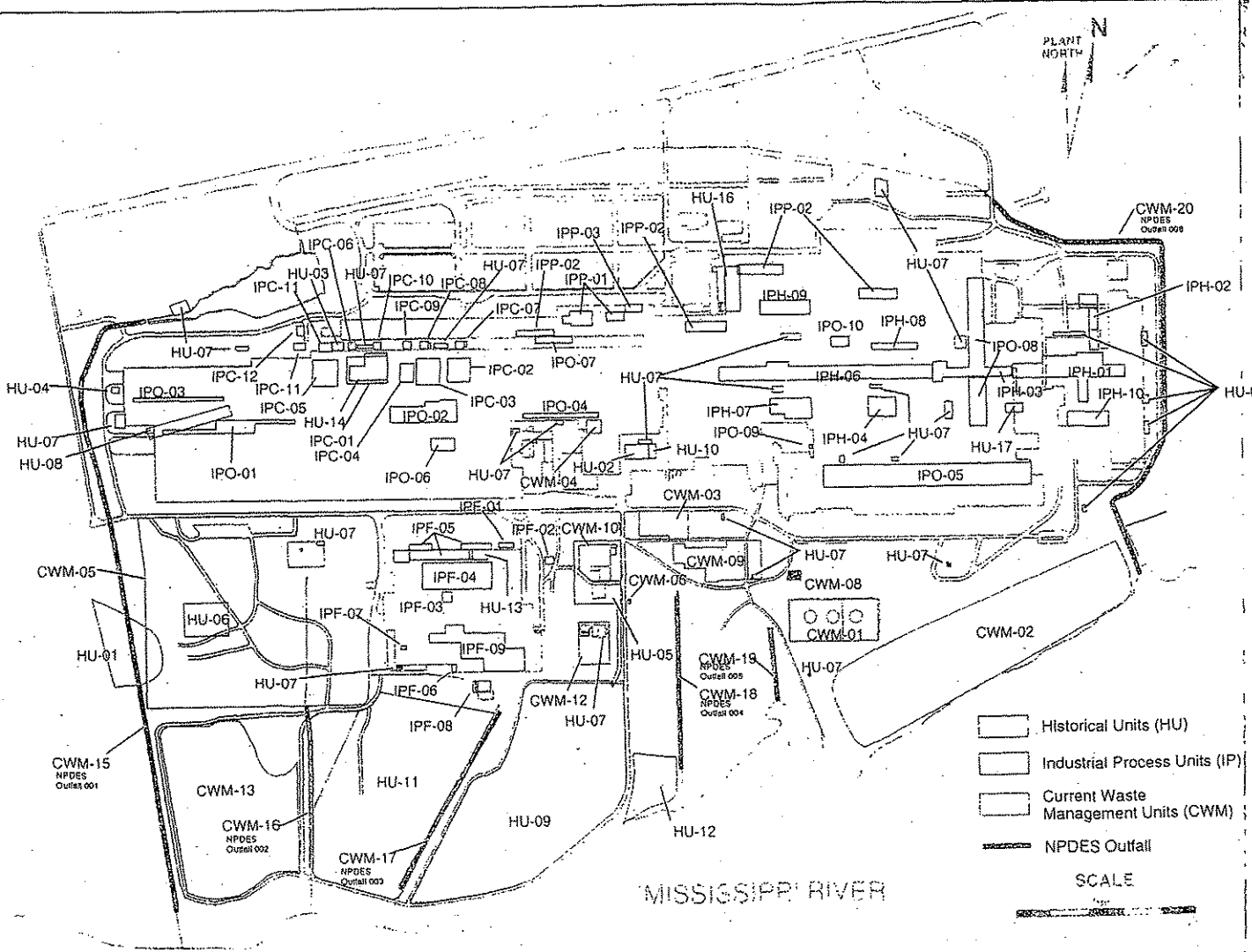


Figure 2



HISTORICAL UNIT AREAS (HU)

HU-01	Benzene Contaminated Ground Water on Western Property Line
HU-02	Former Store Room Underground Storage Tanks
HU-03	Former Cold Mill Underground Storage Tanks
HU-04	Tetrachloroethene Aboveground Storage Tanks
HU-05	Former Industrial Waste Treatment Facility
HU-06	Former Sewage Treatment Facility
HU-07	Plant Transformers Substations
HU-08	Former Bee Line Manufacturing Facility
HU-09	Former Waste Disposal Site.
HU-10	Store Room VOC and PCB Contamination Area
HU-11	Eastern Historical Disposal Site
HU-12	Former Light Bulb Dump and Possible Waste Solvent Disposal Area
HU-13	Former Foil Mill Underground Storage Tanks
HU-14	Former No. 5 and No. 8 Cold Mills
HU-15	Former No. 6 Cold Mill Oil House
HU-16	Former Caustic Etch Area
HU-17	Former Ingot Etch Area

INDUSTRIAL PROCESS AREAS (IP)

HOT ROLLING MILL (IPH)

IPH-01	220-Inch Mill
IPH-02	220-Inch Mill Oil House
IPH-03	160-Inch Hot Reversing Mill
IPH-04	Reversing Mill Oil House
IPH-05	144-Inch Hot Reversing Mill
IPH-06	100-Inch Five Stand Continuous Mill
IPH-07	100-Inch Five Stand Continuous Mill Oil House
IPH-08	Plate and Heat Treatment Sheet Mill
IPH-09	No. 8 and No. 9 Vertical Heat Treatment Furnaces
IPH-10	No. 4 Scalper

PLATE MILL (IPP)

IPP-01	Plate Mill Levelers
IPP-02	Plate Mill Stretchers
IPP-03	Gildings and Lewis Milling Machine

FOIL MILL (IPF)

IPF-01	Foil Mill Underground Storage Tanks
IPF-02	Foil Mill Temporary Gas and Diesel Aboveground Storage Tanks
IPF-03	Foil Mill Scrap Metal Baling
IPF-04	Foil Mill Plain Metal Rolling Area
IPF-05	Foil Mill Oil House
IPF-06	Foil Mill Truck Unloading Area
IPF-07	Foil Mill No. 7 Converting Shear
IPF-08	Foil Mill Volatile Storage Facility
IPF-09	Foil Mill Laminating Area

COLD MILL (IPC)

IPC-01	No. 1 Cold Mill
IPC-02	No. 2 Cold Mill
IPC-03	No. 3 Cold Mill
IPC-04	No. 4 Cold Mill
IPC-05	No. 7 Cold Mill
IPC-06	No. 1 Cold Mill Oil House
IPC-07	No. 2 Cold Mill Oil House
IPC-08	No. 3 Cold Mill Oil House
IPC-09	No. 4 Cold Mill Oil House
IPC-10	No. 5 Cold Mill Oil House
IPC-11	No. 7 Cold Mill Oil House
IPC-12	Cold Mill Oil House Filtrate Dump Box Staging Area

OTHER PROCESS AREAS (IPO)

IPO-01	84-Inch Finish Lines No. 1 and No. 2
IPO-02	69-Inch Finish Line
IPO-03	86-Inch Continuous Heat Treatment Line 50-Inch Continuous Heat Treatment Line.
IPO-04	Former Paint Line Location
IPO-05	Ingot Plant Melting Furnaces and Casting Pits
IPO-06	No. 14 Pit Slicer
IPO-07	No. 8 Hakden Shear
IPO-08	Soaking Pits
IPO-09	Ingot Plant Truck Refueling Station
IPO-10	Caustic Etch Area

CURRENT WASTE MANAGEMENT AREAS (CWM)

CWM-01	Three, One Million Gallon Aboveground Storage Tanks
CWM-02	Ash Pond Storage Area
CWM-03	Dunnage and Drum Storage Area
CWM-04	Special Waste Accumulation Building
CWM-05	Bone Yard
CWM-06	Drum Dumping Station
CWM-07	Storm Sewer System
CWM-08	Fuel Oil Pump House
CWM-09	River Water Treatment Facility
CWM-10	Industrial Waste Treatment Facility
CWM-11	Industrial Waste Sewer System
CWM-12	Water Reclamation Facility
CWM-13	Western Disposal Site
CWM-14	Sanitary Sewer System
CWM-15	NPDES Outfall 001
CWM-16	NPDES Outfall 002
CWM-17	NPDES Outfall 003
CWM-18	NPDES Outfall 004
CWM-19	NPDES Outfall 005
CWM-20	NPDES Outfall 006

Figure 1-2

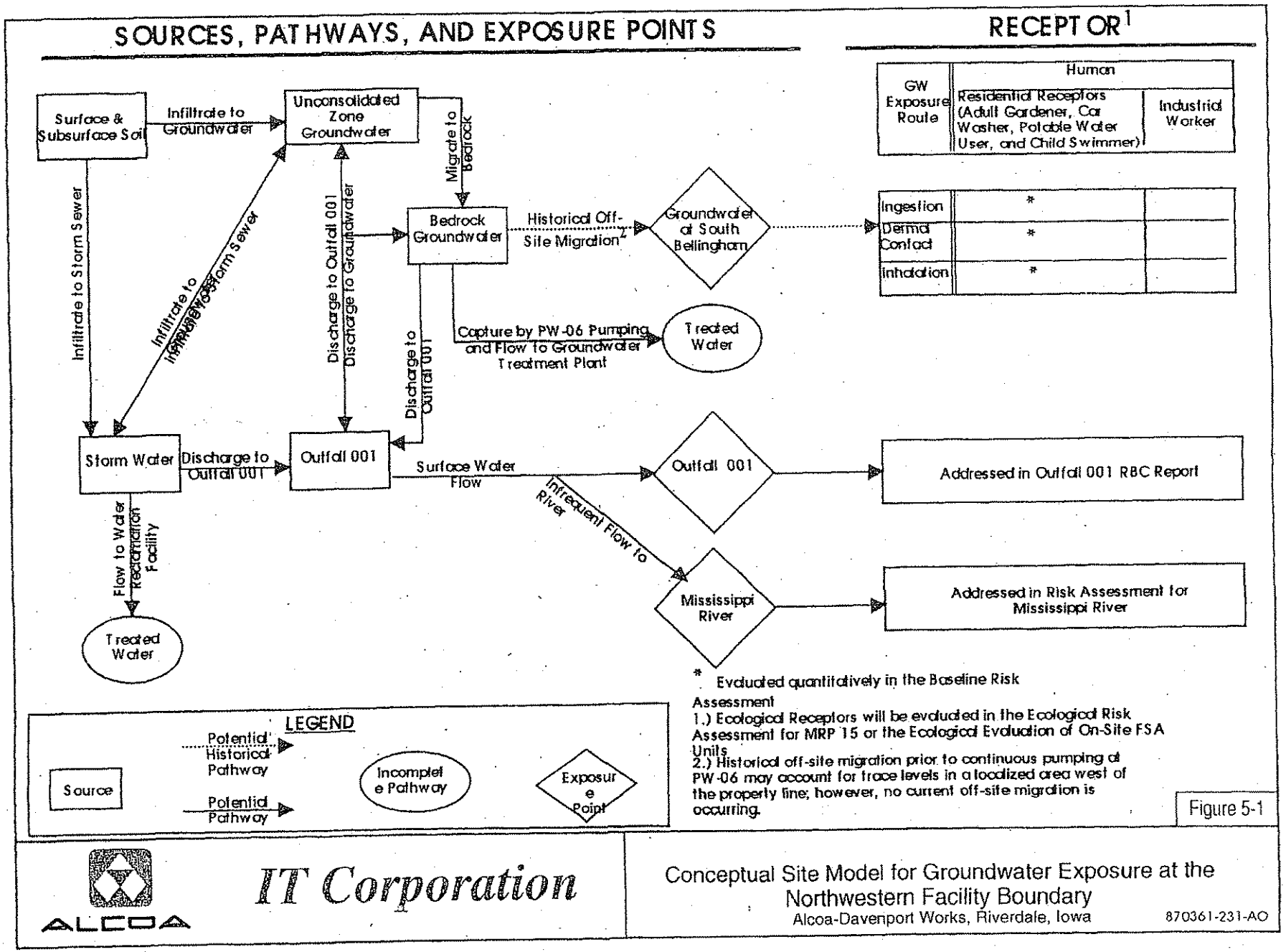
IT Corporation

ALCOA

FSA Units

Alcoa-Davenport Works, Riverdale, Iowa

870361-231-AO



* Evaluated quantitatively in the Baseline Risk Assessment

1.) Ecological Receptors will be evaluated in the Ecological Risk Assessment for MRP 15 or the Ecological Evaluation of On-Site FSA Units

2.) Historical off-site migration prior to continuous pumping at PW-06 may account for trace levels in a localized area west of the property line; however, no current off-site migration is occurring.

Figure 5-1

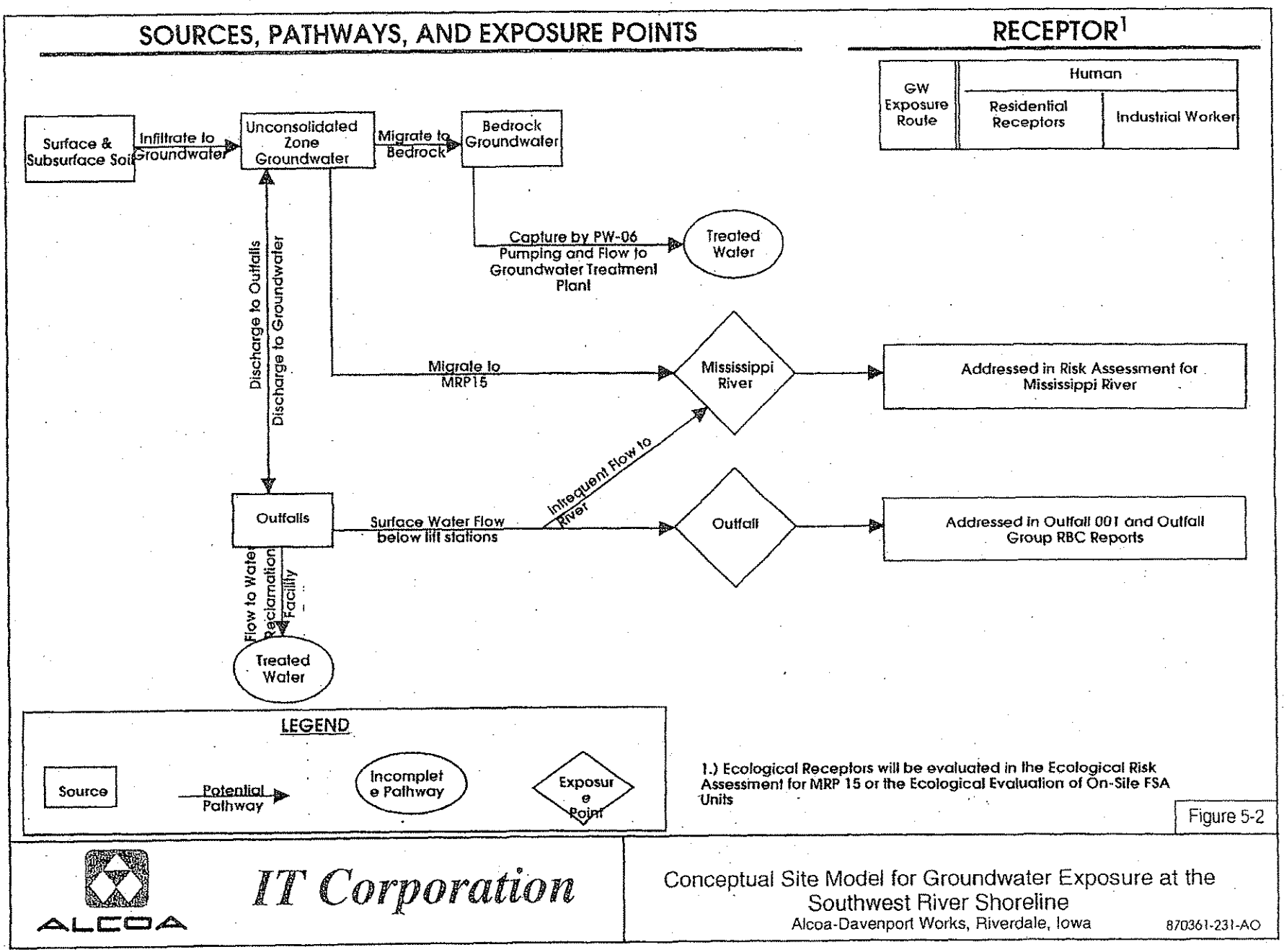
ALCOA

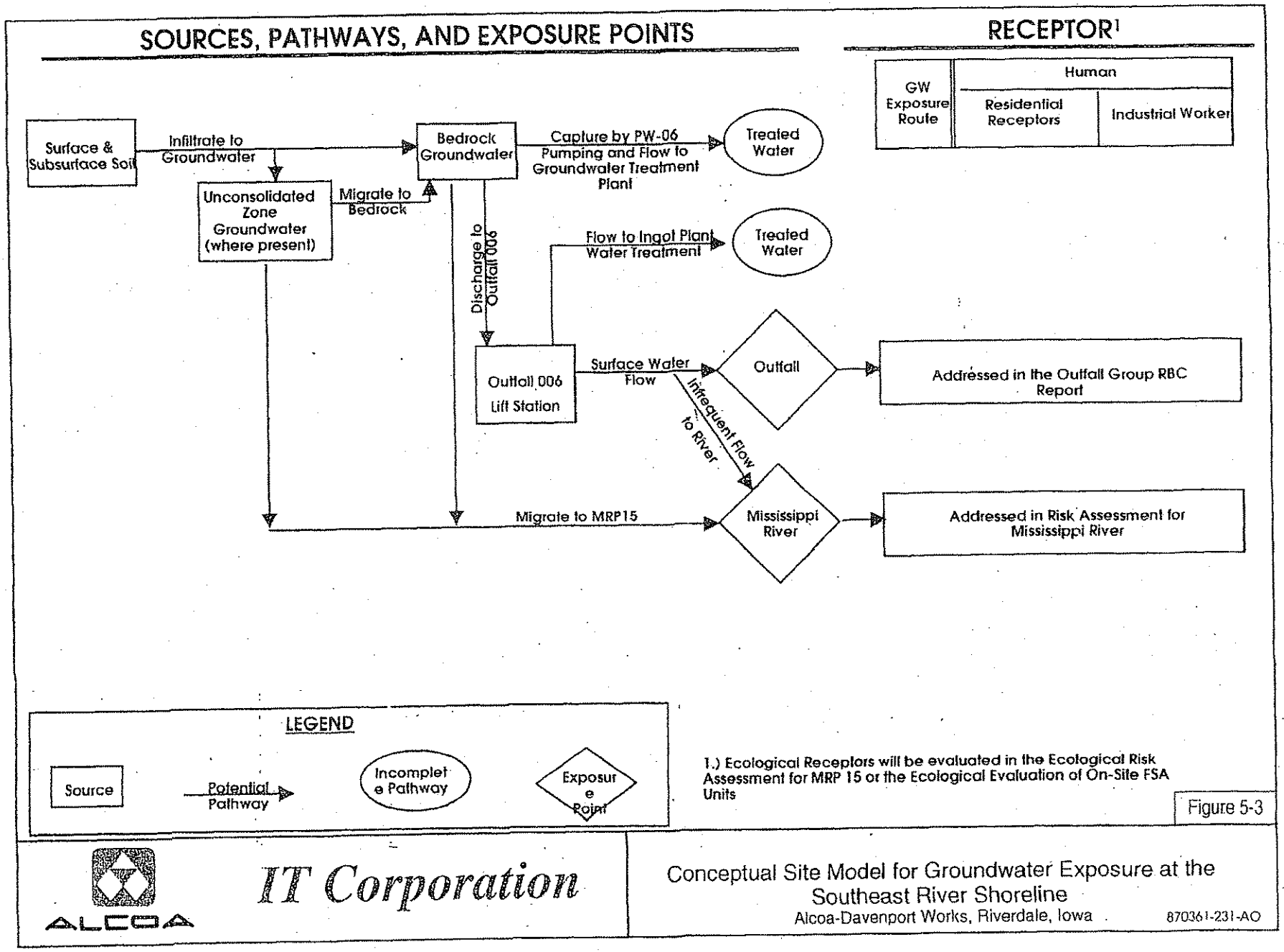
IT Corporation

Conceptual Site Model for Groundwater Exposure at the Northwestern Facility Boundary

Alcoa-Davenport Works, Riverdale, Iowa

870361-231-AO


SOURCES, PATHWAYS, AND EXPOSURE POINTS
RECEPTOR[1]
GW Exposure Route
Human
Residential Receptors
Industrial Worker
Surface & Subsurface Soil
Infiltrate to Groundwater
Unconsolidated Zone Groundwater
Migrate to Bedrock
Bedrock Groundwater
Capture by PW-06 Pumping and Flow to Groundwater Treatment Plant
Treated Water
Discharge to Outfalls
Discharge to Groundwater
Migrate to MRP15
Mississippi River
Addressed in Risk Assessment for Mississippi River
Outfalls
Surface Water Flow below lift stations
Intrequent Flow to River
Outfall
Addressed in Outfall 001 and Outfall Group RBC Reports
Flow to Water Reclamation Facility
Treated Water
LEGEND
Source
Potential Pathway
Incomplet e Pathway
Exposur e Point
1.) Ecological Receptors will be evaluated in the Ecological Risk Assessment for MRP 15 or the Ecological Evaluation of On-Site FSA Units
Figure 5-2
ALCOA
IT Corporation
Conceptual Site Model for Groundwater Exposure at the Southwest River Shoreline
Alcoa-Davenport Works, Riverdale, Iowa
870361-231-AO


SOURCES, PATHWAYS, AND EXPOSURE POINTS
RECEPTOR[1]
GW Exposure Route
Human
Residential Receptors
Industrial Worker
Surface & Subsurface Soil
Infiltrate to Groundwater
Bedrock Groundwater
Capture by PW-06 Pumping and Flow to Groundwater Treatment Plant
Treated Water
Unconsolidated Zone Groundwater (where present)
Migrate to Bedrock
Discharge to Outfall 006
Flow to Ingot Plant Water Treatment
Treated Water
Outfall 006 Lift Station
Surface Water Flow
Outfall
Addressed in the Outfall Group RBC Report
Infrequent Flow to River
Migrate to MRP15
Mississippi River
Addressed in Risk Assessment for Mississippi River
LEGEND
Source
Potential Pathway
Incomplete Pathway
Exposure Point
1.) Ecological Receptors will be evaluated in the Ecological Risk Assessment for MRP 15 or the Ecological Evaluation of On-Site FSA Units
Figure 5-3
ALCOA
IT Corporation
Conceptual Site Model for Groundwater Exposure at the Southeast River Shoreline
Alcoa-Davenport Works, Riverdale, Iowa
870361-231-AO

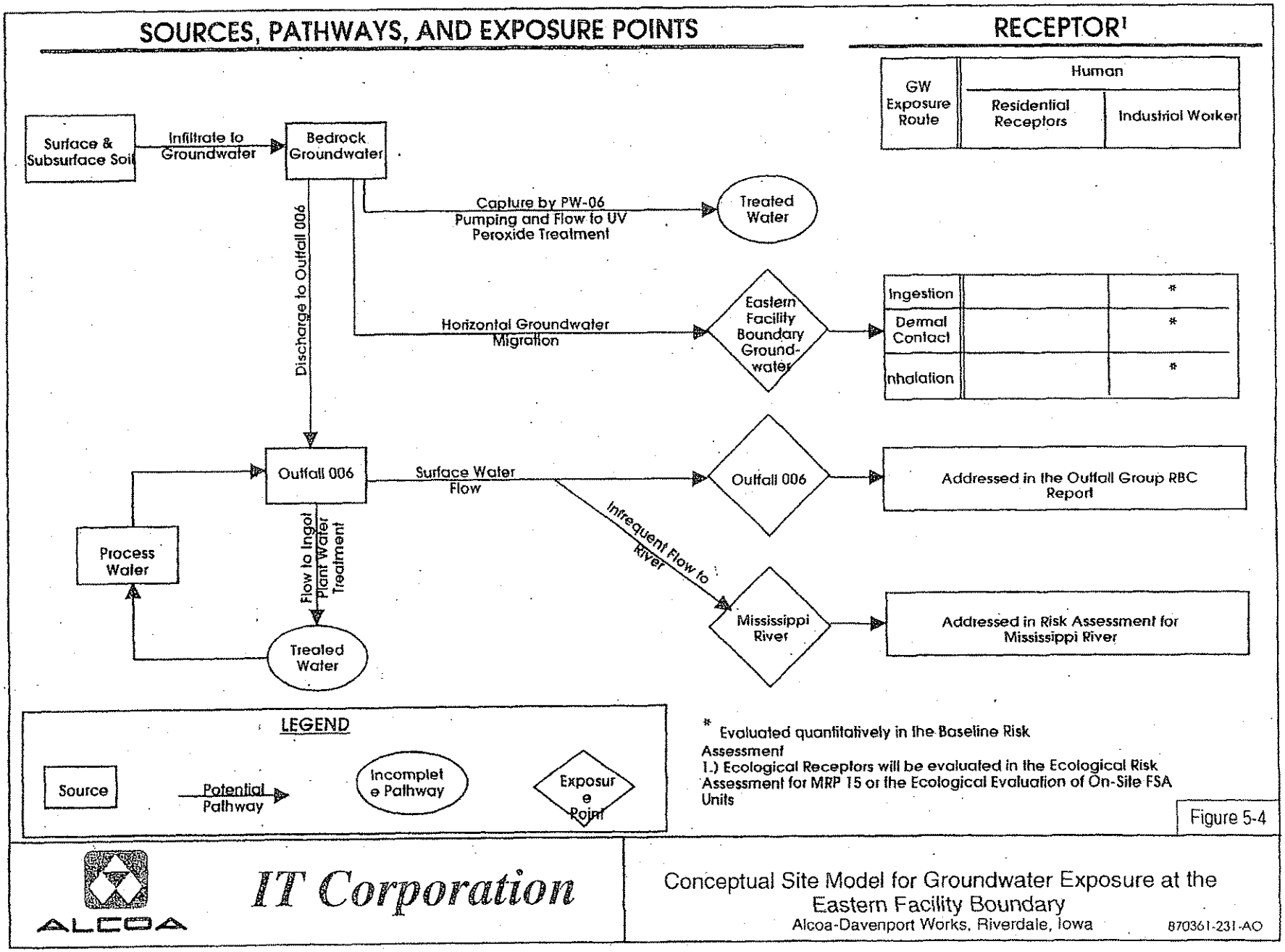


Figure 5-4

ALCOA

IT Corporation

Conceptual Site Model for Groundwater Exposure at the Eastern Facility Boundary

Alcoa-Davenport Works, Riverdale, Iowa

870361-231-AO

Figure 3-1. Site Conceptual Exposure Model for Human Health Risk Assessment Mississippi River Pool 15, Alcoa-Davenport Works, Riverdale, Iowa

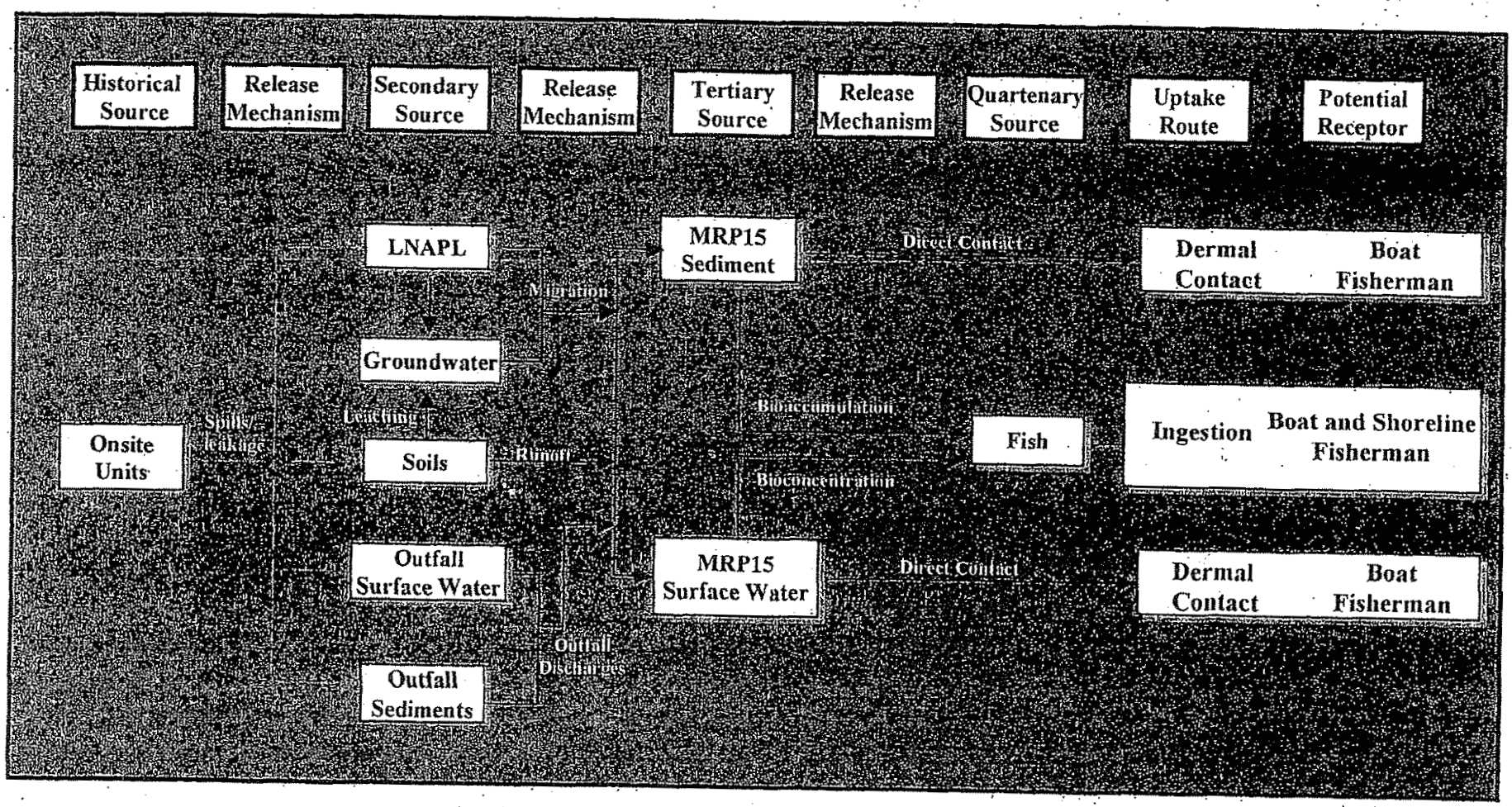
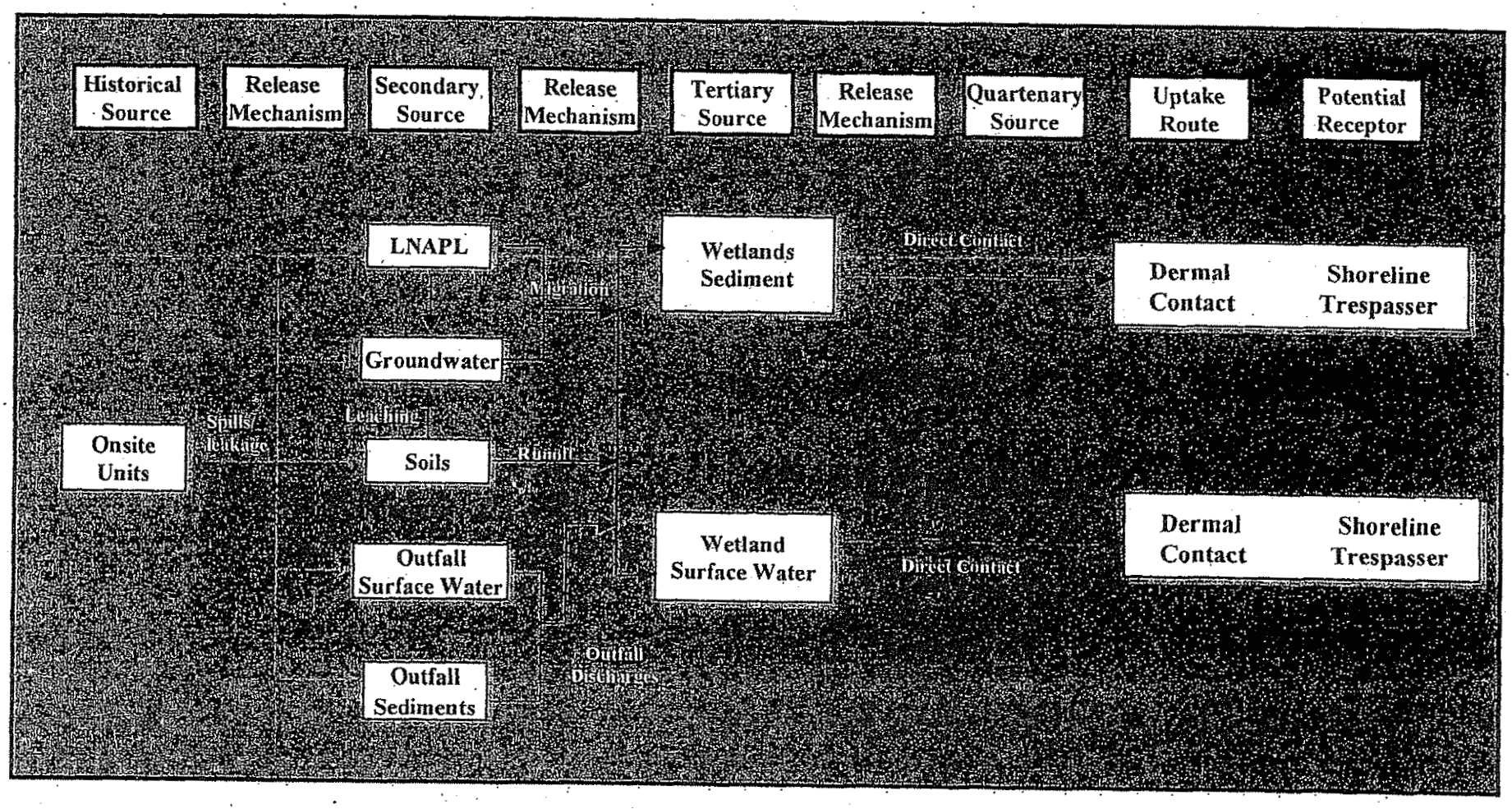
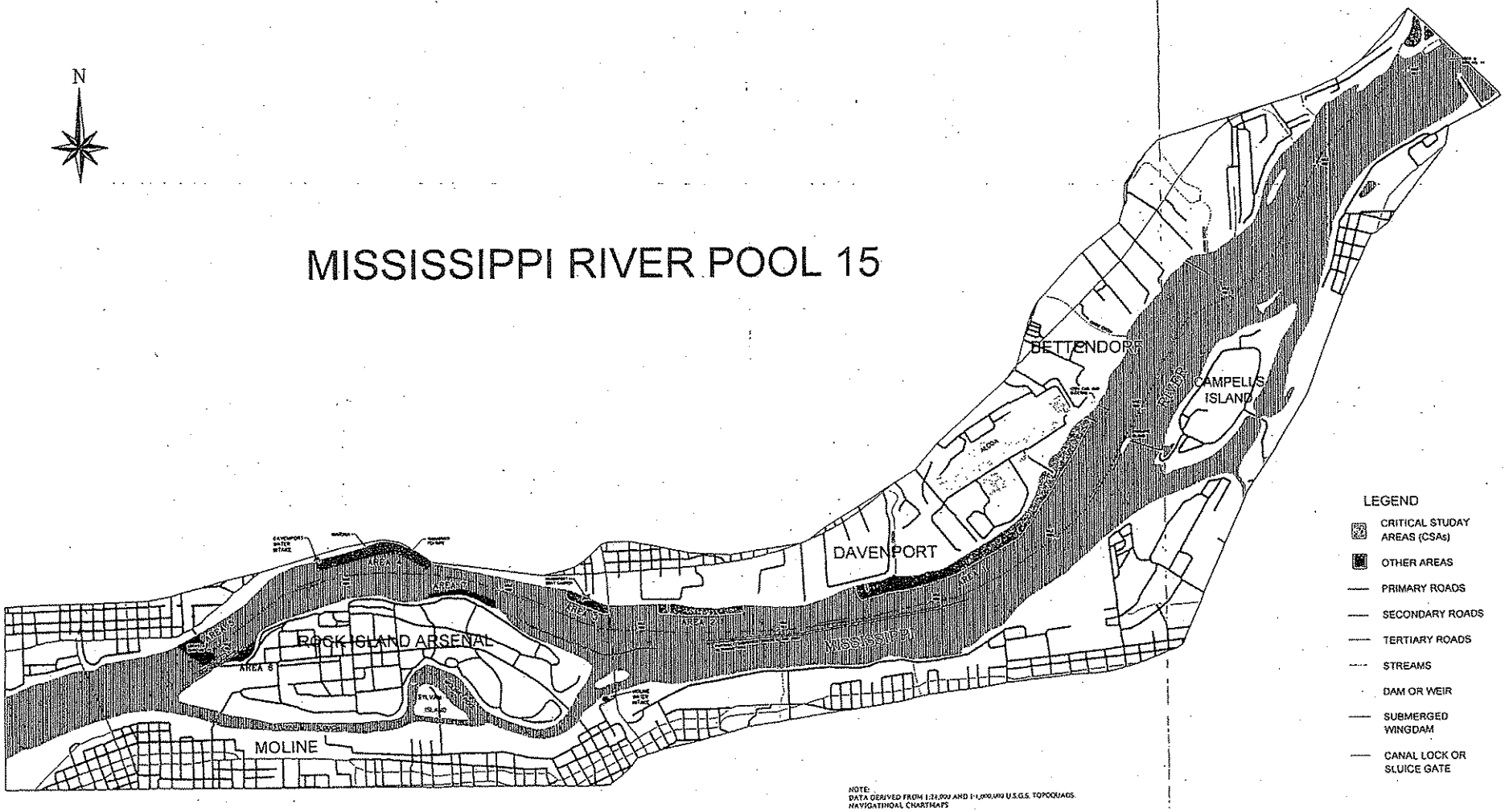


Figure 3-2. Site Conceptual Exposure Model for Human Health Risk Assessment On-Site Wetlands, Alcoa-Davenport Works, Riverdale, Iowa



MISSISSIPPI RIVER POOL 15



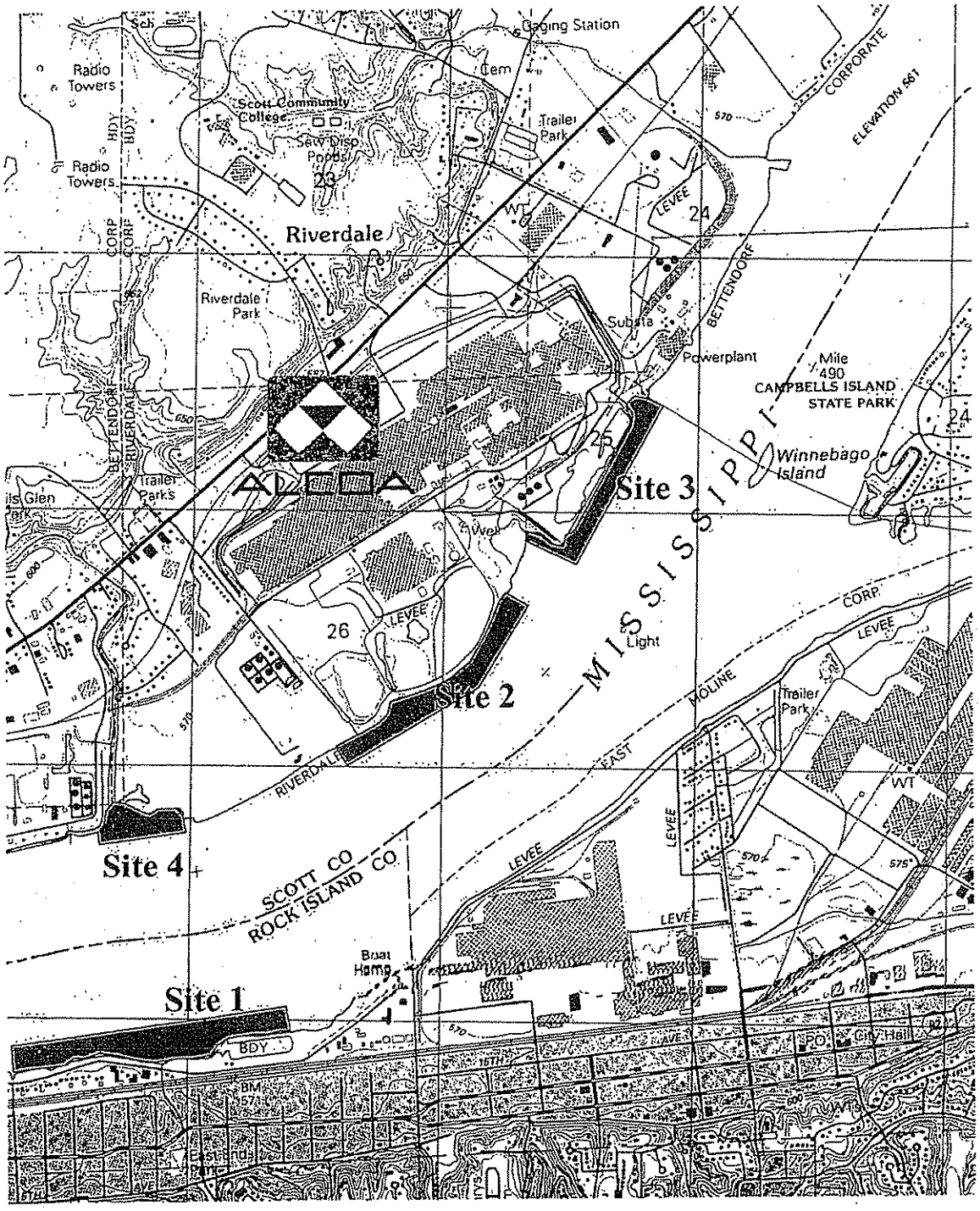
SAMPLING AREA FOR SURFACE WATER AND SEDIMENT IN MRP 15

URS

ALCOA
DAVENPORT, IA

DATE: 05/21/04	SCALE: NTS
PROJ. # 20499874	FIG. # 2-2

S:\2002\A\lcoa\MRP15 ERA\Final Report\Figures\FIG 2-2.DWG



ALCOA URS	**Fish Sampling Sites** **Alcoa-Davenport Works** **Riverdale, Iowa**	Project: 20499889 **Figure 2-9**

TABLE L-3-1

GROUNDWATER EXPOSURE POINT CONCENTRATION SUMMARY

SOUTH BELLINGHAM ROAD AREA, NORTHWEST FACILITY BOUNDARY, ALCOA-DAVENPORT WORKS, RIVERDALE, IOWA

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Point: Contact with Potable Water, Hose Water, Pool Water

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
1,1-Dichloroethane	ug/l	0.42	N/A	0.26	J	ug/l	0.26	Max	(1)	---	---	---
1,2-Dichloroethene (total)	ug/l	7.07	N/A	20.00		ug/l	16.93	MaxAvg	(2)	---	---	---
Benzene	ug/l	0.48	N/A	0.14	J	ug/l	0.14	Max	(1)	---	---	---
Carbon disulfide	ug/l	0.59	N/A	2.40		ug/l	0.78	MaxAvg	(2)	---	---	---
Chloroform	ug/l	0.99	N/A	12.00		ug/l	1.72	MaxAvg	(2)	---	---	---
Chloromethane	ug/l	0.95	N/A	0.14	J	ug/l	0.14	Max	(1)	---	---	---
Methylene chloride	ug/l	0.51	N/A	0.78	J	ug/l	0.55	MaxAvg	(2)	---	---	---
Tetrachloroethene	ug/l	0.5	N/A	1.10		ug/l	0.51	MaxAvg	(2)	---	---	---
Toluene	ug/l	0.59	N/A	2.10		ug/l	0.72	MaxAvg	(2)	---	---	---
Trichloroethene	ug/l	0.67	N/A	2.35		ug/l	0.95	MaxAvg	(2)	---	---	---

--- = Central Tendency EPC not used.

N/A = Not Applicable

EPC calculation method is described in Section 5.5.3.2 of the Groundwater RI Report.

Statistics: Maximum Detected Value (Max); Maximum Average Value (MaxAvg)

Rationale: (1) MaxAvg exceeded the Max so Max selected as EPC, (2) Too few data points (less than 5) to calculate 95% UCL so MaxAvg selected as EPC.

TABLE L-3-2
GROUNDWATER EXPOSURE POINT CONCENTRATION SUMMARY
SHALLOW AND INTERMEDIATE BEDROCK, EASTERN FACILITY BOUNDARY, ALCOA-DAVENPORT WORKS, RIVERDALE, IOWA

Scenario Timeframe: Future Potential/Hypothetical
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Point: Contact with Drinking Water and Process Water

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
1,1,1-Trichloroethane	ug/l	0.83	N/A	1.50		ug/l	1.50	Max	(1)	---	---	---
1,1-Dichloroethane	ug/l	0.30	N/A	0.25	J	ug/l	0.25	Max	(1)	---	---	---
1,2-Dichloroethene (total)	ug/l	0.48	N/A	0.44	J	ug/l	0.44	Max	(1)	---	---	---
2-Butanone	ug/l	53.30	N/A	150.00		ug/l	150.00	Max	(1)	---	---	---
Acetone	ug/l	16.30	N/A	39.00		ug/l	39.00	Max	(1)	---	---	---
Benzene	ug/l	0.39	N/A	0.18	J	ug/l	0.18	Max	(1)	---	---	---
Carbon disulfide	ug/l	0.61	N/A	0.82	J	ug/l	0.82	Max	(1)	---	---	---
Methylene chloride	ug/l	0.50	N/A	1.00		ug/l	1.00	Max	(1)	---	---	---
Tetrachloroethene	ug/l	1.53	N/A	3.60		ug/l	3.60	Max	(1)	---	---	---
Toluene	ug/l	0.61	N/A	0.84	J	ug/l	0.84	Max	(1)	---	---	---
Trichloroethene	ug/l	0.33	N/A	0.28	J	ug/l	0.28	Max	(1)	---	---	---

--- = Central Tendency EPC not used.

N/A = Not Applicable.

EPC calculation method is described in Section 5.5.3.2 of the Groundwater RI Report.

Statistics: Maximum Detected Value (Max)

Rationale: (1) Too few data points (less than 5) to calculate 95% UCL so Max selected as EPC.

Table N-4
Exposure Point Concentrations
Hypothetical Future Off-Site Residential Exposure to Groundwater
Using Current Concentrations in On-Site H-Well Cluster

Alcoa-Davenport Works

Parameter	Groundwater EPC (ug/L)	Air EPCs (mg/m3)			
		Child Swimmer	Gardener	Car Washer	Potable Water User
1,1-Dichloroethane	*1.5*	1.8E-09	3.5E-04	1.7E-04	4.1E-02
1,2-Dichloroethene (total)	*1600*	2.0E-06	3.7E-01	1.9E-01	4.4E+01
Methylene Chloride	*140*	1.8E-07	3.3E-02	1.6E-02	3.8E+00
PCE	*5275*	5.9E-06	1.2E+00	6.2E-01	1.4E+02
Vinyl Chloride	*33*	4.5E-08	7.7E-03	3.8E-03	9.0E-01
TCE	*825*	9.7E-07	1.9E-01	9.6E-02	2.3E+01

TABLE L-1
SELECTION OF EXPOSURE PATHWAYS
ALCOA-DAVENPORT WORKS, RIVERDALE, IOWA

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	On-Site/ Off-Site	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
ON SITE									
Future Hypothetical	Groundwater	Potable well water or process water	Alcoa-Davenport Works	Industrial Worker	Adult	Dermal, Ingestion & Inhalation	On-site	None	Pathway is incomplete; groundwater is not used for drinking water or production purposes. A restrictive covenant was recently placed on groundwater within the fence line of the Alcoa-Davenport Works. The covenant between Scott County and Alcoa restricts current and future wells from being used as drinking water.
WESTERN FACILITY BOUNDARY									
Current/Future Potential	Groundwater	Indoor Vapors	S. Bellingham residential area	Residents	Adult	Inhalation	Off-site	Quantitative	Pathway assumed complete and evaluated in this risk assessment.
Future Potential	Groundwater	Water from hose	S. Bellingham residential area	Resident Car Washers and Gardeners	Adult	Dermal, Ingestion & Inhalation	Off-site	Quantitative	Pathway assumed incomplete, but evaluated in this risk assessment as a conservative measure.
Future Potential	Groundwater	Water in pool	S. Bellingham residential area	Resident Swimmer	Child	Dermal, Ingestion & Inhalation	Off-site	Quantitative	Pathway assumed incomplete, but evaluated in this risk assessment as a conservative measure.
Future Hypothetical	Groundwater	Potable well water	S. Bellingham residential area	Resident Potable Water User	Adult	Dermal, Ingestion & Inhalation	Off-site	Quantitative	Pathway is considered incomplete as groundwater is not used for potable purposes but evaluated quantitatively in this risk assessment as a conservative measure.
Current/Future Potential	Groundwater	Surface water & sediment/soil	NPDES Outfall 001	Industrial Worker and Trespasser	Adult	Dermal, Ingestion & Inhalation*	On-site	None	Pathway was quantitatively evaluated in NPDES Outfall 001 RBC Report.
Future Hypothetical	Groundwater	Potable well water	Floodplain southwest of plant near Kelly Cottage	Resident Potable Water User	Adult	Dermal, Ingestion & Inhalation	Off-site	None	Groundwater exposure pathway is incomplete. Residential development is not possible.
RIVER SHORELINE									
Current/Future Potential	Groundwater	Surface water, sediment & fish	Mississippi River	Fisher	Adult	Dermal & Ingestion	Off-site	None	Pathway was quantitatively evaluated in Mississippi River Pool (MRP) 15 Risk Assessment.
Current/Future Potential	Groundwater	Surface water & sediment	Mississippi River	Trespasser	Adult	Dermal & Ingestion	Off-site	None	Pathway was quantitatively evaluated in MRP 15 Risk Assessment.
Current/Future Potential	Groundwater	Surface water & sediment/soil	Outfalls 002, 003, 004, 005, and southern portion of Outfall 006	Industrial Worker and Trespasser	Adult	Dermal, Ingestion & Inhalation*	On-site	None	Pathway to be evaluated in NPDES Outfall Group RBC Report.
EASTERN FACILITY BOUNDARY									
Future Potential/Hypothetical	Groundwater	Process water and potable well water	Industrial facility east of Alcoa	Industrial Worker	Adult	Dermal, Ingestion & Inhalation	Off-site	Quantitative	Pathway is considered incomplete as groundwater is not used for potable purposes but evaluated quantitatively in this risk assessment as a conservative measure.
Current/Future Potential	Groundwater	Surface water & sediment/soil	Outfall 006	Industrial Worker	Adult	Dermal, Ingestion & Inhalation*	On-site	None	Pathway to be evaluated in NPDES Outfall Group RBC Report.

* Inhalation does not apply to surface water.

Table N-1
Selection of Groundwater Exposure Pathways
Hypothetical Future Off-Site Residential Exposure to Groundwater
Using Current Concentrations in On-Site H-Well Cluster
Alcoa-Davenport Works

Scenario Timeframe	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	On-Site/ Off-Site	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Future Hypothetical	Indoor Vapors	Hypothetical off-site residence	Residents	Adult	Inhalation	Off-site	Quantitative	Pathway is currently incomplete at H well concentrations but the pathway is evaluated at H well concentrations as a conservative measure.
Future Hypothetical	Water from hose	Hypothetical off-site residence	Resident Car Washers and Gardeners	Adult	Dermal, Ingestion & Inhalation	Off-site	Quantitative	Pathway is currently incomplete at H well concentrations but the pathway is evaluated at H well concentrations as a conservative measure.
Future Hypothetical	Water in pool	Hypothetical off-site residence	Resident Swimmer	Child	Dermal, Ingestion & Inhalation	Off-site	Quantitative	Pathway is currently incomplete at H well concentrations but the pathway is evaluated at H well concentrations as a conservative measure.
Future Hypothetical	Potable well water	Hypothetical off-site residence	Resident Potable Water User	Adult	Dermal, Ingestion & Inhalation	Off-site	Quantitative	Pathway is currently incomplete at H well concentrations but the pathway is evaluated at H well concentrations as a conservative measure.

TABLE L-6-1
CANCER TOXICITY DATA -- ORAL/DERMAL
ALCOA-DAVENPORT WORKS, RIVERDALE, IOWA

Chemical of Potential Concern	Oral Cancer Slope Factor	Oral to Dermal Adjustment Factor	Adjusted Dermal Cancer Slope Factor (1)	Units	Weight of Evidence/ Cancer Guideline Description	Source	Date (2) (MM/DD/YY)
1,1,1-Trichloroethane	N/A	N/A	N/A	N/A	D	IRIS ONLINE	10/08/01
1,1-dichloroethane	NAV	N/A	N/A	N/A	C	IRIS ONLINE	10/08/01
1,2-dichloroethene	N/A	N/A	N/A	N/A	D	IRIS ONLINE	10/08/01
2-Butanone (MEK)	N/A	N/A	N/A	N/A	D	IRIS ONLINE	10/08/01
Acetone	N/A	N/A	N/A	N/A	D	IRIS ONLINE	10/08/01
Benzene	0.055	1	0.055	$(mg/kg\text{-}d)^{-1}$	A	IRIS ONLINE	10/08/01
carbon disulfide	N/A	N/A	N/A	N/A	NAV	N/A	N/A
chloroform	0.0061	1	0.0061	$(mg/kg\text{-}d)^{-1}$	B2	IRIS ONLINE	10/08/01
chloromethane	0.013	1	0.013	$(mg/kg\text{-}d)^{-1}$	NAV	HEAST	N/A
methylene chloride	0.0075	1	0.0075	$(mg/kg\text{-}d)^{-1}$	B2	IRIS ONLINE	10/08/01
PCE	0.052	1	0.052	$(mg/kg\text{-}d)^{-1}$	NAV	NCEA	N/A
toluene	N/A	N/A	N/A	N/A	D	IRIS ONLINE	10/08/01
TCE	0.011	1	0.011	$(mg/kg\text{-}d)^{-1}$	NAV	NCEA	N/A

N/A = Not Applicable

IRIS = Integrated Risk Information System

HEAST= Health Effects Assessment Summary Tables

NAV = Information Not Available

(1) Adjustment equation: Oral CSF/Oral to Dermal Adjustment Factor = Adjusted Dermal CSF.

(2) Dates when IRIS was searched, date of HEAST, or date of the article provided by NCEA. CSFs were obtained from 2000 EPA Region IX PRG tables.

EPA Group:

A - Human carcinogen

B1 - Probable human carcinogen - indicates that limited human data are available

B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans

C - Possible human carcinogen

D - Not classifiable as a human carcinogen

E - Evidence of noncarcinogenicity

Weight of Evidence:

Known/Likely

Cannot be Determined

Not Likely

Table N-5
Toxicity Criteria and Permeability Coefficients for Vinyl Chloride
Hypothetical Future Off-Site Residential Exposure to Groundwater
Using Current Concentrations in On-Site H-Well Cluster
Alcoa-Davenport Works

Constituent	Cancer Slope Factors (CSF) $(mg/kg\text{-}d)^{-1}$						Reference Doses (RfD) (mg/kg-d)						Permeability Coefficient (Kp)	
	Oral	(Ref.)	Inhalation	(Ref.)	Dermal	(Ref.)	Oral	(Ref.)	Inhalation	(Ref.)	Dermal	(Ref.)	cm/hr	(Ref.)
Vinyl Chloride (child)	1.5	(1)	0.031	(1)	1.5	(2)	0.003	(1)	0.029	(1)	0.003	(2)	0.0057	(3)
Vinyl Chloride (adult)	0.75	(1)	0.016	(1)	0.75	(2)	0.003	(1)	0.029	(1)	0.003	(2)	0.0057	(3)

-- Not Applicable

(1) Online Integrated Risk Information System -IRIS (EPA, 2001)

(2) Value reflects Oral-to-Dermal Adjustment Factor (1.0) multiplied by oral CSF or RfD; references correspond to references for oral value.

(3) Risk Assessment Guidance for Superfund, Supplemental Guidance, Dermal Risk Assessment, Interim Guidance, External Review Draft (EPA, 1998b).

TABLE L-6-2
CANCER TOXICITY DATA -- INHALATION
ALCOA-DAVENPORT WORKS, RIVERDALE, IOWA

Chemical of Potential Concern	Unit Risk (1)	Units	Adjustment (1)	Inhalation Cancer Slope Factor (1)	Units	Weight of Evidence/ Cancer Guideline Description	Source	Date (2) (MM/DD/YY)
1,1,1-Trichloroethane	N/A	N/A	N/A	N/A	N/A	D	IRIS ONLINE	11/27/01
1,1-dichloroethane	N/A	N/A	N/A	NAV	N/A	C	IRIS ONLINE	11/27/01
1,2-dichloroethene	N/A	N/A	N/A	N/A	N/A	D	IRIS ONLINE	11/27/01
2-Butanone (MEK)	N/A	N/A	N/A	N/A	N/A	D	IRIS ONLINE	11/27/01
Acetone	N/A	N/A	N/A	N/A	N/A	D	IRIS ONLINE	11/27/01
Benzene	N/A	N/A	N/A	0.027	$(mg/kg-d)^{-1}$	A	IRIS ONLINE	11/27/01
carbon disulfide	N/A	N/A	N/A	NAV	$(mg/kg-d)^{-1}$	NAV	N/A	N/A
chloroform	N/A	N/A	N/A	0.081	$(mg/kg-d)^{-1}$	B2	IRIS ONLINE	11/27/01
chloromethane	N/A	N/A	N/A	0.0063	$(mg/kg-d)^{-1}$	NAV	N/A	N/A
methylene chloride	N/A	N/A	N/A	0.00165	$(mg/kg-d)^{-1}$	B2	IRIS ONLINE	11/27/01
PCE	N/A	N/A	N/A	0.002	$(mg/kg-d)^{-1}$	NAV	N/A	N/A
toluene	N/A	N/A	N/A	N/A	N/A	D	IRIS ONLINE	11/27/01
TCE	N/A	N/A	N/A	0.006	$(mg/kg-d)^{-1}$	NAV	N/A	N/A

IRIS = Integrated Risk Information System

HEAST= Health Effects Assessment Summary Tables

NAV = Information Not Available

(1) CSFs obtained directly from Region IX PRG tables; no further adjustment performed.

(2) Dates when IRIS was searched, date of HEAST, or date of the article provided by NCEA. CSFs were obtained from 2000 EPA Region IX PRG tables.

EPA Group:

A - Human carcinogen

B1 - Probable human carcinogen - indicates that limited human data are available

B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans

C - Possible human carcinogen

D - Not classifiable as a human carcinogen

E - Evidence of noncarcinogenicity

Weight of Evidence:

Known/Likely

Cannot be Determined

Not Likely

TABLE L-5-1
NON-CANCER TOXICITY DATA -- ORAL/DERMAL
ALCOA-DAVENPORT WORKS, RIVERDALE, IOWA

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD Value	Oral RfD Units	Oral to Dermal Adjustment Factor (1)	Adjusted Dermal RfD (2)	Units	Primary Target Organ	Combined Uncertainly/Modifying Factors	Sources of RfD: Target Organ (3)	Dates of RfD: Target Organ (4) (MM/DD/YY)
1,1,1-Trichloroethane	NAV	2.E-02	(mg/kg-d)	1	2.E-02	(mg/kg-d)	N/A	N/A	NCEA	NAV
1,1-dichloroethane	Chronic	1E-01	(mg/kg-d)	1	1E-01	(mg/kg-d)	Lungs	1000	HEAST	07/01/97
1,2-dichloroethene	Chronic	1E-02	(mg/kg-d)	1	1E-02	(mg/kg-d)	Liver	1000	HEAST	07/01/97
2-Butanone (MEK)	Chronic	6E-01	(mg/kg-d)	1	6E-01	(mg/kg-d)	Decreased Fetal Birth Weight	3000	IRIS ONLINE	10/08/01
Acetone	Chronic	1E-01	(mg/kg-d)	1	1E-01	(mg/kg-d)	Liver/Kidney	1000	IRIS ONLINE	10/08/01
Benzene	NAV	3E-03	(mg/kg-d)	1	3E-03	(mg/kg-d)	Blood	1000	NCEA	NAV
carbon disulfide	Chronic	1E-01	(mg/kg-d)	1	1E-01	(mg/kg-d)	Fetal Toxicity	100	IRIS ONLINE	10/08/01
chloroform	Chronic	1E-02	(mg/kg-d)	1	1E-02	(mg/kg-d)	Liver	100	IRIS ONLINE	10/08/01
chloromethane	NAV	NAV	(mg/kg-d)	1	N/A	(mg/kg-d)	N/A	N/A	N/A	N/A
methylene chloride	Chronic	6E-02	(mg/kg-d)	1	6E-02	(mg/kg-d)	Liver	100	IRIS ONLINE	10/08/01
PCE	Chronic	1E-02	(mg/kg-d)	1	1E-02	(mg/kg-d)	Liver	1000	IRIS ONLINE	10/08/01
toluene	Chronic	2E-01	(mg/kg-d)	1	2E-01	(mg/kg-d)	Liver/Kidney	1000	IRIS ONLINE	10/08/01
TCE	Chronic	NAV	(mg/kg-d)	1	N/A	(mg/kg-d)	N/A	N/A	N/A	NAV

N/A = Not Applicable

NAV = Information Not Available

(1) EPA, 1998b. Risk Assessment Guidance for Superfund, Supplemental Guidance, Dermal Risk Assessment, Interim Guidance, NCEA-W-0364, May 7, 1998.

(2) Adjustment equation: Oral RfD x Oral to Dermal Adjustment Factor = Adjusted Dermal RfD.

(3) RfDs and sources of target organs were obtained from 2000 EPA Region IX PRG tables.

(4) Dates are applicable to target organs and uncertainly/modifying factors.

TABLE L-5-2
NON-CANCER TOXICITY DATA -- INHALATION
ALCOA-DAVENPORT WORKS, RIVERDALE, IOWA

Chemical of Potential Concern	Chronic/ Subchronic	Value Inhalation RfC	Units	Adjusted Inhalation RfD (1)	Units	Primary Target Organ	Combined Uncertainty/Modifying Factors	Sources of RfC:RfD (2): Target Organ	Dates (3) (MM/DD/YY)
1,1,1-Trichloroethane	NAV	N/A	N/A	0.29	(mg/kg-d)	N/A	NAV	NCEA	NAV
1,1-dichloroethane	NAV	N/A	N/A	0.14	(mg/kg-d)	Lungs	NAV	HEAST	07/01/97
1,2-dichloroethene	Chronic	N/A	N/A	NAV	(mg/kg-d)	Liver	NAV	HEAST	07/01/97
2-Butanone (MEK)	Chronic	N/A	N/A	0.29	(mg/kg-d)	Decreased Fetal Birth Weight	3000	IRIS ONLINE	10/08/01
Acetone	NAV	N/A	N/A	NAV	(mg/kg-d)	Liver	NAV	HEAST	07/01/97
Benzene	NAV	N/A	N/A	0.0017	(mg/kg-d)	Blood	NAV	NCEA	NAV
carbon disulfide	Chronic	N/A	N/A	0.2	(mg/kg-d)	Nervous System	30	IRIS ONLINE	10/08/01
chloroform	NAV	N/A	N/A	0.000086	(mg/kg-d)	Liver	NAV	HEAST	07/01/97
chloromethane	NAV	N/A	N/A	0.086	(mg/kg-d)	N/A	NAV	HEAST	07/01/97
methylene chloride	Chronic	N/A	N/A	0.86	(mg/kg-d)	Liver	NAV	HEAST	07/01/97
PCE	NAV	N/A	N/A	0.11	(mg/kg-d)	Liver	NAV	HEAST	07/01/97
toluene	Chronic	N/A	N/A	0.114	(mg/kg-d)	Nervous System	300	IRIS ONLINE	10/08/01
TCE	NAV	N/A	N/A	0.006	(mg/kg-d)	N/A	NAV	NCEA	NAV

N/A = Not Applicable

NAV = Information Not Available

(1) RfDs were obtained from EPA Region IX PRG tables; no further adjustment performed. Note that the route-to-route extrapolated inhalation toxicity values in EPA Region IX PRG tables for acetone and 1,2-dichloroethene were not used in the quantitative baseline risk assessment. This is addressed in the uncertainty section of the baseline risk assessment.

(2) RfDs and sources of target organs were obtained from 2000 EPA Region IX PRG tables.

(3) Dates are applicable to target organs and uncertainty/modifying factors.

TABLE L-9-1
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
ALCOA-DAVENPORT WORKS, RIVERDALE, IOWA

Scenario Timeframe: Current/Future Potential
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Air	Inhalation of Vapors	1,1-Dichlorethane	N/A	N/A	N/A	NC	1,1-Dichlorethane	Lungs	N/A	3.68E-08	N/A	3.68E-08
			1,2-Dichloroethene	N/A	N/A	N/A	NC	1,2-Dichloroethene	Liver	N/A	2.90E-05	N/A	2.90E-05
			Benzene (1)	N/A	3.44E-11	N/A	3.44E-11	Benzene (1)	NAV	N/A	N/A	N/A	N/A
			Carbon Disulfide	N/A	N/A	N/A	NC	Carbon Disulfide	Fetal Toxicity	N/A	4.95E-07	N/A	4.95E-07
			Chloroform (1)	N/A	8.55E-10	N/A	8.55E-10	Chloroform (1)	Liver	N/A	N/A	N/A	N/A
			Chloromethane (1)	N/A	1.25E-10	N/A	1.25E-10	Chloromethane (1)	Kidney	N/A	4.00E-06	N/A	4.00E-06
			Methylene Chloride	N/A	3.47E-12	N/A	3.47E-12	Methylene Chloride	Liver	N/A	5.75E-09	N/A	5.75E-09
			PCE (1)	N/A	2.45E-11	N/A	2.45E-11	PCE (1)	Liver	N/A	N/A	N/A	N/A
			Toluene	N/A	N/A	N/A	NC	Toluene	Liver/Kidney	N/A	1.36E-07	N/A	1.36E-07
			TCE (1)	N/A	8.30E-11	N/A	8.30E-11	TCE (1)	NAV	N/A	N/A	N/A	N/A
						Total Risk Across Groundwater	1.12E-09					Total Hazard Index Across Groundwater and All Exposure Routes	3.37E-05
						Total Risk Across Groundwater and All Exposure Routes	1.12E-09						

Total [Liver] HI =	2.92E-05
Total [Kidney] HI =	4.14E-06
Total [Lungs] HI =	3.68E-08

(1) Only Provsional Toxicity Criteria Available

NAV = Information Not Available

N/A = Not Applicable

NC = Non-Carcinogenic

TABLE L-9-2
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
ALCOA-DAVENPORT WORKS, RIVERDALE, IOWA

Scenario Timeframe: Future Potential
Receptor Population: Resident Car Washer
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Contact with Groundwater	1,1-Dichloroethane	NC	NC	NC	NC	1,1-Dichloroethane	Lungs	2.20E-07	6.33E-08	1.26E-07	4.10E-07
			1,2-Dichloroethene	NC	NC	NC	NC	*1,2-Dichloroethene*	*Liver*	*1.43E-04*	*5.77E-05*	*4.78E-05*	*2.49E-04*
			Benzene (1)	2.79E-10	5.52E-11	1.07E-09	1.40E-09	Benzene (1)	NAV	3.95E-06	2.81E-06	1.51E-05	2.18E-05
			Carbon Disulfide	NC	NC	NC	NC	Carbon Disulfide	Fetal Toxicity	6.59E-07	1.33E-07	4.52E-07	1.24E-06
			Chloroform (1)	3.80E-10	2.04E-09	1.32E-10	2.55E-09	Chloroform (1)	Liver	1.45E-05	6.82E-04	5.04E-08	7.02E-04
			Chloromethane (1)	6.59E-11	1.29E-11	5.01E-11	1.29E-10	Chloromethane (1)	Kidney	N/A	5.55E-08	N/A	5.55E-08
			Methylene Chloride	1.49E-10	1.33E-11	2.12E-11	1.84E-10	Methylene Chloride	Liver	7.75E-07	2.18E-08	1.10E-07	9.07E-07
			PCE (1)	9.61E-10	1.49E-11	2.27E-09	3.25E-09	PCE (1)	Liver	4.31E-06	1.58E-07	1.02E-05	1.47E-05
			Toluene	NC	NC	NC	NC	Toluene	Liver/Kidney	3.04E-07	2.15E-07	3.98E-07	9.18E-07
			TCE (1)	3.79E-10	6.33E-11	2.44E-10	7.06E-10	TCE (1)	NAV	N/A	5.40E-06	N/A	5.40E-06
						Total Risk Across Groundwater	8.21E-09					Total Hazard Index Across Groundwater and All Exposure Routes	*9.96E-04*
						Total Risk Across Groundwater and All Exposure Routes	8.21E-09						

(1) Only Provsional Toxicity Criteria Available

NAV = Information Not Available

N/A = Not Applicable

NC = Non-Carcinogenic

Total (Liver) HI =	9.67E-04
Total (Kidney) HI =	*9.73E-07*
Total (Lungs) HI =	4.10E-07

TABLE L-9-3
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
ALCOA-DAVENPORT WORKS, RIVERDALE, IOWA

Scenario Timeframe: Future Potential
Receptor Population: Resident Gardener
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure *Routes Total*
Groundwater	Groundwater	Contact with Groundwater	1,1-Dichlorethane	NC	NC	NC	NC	1,1-Dichlorethane	Lungs	3.17E-07	9.15E-08	6.72E-08	4.76E-07
			1,2-Dichloroethene	NC	NC	NC	NC	1,2-Dichloroethene	Liver	2.07E-04	8.34E-05	4.93E-05	3.39E-04
			Benzene (1)	4.03E-10	7.98E-11	1.09E-09	1.57E-09	Benzene (1)	NAV	5.70E-06	4.06E-06	1.54E-05	2.51E-05
			Carbon Disulfide	NC	NC	NC	NC	Carbon Disulfide	Fetal Toxicity	9.52E-07	1.92E-07	4.62E-07	1.61E-06
			Chloroform (1)	5.49E-10	2.94E-09	1.35E-10	3.63E-09	Chloroform (1)	Liver	2.10E-05	9.85E-04	5.15E-06	1.01E-03
			Chloromethane (1)	9.52E-11	1.88E-11	6.91E-12	1.21E-10	Chloromethane (1)	Kidney	N/A	8.01E-08	N/A	8.01E-08
			Methylene Chloride	2.16E-10	1.92E-11	2.17E-11	2.57E-10	Methylene Chloride	Liver	1.12E-06	3.15E-06	1.12E-07	1.26E-06
			PCE (1)	1.39E-09	2.15E-11	2.32E-09	3.73E-09	PCE (1)	Liver	6.23E-06	2.29E-07	1.04E-05	1.69E-05
			Toluene	NC	NC	NC	NC	Toluene	Liver/Kidney	4.40E-07	3.11E-07	4.12E-07	1.16E-06
			TCE (1)	5.47E-10	1.20E-10	2.52E-10	9.19E-10	TCE (1)	NAV	N/A	7.80E-06	N/A	7.80E-06
							Total Risk Across Groundwater	1.02E-08					Total Hazard Index Across Groundwater and All Exposure Routes	1.41E-03
							Total Risk Across Groundwater and All Exposure Routes	1.02E-08						

Total [Liver] HI = 1.37E-03
Total [Kidney] HI = 1.24E-06
Total [Lungs] HI = 4.76E-07

(1) Only Provsional Toxicity Criteria Available

NAV = Information Not Available

N/A = Not Applicable

NC = Non-Carcinogenic

TABLE L-9-4
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
ALCOA-DAVENPORT WORKS, RIVERDALE, IOWA

Scenario Timeframe: Future Hypothetical
Receptor Population: Resident Potable Water User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Contact with Groundwater	1,1-Dichloroethane	NC	NC	NC	NC	1,1-Dichloroethane	Lungs	7.12E-05	9.67E-05	2.92E-06	1.71E-04
			1,2-Dichloroethene	NC	NC	NC	NC	1,2-Dichloroethene	Liver	4.64E-02	8.81E-02	2.15E-03	1.37E-01
			Benzene (1)	9.04E-08	8.43E-08	4.74E-08	2.22E-07	Benzene (1)	NAV	1.28E-03	4.29E-03	6.70E-04	6.23E-03
			Carbon Disulfide	NC	NC	NC	NC	Carbon Disulfide	Fetal Toxicity	2.14E-04	2.03E-04	2.01E-05	4.37E-04
			Chloroform (1)	1.23E-07	3.11E-06	5.86E-09	3.24E-06	Chloroform (1)	Liver	4.71E-03	1.04E+00	2.24E-04	1.05E+00
			Chloromethane (1)	2.14E-08	1.97E-08	3.01E-10	4.13E-08	Chloromethane (1)	Kidney	N/A	8.47E-05	N/A	8.47E-05
			Methylene Chloride	4.84E-08	2.02E-08	9.44E-10	6.96E-08	Methylene Chloride	Liver	2.51E-04	3.33E-05	4.90E-06	2.89E-04
			PCE (1)	3.11E-07	2.28E-08	1.01E-07	4.35E-07	PCE (1)	Liver	1.40E-03	2.42E-04	4.53E-04	2.09E-03
			Toluene	NC	NC	NC	NC	Toluene	Liver/Kidney	9.86E-05	3.29E-04	1.80E-05	4.45E-04
			TCE (1)	1.23E-07	1.27E-07	1.10E-08	2.61E-07	TCE (1)	NAV	N/A	8.25E-03	N/A	8.25E-03
						Total Risk Across Groundwater	4.27E-06					Total Hazard Index Across Groundwater and All Exposure Routes	1.20E+00
						Total Risk Across Groundwater and All Exposure Routes	4.27E-06						

Total [Liver] HI =	1.19E+00
Total [Kidney] HI =	5.30E-04
Total [Lungs] HI =	1.71E-04

(1) Only Provsional Toxicity Criteria Available

NAV = Information Not Available

N/A = Not Applicable

NC = Non-Carcinogenic

TABLE L-9-5
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
ALCOA-DAVENPORT WORKS, RIVERDALE, IOWA

Scenario Timeframe: Future Potential
Receptor Population: Resident Swimmer
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Contact with Groundwater	1,1-Dichloroethane	NC	NC	NC	NC	1,1-Dichloroethane	Lungs	2.85E-07	3.64E-12	4.36E-07	7.21E-07
			1,2-Dichloroethene	NC	NC	NC	NC	1,2-Dichloroethene	Liver	1.86E-04	3.32E-09	3.22E-04	5.07E-04
			Benzene (1)	7.23E-11	8.21E-16	1.46E-09	1.53E-09	Benzene (1)	NAV	5.11E-06	1.58E-10	1.03E-04	1.08E-04
			Carbon Disulfide	NC	NC	NC	NC	Carbon Disulfide	Fetal Toxicity	6.55E-07	6.59E-12	3.10E-06	3.96E-06
			Chloroform (1)	9.86E-11	2.35E-14	1.68E-10	2.66E-10	Chloroform (1)	Liver	1.68E-05	3.94E-08	3.20E-05	5.09E-05
			Chloromethane (1)	1.71E-11	1.24E-16	9.97E-12	2.71E-11	Chloromethane (1)	Kidney	N/A	2.68E-12	N/A	2.68E-12
			Methylene Chloride	3.87E-11	1.64E-16	2.87E-11	6.74E-11	Methylene Chloride	Liver	1.00E-06	1.35E-12	7.43E-07	1.75E-06
			PCE (1)	2.49E-10	1.58E-16	2.89E-09	3.14E-09	PCE (1)	Liver	5.59E-06	8.36E-12	6.48E-05	7.04E-05
			Toluene	NC	NC	NC	NC	Toluene	Liver/Kidney	3.95E-07	1.19E-11	2.77E-06	3.16E-06
			TCE (1)	9.62E-11	9.17E-16	3.14E-10	4.12E-10	TCE (1)	NAV	N/A	2.97E-10	N/A	2.97E-10
						Total Risk Across Groundwater	5.44E-09					Total Hazard Index Across Groundwater and All Exposure Routes	7.46E-04
						Total Risk Across Groundwater and All Exposure Routes	5.44E-09						

(1) Only Provsional Toxicity Criteria Available

NAV = Information Not Available

N/A = Not Applicable

NC = Non-Carcinogenic

Total [Liver] HI =	6.33E-04
Total [Kidney] HI =	3.16E-06
Total [Lungs] HI =	7.21E-07

TABLE L-9-6
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
ALCOA-DAVENPORT WORKS, RIVERDALE, IOWA

Scenario Timeframe: Future Potential/Hypothetical
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Contact with Groundwater	1,1,1-Trichloroethane	NC	NC	NC	NC	1,1,1-Trichloroethane	NAV	7.34E-04	5.06E-04	8.36E-06	1.25E-03
			1,1-Dichloroethane	NC	NC	NC	NC	1,1-Dichloroethane	Lungs	2.45E-05	1.75E-04	1.21E-07	1.99E-04
			1,2-Dichloroethene (total)	NC	NC	NC	NC	1,2-Dichloroethene (total)	Liver	4.31E-04	4.31E-03	2.41E-06	4.74E-03
			2-Butanone	NC	NC	NC	NC	2-Butanone	Decreased Fetal Birth Weight	2.45E-03	5.06E-02	1.48E-06	5.31E-02
			Acetone	NC	NC	NC	NC	Acetone	Liver/Kidney	3.82E-03	3.82E-02	1.16E-06	4.20E-02
			Benzene (1)	3.46E-08	1.70E-07	3.33E-10	2.05E-07	Benzene (1)	NAV	5.87E-04	1.04E-02	5.65E-06	1.10E-02
			Carbon disulfide	NC	NC	NC	NC	Carbon disulfide	Fetal Toxicity	8.02E-05	4.01E-04	9.40E-07	4.82E-04
			Methylene chloride	2.62E-08	5.77E-08	6.27E-11	8.39E-08	Methylene chloride	Liver	1.63E-04	1.14E-04	3.90E-07	2.77E-04
			Tetrachloroethene (1)	6.54E-07	2.52E-07	2.45E-08	9.30E-07	Tetrachloroethene (1)	Liver	3.52E-03	3.20E-03	1.32E-04	6.86E-03
			Toluene	NC	NC	NC	NC	Toluene	Liver/Kidney	4.11E-05	7.21E-04	9.32E-07	7.63E-04
			Trichloroethene (1)	1.08E-08	5.87E-08	1.11E-10	6.96E-08	Trichloroethene (1)	NAV	N/A	4.57E-03	N/A	4.57E-03
						Total Risk Across Groundwater	1.29E-06					Total Hazard Index Across Groundwater and All Exposure Routes	1.25E-01
						Total Risk Across Groundwater and All Exposure Routes	1.29E-06						

Total [Liver] HI =	5.46E-02
Total [Kidney] HI =	4.27E-02
Total [Lungs] HI =	1.99E-04

(1) Only Provsional Toxicity Criteria Available

NAV = Information Not Available

N/A = Not Applicable

NC = Non-Carcinogenic

Table N-7
Summary of Child Swimmer Hazards and Risks
Hypothetical Future Off-Site Residential Exposure to Groundwater
Using Current Concentrations in On-Site H-Well Cluster
Alcoa-Davenport Works

SUMMARY OF NONCANCER HAZARDS

Constituent	Inhalation of Volatiles	Ingestion	Dermal	TOTAL
1,1-dichloroethane	<0.0001	<0.0001	<0.0001	<0.0001
1,2-dichloroethene	NA	0.0175	0.0304	0.0479
methylene chloride	<0.0001	0.0003	0.0002	0.0004
PCE	<0.0001	0.0578	0.6700	0.7278
vinyl chloride	<0.0001	0.0012	0.0013	0.0025
TCE	<0.0001	NA	NA	<0.0001
TOTAL	<0.0001	0.0768	0.7018	0.7786

SUMMARY OF THEORETICAL EXCESS LIFETIME CANCER RISKS

Constituent	Inhalation of Volatiles	Ingestion	Dermal	TOTAL
1,1-dichloroethane	NC	NC	NC	NA
1,2-dichloroethene	NC	NC	NC	NA
methylene chloride	4.E-14	1.E-08	7.E-09	2.E-08
PCE	2.E-12	3.E-06	3.E-05	3.E-05
vinyl chloride	2.E-13	5.E-07	5.E-07	1.E-06
TCE	8.E-13	9.E-08	3.E-07	4.E-07
TOTAL	3.E-12	3.E-06	3.E-05	3.E-05

Based on provisional toxicity criteria

NC= Non-carcinogenic constituent

NA= Not applicable

Table N-8

Summary of Adult Gardener Hazards and Risks
Hypothetical Future Off-Site Residential Exposure to Groundwater
Using Current Concentrations in On-Site H-Well Cluster

Alcoa-Davenport Works

SUMMARY OF NONCANCER HAZARDS

Constituent	Inhalation of Volatiles	Ingestion	Dermal	TOTAL
1,1-dichloroethane	<0.0001	<0.0001	<0.0001	<0.0001
1,2-dichloroethene	NA	0.0195	0.0047	0.0321
methylene chloride	<0.0001	0.0003	<0.0001	0.0003
PCE	0.0024	0.0644	0.1077	0.1744
vinyl chloride	<0.0001	0.0013	0.0002	0.0016
TCE	0.0068	NA	NA	0.0068
TOTAL	0.0092	0.0856	0.1125	0.2073

SUMMARY OF THEORETICAL EXCESS LIFETIME CANCER RISKS

Constituent	Inhalation of Volatiles	Ingestion	Dermal	TOTAL
1,1-dichloroethane	NC	NC	NC	NA
1,2-dichloroethene	NC	NC	NC	NA
methylene chloride	5.E-09	5.E-08	6.E-09	7.E-08
PCE	2.E-07	1.E-05	2.E-05	4.E-05
vinyl chloride	1.E-08	1.E-06	2.E-07	1.E-06
TCE	1.E-07	5.E-07	2.E-07	8.E-07
TOTAL	3.E-07	2.E-05	2.E-05	4.E-05

Based on provisional toxicity criteria

NC= Non-carcinogenic constituent

NA= Not applicable

Table N-9
Summary of Adult Car Washer Hazards and Risks
Hypothetical Future Off-Site Residential Exposure to Groundwater
Using Current Concentrations in On-Site H-Well Cluster
Alcoa-Davenport Works

SUMMARY OF NONCANCER HAZARDS

Constituent	Inhalation of Volatiles	Ingestion	Dermal	TOTAL
1,1-dichloroethane	<0.0001	<0.0001	<0.0001	<0.0001
1,2-dichloroethene	NA	0.0135	0.0046	0.0181
methylene chloride	<0.0001	0.0002	<0.0001	0.0002
PCE	0.0016	0.0446	0.1054	0.1516
vinyl chloride	<0.0001	0.0009	0.0002	0.0011
TCE	0.0047	NA	NA	0.0047
TOTAL	0.0064	0.0592	0.1102	0.1758

SUMMARY OF THEORETICAL EXCESS LIFETIME CANCER RISKS

Constituent	Inhalation of Volatiles	Ingestion	Dermal	TOTAL
1,1-dichloroethane	NC	NC	NC	NA
1,2-dichloroethene	NC	NC	NC	NA
methylene chloride	3.E-09	4.E-08	5.E-09	5.E-08
PCE	2.E-07	1.E-05	2.E-05	3.E-05
vinyl chloride	8.E-09	9.E-07	2.E-07	1.E-06
TCE	7.E-08	3.E-07	2.E-07	6.E-07
TOTAL	2.E-07	1.E-05	2.E-05	4.E-05

Based on provisional toxicity criteria
NC= Non-carcinogenic constituent
NA= Not applicable

Table N-10
Summary of Adult Potable Water User Hazards and Risks
Hypothetical Future Off-Site Residential Exposure to Groundwater
Using Current Concentrations in On-Site H-Well Cluster
Alcoa-Davenport Works

SUMMARY OF NONCANCER HAZARDS

Constituent	*Inhalation of Volatiles*	*Ingestion*	*Dermal*	TOTAL
1,1-dichloroethane	0.0006	0.0004	0.000017	0.0010
1,2-*dichloroethene*	NA	4.26	0.203	4.47
methylene chloride	0.00847	0.0622	0.001247	0.0719
PCE	2.4990	14.055	4.6886	21.243
vinyl chloride	0.0592	0.29311	0.00792	0.3602
TCE	7.161	NA	NA	7.161
TOTAL	9.7	18.67	4.901	33.3

SUMMARY OF THEORETICAL EXCESS LIFETIME CANCER RISKS

Constituent	Inhalation of Volatiles	Ingestion	Dermal	TOTAL
1,1-dichloroethane	NC	NC	NC	NA
1,2-dichloroethene	NC	NC	NC	NA
methylene chloride	5.E-06	1.E-05	2.E-07	2.E-05
PCE	2.E-04	3.E-03	1.E-03	4.E-03
vinyl chloride	1.E-05	3.E-04	8.E-06	3.E-04
TCE	1.E-04	1.E-04	1.E-05	2.E-04
TOTAL	4.E-04	4.E-03	1.E-03	5.E-03

Based on provisional toxicity criteria

NC= Non-carcinogenic constituent
NA= Not applicable

TABLE 2-1
CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN
IN WETLAND 2

CONSTITUENT	STATUS
Volatile Organic Compounds (VOCs)	
Carbon disulfide	Uncertainty
Semivolatile Organic Compounds (SVOCs)	
Carbazole	COPEC
Dibenzofuran	COPEC
Phenol	Uncertainty
4-Methylphenol	Uncertainty
PAHs	
Acenaphthene	COPEC
Anthracene	COPEC
Fluorene	COPEC
Naphthalene	COPEC
Phenanthrene	COPEC
Fluoranthene	COPEC
Pyrene	COPEC
Benzo(a)anthracene	COPEC
Benzo(a)pyrene	COPEC
Benzo(b)fluoranthene	COPEC
Benzo(g,h,i)perylene	COPEC
Benzo(k)fluoranthene	COPEC
Chrysene	COPEC
Dibenzo(a,h)anthracene	COPEC
Indeno(1,2,3-cd)pyrene	COPEC
Polychlorinated Biphenyls (PCBs)	
Aroclor 1248	COPEC
Aroclor 1254	COPEC
Inorganics	
Chromium (Cr)	COPEC
Copper (Cu)	COPEC
Manganese (Mn)	COPEC
Zinc (Zn)	COPEC

COPEC – Chemical of Potential Ecological Concern
Uncertainty – These constituents were not detected in Wetland 2 sediments, but sample quantitation limits exceeded screening benchmarks in greater than 20% of samples.

TABLE 2-2

CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN IN SURFACE SOIL

Alcoa Davenport Works, Riverdale, Iowa

Analyte	Frequency of Detection	Maximum Concentration (mg/kg)	Range of SQL[c] (mg/kg)	Background[d]	Screening Benchmark (mg/kg)	COPEC?	Rationale
Volatile Organics Compounds							
1,1,1-Trichloroethane	0/24	ND	0.011-13		4887	N	A
1,1,2,2-Tetrachloroethane	0/18	ND	0.011-13		6.2	N	C (11)
1,1-Dichloroethane	0/24	ND	0.011-13		118	N	A
1,1-Dichloroethene	0/24	ND	0.011-13		4.3	N	C (8)
1,2-Dichloroethane	0/24	ND	0.011-13		63	N	A
1,2-Dichloroethene	1/24	0.046	0.011-13		108	N	A
Methyl ethyl ketone/2-Butanone	0/24	ND	0.011-13		729	N	A
2-Hexanone	0/24	ND	0.011-13		2.9	N	C (8)
4-Methyl-2-Pentanone (hexanone)[f]	0/24	ND	0.011-13		2.9	N	C (8)
Acetone	2/24	0.015	0.011-13		21	N	A
Benzene	0/42	ND	0.011-13		79	N	A
Bromodichloromethane	0/24	ND	0.011-13		5.1	N	C (8)
Bromoform	0/24	ND	0.011-13		163	N	A
Bromomethane	0/24	ND	0.011-13		2.2	N	C (8)
Carbon disulfide	0/24	ND	0.011-13		55	N	A
Chlorobenzene	0/24	ND	0.011-13		967	N	A
Chloroethane	0/24	ND	0.011-13		1890	N	A
Chloroform	0/24	ND	0.011-13		19	N	A
Chloromethane	0/24	ND	0.011-13		39	N	A
Dibromochloromethane	0/24	ND	0.011-13		108	N	A
Ethylbenzene	0/42	ND	0.011-13		1905	N	A
Methylene chloride	0/24	ND	0.011-13		8.9	N	C (8)
Tetrachloroethene	3/24	0.120	0.011-13		141	N	A
Toluene	1/42	0.006	0.011-13		178	N	A
Total Xylenes	0/42	ND	0.011-13		25	N	A
Trichloroethene	0/24	ND	0.011-13		3030	N	A
Vinyl chloride	0/24	ND	0.011-13		0.36	N	C (8)
trans-1,3-dichloropropene	0/18	ND	0.011-13		123	N	A
Semivolatile Organic Compounds							
2,4,6-Trichlorophenol	0/12	ND	0.37-6.1		167	N	A
2,4-Dimethylphenol	0/12	ND	0.37-6.1		201	N	A
2-Methylnaphthalene	1/12	1.2	0.37-6.1		599	N	A
3,3'-Dichlorobenzidine	0/12	ND	0.37-6.1		97	N	A
4-Methylphenol	0/12	ND	0.37-6.1		195	N	A
Acenaphthene	0/12	ND	0.37-6.1		5702	N	A
Acenaphthylene[d]	0/12	ND	0.37-6.1		5702	N	A
Anthracene	2/12	0.96	0.37-6.1		25415	N	A
Benzo(a)anthracene[a]	7/12	3.2	0.38-6.1		5.6	N	C(8)
Benzo(a)pyrene	7/12	2.2	0.38-6.1		5.6	N	C(8)
Benzo(b)fluoranthene[a]	7/12	3.7	0.38-6.1		5.6	N	C(8)
Benzo(g,h,i)perylene[a]	2/12	0.94	0.37-6.1		5.6	N	C(8)
Benzo(k)fluoranthene[a]	4/12	1.2	0.38-6.1		5.6	N	C(8)

TABLE 2-2
CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN IN SURFACE SOIL
Alcoa Davenport Works, Riverdale, Iowa

Analyte	Frequency of Detection	Maximum Concentration (mg/kg)	Range of SQL[c] (mg/kg)	Background[d]	Screening Benchmark (mg/kg)	COPEC?	Rationale
Butyl benzyl phthalate	0/12	ND	0.37-6.1		5343	N	A
Carbazole	0/12	ND	0.37-6.1		170	N	A
Chrysene[a]	7/12	3.2	0.38-6.1		5.6	N	C(8)
Dibenz(a,h)anthracene[a]	0/12	ND	0.37-6.1		5.6	N	C(8)
Dibenzofuran	0/12	ND	0.37-6.1		207	N	A
Fluoranthene	10/12	11	0.38-0.41		1834	N	A
Fluorene	0/12	ND	0.37-6.1		3588	N	A
Indeno(1,2,3-cd)pyrene[a]	5/12	1.6	0.38-6.1		5.6	N	C(8)
Naphthalene	0/12	ND	0.37-6.1		2224	N	A
Phenanthrene	6/12	4.6	0.38-6.1		346	N	A
Phenol	0/12	ND	0.37-6.1		123	N	A
Pyrene	9/12	6.5	0.38-0.41		1100	N	A
bis(2-ethylhexyl)phthalate	0/12	ND	0.37-6.1		27	N	A
di-n-butylphthalate	0/12	ND	0.37-6.1		4304	N	A
di-n-octylphthalate	0/12	ND	0.37-6.1		668	N	A
PCBs							
Aroclor-1016	0/34	ND	0.019-19		152	N	A
Aroclor-1221[b]	0/34	ND	0.019-19		60	N	A
Aroclor-1232[b]	0/34	ND	0.019-19		60	N	A
Aroclor-1242	0/34	ND	0.019-19		60	N	A
Aroclor-1248	29/34	320	0.04-0.3		0.27	Y	B
Aroclor-1254	15/34	8.0	0.038-39		0.41	Y	B
Aroclor-1260	0/34	ND	0.038-39		66	N	A
Inorganic Compounds							
Aluminum	11/11	15800	--	47000	17579	N	A
Arsenic	9/11	5.3	2.2-2.4	5.2	75	N	A
Barium	10/11	425	45.4	440	1218	N	E
Beryllium	0/11	ND	0.22-1.8	No data	76	N	A
Cadmium	0/11	ND	0.90-1.4	No data	0.21	U	D (100)
Chromium	11/11	28.6	--	37	12.2	N	E
Cobalt	1/11	16.1	0.000-12.8	6.7	18.9	N	A
Copper	10/11	208	5.8	17	63	Y	B
Cyanide	1/11	0.66	0.55-0.91	No data	10	N	A
Lead	11/11	117	--	16	4.0	Y	B
Manganese	11/11	1420	--	330	7402	N	A
Mercury	5/17	1.6	0.11-0.19	.058	2.5	N	A
Nickel	9/11	28.1	9.1-9.2	13	443	N	A
Selenium	0/2	ND	0.74-2.5	.26	3.0	N	A
Silver	1/11	2.3	0.000-18.3	ND	18.2	N	A
Thallium	0/11	ND	0.000-18.3	No data	4.6	N	C (9)
Vanadium	10/11	42.5	11.4	58	NA	N	E
Zinc	10/11	720	79.2	48	76	Y	B

TABLE 2-2
CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN IN SURFACE SOIL
Alcoa Davenport Works, Riverdale, Iowa

Analyte	Frequency of Detection	Maximum Concentration (mg/kg)	Range of SQL[c] (mg/kg)	Background[d]	Screening Benchmark (mg/kg)	COPEC?	Rationale

Summaries are based on surface water from Outfalls 001 to 006.

Duplicate samples were only counted once. The maximum of the two duplicate values was used.

[a] benzo(a)pyrene used as a surrogate

[b] Aroclor 1242 used as a surrogate

[c] Range of SQLs only included for nondetects

[d] from NOAA SQUIRT Tables (Buchman *1999*).

[e] Acenaphthene used as a surrogate

[f] 2-hexanone used as a surrogate

A - Maximum concentration detected, or one-half maximum SQL did not exceed screening benchmark

B - Maximum concentration detected exceeded screening benchmark

C - One-half SQL exceeded SC in less than 20% of samples. Constituent not detected above SC.
Number of samples in which one-half SQL exceed of SC is presented in parentheses.

D - Uncertainty. Constituent not detected above SC, but 1/2 SQL exceeded SC in greater than 20% of samples.
Number of samples in which one-half SQL exceed of SC is presented in parentheses.

E - Maximum concentration does not exceed background

Bold Type *indicates constituent is selected as a* COPEC *or uncertainty*

TABLE 2-3
CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN IN SURFACE SEDIMENTS
Alcoa Davenport Works, Riverdale, Iowa

Analyte	Frequency of Detection	Maximum Concentration (mg/kg)	Background (mg/kg)	Range of SQL[c] (mg/kg)	Screening Benchmark (mg/kg)	COPEC?	Rationale
Volatile Organics Compounds							
1,1,1-Trichloroethane	4/37	0.03		0.011-2.8	565	N	A
1,1,2,2-Tetrachloroethane	0/37	ND		0.011-2.8	0.34	N	C (3)
1,1-Dichloroethane	4/37	0.008j		0.011-2.8	45	N	A
1,1-Dichloroethene	0/37	ND		0.011-2.8	0.44	N	C (3)
1,2-Dichloroethane	0/37	ND		0.011-2.8	37	N	A
1,2-Dichloroethene	6/37	0.13		0.011-2.8	38	N	A
Methyl ethyl ketone/2-Butanone	14/37	0.22		0.011-2.8	2098	N	A
2-Hexanone	0/37	ND		0.011-2.8	1.8	N	C (3)
4-Methyl-2-Pentanone (hexanone)[f]	0/37	ND		0.011-2.8	1.8	N	C(3)
Acetone	17/37	15		0.011-0.022	118	N	A
Benzene	1/37	0.061		0.011-2.8	12.0	N	A
Bromodichloromethane	0/37	ND		0.011-2.8	0.90	N	C (3)
Bromoform	0/37	ND		0.011-2.8	20	N	A
Bromomethane	0/37	ND		0.011-2.8	1.9	N	C(3)
Carbon disulfide	6/37	0.021		0.011-2.8	12	N	A
Chlorobenzene	0/37	ND		0.011-2.8	83	N	A
Chloroethane	0/37	ND		0.011-2.8	1066	N	A
Chloroform	0/37	ND		0.011-2.8	4.4	N	A
Chloromethane	4/37	0.270		0.011-2.8	50	N	A
Dibromochloromethane	0/37	ND		0.011-2.8	25	N	A
Ethylbenzene	0/37	ND		0.011-2.8	3.4	N	A
Methylene chloride	4/37	0.630		0.013-2.8	7	N	A
Tetrachloroethene	6/37	0.086		0.011-2.8	3.2	N	A
Toluene	5/37	5.9		0.011-0.069	19	N	A
Total Xylenes	2/37	0.027j		0.011-2.8	1.5	N	A
Trichloroethene	6/37	0.025		0.011-2.8	355.40	N	C (3)
Vinyl chloride	1/37	0.035		0.011-2.8	0.20	N	C (3)
trans-1,3-dichloropropene	0/37	ND		0.011-2.8	36	N	A
Semivolatile Organic Compounds							
2,4,6-Trichlorophenol	0/55	ND		0.4-280	5.0	U	D (23)
2,4-Dimethylphenol	1/55	0.14j		0.4-280	22	N	C (13)
2-Methylnaphthalene	1/55	0.33j		0.4-280	12	N	C (16)
3,3'-Dichlorobenzidine	0/55	ND		0.43-280	3.7	U	D (47)
4-Methylphenol	3/55	4.6j		0.4-280	32	N	C (4)
Acenaphthene	41/55	30		0.4-46	154	N	A
Acenaphthylene[d]	0/55	ND		0.4-280	154	N	C (2)
Anthracene	48/55	67j		0.4-7.8	2452	N	A
Benzo(a)anthracene[a]	51/55	200j		0.4-0.51	2.5	Y	B
Benzo(a)pyrene	50/55	160		0.4-0.51	2.5	Y	B
Benzo(b)fluoranthene[a]	52/55	250		0.4-0.51	2.5	Y	B
Benzo(g,h,i)perylene[a]	40/55	130		0.4-44	2.5	Y	B
Benzo(k)fluoranthene[a]	52/55	93j		0.4-0.51	2.5	Y	B

TABLE 2-3
CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN IN SURFACE SEDIMENTS
Alcoa Davenport Works, Riverdale, Iowa

Analyte	Frequency of Detection	Maximum Concentration (mg/kg)	Background (mg/kg)	Range of SQL[c] (mg/kg)	Screening Benchmark (mg/kg)	COPEC?	Rationale
Butyl benzyl phthalate	3/55	2.2		0.43-280	188	N	A
Carbazole	46/55	67j		0.44-46	5	Y	B
Chrysene[a]	52/55	250		--	2.5	Y	B
Dibenz(a,h)anthracene[a]	31/55	32		0.44-46	2.5	Y	B
Dibenzofuran	29/55	19		0.43-46	7.1	Y	B
Fluoranthene	52/55	590		--	91	Y	B
Fluorene	38/55	31		0.43-46	197	N	A
Indeno(1,2,3-cd)pyrene[a]	40/55	100		0.44-44	2.5	Y	B
Naphthalene	13/55	12		0.43-280	129	N	A
Phenanthrene	52/55	420		--	17	Y	B
Phenol	7/55	6.2j		0.44-280	11	U	D (21)
Pyrene	52/55	520		--	184	Y	B
bis(2-ethylhexyl)phthalate	21/55	17j		0.43-280	12	Y	B
di-n-butylphthalate	2/55	1.2		0.43-280	148	N	C (4)
di-n-octylphthalate	1/55	26j		0.43-280	581	N	A
PCBs							
Aroclor-1016	0/37	ND		0.033-0.82	0.79	U	D (41)
Aroclor-1221[b]	0/37	ND		0.067-1.7	0.242	U	D (57)
Aroclor-1232[b]	0/37	ND		0.033-0.82	0.242	U	D (46)
Aroclor-1242	0/37	ND		0.033-0.82	0.242	U	D (46)
Aroclor-1248	35/37	77		0.056-0.48	0.075	Y	B
Aroclor-1254	35/37	10		0.043-0.044	0.039	Y	B
Aroclor-1260	0/37	ND		0.033-0.82	4.6	N	A
Inorganic Compounds							
Aluminum	37/37	52300	14865[g]	--	17579	Y	B
Arsenic	37/37	9.0	1.1[h]	--	227	N	A
Barium	37/37	209	0.7[h]	--	3990	N	A
Beryllium	35/37	2.5	no data	0.52-0.87	83	N	A
Cadmium	20/37	2.2	0.1-0.3[h]	0.62-1.04	125	N	A
Chromium	37/37	92.8	24[g]	--	100	N	A
Cobalt	37/37	10.9B	10[h]	--	50	N	A
Copper	37/37	2150	20[g]	--	854	N	see text
Cyanide	5/37	2.4	No data	0.01-1.4	100	N	A
Lead	37/37	5520j	18.7[g]	--	100	Y	B
Manganese	37/37	962j	983[g]	--	11000	N	A
Mercury	9/37	4.5	0.001-0051[h]	0.09-0.24	40	N	A
Nickel	37/37	35.9	9.9[h]	--	5000	N	A
Selenium	5/37	1.1Bj	0.29[h]	0.42j-1.4j	50	N	A
Silver	8/37	3.2	<0.5[h]	1.0-2.7	84	N	A
Thallium	7/37	0.63B	No data	0.21-0.88	9.6	N	A
Vanadium	37/37	38.0	50[h]	--	68	N	A
Zinc	37/37	418	80[g]	--	2280	N	A

TABLE 2-3
CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN IN SURFACE SEDIMENTS
Alcoa Davenport Works, Riverdale, Iowa

Analyte	Frequency of Detection	Maximum Concentration (mg/kg)	Background (mg/kg)	Range of SQL[c] (mg/kg)	Screening Benchmark (mg/kg)	COPEC?	Rationale

Summaries are based on surface sediments samples from Outfalls 001 to 006 from Phase I (1991) and include semivolatiles from 1998. Duplicate samples were only counted once. The maximum of the two duplicate values was used.

[a] benzo(a)pyrene used as a surrogate

[b] Aroclor 1242 used as a surrogate

[c] Range of SQLs only included for nondetects

[e] Acenaphthene used as a surrogate

[f] 2-hexanone used as a surrogate

[g] based on background inorganic concentrations in sediments from Mississippi River Pool 15 (WCIA 1998).

[h] based on background inorganic concentrations reported in NOAA Screening Tables (Buchman 1999)

A - Maximum concentration detected, or one-half maximum SQL, did not exceed screening benchmark

B - Maximum concentration detected exceeded screening benchmark

C - One-half SQL exceeded SC in less than 20% of samples. Constituent not detected above SC.
Number of samples in which one-half SQL exceed of SC is presented in parentheses.

D - Uncertainty. Constituent not detected above SC, but 1/2 SQL exceeded SC in greater than 20% of samples.
Number of samples in which one-half SQL exceed of SC is presented in parentheses.

E - Maximum concentration does not exceed background

F - Fe, Ca, Na, K, and Mg are essential nutrients, they are physiologically regulated, and have low toxicity.