

TABLE OF CONTENTS
FRONTIER HARD CHROME - RECORD OF DECISION AMENDMENT ADMINISTRATIVE RECORD (FRAAR)

October 5, 2001

0.0 - TABLE OF CONTENTS/INDEX

3.0 - RECORD OF DECISION

3.2 - Record of Decision

3.3 - Record of Decision Amendment

3.3.2 - Focused Feasibility Study

3.3.3 - Treatability Studies

3.3.4 - Proposed Plan

3.3.4.1 - Comments on the Proposed Plan

3.3.5 - ROD Amendment

4.0 - REMEDIAL DESIGN

4.6 - Design Analysis Report

4.9 - Stabilization/Solidification Reports

4.12 - Mineralogical Study

4.15 - Groundwater Monitoring

4.15.1 - Reports (2 Volumes)

4.16 - Technical Support/Soil Analysis Report

4.18 - Historical Summary Technical Memorandum

4.19 - Site Conditions Technical Memorandum

5.0 - REMEDIAL ACTION

5.3 - Topographic Depression Area Excavation

5.4 - Groundwater Modeling

5.7 - Institutional Controls Program

5.7.6 - Institutional Controls Program Plan

10.0 - HEALTH ASSESSMENTS

10.3 - ATSDR Health Assessment

11.0 - NATURAL RESOURCE TRUSTEES

11.2 - Endangered Species Act Implications

HEADING: 0. 0. . . TABLE OF CONTENTS/INDEX

HEADING: 3. 0. . . RECORD OF DECISION

SUB-HEAD: 3. 2. . . Vol. 1 - Record of Decision

3. 2. . . Vol. 1 - 1124347 DOC ID: 148659
DATE: 12/23/1987 PAGES: 35
AUTHOR(S): Charles E. Findley/EPA ADDRESSEE(S): Robie G. Russell/EPA

DESCRIPTION: Memo transmits the Record of Decision dated December 30, 1987. (Soils ROD)

3. 2. . . Vol. 1 - 1124348 DOC ID: 148660
DATE: 7/5/1988 PAGES: 31
AUTHOR(S): Robie G. Russell/EPA ADDRESSEE(S): Unknown

DESCRIPTION: Record of Decision. (Groundwater ROD)

SUB-HEAD: 3. 3. . . Vol. 1 - Record of Decision Amendment

SUB-HEAD: 3. 3. 2. . Vol. 1 - Focused Feasibility Study

3. 3. 2. . Vol. 1 - 1124351 DOC ID: 148662
DATE: 5/1/1999 PAGES: 108
AUTHOR(S): Roy F. Weston, Inc. ADDRESSEE(S): URS Greiner Woodward Clyde
EPA

DESCRIPTION: Technology Screening Technical Memorandum describing current conditions, options, costs and recommendations. (With handwritten notes)

3. 3. 2. . Vol. 1 - 1124352 DOC ID: 148664
DATE: 9/8/1999 PAGES: 122
AUTHOR(S): Roy F. Weston, Inc. ADDRESSEE(S): EPA

URS Greiner, Inc.

DESCRIPTION:

Revised Technology Screening Technical Memorandum describing current conditions, options, costs and recommendations.

3. 3. 2. . Vol. 1 - 1124353 DOC ID: 148665
DATE: 10/18/1999 PAGES: 122
AUTHOR(S): ADDRESSEE(S):
Roy F. Weston, Inc. EPA

URS Greiner, Inc.

DESCRIPTION:

Revision 2 to the Technology Screening Technical Memorandum describing current conditions, options, costs and recommendations.

3. 3. 2. . Vol. 1 - 1124349 DOC ID: 148661
DATE: 7/7/2000 PAGES: 258
AUTHOR(S): ADDRESSEE(S):
URS Greiner, Inc. EPA

DESCRIPTION:

SUB-HEAD: 3. 3. 3. . Vol. 1 - Treatability Studies

3. 3. 3. . Vol. 1 - 1124354 DOC ID: 148663
DATE: 11/1/1999 PAGES: 26
AUTHOR(S): ADDRESSEE(S):
Jonathan S. Fruchter/Pacific Northwest National Laboratory EPA

Jim E. Szecsody/Pacific Northwest National Laboratory

Vince R. Vermeul/Pacific Northwest National Laboratory

Mark D. Williams/Pacific Northwest National Laboratory

DESCRIPTION:

Results of Bench-Scale Studies for In Situ Redox Manipulation of Subsurface Sediments at the Frontier Hard Chrome Site.

SUB-HEAD: 3. 3. 4. . Vol. 1 - Proposed Plan

3. 3. 4. . Vol. 1 - 1124404 DOC ID: 148777
DATE: 6/20/2001 PAGES: 33
AUTHOR(S): ADDRESSEE(S):
EPA Unknown

DESCRIPTION:

SUB-HEAD: 3. 3. 4. 1. Vol. 1 - Comments on the Proposed Plan

3. 3. 4. 1. Vol. 1 - 1127105 DOC ID: 152122
DATE: 7/23/2001 PAGES: 1

AUTHOR(S):
Patrick Easley/City of Vancouver

ADDRESSEE(S):
Ken Marcy/EPA

DESCRIPTION: Letter comments on the Proposed Cleanup Plan for Frontier Hard Chrome.

SUB-HEAD: 3. 3. 5. . Vol. 1 - ROD Amendment

3. 3. 5. . Vol. 1 - 1127106 DOC ID: 152123
DATE: 8/29/2001 PAGES: 75

AUTHOR(S):
Ken Marcy/EPA

ADDRESSEE(S):
Michael F. Gearheard/EPA

DESCRIPTION: Memo transmitting the Amended Record of Decision including the Responsiveness Summary.

HEADING: 4. 0. . . REMEDIAL DESIGN

SUB-HEAD: 4. 6. . . Vol. 1 - Design Analysis Report

4. 6. . . Vol. 1 - 1124356 DOC ID: 148666
DATE: 9/11/1991 PAGES: 103
AUTHOR(S):
Radian Corp.

ADDRESSEE(S):
U. S. Army Corps of Engineers

DESCRIPTION:
Final Design Analysis Report, Volume I.

4. 6. . . Vol. 1 - 1124357 DOC ID: 148667
DATE: 9/11/1991 PAGES: 598
AUTHOR(S):
Radian Corp.

ADDRESSEE(S):
U. S. Army Corps of Engineers

DESCRIPTION:
Final Design Analysis Report, Volume II.

SUB-HEAD: 4. 9. . . Vol. 1 - Stabilization/Solidification Reports

4. 9. . . Vol. 1 - 1124358 DOC ID: 148668
DATE: 5/1/1992 PAGES: 281
AUTHOR(S):
M. John Cullinane/U. S. Army Corps of Engineers

ADDRESSEE(S):
EPA

Elizabeth C. Fleming/U. S. Army Corps of Engineers

M. John Cullinane/U. S. Army Corps of Engineers

U. S. Army Corps of Engineers

Elizabeth C. Fleming/U. S. Army Corps of Engineers

DESCRIPTION:
Evaluation of Solidification/Stabilization for Treating Contaminated Soils from the Frontier Hard Chrome Site.

SUB-HEAD: 4. 12. . . Vol. 1 - Mineralogical Study

4. 12. . . Vol. 1 - 1124360 DOC ID: 148669
DATE: 5/17/1999 PAGES: 37
AUTHOR(S):
David Frank/EPA

ADDRESSEE(S):
Bernard Zavala/EPA

DESCRIPTION:
Memo provides documentation of x-ray diffraction analysis of laboratory-prepared separates from six borehole samples.

(FRAAR) FRONTIER HARD CHROME - RECORD OF DECISION AMENDMENT ADMINISTRATIVE RECORD INDEX

4. 12. . . . Vol. 1 - 1124361 DOC ID: 148670
DATE: 8/1/1999 PAGES: 126
AUTHOR(S): ADDRESSSEE(S):
EPA Unknown

DESCRIPTION: Mineralogical Study of Boreholes B98-13 and B98-12.

SUB-HEAD: 4. 15. . . . Vol. 1 - Groundwater Monitoring

SUB-HEAD: 4. 15. 1. . . . Vol. 1 - Reports

4. 15. 1. . . . Vol. 1 - 1124362 DOC ID: 148671
DATE: 2/1/1993 PAGES: 190
AUTHOR(S): ADDRESSSEE(S):
Kenneth V. Jennings/ICF Technology, Inc. Bill Adams/EPA

DESCRIPTION: Round 1, Quarterly Groundwater Monitoring Report.

4. 15. 1. . . . Vol. 1 - 1124366 DOC ID: 148672
DATE: 2/1/1993 PAGES: 183
AUTHOR(S): ADDRESSSEE(S):
Kenneth V. Jennings/ICF Technology, Inc. Bill Adams/EPA

DESCRIPTION: Round 2, Quarterly Groundwater Monitoring Report.

4. 15. 1. . . . Vol. 1 - 1124364 DOC ID: 148673
DATE: 4/1/1993 PAGES: 255
AUTHOR(S): ADDRESSSEE(S):
Kenneth V. Jennings/ICF Technology, Inc. Bill Adams/EPA

DESCRIPTION: Round 3, Quarterly Groundwater Monitoring Report.

4. 15. 1. . . . Vol. 1 - 1124365 DOC ID: 148674
DATE: 7/1/1993 PAGES: 132
AUTHOR(S): ADDRESSSEE(S):
Kenneth V. Jennings/ICF Technology, Inc. Bill Adams/EPA

DESCRIPTION: Round 4, Quarterly Groundwater Monitoring Report.

SUB-HEAD: 4. 15. 1. . . . Vol. 2 - Reports

(FRAAR) FRONTIER HARD CHROME - RECORD OF DECISION AMENDMENT ADMINISTRATIVE RECORD INDEX

4. 15. 1. . . Vol. 2 - 1124367 DOC ID: 148675
DATE: 1/1/1994 PAGES: 135

AUTHOR(S):
Kenneth V. Jennings/ICF Technology, Inc.

ADDRESSEE(S):
Kevin L. Rochlin/EPA

DESCRIPTION:
Round 5, Groundwater Monitoring Report.

4. 15. 1. . . Vol. 2 - 1124368 DOC ID: 148676
DATE: 7/1/1994 PAGES: 130

AUTHOR(S):
Kenneth V. Jennings/ICF Technology, Inc.

ADDRESSEE(S):
Sean Sheldrake/EPA

DESCRIPTION:
Round 6, Groundwater Monitoring Report.

4. 15. 1. . . Vol. 2 - 1124371 DOC ID: 148680
DATE: 7/12/1994 PAGES: 52

AUTHOR(S):
Carla C. Minor/Dames & Moore

Lon R. Yandell/Dames & Moore

ADDRESSEE(S):
Dirk Koopman/Hillman Properties Northwest

DESCRIPTION:
Environmental Assessment of Groundwater, Columbia Business Center, Vancouver, Washington.

4. 15. 1. . . Vol. 2 - 1124369 DOC ID: 148677
DATE: 11/29/1999 PAGES: 275

AUTHOR(S):
Roy F. Weston, Inc.

ADDRESSEE(S):
EPA

URS Greiner, Inc.

DESCRIPTION:
August 1999 Soil and Groundwater Sampling Results.

4. 15. 1. . . Vol. 2 - 1124370 DOC ID: 148678
DATE: 10/11/2000 PAGES: 88

AUTHOR(S):
URS Greiner, Inc.

ADDRESSEE(S):
EPA

DESCRIPTION:
Long-Term Groundwater Monitoring Report, June 2000.

SUB-HEAD: 4. 16. . . Vol. 1 - Technical Support/Soil Analysis Report

4. 16. . . . Vol. 1 - 1124372 DOC ID: 148685
DATE: 4/1/1993 PAGES: 74

AUTHOR(S):
Kenneth V. Jennings/ICF Technology, Inc.

ADDRESSEE(S):
Bill Adams/EPA

DESCRIPTION: Final Soil Analysis Report.

SUB-HEAD: 4. 18. . . Vol. 1 - Historical Summary Technical Memorandum

4. 18. . . Vol. 1 - 1124373 DOC ID: 148689
DATE: 3/1/1997 PAGES: 130
AUTHOR(S): ADDRESSEE(S):
Roy F. Weston, Inc. EPA

DESCRIPTION: Historical Summary Technical Memorandum.

SUB-HEAD: 4. 19. . . Vol. 1 - Site Conditions Technical Memorandum

4. 19. . . Vol. 1 - 1124374 DOC ID: 148701
DATE: 3/23/1999 PAGES: 502
AUTHOR(S): ADDRESSEE(S):
Roy F. Weston, Inc. EPA

DESCRIPTION: Site Conditions Technical Memorandum.

HEADING: 5. 0. . . REMEDIAL ACTION

SUB-HEAD: 5. 3. . . Vol. 1 - Topographic Depression Area Excavation

5. 3. . . Vol. 1 - 1124375 DOC ID: 148703
DATE: 9/1/1994 PAGES: 2

AUTHOR(S):
Panjini Balaraju/Washington State Dept. of Ecology

ADDRESSEE(S):
Bruce Cassidy/Cassidy Manufacturing Co.

Robert K. Cassidy/Cassidy Manufacturing Co.

DESCRIPTION: Letter advises addressee of upcoming cleanup activities east of the Frontier Hard Chrome Superfund Site.

5. 3. . . Vol. 1 - 1124376 DOC ID: 148704
DATE: 9/1/1994 PAGES: 2

AUTHOR(S):
Panjini Balaraju/Washington State Dept. of Ecology

ADDRESSEE(S):
Larry Cassidy/Flo-Fite Products Co. Ltd.

DESCRIPTION: Letter advises addressee of upcoming cleanup activities east of the Frontier Hard Chrome Superfund Site.

5. 3. . . Vol. 1 - 1124377 DOC ID: 148705
DATE: 9/1/1994 PAGES: 2

AUTHOR(S):
Panjini Balaraju/Washington State Dept. of Ecology

ADDRESSEE(S):
Brian Colman/Jantzen, Inc.

DESCRIPTION: Letter advises addressee of upcoming cleanup activities east of the Frontier Hard Chrome Superfund Site.

5. 3. . . Vol. 1 - 1124378 DOC ID: 148706
DATE: 9/1/1994 PAGES: 2

AUTHOR(S):
Panjini Balaraju/Washington State Dept. of Ecology

ADDRESSEE(S):
Mike Gilmore/Angeles Metlas

DESCRIPTION: Letter advises addressee of upcoming cleanup activities east of the Frontier Hard Chrome Superfund Site.

5. 3. . . Vol. 1 - 1124379 DOC ID: 148707
DATE: 9/1/1994 PAGES: 2

AUTHOR(S):
Panjini Balaraju/Washington State Dept. of Ecology

ADDRESSEE(S):
Sherry Guin/Inco Express Inc.

DESCRIPTION:

Letter advises addressee of upcoming cleanup activities east of the Frontier Hard Chrome Superfund Site.

5. 3. . . Vol. 1 - 1124380 DOC ID: 148708
DATE: 9/1/1994 PAGES: 2

AUTHOR(S):
Panjini Balaraju/Washington State Dept. of Ecology

ADDRESSEE(S):
Dave Heffner/Action Carrier, Inc.

DESCRIPTION:

Letter advises addressee of upcoming cleanup activities east of the Frontier Hard Chrome Superfund Site.

5. 3. . . Vol. 1 - 1124381 DOC ID: 148709
DATE: 9/1/1994 PAGES: 2

AUTHOR(S):
Panjini Balaraju/Washington State Dept. of Ecology

ADDRESSEE(S):
Jim Morisson/Unknown

DESCRIPTION:

Letter advises addressee of upcoming cleanup activities east of the Frontier Hard Chrome Superfund Site.

5. 3. . . Vol. 1 - 1124382 DOC ID: 148710
DATE: 9/1/1994 PAGES: 2

AUTHOR(S):
Panjini Balaraju/Washington State Dept. of Ecology

ADDRESSEE(S):
Walter Neth/Columbia Machines, Inc.

DESCRIPTION:

Letter advises addressee of upcoming cleanup activities east of the Frontier Hard Chrome Superfund Site.

5. 3. . . Vol. 1 - 1124383 DOC ID: 148711
DATE: 9/1/1994 PAGES: 2

AUTHOR(S):
Panjini Balaraju/Washington State Dept. of Ecology

ADDRESSEE(S):
Dave Owens/Seaport Products Co., Inc.

DESCRIPTION:

Letter advises addressee of upcoming cleanup activities east of the Frontier Hard Chrome Superfund Site.

5. 3. . . Vol. 1 - 1124384 DOC ID: 148712
DATE: 9/1/1994 PAGES: 2

AUTHOR(S):
Panjini Balaraju/Washington State Dept. of Ecology

ADDRESSEE(S):
John Riser/Richardson Metal Works, Inc.

DESCRIPTION:

Letter advises addressee of upcoming cleanup activities east of the Frontier Hard Chrome Superfund Site.

5. 3. . . Vol. 1 - 1124385 DOC ID: 148713
DATE: 9/1/1994 PAGES: 2

AUTHOR(S):

ADDRESSEE(S):

Panjini Balaraju/Washington State Dept. of Ecology

Kristine Wood/Pro Diaper

DESCRIPTION:

Letter advises addressee of upcoming cleanup activities east of the Frontier Hard Chrome Superfund Site.

5. 3. . . Vol. 1 - 1124386 DOC ID: 148714

DATE: 4/17/1995 PAGES: 4

AUTHOR(S):

Panjini Balaraju/Washington State Dept. of Ecology

ADDRESSEE(S):

File

DESCRIPTION:

Memo regarding the Depression Area Interim Removal Action Completion Report, with a Table of Contents for the Frontier Hard Chrome Depression Area Interim Soil Removal Action Completion Report. (Less Attachments and Figures)

SUB-HEAD: 5. 4. . . Vol. 1 - Groundwater Modeling

5. 4. . . Vol. 1 - 1124387 DOC ID: 148715

DATE: 2/1/1994 PAGES: 67

AUTHOR(S):

Bradley M. Hill/Computer Data Systems Inc.

ADDRESSEE(S):

EPA

Sam Lee/Dynamic Corporation

Ying Ouyang/Computer Data Systems Inc.

DESCRIPTION:

Data Analysis and Preliminary Modeling for the Frontier Hard Chrome Site.

SUB-HEAD: 5. 7. . . Vol. 1 - Institutional Controls Program

SUB-HEAD: 5. 7. 6. . Vol. 1 - Institutional Controls Program Plan

5. 7. 6. . Vol. 1 - 1124388 DOC ID: 148716

DATE: 3/10/1998 PAGES: 91

AUTHOR(S):

Roy F. Weston, Inc.

ADDRESSEE(S):

EPA

DESCRIPTION:

Institutional Controls Program Plan.

HEADING: 10. 0. . . HEALTH ASSESSMENTS

SUB-HEAD: 10. 3. . . Vol. 1 - ATSDR Health Assessment

10. 3. . .	Vol. 1 - 1124389	DOC ID: 148717	
	DATE: 8/19/1988	PAGES: 15	
AUTHOR(S):		ADDRESSEE(S):	
U. S. Public Health Service		Unknown	

DESCRIPTION: ATSDR Health Assessment for the Frontier Hard Chrome Site.

HEADING: 11. 0. . . NATURAL RESOURCE TRUSTEES

SUB-HEAD: 11. 2. . . Vol. 1 - Endangered Species Act Implications

11. 2. . . Vol. 1 - 1127504 DOC ID: 153114
DATE: 9/18/2001 PAGES: 2
AUTHOR(S): Ken Marcy/EPA ADDRESSEE(S): File

DESCRIPTION: Memo documents EPA's determination regarding potential Section 7 Endangered Species Act implications.