JOSEPHINE COUNTY WATER MANAGEMENT
IMPROVEMENT STUDY, OREGON

SAVAGE RAPIDS DAM
SEDIMENT EVALUATION STUDY

Department of the Interior
Bureau of Reclamation

February 2001

ACRONYMS AND ABBREVIATIONS

bpf	blows per foot
Corps	U.S. Army Corps of Engineers
EIS	environmental impact statement
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
ft^3/s	cubic feet per second
GPID	Grants Pass Irrigation District
GPS	global positioning system
JCWMIS	Josephine County Water Management Improvement Study
JTU	Jackson Turbidity Units
MCL	maximum contaminant level
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mm	millimeter
NAD	North American Datum
NAVD	North American Vertical Datum
NGVD	National Geodetic Vertical Datum
NTU	Nephelometric Turbidity Units
NWIS	National Water Information System
P.L.	Public Law
ppm	parts per million
PR/FES	planning report/final environmental statement
Reclamation	Bureau of Reclamation
RM	river mile
ROD	record of decision
SMCL	secondary maximum contaminant level
SVOCs	semivolatile organic compounds
TDS	total dissolved solids
TOC	total organic carbon

USCS	Unified Soil Classification System
USGS	U.S. Geological Survey
VOCs	volatile organic compounds
yds^3	cubic yards
µg/kg	micrograms per kilogram
µg/L	micrograms per liter

CONTENTS

Page

Acknowledgments

Acronyms

Study Purpose 1
Authority for the Study 3
Events Leading to Study Initiation 3
Description of the Study Area 7
    Description of Savage Rapids Dam and Reservoir 8
    Savage Rapids Reservoir Sedimentation History 9
History of Mining Upstream From Savage Rapids Dam 10
Study Reach Evaluated 10
    Characteristics of the Study Reach 10
    Types of Data Collected 11
    Reservoir Sediment Volume 11
    Reservoir Sediment Sizes 13
    Contaminant Testing of Reservoir Sediment 13
Riverflows and Sediment Transport 14
    River Hydraulics Computer Model 14
    Sediment Transport Computer Model 14
    Riverflows Following Dam Removal 15
    Riverflows Used to Model Dam Removal 15
    Rate and Extent of Reservoir Sediment Erosion 16
    Sediment Transport 18
    River Channel Following Dam Removal 19
    Sediment-Related Impacts to River Infrastructures as a Result of
      Dam Removal 19
        Irrigation Pumping Plants 19
        City Water Treatment Plant Intake Structures 20
        Sediment Monitoring Recommendations 23

References

List of Contributors

Peer Review Documentation

Figures

Figure *Page*

1 Study area location map 2
2 View of Savage Rapids Dam 3
3 Coarse sediment (sand and gravel) are transported as bedload along the river channel bottom 4
4 Conceptual depiction of the relationship of water discharge and sediment transport in the downstream river channel following removal of a dam 17

Appendices

Appendix

A Geology A-1
Attachment A Geologic Drawings
Attachment B Geologic Logs of Drill Holes
Attachment C Laboratory Test Data
Attachment D Underwater Mapping of Reservoir Conditions

B Hydraulic and Sediment Transport Analysis and Modeling B-1
Attachment A Bathymetric Survey Data of Savage Rapids Reservoir and Cross Section Locations
Attachment B 2-Foot Contour Map of Savage Rapids Reservoir
Attachment C Hydraulic Parameters from Calibration Model Runs
Attachment D Preliminary Sediment Model Results
Attachment E Sediment Priming Run Results
Attachment F Series of Plots Illustrating Sediment Transport Downstream from the Dam Site Following Dam Removal

C Water and Sediment Quality Consideration Related to the Potential Savage Rapids Dam Removal C-1
Attachment A

D Hydrology D-1