SF File Number
9.6

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII, MONTANA OFFICE
FEDERAL BUILDING, 301 S. PARK, DRAWER 10096
HELENA, MONTANA 59626-0096

EXPLANATION OF SIGNIFICANT DIFFERENCES

Burlington Northern (Somers Plant) Site
Somers, Montana

United States Environmental Protection Agency
June 1992

I. INTRODUCTION

This Explanation of Significant Differences ("ESD") is being issued to present modifications to certain elements of the selected remedy for the Burlington Northern (Somers Plant) Site (the "Somers Plant" or "Site"). That remedy was described in the Record of Decision ("ROD") issued on September 27, 1989. See ROD, pages 40-46. This ESD also presents EPA's "practicability" determination, as required by the ROD (page 44), for the innovative bioremediation technology selected to address groundwater contamination at the Site.

EPA, in consultation with the Montana Department of Health and Environmental Sciences ("MDHES"), and after consideration of the results of the pilot testing required by the ROD (the "Pilot Study") and other pertinent information, has determined that the ground water bioremediation component of the remedy selected in the ROD (for purposes of this ESD, referred to as the "selected remedy") is "practicable," with modifications as specified in this ESD. Implementation of the selected remedy design process will begin immediately.

EPA has determined that certain limited changes to the selected remedy are necessary. The proposed changes to the remedy do not alter the selected remedy in any fundamental aspect regarding scope, cost, or performance. In accordance with Sections 117(c) and 121 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Superfund), as amended by the Superfund Amendments and Reathorization Act of 1986, 42 U.S.C. Section 9601, et seq. ("CERCLA"), and the regulations at 40 C.F.R. Section 300.435(c)(2)(i), the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), this ESD has been prepared for the following reasons:

a. to provide the public with an explanation of the nature of the changes to the remedy;

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b. to summarize the circumstances that led to the changes to the remedy;

c. to affirm that the revised remedy complies with all statutory requirements.

MDHES concurred on the ROD issued on September 27, 1989, and has participated in the review of information leading to this ESD, including documents prepared as a result of the Pilot Study. MDHES also participated in the public informational meeting held on May 14, 1992, in Somers, Montana. EPA serves as the lead agency for implementation of the ROD at the Site, and MDHES serves as a support agency at the Site.

II. BACKGROUND AND NEED FOR ESD.

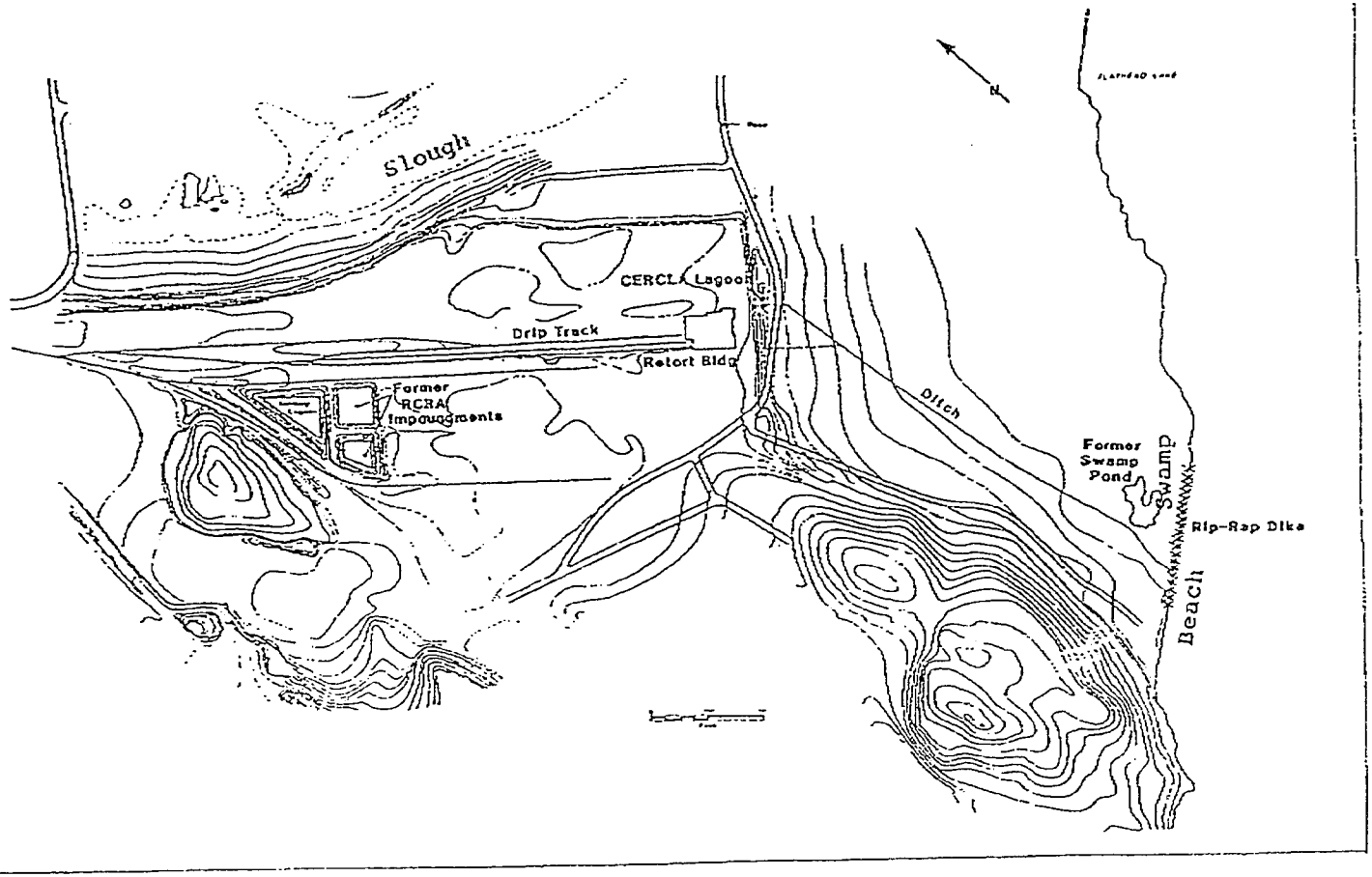
A. History of contamination at the Site.

The Somers tie plant was operated by Burlington Northern between 1901 and 1986. The plant treated railroad ties and other miscellaneous lumber products to protect the materials from weathering and insects. Treatment fluids used by BN included zinc chloride, chromated zinc chloride and creosote/petroleum preservative mixtures. The treatment process generated wastewater primarily consisting of steam condensate containing zinc chloride or creosote. Other sources of process generated wastewater were floor and shop washings, drippage from ties pulled out of the retort and drippage from treated ties in storage. An average of 350 gallons of wastewater were discharged per day. Approximately 1,000 pounds of sludge from the retort was generated every one and a half to two years (ReTec 1989). Prior to 1971, BN discharged wastewater to a lagoon located immediately south of the retort building (the "CERCLA lagoon", ROD Figure 3, Attached). Overflow from this lagoon discharged through an open ditch into Flathead Lake. Sometime prior to 1946, a pond formed in the swamp area (the "swamp pond", ROD Figure 3) adjacent to Flathead Lake and waste material discharged through the open ditch accumulated here. The final disposition of retort sludge is uncertain; some was reported to have been used to patch holes in local roads.

BN abandoned the CERCLA lagoon and ditch in 1971 when the company constructed two new wastewater holding impoundments (the Resource Conservation and Recovery Act (RCRA) impoundments, ROD Figure 3). In 1984 BN implemented a recycling system and stopped all wastewater discharges. The locations of the major, presently known disposal areas at the Site are shown in Figure 3 of the ROD (1989).

FROM : EPA Region VIII Montana Office TEL: 4065495433 JUN.23.1992 10:46 AM P 2

FIGURE 3



Location of Disposal Areas at the Somers Tie Plant

Source: Remediation Technologies (1989), Volume 1.

In February, 1984, the Montana Department of Health and Environmental Sciences (MDHES) sampled the Site soils. Based on the results of this investigation, the Site was proposed for inclusion on the Superfund National Priorities List in October 1984 (49 FR 40320, October 15, 1984). The proposed listing cited potential negative effects on Flathead Lake and the water supply for the town of Somers which is drawn from the lake.

In May, 1985, EPA, BN and Sliters (a corporation which owns a portion of the site) signed an Administrative Order on Consent (Docket No. CERCLA-VIII-85-02) providing for an Emergency Removal action in the area of the swamp pond adjacent to Flathead Lake. The area was determined to pose an imminent and substantial hazard to Flathead Lake because of the presence of heavy creosote contamination in water and soil located within 20 feet of the shoreline. Pursuant to the 1985 Administrative Order, BN removed approximately 3,000 cubic yards of the most heavily contaminated soils and over 100,000 gallons of contaminated water from the swamp pond area and from a portion of the drainage ditch. The excavated areas were backfilled with clean soil and riprap was installed along the lakeshore. The excavated materials were placed in the RCRA impoundments, which had been cleared and double-lined for this purpose. The contaminated water was processed at the plant to recover any usable materials and the soils were transferred to the BN RCRA-regulated facility in Paradise, Montana to await treatment.

In October, 1985, the EPA, BN and Sliters signed an Administrative Order on Consent (Docket No. CERCLA-VIII-85-07) for a Remedial Investigation and Feasibility Study (RI/FS). The purpose of the Remedial Investigation and Feasibility Study was to determine the nature and extent of contamination at the Site, to evaluate the impacts of contamination on public health and the environment and to formulate alternatives for remedial action. BN began conducting the work under EPA supervision in the fall of 1985 and completed its field investigations in the fall of 1988. Sliters provided access to their property for site investigations. A Remedial Investigation/Feasibility Study report, consisting of final Site Investigation and Exposure and Endangerment reports and a public review draft Feasibility Study, was submitted to EPA in the spring of 1989 (Remediation Technologies, 1989). Correspondence between the EPA and BN regarding the Remedial Investigation/Feasibility Study is contained in the Administrative Record file.

The RCRA impoundments were filled in and covered with pavement by BN in 1988 pursuant to a closure plan approved by the MDHES's Hazardous Waste Permitting Program. Subsequent to the closure of the RCRA impoundments, a ground water monitoring well located adjacent to the impoundments indicated that ground water was contaminated; therefore ground water corrective action was required.

BN submitted a proposal for corrective action to the MDHES Hazardous Waste Program in February, 1989. In order to ensure coordination of the RCRA and CERCLA facets of site activities, the EPA has consulted with the MDHES and kept the agency involved in all CERCLA activities.

B. Remedy selected in the ROD.

The ROD for the Somers Site, signed September 27, 1989, selected a contingency approach to soil and ground water remediation. The ROD requires that a Pilot Study be conducted to demonstrate the "practicability" of the bioremediation component of the selected ground water remedy. ROD, page 44.

The remedy selected in the ROD includes the following:

1. Establishment of Remediation Levels to be met for soils and ground water at all areas of contamination at the Site. (See Table 7 and Attachment A, ROD)

2. Excavation of approximately 11,700 cubic yards of soil from the CERCLA Lagoon, the drip track, the drainage ditch, beneath the retort building, and in the slough area north of the plant;

3. Excavated soils were to be biologically treated on the surface in a 10-acre, lined land treatment unit. Treatment of the soils to acceptable health-based levels was anticipated to take from eight to ten years;

4. Ground water in the immediate CERCLA Lagoon area, in associated downgradient ground water contamination, and in the Swamp Pond area was to be treated by hot water flushing, ozone/UV or peroxide/UV treatment at the surface and in situ biological treatment of residual contamination. The time predicted to achieve Remediation Levels was 10 years (ROD pgs. 34 and 35).

5. Pilot testing of both hot water flushing and in situ biological treatment were required in order to demonstrate the "practicability" of each technology. Both treatment techniques were considered innovative technologies and although successful or in present use at other sites nationwide, had not been proven to be effective in the soil conditions found at the Somers Site.

6. Because aspects of the innovative bioremediation portion of the selected remedy were unproven, EPA also selected two "contingency" remedies in the ROD. The ROD specified that these would be implemented if the selected remedy was not determined to be practicable. The contingency remedies consist of "deep" excavation and incineration of soils in the CERCLA Lagoon and Swamp Pond. Although there is no ground water component of the contingency remedies, the ROD states that institutional controls designed to prevent the use of contaminated ground water would be implemented in the contaminated areas until ground water quality returned to acceptable levels.

C. The Pilot Study.

The ROD specified that the criteria established in EPA's Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (OSWER Directive 9355.3-01, October 1988) will be used to determine "practicability" of the selected remedy. The criteria cited in this guidance that are used to evaluate and develop the rationale for a remedy selection are:

- Overall Protection of Human Health and the Environment
- Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)
- Long-term Effectiveness and Performance
- Reduction of Toxicity, Mobility, and Volume Through Treatment
- Short-term Effectiveness
- Implementability
- Cost
- State Acceptance
- Community Acceptance

An evaluation of the selected remedy as modified by this ESD, relative to the above factors, is presented later in this document. This evaluation, in consideration of other relevant information available to EPA, forms the basis for the modifications presented in this ESD.

D. The Consent Decree.

On December 20, 1991 (date of entry by Court), the EPA entered into a Consent Decree with Burlington Northern Railroad Company and Burlington Northern, Inc. ("BNRR")(filed in United States District Court, District of Montana, Civil Action No. CV91-32-M-CCL) for Remedial Design and Remedial Action (RD/RA) work at the Site. The required work includes performance of the Pilot Study by BNRR, and if after the Pilot Study EPA determines that the selected remedy is "practicable," implementation by BNRR of the selected remedy to completion. As soon as possible after issuance of this ESD, EPA will require BNRR to proceed with RD/RA activities at the Somers Site and to implement the selected remedy, as modified in this ESD.

III. BASIS FOR THE CHANGES TO THE REMEDY

BNRR, through its contractor ReTec implemented the Pilot Study in accordance with a work plan developed pursuant to the Consent Decree. The results of the Pilot Study were reported by ReTec in the Remedial Design Investigation Report For The Former Somers Tie plant ("RDI Report", ReTec, December 1991). The objective of the Study was to more accurately define and quantify the conditions under which ground water could be successfully remediated.

The ReTec RDI Report States:

1. In the immediate CERCLA Lagoon area, hot water flushing and in situ bioremediation are "practicable": however, remediation of contaminated soils to ROD Remediation Levels would be achieved in less time than specified in the ROD if additional source soils (defined in the Study as those containing greater than 1000 mg/kg total PAH or to a depth of approximately 15 feet) were excavated and land treated. Hot water flushing would not be needed in these areas because the remaining soils would contain less contamination.

2. In the Swamp Pond area, in situ bioremediation is "practicable" from an engineering standpoint but not with hot water flushing. Additional soil excavation to 10 feet (1000 mg/kg total PAH) will improve remediation efforts by reducing the ground water contaminant source. The additional soil excavation would add an estimated 13,000 cy to the total described in the ROD.

3. Land treatment of each soil application will achieve Remediation Levels within two operating seasons. If the total volume of soil to be land treated was to include 12,000 cy from the CERCLA Lagoon and an

additional 13,000 cy from the Swamp Pond area and 6,000 cy from other plant areas, the total 31,000 cy could be treated on 13 acres in two applications (2 applications x 2 years per application = 4 years to reach Remediation Levels).

4. The time period estimated to achieve ground water remediation levels in the Remedial Design Investigation Report is 50 years (RDI Report, Dec. 1991, pg. 2-12). The remedy selected in the ROD for ground water remediation was hot water flushing with in situ biological treatment and predicted time to achieve remediation levels was approximately 10 years (ROD, pg. 35). The ROD also presented an alternative of biological treatment without hot water flushing that was predicted to achieve remediation levels in approximately 15 years (ROD, page 34). The ROD recognized that these estimates were preliminary and could be revised based on the Pilot Study or information generated during implementation. BNRR's estimate of 50 years is based on information in RDI Report that predicts the amount of time necessary to move a predetermined number of pore volumes of water through the subsurface to achieve remediation of soils and ground water to the ROD remediation levels.

5. Ground water extracted from the CERCLA Lagoon and Swamp Pond areas will be treated at the surface prior to reinjection as described in the ROD. An oxygen source, such as hydrogen peroxide, and nutrients may be added to the ground water in the CERCLA Lagoon area to improve treatment, however nutrients might not be added to the Swamp Pond due to its location directly adjacent to Flathead Lake if it is further determined that complete control of the nutrients can not be achieved.

IV. MODIFICATIONS TO THE REMEDY

EPA and MDHES have reviewed the results of the Pilot Study as presented in ReTec's Remedial Design Investigation Report For The Former Somers Tie Plant (RDI Report), and MDHES has provided EPA with its comments. In addition, the Flathead Lake Protection Association (FLPA) also reviewed and submitted comments on the RDI Report. These reviews and comments are have been placed in the Administrative Record for the Site. EPA has considered these reviews and comments, as well as other general information on the Site contained in the Administrative Record, in making the modifications specified in this ESD.

Specific modifications to the selected remedy consist of the following:

1. Excavation of additional soils in the CERCLA Lagoon and Swamp Pond areas. Estimated total soil volumes to be excavated will increase from 11,700 cubic yards to approximately 31,000 cubic yards. Information generated from the Pilot Study indicates that further excavation will significantly aid the remediation process.

2. Increase in the size of the Land Treatment area. The increase in excavated soil will require that the Land Treatment area be increased from 10 acres to 13 acres. If the area was not increased, the time needed for complete treatment of additional excavated soils would significantly increase. The procedures for determining completion of land treatment are described in the ROD (pg. 42) and are not being modified by this ESD.

3. Elimination of the Hot Water Flushing option. Excavation of additional source soil in the CERCLA Lagoon will preclude the need for soil flushing. Hot water soil flushing in the Swamp Pond was determined to not be feasible from an engineering standpoint because the soils are too impermeable.

4. Soil and ground water clean-up time-frames will change. The Pilot Study indicates that soils will be cleaned up to Remediation Levels faster than anticipated in the ROD: 4 to 6 years rather than 10 years. The ground water clean-up to Remediation Levels could take as long as 50 years rather than 10 to 15 years as predicted in the ROD.

Only those changes described in paragraphs 1, 2, 3 and 4 above are being made to the selected remedy as described in the ROD. All other requirements and planned remedial actions contained in the ROD remain unaltered.

V. PRACTICABILITY DETERMINATION

Although a thorough detailed evaluation of alternatives was completed prior to finalizing the ROD, and was presented in the ROD, an evaluation of the selected remedy as modified by this ESD is useful. A summary of this evaluation for each of the criteria relevant to the practicability determination is as follows:

Overall Protection of Human Health and the Environment - The modified selected remedy is capable of meeting the Remediation Levels for soils and ground water set forth in the ROD. EPA review agrees that the Pilot Study findings support this conclusion.

Compliance With ARARs - The modified selected remedy is required to meet all ARARs identified in the ROD, as well as any pertinent new ARARs. EPA, in consultation with MDHES, will perform an additional evaluation to determine what is needed for ARAR compliance during actual implementation. All newly identified ARARs will be complied with as determined in accordance with CERCLA and with the Consent Decree.

Long-term Effectiveness and Permanence - Because additional source materials would be removed under the modified selected remedy, the opportunity for residual contamination of ground water is reduced. Thus, the present modifications will improve the long-term effectiveness of the remedy selected in the ROD.

Reduction of Toxicity, Mobility, and Volume Through Treatment - Surface land treatment of additional source soils, as implemented through the modified selected remedy, will facilitate achievement of Remediation Levels sooner than the *in situ* bioremediation remedy selected in the ROD. The volume of residual contamination would be expected to be similarly reduced from the remedy as originally set forth in the ROD.

Short-term Effectiveness - The ground water remedy as modified will take longer to achieve Remediation Levels in ground water than was anticipated in the ROD. Institutional controls on ground water use must be maintained throughout the remedy. Monitoring for protection of the Somers municipal water supply would also continue throughout the remedy. Because greater volumes of contaminated soils will be excavated the possibility of some increase in short-term risks could exist. However, the increased volume of source soils will overall be remediated sooner than they would if EPA were relying solely on *in situ* bioremediation. In addition, increasing the size of the land treatment area as described above, and the shorter treatment times per application, as determined by the Pilot Study, will decrease the total time needed for land treatment from that estimated in the ROD. EPA has determined that no significant increase in risks to human health or the environment would be caused by the increase in size of the land treatment area.

Implementability - Additional excavation of saturated soils in the CERCLA Lagoon and the Swamp Pond will require careful design and planning. However, proven construction techniques for these procedures do exist.

Cost - BNRR has committed to meet the Remediation Levels set forth in the ROD. Although there will be certain increases in costs associated with the longer time frames for completion of the remedy, the modified remedy will not involve any significant increase in overall costs associated with remedy implementation. Implementation of the modified selected remedy will be

significantly less expensive than either of the contingency remedies selected in the ROD, but will still achieve the same level of protectiveness.

State Acceptance - Under a cooperative agreement with EPA, MDHES has assumed a support agency role at the Somers Site that involves reviewing site documents, plans, correspondence, and providing input to EPA regarding any concerns or comments that MDHES might have.

In 1989, MDHES supported EPA in the selection of a remedy for the Somers Site which included bioremediation of the ground water and on-site bioremediation of the contaminated soils. It was anticipated that 10 to 20 years would be required to clean up the Site.

The changes that have been proposed in the remedy will significantly extend the length of time necessary for ground water cleanup, and this concerns MDHES. MDHES feels that fifty years is a long time to monitor a cleanup process, however, they also feel that it is time to move forward with the cleanup. MDHES believes that it could take a long time to develop and reach agreement on a plan that would speed the ground water cleanup process. MDHES welcomes the initiation of construction activities at the Site and will continue to monitor progress in every way possible.

Community Acceptance - In developing the modifications presented in this ESD, EPA has remained cognizant of community input and concerns. EPA has also considered community concerns for the remedy in general, as expressed in the ROD and as addressed in the Responsiveness Summary for the ROD. The EPA Project Manager has met with the Somers Citizens Advisory Group approximately 25 times since the ROD was signed. This Group has been continually advised of the status of activities at the Site and has been briefed on the findings of the Pilot Study as well as EPA's proposed modifications. The Group has not expressed any concerns with the modifications to the selected remedy as contained in the ReTec Pilot Study Report and explained to them during a meeting on March 26, 1992 held in the Somers Fire Hall.

A Public Information Meeting was held on May 14, 1992, in the Somers Central School Gymnasium, to present the results of the Pilot Study and to discuss the process that would allow BNRR to proceed with site remediation. Comments expressed at this meeting included concern about the lengthy ground water remediation period, a preference to move forward with the soils remedy, a need to provide protection for Flathead Lake and the Somers water supply and some people wanted to see soils removed from the site for treatment/disposal. The public accepted the remedy discussed in this ESD, but with some reservations.

The Flathead Lake Protection Association has been similarly involved in the process leading to the present remedy modifications. Neither the Flathead Lake Protection Association nor their Technical Advisor have indicated any significant concerns regarding the modifications. The Technical Advisor has expressed confidence in the effectiveness of the remedy as modified (statements made at March 26, 1992 Advisory Group meeting).

VI. SUMMARY OF STATE COMMENTS AND AVAILABILITY OF ADMINISTRATIVE RECORD

A. The Montana Department of Health and Environmental Sciences has reviewed this ESD and has provided comments on the document to EPA. All of MDHES's comments have been addressed in this final version of the ESD. A statement concerning MDHES's position relative to the modified selected remedy was provided to EPA by MDHES and is included in this ESD (Section V, State Acceptance).

B. Administrative Record.

The documents pertaining to this ESD will become part of the administrative record for the Somers Site. The administrative record will also contain any written comments that may be received regarding this ESD. The complete administrative record for the Site is available for public review at the following locations:

Flathead County Public Library 247 1st Avenue East Kalispell, MT 59901 (406) 756-5690 Hours: M-F, 8 a.m. to 4 p.m.	U.S. EPA Montana Office Federal Building, Rm 285 301 S. Park, Box 10096 (406) 449-5414 M-F, 8 a.m. to 5 p.m.

VII. AFFIRMATION OF STATUTORY DETERMINATIONS

As discussed above, although EPA's review of the Pilot Study Report identified important concerns regarding the implementation of the selected remedy, EPA believes, based on all available information, that Remediation Levels identified in the ROD and incorporated in the Consent Decree can be met. Deep excavation and incineration of soils, the contingency remedy selected in the ROD, would not directly provide for remediation of ground water in either the CERCLA Lagoon or Swamp Pond areas.

Considering the new information that has been developed and the changes that have been made to the selected remedy, EPA, in consultation with MDHES, believes that the remedy remains protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to this remedial action, and is cost-effective. In addition, the revised remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this Site.

VIII. APPROVAL

Date 6/26/92

Jack W. McGraw
Acting Regional Administrator

SF File Number
9.6

CONCURRENCE COPY

Ref: 8MO

June 22, 1992

MEMORANDUM

SUBJECT: Explanation of Significant Differences for the BN Somers Site

FROM: Jim Harris, 8MO
Remedial Project Manager

TO: Jack W. McGraw
Acting Regional Administrator

Attached is an Explanation of Significant Differences (ESD) for the BN Somers Site located in Somers, Montana for your signature. The purpose of the ESD is to make minor modifications to the ground water and soils remedies selected in the ROD signed in September 1989.

The ESD also directs Burlington Northern Railroad (BNRR) to implement the selected remedy in accordance with the modifications. BNRR has recently completed a Pilot Study to determine the practicability of the ground water remedy as required by the ROD and the RD/RA Consent Decree. EPA has determined that the remedy is practicable and is using this ESD to announce that determination.

Also attached is a document that more fully explains the Pilot Study/practicability determination.

Concurrence List: D. Pizzini, 8MO
J. Wardell, 8MO
J. Stearns, 8RC
R. Duprey, 8HWM

Attachments:

FCD:June 21, 1992:jimh:bnesdcon.cur

Duprey 6/22/92

DEC, 8MO 6/22/92

Jim Harris 6/22/92

6-23-92

8RC Duprey (w/ comment) 6/24/92

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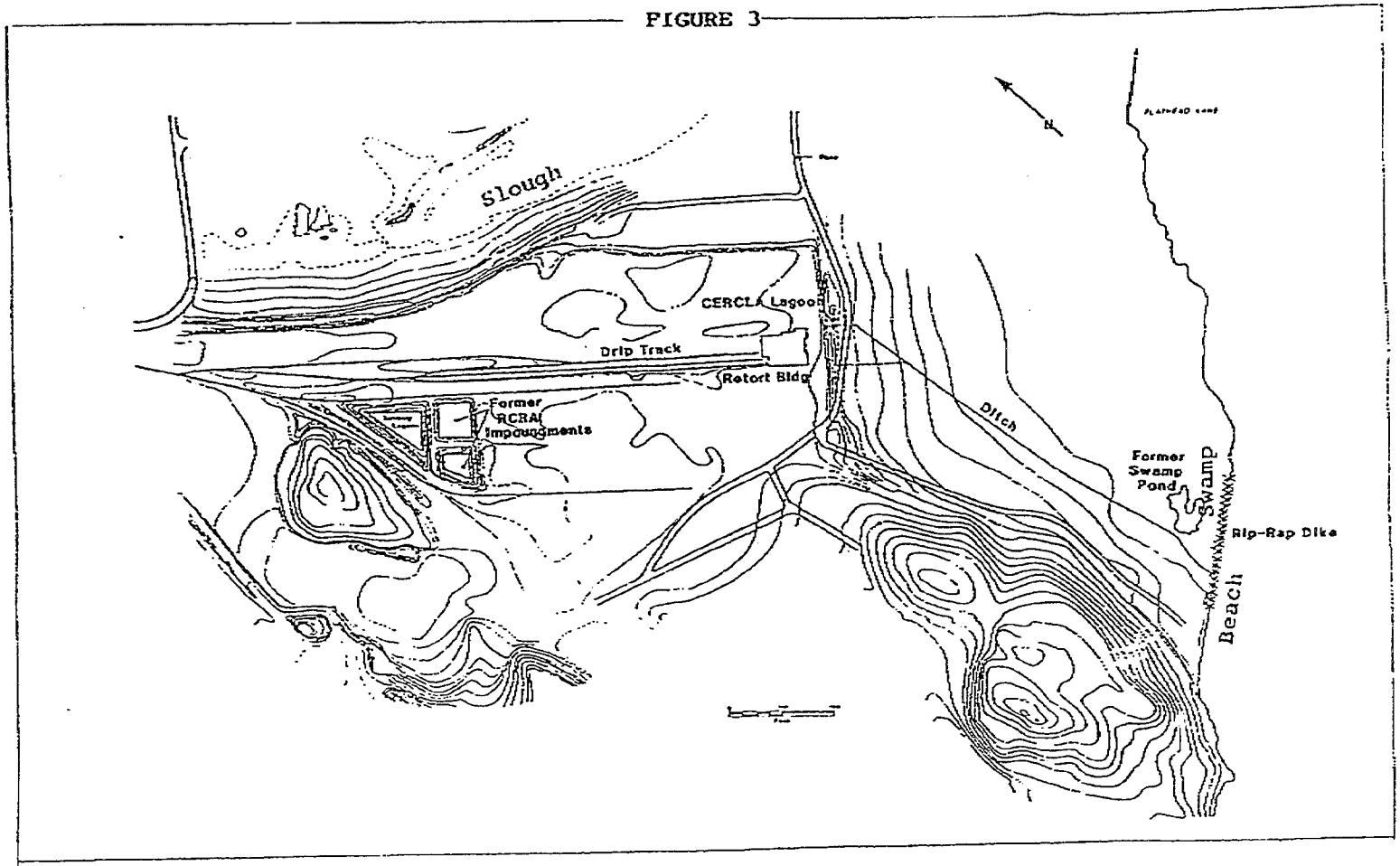

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The ROD for the Somers Site, signed September 27, 1989, selected a contingency approach to soil and ground water remediation. The ROD requires that a Pilot Study be conducted to demonstrate the "practicability" of the bioremediation component of the selected ground water remedy. ROD, page 44.

The remedy selected in the ROD includes the following:

1. Establishment of Remediation Levels to be met for soils and ground water at all areas of contamination at the Site. (See Table 7 and Attachment A, ROD)

2. Excavation of approximately 11,700 cubic yards of soil from the CERCLA Lagoon, the drip track, the drainage ditch, beneath the retort building, and in the slough area north of the plant;

3. Excavated soils were to be biologically treated on the surface in a 10-acre, lined land treatment unit. Treatment of the soils to acceptable health-based levels was anticipated to take from eight to ten years;

4. Ground water in the immediate CERCLA Lagoon area, in associated downgradient ground water contamination, and in the Swamp Pond area was to be treated by hot water flushing, ozone/UV or peroxide/UV treatment at the surface and in situ biological treatment of residual contamination. The time predicted to achieve Remediation Levels was 10 years (ROD pgs. 34 and 35).

5. Pilot testing of both hot water flushing and in situ biological treatment were required in order to demonstrate the "practicability" of each technology. Both treatment techniques were considered innovative technologies and although successful or in present use at other sites nationwide, had not been proven to be effective in the soil conditions found at the Somers Site.

6. Because aspects of the innovative bioremediation portion of the selected remedy were unproven, EPA also selected two "contingency" remedies in the ROD. The ROD specified that these would be implemented if the selected remedy was not determined to be practicable. The contingency remedies consist of "deep" excavation and incineration of soils in the CERCLA Lagoon and Swamp Pond. Although there is no ground water component of the contingency remedies, the ROD states that institutional controls designed to prevent the use of contaminated ground water would be implemented in the contaminated areas until ground water quality returned to acceptable levels.

C. The Pilot Study.

The ROD specified that the criteria established in EPA's Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (OSWER Directive 9355.3-01, October 1988) will be used to determine "practicability" of the selected remedy. The criteria cited in this guidance that are used to evaluate and develop the rationale for a remedy selection are:

- Overall Protection of Human Health and the Environment
- Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)
- Long-term Effectiveness and Performance
- Reduction of Toxicity, Mobility, and Volume Through Treatment
- Short-term Effectiveness
- Implementability
- Cost
- State Acceptance
- Community Acceptance

An evaluation of the selected remedy as modified by this ESD, relative to the above factors, is presented later in this document. This evaluation, in consideration of other relevant information available to EPA, forms the basis for the modifications presented in this ESD.

D. The Consent Decree.

On December 20, 1991 (date of entry by Court), the EPA entered into a Consent Decree with Burlington Northern Railroad Company and Burlington Northern, Inc. ("BNRR")(filed in United States District Court, District of Montana, Civil Action No. CV91-32-M-CCL) for Remedial Design and Remedial Action (RD/RA) work at the Site. The required work includes performance of the Pilot Study by BNRR, and if after the Pilot Study EPA determines that the selected remedy is "practicable," implementation by BNRR of the selected remedy to completion. As soon as possible after issuance of this ESD, EPA will require BNRR to proceed with RD/RA activities at the Somers Site and to implement the selected remedy, as modified in this ESD.

III. BASIS FOR THE CHANGES TO THE REMEDY

BNRR, through its contractor ReTec implemented the Pilot Study in accordance with a work plan developed pursuant to the Consent Decree. The results of the Pilot Study were reported by ReTec in the Remedial Design Investigation Report For The Former Somers Tie plant ("RDI Report", ReTec, December 1991). The objective of the Study was to more accurately define and quantify the conditions under which ground water could be successfully remediated.

The ReTec RDI Report States:

1. In the immediate CERCLA Lagoon area, hot water flushing and in situ bioremediation are "practicable": however, remediation of contaminated soils to ROD Remediation Levels would be achieved in less time than specified in the ROD if additional source soils (defined in the Study as those containing greater than 1000 mg/kg total PAH or to a depth of approximately 15 feet) were excavated and land treated. Hot water flushing would not be needed in these areas because the remaining soils would contain less contamination.

2. In the Swamp Pond area, in situ bioremediation is "practicable" from an engineering standpoint but not with hot water flushing. Additional soil excavation to 10 feet (1000 mg/kg total PAH) will improve remediation efforts by reducing the ground water contaminant source. The additional soil excavation would add an estimated 13,000 cy to the total described in the ROD.

3. Land treatment of each soil application will achieve Remediation Levels within two operating seasons. If the total volume of soil to be land treated was to include 12,000 cy from the CERCLA Lagoon and an

additional 13,000 cy from the Swamp Pond area and 6,000 cy from other plant areas, the total 31,000 cy could be treated on 13 acres in two applications (2 applications X 2 years/application = 4 years to reach Remediation Levels).

4. The time period estimated to achieve ground water remediation levels in the Remedial Design Investigation Report is 50 years (RDI Report, Dec. 1991, pg. 2-12). The remedy selected in the ROD for ground water remediation was hot water flushing with in situ biological treatment and predicted time to achieve remediation levels was approximately 10 years (ROD pg. 35). The ROD also presented an alternative of biological treatment without hot water flushing that was predicted to achieve remediation levels in approximately 15 years (ROD page 34). The ROD recognized that these estimates were preliminary and could be revised based on the Pilot Study or information generated during implementation. BNRR's estimate of 50 years is based on information in the Study that predicts the amount of time necessary to move a predetermined number of pore volumes of water through the subsurface to achieve remediation of soils and ground water to the ROD remediation levels.

5. Ground water extracted from the CERCLA Lagoon and Swamp Pond areas will be treated at the surface prior to reinjection as described in the ROD. An oxygen source, such as hydrogen peroxide, and nutrients may be added to the ground water in the CERCLA Lagoon area to improve treatment, however nutrients might not be added to the Swamp Pond due to its location directly adjacent to Flathead Lake if it is further determined that complete control of the nutrients can not be achieved.

IV. MODIFICATIONS TO THE REMEDY

EPA and MDHES have reviewed the results of the Pilot Study as presented by ReTec's Remedial Design Investigation Report For The Former Somers Tie Plant, and MDHES has provided EPA with its comments. Comments on the Report were prepared by representatives of Roy F.Weston, Inc. and the Robert S. Kerr Environmental Research Laboratories who reviewed the Report on behalf of EPA. In addition, the Flathead Lake Protection Association (FLPA) also reviewed and submitted comments on the Pilot Study Report. In addition to information on the Site in general, contained in the administrative record, EPA has considered these reviews and comments in making the modifications specified in this ESD. Modifications to the selected remedy consist of the following:

1. Excavation of additional soils in the CERCLA Lagoon and Swamp Pond areas. Estimated total soil volumes to be excavated will increase from 11,700 cubic yards to approximately 31,000 cubic yards. Information generated from the Pilot Study indicates that further excavation will significantly aid the remediation process.

2. Increase in the size of the Land Treatment area. The increase in excavated soil will require that the Land Treatment area be increased from 10 acres to 13 acres. If the area was not increased, the time needed for complete treatment of additional excavated soils would significantly increase. The procedures for determining completion of land treatment are described in the ROD (pg. 42) and are not being modified by this ESD.

3. Elimination of the Hot Water Flushing option. Excavation of additional source soil in the CERCLA Lagoon will preclude the need for soil flushing. Hot water soil flushing in the Swamp Pond was determined to not be feasible from an engineering standpoint because the soils are too impermeable.

4. Soil and ground water clean-up time-frames will change. The Pilot Study indicates that soils will be cleaned up to Remediation Levels faster than anticipated in the ROD: 4 to 6 years rather than 10 years. The ground water clean-up to Remediation Levels could take as long as 50 years rather than 10 to 15 years as predicted in the ROD.

Only those changes described in paragraphs 1, 2, 3 and 4 above are being made to the selected remedy as described in the ROD. All other requirements and planned remedial actions contained in the ROD remain unaltered.

V. PRACTICABILITY DETERMINATION

Although a thorough detailed evaluation of alternatives was completed prior to finalizing the ROD, and was presented in the ROD, an evaluation of the selected remedy as modified by this ESD is useful. A summary of this evaluation for each of the criteria relevant to the practicability determination is as follows:

Overall Protection of Human Health and the Environment - The modified selected remedy is capable of meeting the Remediation Levels for soils and ground water set forth in the ROD. EPA review agrees that the Pilot Study findings support this conclusion.

Compliance With ARARs - The modified selected remedy is required to meet all ARARs identified in the ROD, as well as any pertinent new ARARs. EPA, in consultation with MDHES, will perform an additional evaluation to determine what is needed for ARAR compliance during actual implementation. All newly identified ARARs will be complied with as determined in accordance with CERCLA and with the Consent Decree.

Long-term Effectiveness and Permanence - Because additional source materials would be removed under the modified selected remedy, the opportunity for residual contamination of ground water is reduced. Thus, the present modifications will improve the long-term effectiveness of the remedy selected in the ROD.

Reduction of Toxicity, Mobility, and Volume Through Treatment - Surface land treatment of additional source soils, as implemented through the modified selected remedy, will facilitate achievement of Remediation Levels sooner than the in situ bioremediation remedy selected in the ROD. The volume of residual contamination would be expected to be similarly reduced from the remedy as originally set forth in the ROD.

Short-term Effectiveness - The ground water remedy as modified will take longer to achieve Remediation Levels in ground water than was anticipated in the ROD. Institutional controls on ground water use must be maintained throughout the remedy. Monitoring for protection of the Somers municipal water supply would also continue throughout the remedy. Because greater volumes of contaminated soils will be excavated the possibility of some increase in short-term risks could exist. However, the increased volume of source soils will overall be remediated sooner than they would if EPA were relying solely on in situ bioremediation. In addition, increasing the size of the land treatment area as described above, and the shorter treatment times per application, as determined by the Pilot Study, will decrease the total time needed for land treatment from that estimated in the ROD. EPA has determined that no significant increase in risks to human health or the environment would be caused by the increase in size of the land treatment area.

Implementability - Additional excavation of saturated soils in the CERCLA Lagoon and the Swamp Pond will require careful design and planning. However, proven construction techniques for these procedures do exist.

Cost - BNRR has committed to meet the Remediation Levels set forth in the ROD. Although there will be certain increases in costs associated with the longer time frames for completion of the remedy, the modified remedy will not involve any significant increase in overall costs associated with remedy implementation. Implementation of the modified selected remedy will be

significantly less expensive than either of the contingency remedies selected in the ROD, but will still achieve the same level of protectiveness.

State Acceptance - Under a cooperative agreement with EPA, MDHES has assumed a support agency role at the Somers Site that involves reviewing site documents, plans, correspondence, and providing input to EPA regarding any concerns or comments that MDHES might have.

In 1989, MDHES supported EPA in the selection of a remedy for the Somers Site which included bioremediation of the ground water and on-site bioremediation of the contaminated soils. It was anticipated that 10 to 20 years would be required to clean up the Site.

The changes that have been proposed in the remedy will significantly extend the length of time necessary for ground water cleanup, and this concerns MDHES. MD"ES feels that fifty years is a long time to monitor a cleanup process, however, they also feel that it is time to move forward with the cleanup. MDHES believes that it could take a long time to develop and reach agreement on a plan that would speed the ground water cleanup process. MDHES welcomes the initiation of construction activities at the Site and will continue to monitor progress in every way possible.

Community Acceptance - In developing the modifications presented in this ESD, EPA has remained cognizant of community input and concerns. EPA has also considered community concerns for the remedy in general, as expressed in the ROD and as addressed in the Responsiveness Summary for the ROD. The EPA Project Manager has met with the Somers Citizens Advisory Group approximately 25 times since the ROD was signed. This Group has been continually advised of the status of activities at the Site and has been briefed on the findings of the Pilot Study as well as EPA's proposed modifications. The Group has not expressed any concerns with the modifications to the selected remedy as contained in the ReTec Pilot Study Report and explained to them during a meeting on March 26, 1992 held in the Somers Fire Hall.

A Public Information Meeting was held on May 14, 1992, in the Somers Central School Gymnasium, to present the results of the Pilot Study and to discuss the process that would allow BNRR to proceed with site remediation. Comments expressed at this meeting included concern about the lengthy ground water remediation period, a preference to move forward with the soils remedy, a need to provide protection for Flathead Lake and the Somers water supply and some people wanted to see soils removed from the site for treatment/disposal. The public accepted the remedy discussed in this ESD, but with some reservations.

The Flathead Lake Protection Association has been similarly involved in the process leading to the present remedy modifications. Neither the Flathead Lake Protection Association nor their Technical Advisor have indicated any significant concerns regarding the modifications. The Technical Advisor has expressed confidence in the effectiveness of the remedy as modified (statements made at March 26, 1992 Advisory Group meeting).

VI. SUMMARY OF STATE COMMENTS AND AVAILABILITY OF ADMINISTRATIVE RECORD

A. The Montana Department of Health and Environmental Sciences has reviewed this ESD and has provided comments on the document to EPA. All of MDHES's comments have been addressed in this final version of the ESD. A statement concerning MDHES's position relative to the modified selected remedy was provided to EPA by MDHES and is included in this ESD (Section V, State Acceptance).

B. Administrative Record.

The documents pertaining to this ESD will become part of the administrative record for the Somers Site. The administrative record will also contain any written comments that may be received regarding this ESD. The complete administrative record for the Site is available for public review at the following locations:

Flathead County Public Library
247 1st Avenue East
Kalispell, MT 59901
(406) 756-5690
Hours: M-F, 8 a.m. to 4 p.m.

U.S. EPA Montana Office
Federal Building, Rm 285
301 S. Park, Box 10096
(406) 449-5414
M-F, 8 a.m. to 5 p.m.

VII. AFFIRMATION OF STATUTORY DETERMINATIONS

As discussed above, although EPA's review of the Pilot Study Report identified important concerns regarding the implementation of the selected remedy, EPA believes, based on all available information, that Remediation Levels identified in the ROD and incorporated in the Consent Decree can be met. Deep excavation and incineration of soils, the contingency remedy selected in the ROD, would not directly provide for remediation of ground water in either the CERCLA Lagoon or Swamp Pond areas.

Considering the new information that has been developed and the changes that have been made to the selected remedy, EPA, in consultation with MDHES, believes that the remedy remains protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to this remedial action, and is cost-effective. In addition, the revised remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this Site.

VIII. APPROVAL

Date 6/26/92

/s/
Jack W. McGraw
Acting Regional Administrator