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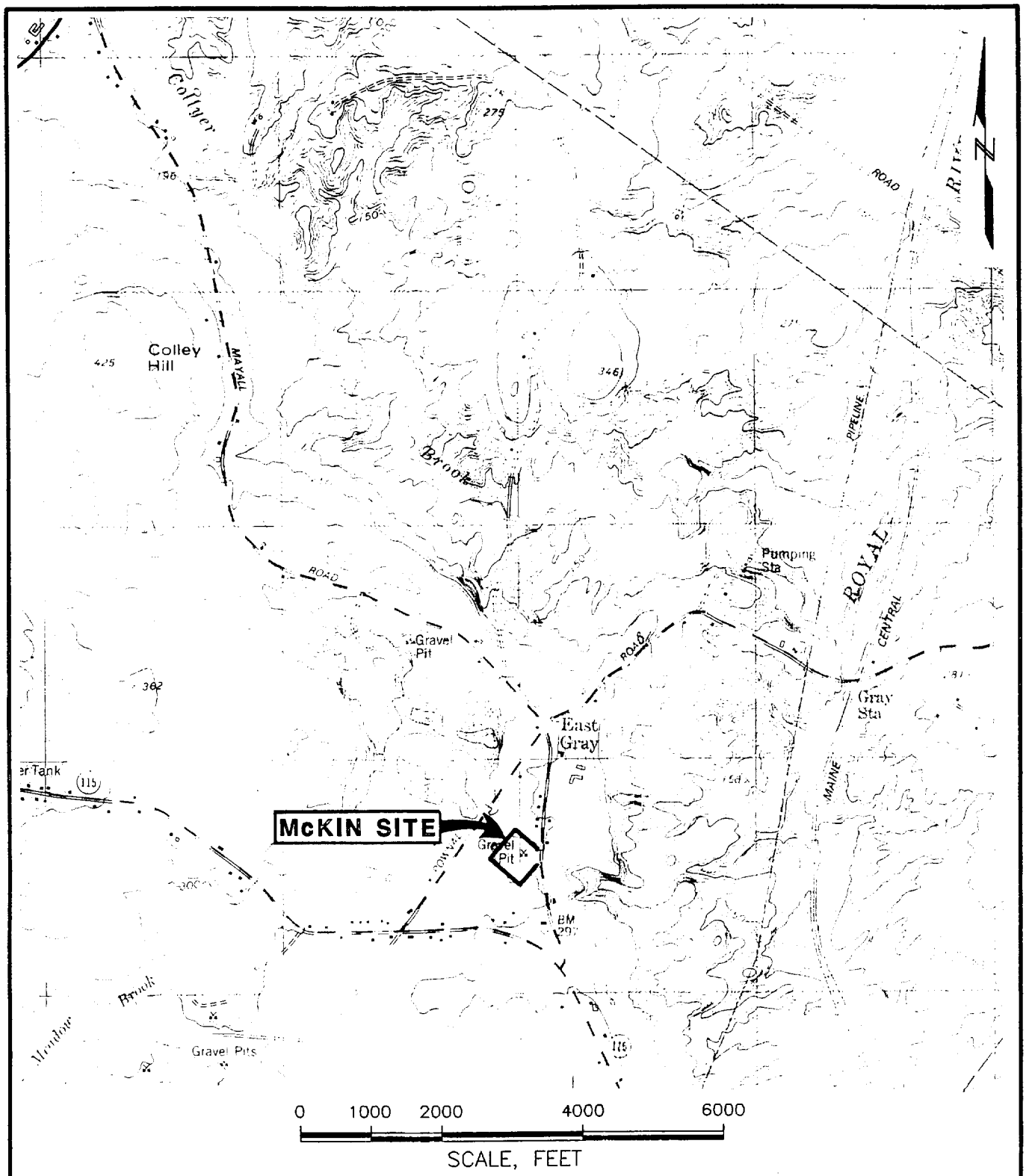
MCKIN SUPERFUND SITE
OFFSITE OPERABLE UNIT
MARCH 2001 ROD AMENDMENT

FIGURES



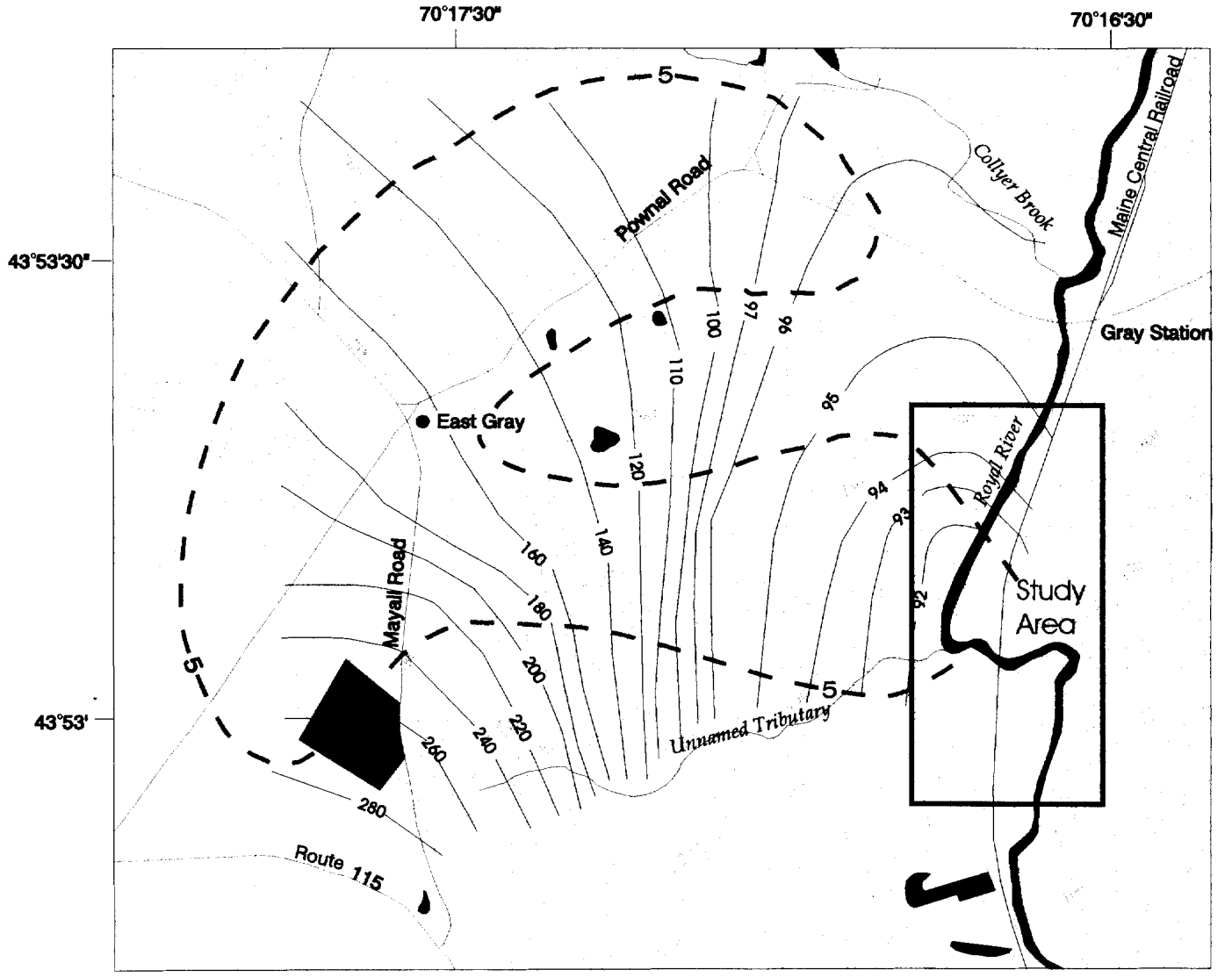
Map is taken from U.S.G.S. Topographic 7.5 Minute Series Gray, Maine Quadrangle, 1980.
Datum is National Geodetic Vertical Datum (NGVD).
Contour Interval is 10 Feet.

McKin PRP Technical Committee	McKin Superfund Site Gray, Maine	**Figure 1: Site Location Map**
GEI Consultants, Inc.	Project 95248	

95248-06 5/30/95 PTC

Figure 2:
Institutional Control Zone

Original includes color coding.

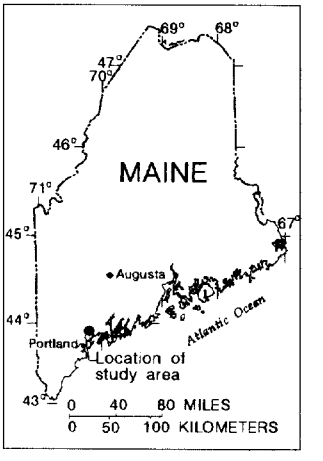


Base from U.S. Geological Survey Gray, Maine quadrangle, 1:24,000, 1980 edition.
Contour interval is 10 feet. NGVD 1929

0 500 1,000 FEET

0 100 200 300 METERS

Originals in color



—— 120 ——

POTENTIOMETRIC CONTOUR - Shows altitude at which water level would have stood in tightly cored wells completed in surficial materials in May 1998. Contour interval is variable. Datum is sea level. (Data from Sevee and Maher Engineers, 1998).

—5— —

EXTENT OF TCE IN SURFICIAL AQUIFER - Shows the extent of concentrations greater than 5 micrograms per liter. (Data from Sevee and Maher Engineers, 1998).

Figure 3: Overburden Plume and Potentiometric Surface Contours

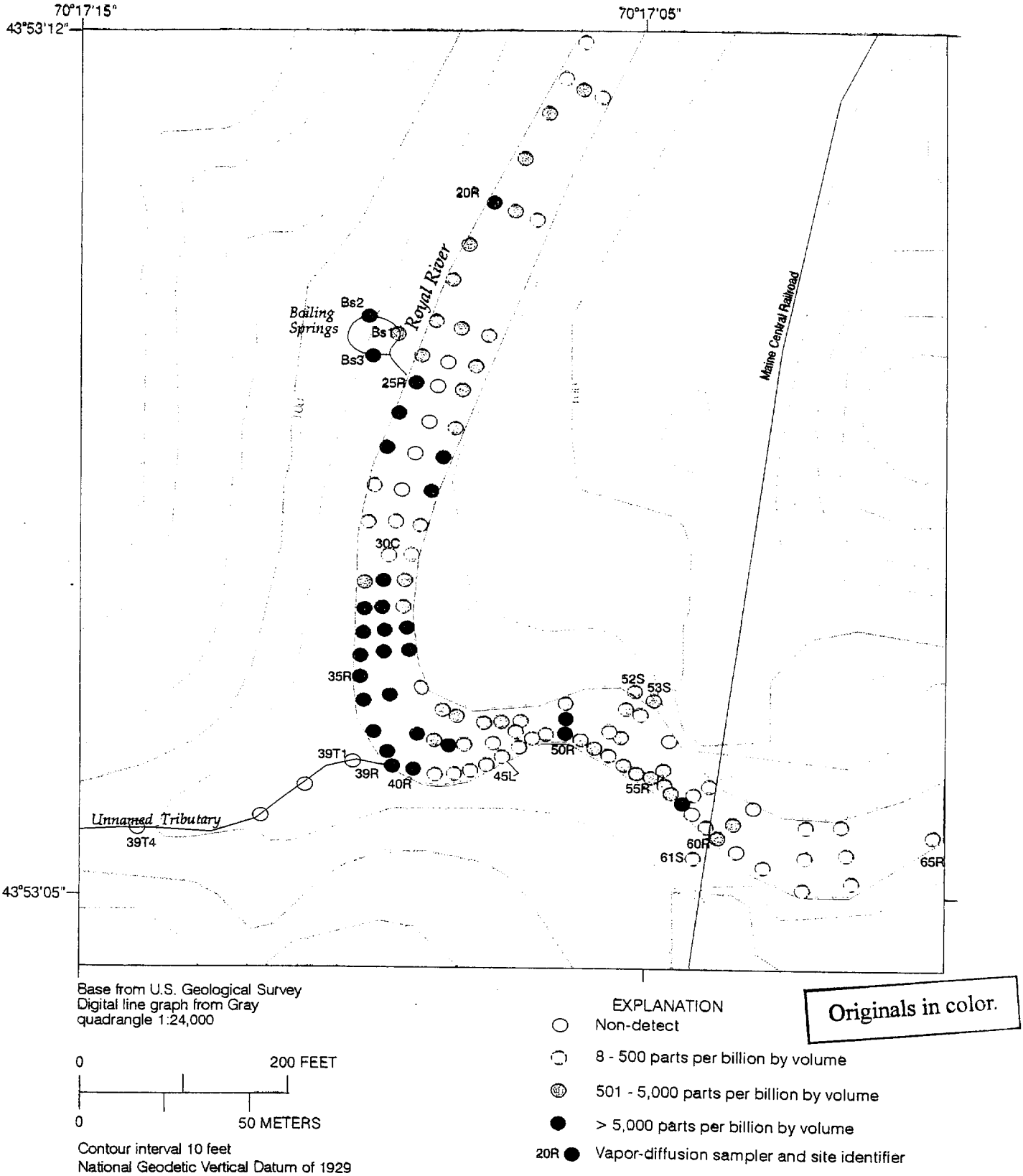


Figure 4: TCE Distribution in vapor-diffusion samplers in Royal River

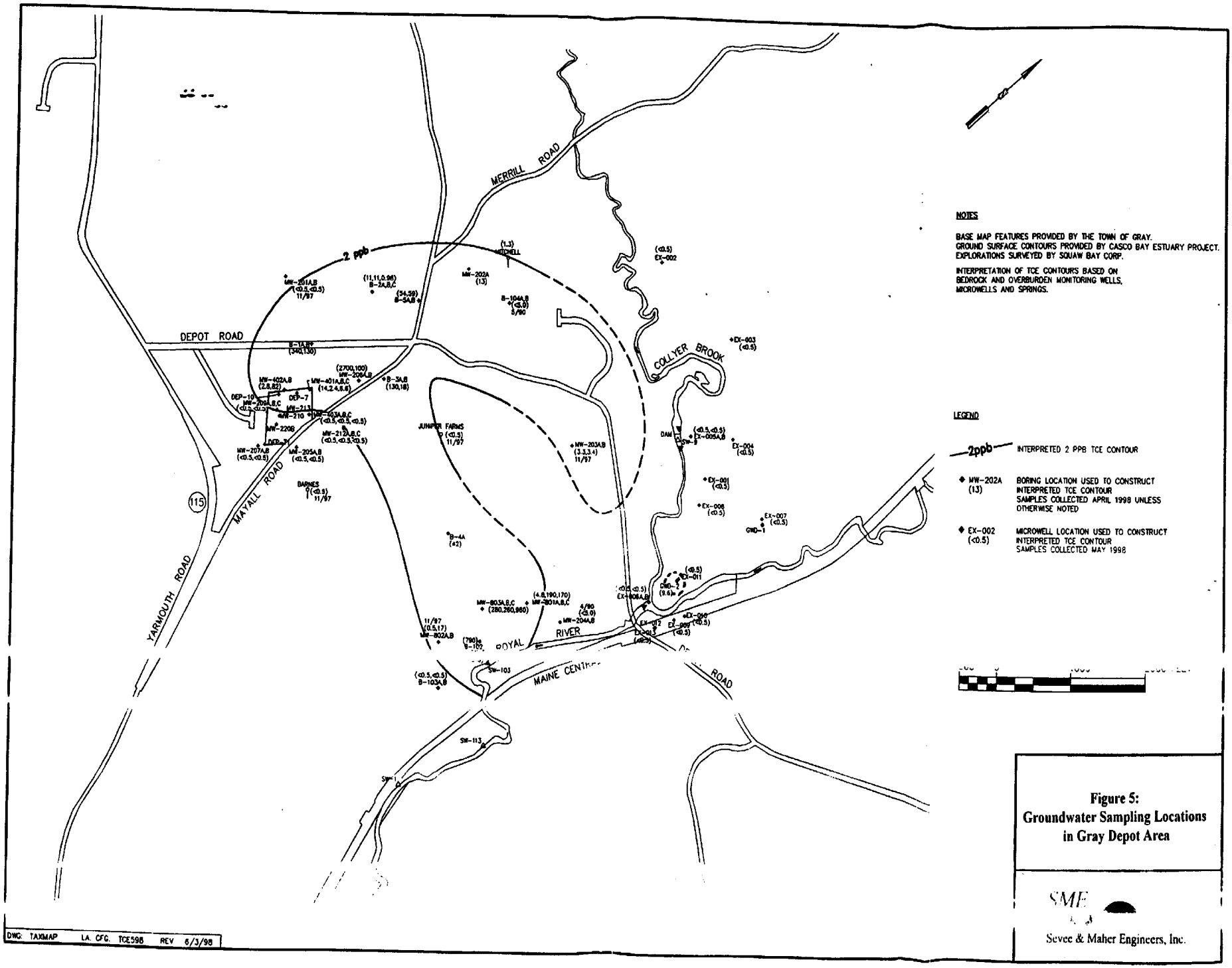
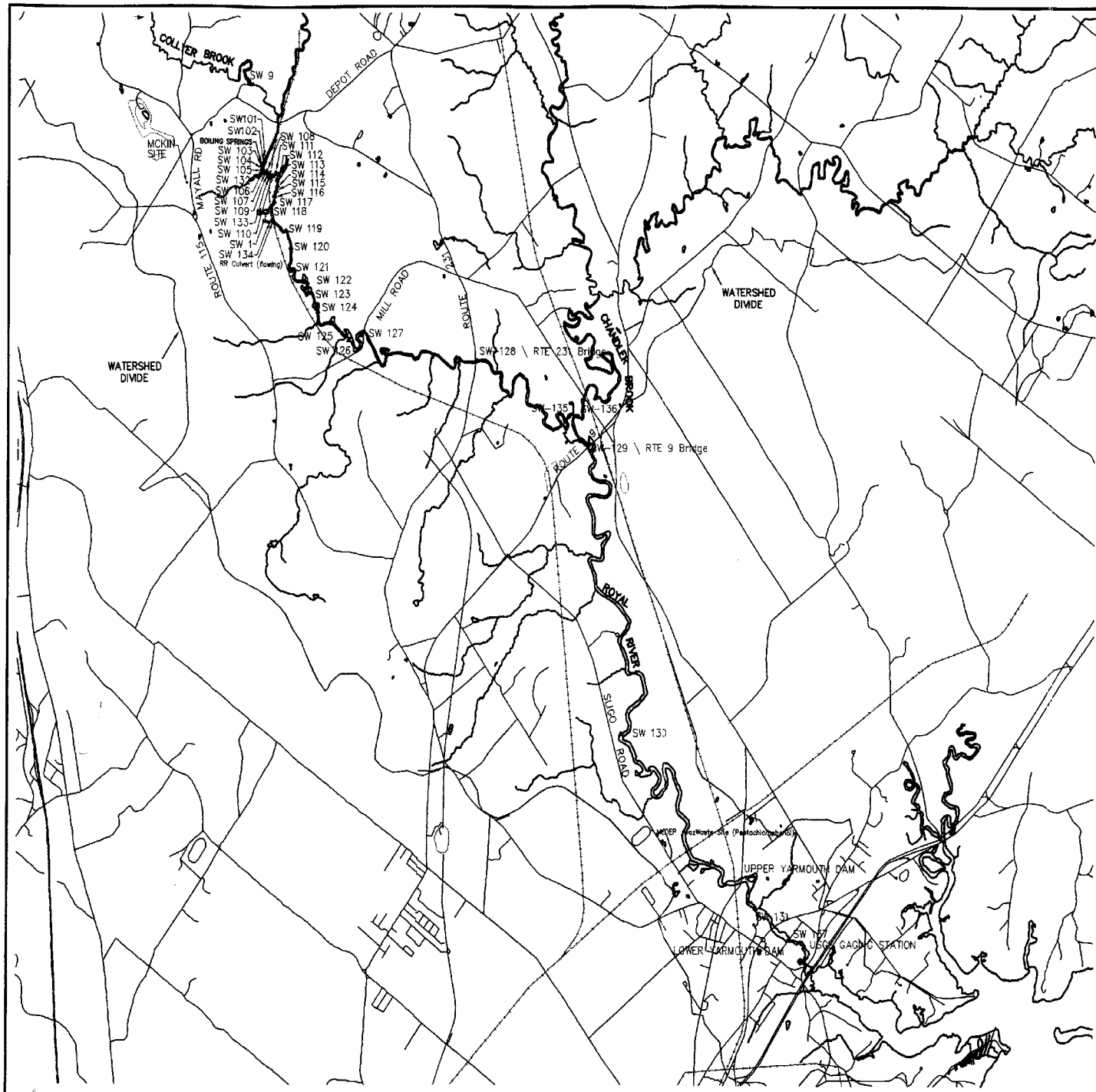


Figure 5:
Groundwater Sampling Locations in Gray Depot Area

SME

Sevee & Maher Engineers, Inc.



NOTES:

1. PLAN INFORMATION FROM DIGITAL 1:24,000 SCALE QUADRANGLE MAPS DERIVED FROM THE UNITED STATES GEOLOGICAL SURVEY MAPS GRAY, NORTH POWNAL, CUMBERLAND CENTER, AND YARMOUTH, MAINE. DIGITAL DATA PROVIDED BY MAINE STATE OFFICE OF GEOGRAPHIC INFORMATION SYSTEMS.

Originals in color.

1000 0 2000 4000 FEET

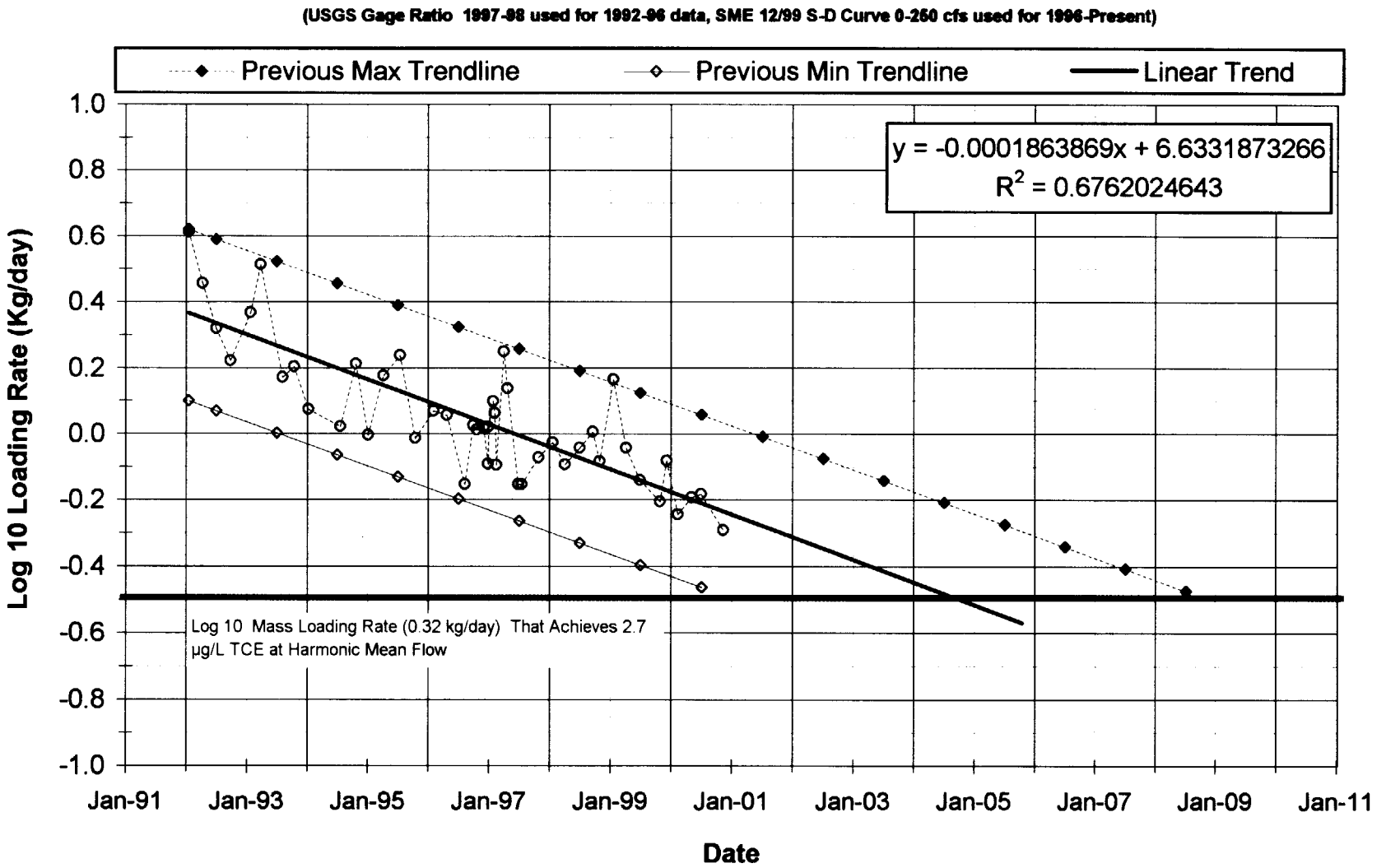
Figure 6:
Royal River
Downstream Surface Water
Sampling Locations

DWG.MCKQUAD3.DWG LA. CFG. JANFEB97 REV. 8/97

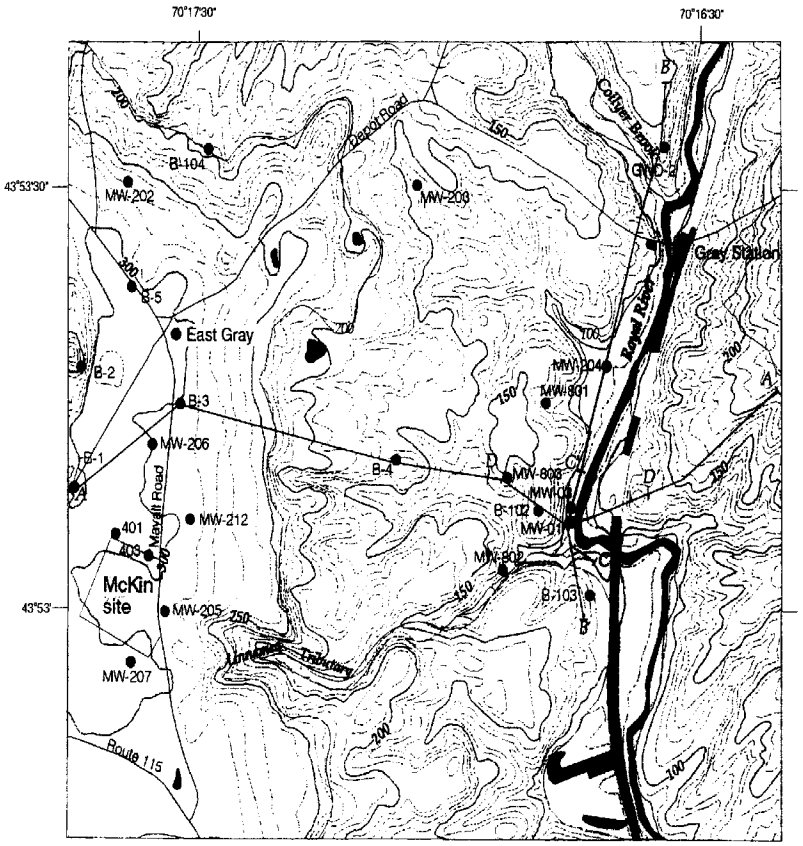
SEVEE & MAHER ENGINEERS, INC.

D:\MCK\ACAD\QUAD\MCKQUAD3.DWG Wed Aug 13 09:43:58 1997

Figure 7: TCE Mass Flux into the Royal River at SW-1
January 1992 to November 2000



Rrload.xls Chart RR Log Load 0192-P 1/17/01



Base from U.S. Geological Survey Digital line graph from Gray quadrangle 1:24,000

Geology modified from Weddle (1997)

0 500 1,000 FEET

0 100 200 300 METERS

Contour interval 10 feet
National Geodetic Vertical Datum of 1929

Figure 8: Surficial Geology

EXPLANATION

POSTGLACIAL DEPOSITS

Flood Plain Alluvium-- Silt, sand and gravel, with variable amounts of organic material on the flood plains of the Royal River, Collyer Brook, and the Unnamed Tributary; deposits are 10-12 ft thick along the Royal River, thinner along smaller streams; alluvium overlies thicker glacial materials in most places.

GLACIAL DEPOSITS

Glaciomarine Deposits, fine-grained -- Massive to finely laminated, gray silty clay with minor amounts of fine sand and sparse fossil marine mollusk shells and ice-rafted dropstones; deposited in the deeper water glaciomarine environment, distal from the ice margin. Where sediment has been oxidized in the upper part of section, the color is dark olive gray. This unit is the Presumpscot Formation of Bloom (1960;1963). In some places the upper 5-10 ft of unit is finely laminated to massive, silty fine to medium sand; deposited in the shallow glaciomarine environment during regression of the sea.

Glaciomarine Deposits, coarse-grained-- Well to poorly sorted gravel, sand and gravel, sand, and local diamict sediment laid down as deltaic and subaqueous fan deposits in contact with the glacier margin during retreat of the ice sheet in the glacial sea. Deposits are coarse-grained, poorly sorted, and bedding is collapsed in ice-proximal (northerly) parts; sediments are finer grained, better sorted, and beds generally dip southerly farther from (distal to) the ice-margin position; in distal parts of the deposits, fan and delta sediments interfinger with fine-grained glaciomarine sediments. Coarse-grained fan deposits are present beneath fine-grained deposits in much of the area west of the McKin Superfund Site.

Glacial Till-- Nonsorted and nonstratified, compact mixture of grain sizes ranging from clay to large boulders; matrix is largely fine sand containing up to 25 percent silt and clay; deposited beneath glacial ice. Locally, a less compact, sandy, stony facies of till may overlie the more compact facies. In the map area, till is present at land surface in only two small areas; it forms a thin blanket over bedrock in most places in the subsurface.

Originals in color.

MAP SYMBOLS

Contact between map units

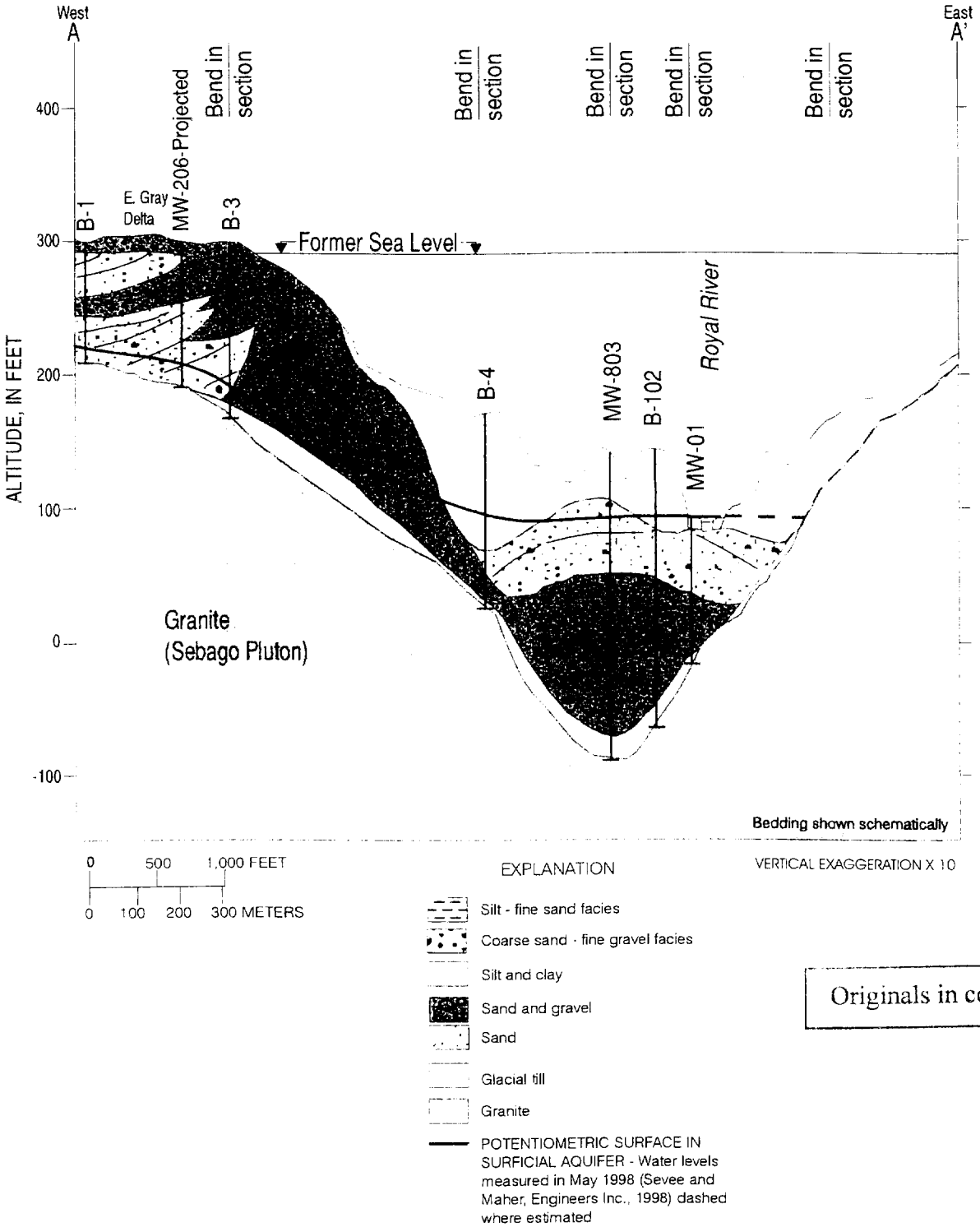
A——A' Location of geologic section line; section shown in figures 4 and 5

● MW-802 Location of wells and test borings; numbers as reported in Sevee and Maher, Engineers Inc., 1998

Waterbodies

Artificial fill of railroad and road embankments

Surficial geology near the McKin Superfund Site—Continued.



Originals in color.

Figure 9:
Geologic Cross-Section of Eastern Plume

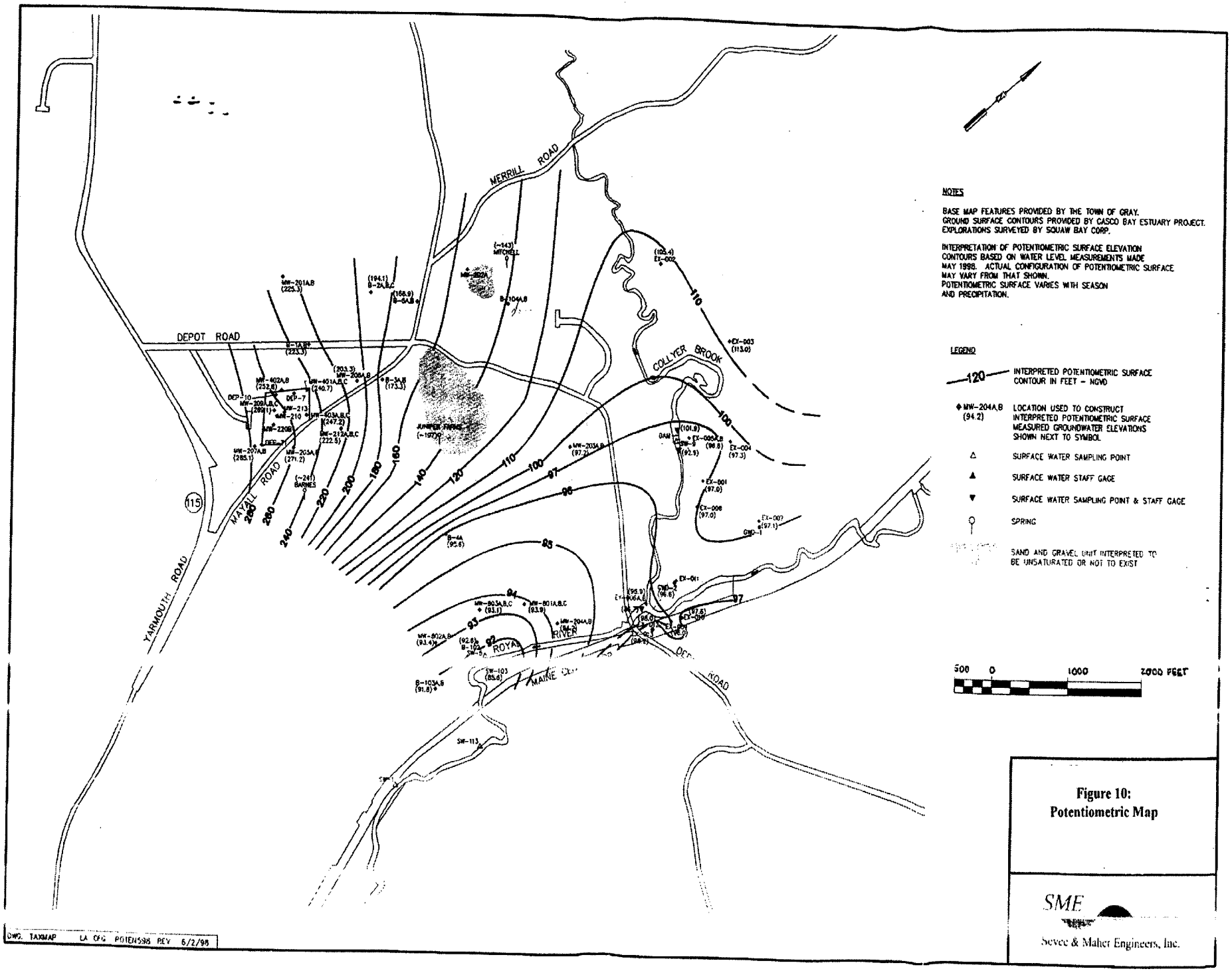
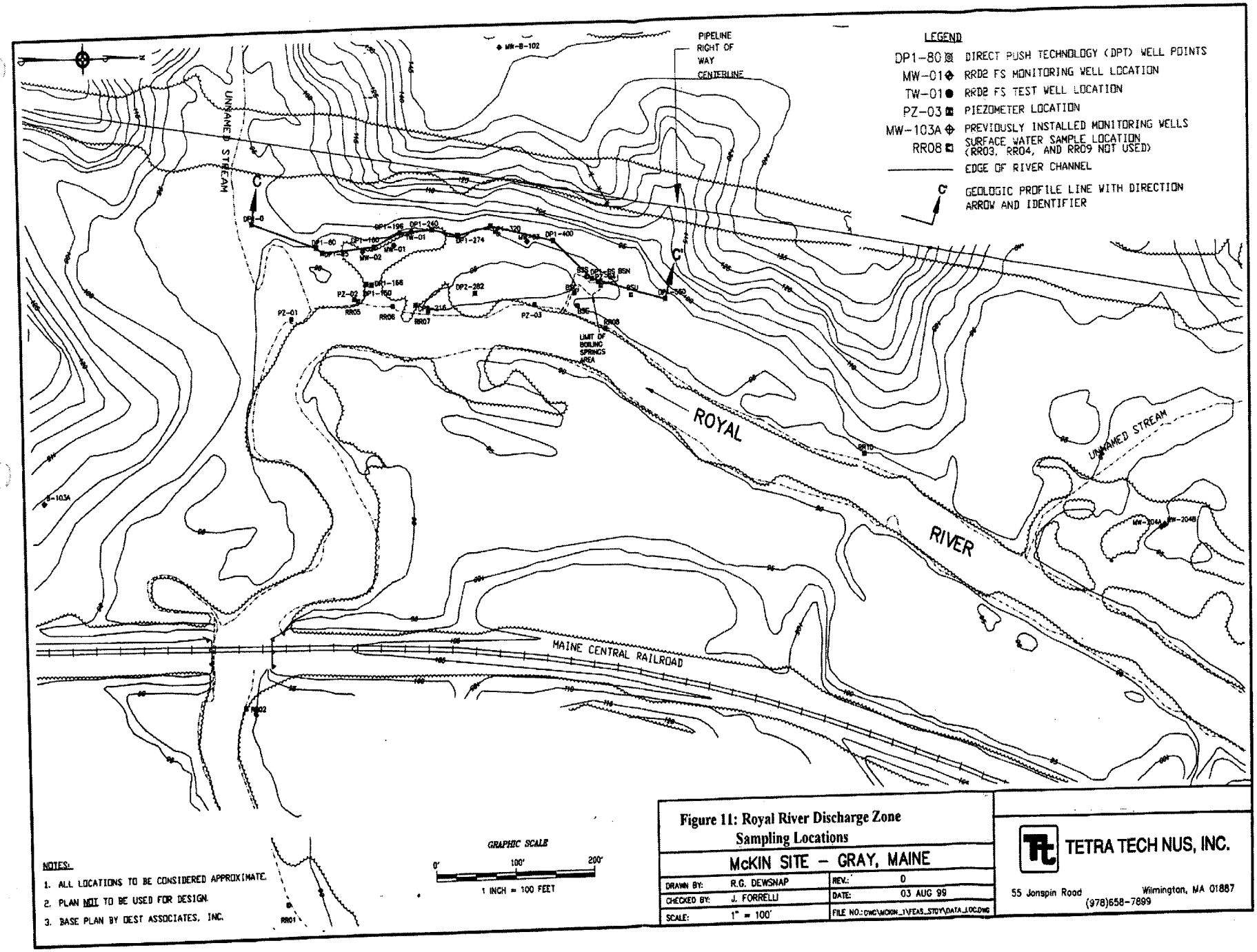


Figure 10:
Potentiometric Map

SME
Sevee & Maher Engineers, Inc.


LEGEND
DP1-80 DIRECT PUSH TECHNOLOGY (DPT) WELL POINTS
MW-01 RRD2 FS MONITORING WELL LOCATION
TW-01 RRD2 FS TEST WELL LOCATION
PZ-03 PIEZOMETER LOCATION
MW-103A PREVIOUSLY INSTALLED MONITORING WELLS
RR08 SURFACE WATER SAMPLE LOCATION (RR03, RR04, AND RR09 NOT USED)
EDGE OF RIVER CHANNEL
C' GEOLOGIC PROFILE LINE WITH DIRECTION ARROW AND IDENTIFIER
PIPELINE RIGHT OF WAY CENTERLINE
UNNAMED STREAM
ROYAL RIVER
MAINE CENTRAL RAILROAD
LIMIT OF BOILING SPRINGS AREA
GRAPHIC SCALE
0' 100' 200'
1 INCH = 100 FEET
NOTES:
1. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE.
2. PLAN NOT TO BE USED FOR DESIGN.
3. BASE PLAN BY DEST ASSOCIATES, INC.
Figure 11: Royal River Discharge Zone Sampling Locations
McKIN SITE - GRAY, MAINE
DRAWN BY: R.G. DEWSNAP
CHECKED BY: J. FORRELLI
SCALE: 1" = 100'
REV.: 0
DATE: 03 AUG 99
FILE NO.: CWC\MCKIN_1\FEAS_STDY\DATA_LOC.DWG
TETRA TECH NUS, INC.
55 Jonspin Road Wilmington, MA 01887
(978)658-7899

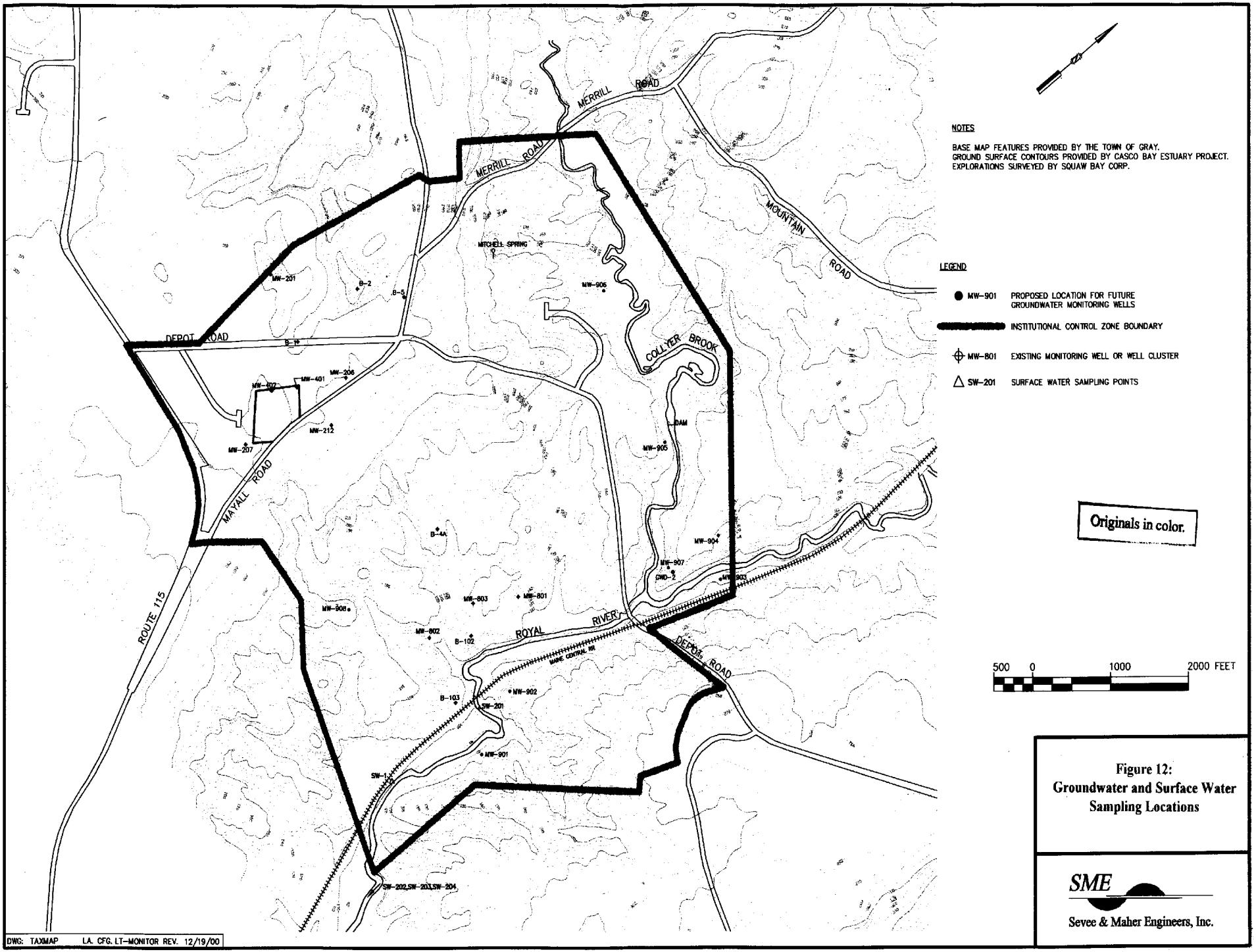


Figure 12:
Groundwater and Surface Water Sampling Locations

SME
Sevee & Maher Engineers, Inc.

G:\Mck\GWD\ACAD\Taxmap.dwg Tue Dec 19 13:38:21 2000 PAF

LEGEND

SILT AND FINE SAND - MOSTLY SILT AND VERY FINE SAND WITH PLANT FRAGMENTS

SAND AND FINE GRAVEL - MOSTLY COARSE TO VERY COARSE SAND AND FINE GRAVEL WITH PLANT FRAGMENTS

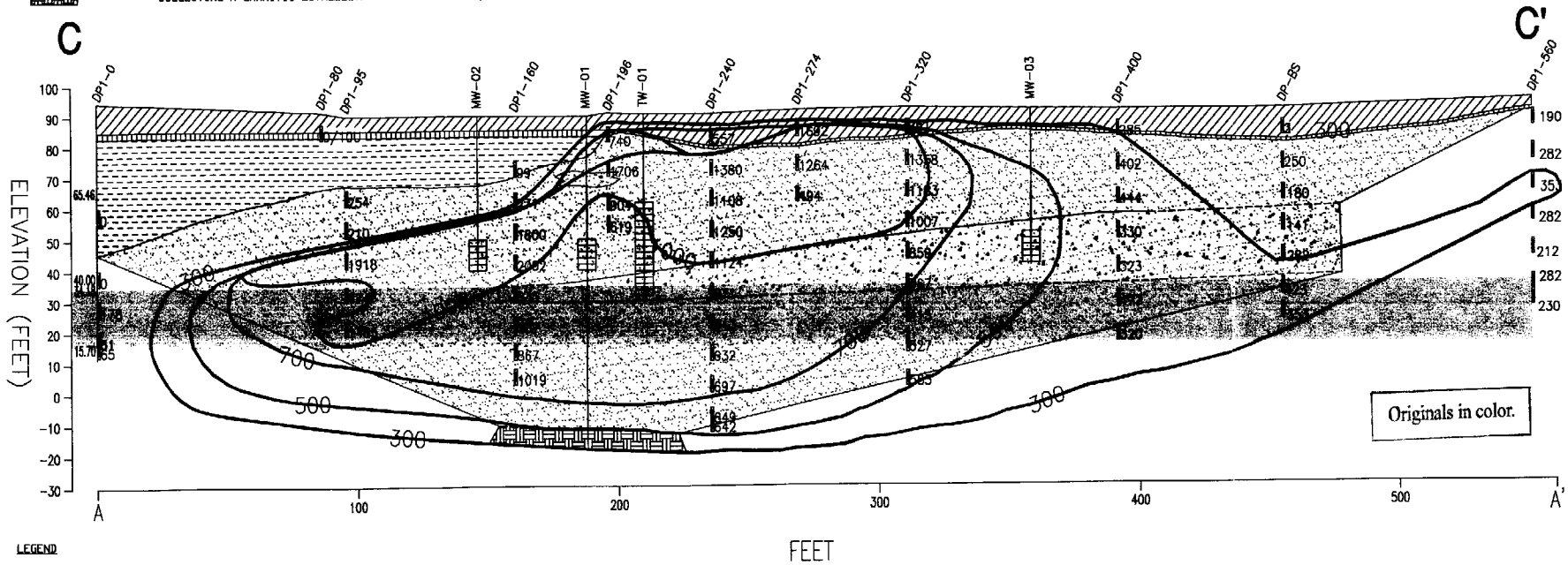
CLAY AND SILT - LARGELY BLUE-GREY DEPOSITS OF SILT AND CLAY WITH MINOR FINE SAND. CLAY IS OFTEN CHARACTERIZED BY HIGH PLASTICITY. THESE DEPOSITS LIKELY REPRESENT THE PRESUMPSCOT FORMATION.

SAND - WIDELY GRADED SAND WITH MINOR SILT AND GRAVEL. COLOR IS LIGHT BROWN TO LIGHT GRAY. DENSITY IS GENERALLY LOOSE.

SAND AND GRAVEL - WIDELY GRADED SAND WITH FINE GRAVEL. COLOR IS GENERALLY LIGHT BROWN.

BEDROCK - CHIPS GENERATED BY DRILLING SHOW A MINERAL ASSEMBLAGE OF QUARTZ-FELDSPAR-BIOTITE-MUSKOVITE, SUGGESTING A GRANITIC LITHOLOGY.

CALCULATED AREA* BETWEEN ISOCON LINES (SQ.FT.)	
300-500	11,870
500-700	6,845
700-1000	10,206
>1000	6,603



LEGEND

DP1-95 DIRECT PUSH TECHNOLOGY (DPT) WELL POINT LOCATION (WITH IDENTIFIER)

MW-02 SOIL BORING LOCATION (WITH IDENTIFIER)

WELL SCREEN LOCATION

180 GROUNDWATER SAMPLE DEPTH WITH TCE FIELD SCRENING CONCENTRATION (ppb) ADJUSTED FROM COMPARISON OF CLP DATA VS. FIELD GC DATA. THE COMPARISON GENERATED A MULTIPLIER OF 1.41.

1250 GROUNDWATER SAMPLE DEPTH WITH TCE CONCENTRATION (ppb) CLP ANALYSIS (U= NOT DETECTED, * = AVERAGE OF DUPLICATE SAMPLE)

300 TCE CONCENTRATION CONTOUR (PPB)

LITHOLOGIC BOUNDARY (DASHED WHERE INFERRED)

SHALLOW CONFINED AQUIFER ZONE - OBSERVATION WELLS COMPLETED IN THE ZONE USED TO DRAW POTENTIOMETRIC SURFACE IN THE SHALLOW CONFINED AQUIFER

DEEP CONFINED AQUIFER ZONE - OBSERVATION WELLS COMPLETED IN THE ZONE USED TO DRAW POTENTIOMETRIC SURFACE IN THE DEEP CONFINED AQUIFER

NOTES:

1. ALL LOCATIONS ARE TO CONSIDERED APPROXIMATE.
2. PLAN IS NOT TO BE USED FOR DESIGN.
*3. AREAS CALCULATED BY AUTOCAD BASED ON THE DEPICTED ISOCON LINES.

GRAPHIC SCALE

0' 40' 80'

1 INCH = 40 FEET

Figure 13:
Royal River Discharge Zone
TCE Profile

ROYAL RIVER DISCHARGE ZONE GEOLOGIC AND TCE PLUME PROFILE C - C'			
ROYAL RIVER DISCHARGE ZONE FEASIBILITY STUDY			
McKIN SITE - GRAY, MAINE			
DRAWN BY:	R.G.DEWSNAP	REV.:	0
CHECKED BY:	J. FORRELLI	DATE:	15 JUL 99
SCALE:	1" = 40'	FILE NO.: DWG\MCKIN_1\FEAS_STDY\TCE_PROF.DWG	

TETRA TECH NUS, INC.
55 Jonspin Road Wilmington, MA 01887
(978)658-7899

MCKIN SUPERFUND SITE
OFFSITE OPERABLE UNIT
MARCH 2001 ROD AMENDMENT

APPENDICES

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APPENDICES

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MCKIN SUPERFUND SITE
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DECEMBER 2000 ROD AMENDMENT

APPENDIX A - RESPONSIVENESS SUMMARY

Comments Received on the September 27, 2000 Proposed Plan for the McKin Site

1. Comments from Community Members

a) From a property owner within the designated Institutional Control Zone (ICZ): He believes that there is no contamination on his property, that the contamination does not extend to the north side of Collyer Brook, and therefore wants to be sure that the groundwater monitoring be done in a timely manner so that his property can be removed from the ICZ and start to restore value to his property.

EPA's Response: EPA took this perspective into consideration while formulating the area to be included in the ICZ. Unfortunately, for this individual, as well as others in the same area, the focus of investigation for the McKin Site since the mid-1980s has been on the eastern plume going toward Royal River, and not on the northern plume migrating toward Collyer Brook. This approach seemed appropriate as can be seen by the data on Table 2 and Table 5. TCE concentrations in the eastern plume (Table 2) were in the thousands parts per billion whereas in the northern plume (Table 5), TCE concentrations beyond Mayall Road have been less than 40 ppb and decreasing.

When EPA selected the area to be included in the ICZ, consideration was given to the presence of TCE in an overburden well north of Collyer Brook in the Gray Depot area, suggesting likely bedrock transport, and that the highest TCE concentrations detected in residential wells were within the northern plume beyond the Mayall and Depot Road intersection. Therefore, in order to assure protectiveness and provision for public water supply, properties on the north side of Collyer Brook were included in the ICZ.

EPA has committed to the Town of Gray and property owners that sampling will be done in a timely manner and that as part of every five-year review, the appropriateness of the ICZ will be evaluated and adjusted if warranted. This commitment will be attached to the restrictive covenants the owners will place on their properties.

b) From a property owner who owns a farm in New Gloucester, the first upstream community from the impacted area of the Royal River: He has plans to expand his farming operations and plans to withdraw water from the Royal River. He stated that the proposed settlement regarding the Royal River should not result in any restriction on his

ability to withdraw the maximum allowable river flow for his irrigation purposes.

EPA's Response: The selected remedy for the McKin Site includes attainment of the State Water Quality Criteria in the Royal River. This is based on the harmonic mean flow. This measurement has been developed over years of data collection and has been established at 48.6 cubic feet per second (cfs). Projections of the time to achieve this criteria range from four to six years, 2005 to 2007.

EPA discussed this comment with the Maine DEP's Bureau of Land and Water Quality. At this time, there are no regulations setting numerical limits on withdrawal from surface waters in the State of Maine (though the Bureau has been in the process of drafting these). However, in accordance with Subsection 465, Standards for classification of fresh surface waters from Title 38: Waters and Navigation, a withdrawal can not create a situation such that the standards applicable to classification of the surface water body are not met, nor create a situation such that downstream uses of the surface water body are not met. The Royal River is a Class B river, and its waters shall be of such quality that they be suitable for the designated uses which include fishing, recreation in and on the water, navigation, and habitat for fish and other aquatic life. Additional standards include minimum dissolved oxygen levels and maximum e. coli bacteria levels. In addition, the Maine DEP has agreed to a remedy for the McKin Site which is based on a harmonic mean of 48.6 cfs as noted above. Therefore, while the remedy is ongoing, the harmonic mean flow needs to be maintained and, beyond the standards, may set the maximum allowable river flow for this commentator. However, as it is unknown at this time what volume this commentator plans to withdraw from the Royal River, it is unknown whether the established harmonic mean will have any impact on his plans.

2. Comments from Community Organizations

From the Yarmouth Water District, the first downstream community from the impacted area of the Royal River. The Yarmouth Water District expressed concerns first about the mediation process and second, about the selected remedy for the McKin Site. The Yarmouth Water District believes that its input into the mediation process was not addressed and that the final meeting of the mediation committee was a formality rather than an opportunity for participants to have an actual discussion as to the selected remedy.

Second, the Yarmouth Water District believed that monies should be set aside for it to install and monitor test wells if the Royal River does not meet the drinking water standard at the time it installs a public water supply well adjacent to the river.

EPA's Response: The mediation process lasted over two years and did prove difficult for all parties to stay involved. As a result, to someone not actively involved, the last meeting did have the appearance of a formality to an agreed-upon conclusion. Nonetheless, EPA did consider the

request made by the Yarmouth Water District. Their request was evaluated along with other concerns by the parties involved in the mediation. Consequently, by the time of the last meeting, the various parties had reached the conclusion that each would have to accept something less than what they began with if there was going to be an agreement for the McKin Site.

EPA, in a meeting with representatives of downstream communities, stated that it could not support the requests made. While the concerns were understandable, the downstream TCE concentrations as measured at the time of the mediation process did not justify action. In addition, with the TCE concentrations decreasing in the Royal River since 1992 and projected to continue that trend, it did not appear that any action downstream would be necessary in the future.

3. Comments from Maine Department of Environmental Protection

At the hearing for the Proposed Plan, Maine DEP entered a statement into the site record that the agency has been involved in the cleanup of the McKin Site following the 1985 ROD and has been an active participant in the mediation process, and that the agency concurs with the proposed changes to the cleanup plan as described in EPA's September 2000 Proposed Plan.

EPA's Response: EPA and Maine DEP have worked together on the McKin Site for almost twenty years, first through investigation, then as co-signers to the 1988 Consent Decree, and now through the mediation process. EPA is grateful for the effort provided by Maine DEP and its concurrence with the remedy selected in this ROD Amendment.

4. Comments from the Settling Parties

No comments on the September 2000 Proposed Plan were received from the Settling Parties.

Comments Received on the September 2000 Draft Technical Impracticability Evaluation Report for the McKin Site

1. Comments from Maine Department of Environmental Protection

Several clarification comments were received from Maine DEP. In addition, the comments pointed out MEGs for TCE and vinyl chloride. One comment referred to the distinction between the TI Zone and the ICZ, in that it was Maine DEP's understanding that the TI Zone did not extend north of Collyer Brook.

EPA's Response: The clarification and MEG comments were included in EPA's January 2001 Final TI Report. EPA agrees with Maine DEP that from a technical perspective, it may be possible to distinguish between the TI Zone and the ICZ. EPA, however decided not to differentiate between the ICZ and TI Zone for the following reasons: the controlling component of this ROD amendment is the ICZ, not the TI Zone; the uncertainty of bedrock flow paths and the subsequent control on bedrock contamination; and finally, should adjustments be made to the ICZ in the future, that concurrent change would be made to the TI Zone.

2. Comments from the Settling Parties

The Settling Parties noted that the agreement reached with the affected property owners within the ICZ were for restrictive covenants instead of deed restrictions.

The Settling Parties technical consultant, Sevee & Maher Engineers, Inc. reviewed the initial draft of the TI and suggested a few clarifications.

EPA's Response: EPA changed the language regarding the restrictive covenants in the Final TI Report and the ROD Amendment to reflect this.

The clarifications suggested by SME, to clarify the source control efforts, were included in the final TI Report and ROD Amendment.

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MCKIN SUPERFUND SITE
OFFSITE OPERABLE UNIT
March 2001 ROD AMENDMENT

APPENDIX B- ADMINISTRATIVE RECORD INDEX

1.0 SITE ASSESSMENT

1. REPORT: HYDROGEOLOGIC STUDY, EAST GRAY (ME).
   TO: ME DEPT OF ENVIRONMENTAL PROTECTION
   AUTHOR: ROBERT G GERBER INC
   DOC ID: 6239 11/29/1982 104 PAGES

3.0 REMEDIAL INVESTIGATION (RI)

1. MEMO : AQUATIC TOXICITY INFORMATION RETRIEVAL (AQUIRE) DATABASE SEARCH RESULTS FOR ECOLOGICAL RISK EVALUATION.
   TO: PATTI LYNNE TYLER, US EPA REGION 1
   AUTHOR: DAVID F MCDONALD, LOCKHEED MARTIN ENVIRONMENTAL SYSTEMS & TECHNOLOGY CO
   DOC ID: 6253 11/13/1996 19 PAGES

2. REPORT: SITE BACKGROUND INFORMATION REVIEW & TRICHLOROETHYLENE TOXICITY REVIEW.
   TO: US EPA REGION 1
   AUTHOR: LOCKHEED MARTIN ENVIRONMENTAL SYSTEMS & TECHNOLOGY CO
   DOC ID: 6248 10/07/1997 9 PAGES

3. MEMO : WORST CASE HUMAN HEALTH RISK SCREEN.
   TO: TERRENCE R CONNELLY, US EPA REGION 1
   AUTHOR: ANN MARIE BURKE, US EPA REGION 1
   DOC ID: 6755 01/28/1998 1 PAGE

4. MEMO : HUMAN HEALTH RISK SCREENING 1997-1998 DATA TABULATIONS.
   TO: ANN MARIE BURKE, US EPA REGION 1
   AUTHOR: TERRENCE R CONNELLY, US EPA REGION 1
   DOC ID: 6579 02/18/1998 5 PAGES

5. REPORT: STUDIES EXAMINE CARDIAC TERATOGENICITY OF A COMMON DRINKING WATER CONTAMINANT, TRICHLOROETHYLENE, SUPERFUND BASIC RESEARCH PROGRAM BRIEF, 14.
AUTHOR: US DHHS/NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES
DOC ID: 6578 02/18/1998 2 PAGES

6. SAMPLING & ANALYSIS DATA: ROYAL RIVER AREA STUDY, PUMP TEST DISCHARGE.
TO: TERRENCE R CONNELLY, US EPA REGION 1
AUTHOR: REBECCA HEWETT, ME DEPT OF ENVIRONMENTAL PROTECTION
DOC ID: 6750 04/13/1998 11 PAGES

7. SAMPLING & ANALYSIS DATA: FARRELL POND SAMPLING RESULTS.
TO: JOHN SEVEE, SEVEE & MAHER ENGINEERS INC
MIKE DEYLING, SUMMIT ENVIRONMENTAL CONSULTANTS INC
TERRENCE R CONNELLY, US EPA REGION 1
AUTHOR: REBECCA HEWETT, ME DEPT OF ENVIRONMENTAL PROTECTION
DOC ID: 6751 05/20/1998 9 PAGES

8. LETTER: ENDANGERED & THREATENED SPECIES WILL RECEIVE NO IMPACT DURING CLEANUP.
TO: KEVIN ONEILL, NUS/TETRA TECH INC
AUTHOR: MICHAEL AMARAL, US DOI/US FISH & WILDLIFE SERVICE
DOC ID: 6580 05/28/1998 2 PAGES

9. REPORT: SUBSURFACE INVESTIGATION REPORT, GRAY DEPOT AREA.
AUTHOR: SEVEE & MAHER ENGINEERS INC
DOC ID: 6249 06/01/1998 225 PAGES

10. LETTER: RARE, THREATENED & ENDANGERED SPECIES INFORMATION REQUEST RESPONSE, THERE ARE NO RARE BOTANICAL FEATURES WITHIN PROJECT AREA.
TO: KEVIN ONEILL, NUS/TETRA TECH INC
AUTHOR: DEBORAH GROSS, ME DEPT OF CONSERVATION
DOC ID: 6581 06/17/1998 6 PAGES

11. MEMO : ECOLOGICAL RISKS OF TRICHLOROETHYLENE IN ROYAL RIVER DISCHARGE ZONE, QUALITATIVE EVALUATION SUMMARY.
TO: TERRENCE R CONNELLY, US EPA REGION 1
AUTHOR: CORNELL ROSIU, US EPA REGION 1
DOC ID: 6582 09/16/1998 2 PAGES

12. LETTER: ROYAL RIVER TRICHLOROETHYLENE LOADING TREND ANALYSIS.
TO: TERRENCE R CONNELLY, US EPA REGION 1
AUTHOR: JAMES R FORRELLI, NUS/TETRA TECH INC
DOC ID: 6583 12/03/1998 17 PAGES

13. REPORT: DISTRIBUTION OF TRICHLOROETHYLENE & GEOLOGIC CONTROLS ON CONTAMINANT PATHWAYS NEAR ROYAL RIVER.
TO: US EPA REGION 1
AUTHOR: US DOI/US GEOLOGICAL SURVEY
DOC ID: 6570 01/01/1999 25 PAGES

14. MEMO : 09/16-17/1998 ROYAL RIVER USES.
AUTHOR: REBECCA HEWETT, ME DEPT OF ENVIRONMENTAL PROTECTION
DOC ID: 6754 02/09/1999 39 PAGES

15. LETTER: TRIP REPORT, RESTORATION SITE VISIT CONDUCTED 09/09/1999.
TO: TERRENCE R CONNELLY, US EPA REGION 1
AUTHOR: JAMES R FORRELLI, NUS/TETRA TECH INC
DOC ID: 6757 09/17/1999 4 PAGES

4.0 FEASIBILITY STUDY (FS)

1. MEMO : CURRENT UNDERSTANDING OF THE SITE CONCEPTUAL MODEL AT MCKIN.
TO: REBECCA HEWETT, ME DEPT OF ENVIRONMENTAL PROTECTION
TERRENCE R CONNELLY, US EPA REGION 1
AUTHOR: JOHN SEVEE, SEVEE & MAHER ENGINEERS INC
DOC ID: 6403 10/24/1997 38 PAGES

2. REPORT: TECHNICAL MEMORANDUM, ROYAL RIVER DISCHARGE ZONE ECOLOGICAL ASSESSMENT, DRAFT.
TO: US EPA REGION 1
AUTHOR: NUS/TETRA TECH INC
DOC ID: 6405 07/01/1998 58 PAGES

3. REPORT: TECHNICAL MEMORANDUM, ROYAL RIVER DISCHARGE ZONE, REMEDIAL ALTERNATIVES SCREENING, REVISION 1, DRAFT.
TO: US EPA REGION 1
AUTHOR: NUS/TETRA TECH INC
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4. LETTER: AQUIFER TEST ANALYSIS & GROUNDWATER TRICHLOROETHYLENE

FLUX ESTIMATE, REVISED.
TO: TERRENCE R CONNELLY, US EPA REGION 1
AUTHOR: JAMES R FORRELLI, NUS/TETRA TECH INC
DOC ID: 6397 02/03/1999 97 PAGES

5. LETTER: AQUIFER TEST ANALYSIS & GROUNDWATER TRICHLOROETHYLENE FLUX ESTIMATE, ADDITIONAL ANALYSES.
TO: TERRENCE R CONNELLY, US EPA REGION 1
AUTHOR: JAMES R FORRELLI, NUS/TETRA TECH INC
DOC ID: 6398 03/03/1999 11 PAGES

6. LETTER: REVIEW OF TETRA TECH NUS ADDITIONAL AQUIFER TEST ANALYSIS & GROUNDWATER TRICHLOROETHYLENE FLUX ESTIMATE.
TO: TERRENCE R CONNELLY, US EPA REGION 1
AUTHOR: REBECCA HEWETT, ME DEPT OF ENVIRONMENTAL PROTECTION
DOC ID: 6756 04/14/1999 10 PAGES

7. LETTER: REVISED ROYAL RIVER TCE LOADING TREND ANALYSIS.
TO: TERRENCE R CONNELLY, US EPA REGION 1
AUTHOR: JAMES R FORRELLI, NUS/TETRA TECH INC
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8. REPORT: DRAFT FEASIBILITY STUDY, ROYAL RIVER DISCHARGE ZONE.
TO: US EPA REGION 1
AUTHOR: NUS/TETRA TECH INC
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9. FACT SHEET: EPA PROPOSES TO AMEND THE CLEAN-UP PLAN.
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10. REPORT: FINDING OF TECHNICAL IMPRACTICABILITY: TI EVALUATION AND DETERMINATION.
AUTHOR: US EPA REGION 1
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1. MEMO : WATER QUALITY ISSUES IN ROYAL RIVER.
TO: REBECCA HEWETT, ME DEPT OF ENVIRONMENTAL PROTECTION
AUTHOR: DAVID MILLER, ME DEPT OF ENVIRONMENTAL PROTECTION
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6.0 REMEDIAL DESIGN (RD)

1. LETTER: WELL & WATER SUPPLY INVENTORY.
   TO: MARINA MEIER, US EPA REGION 1
   REBECCA HEWETT, ME DEPT OF ENVIRONMENTAL PROTECTION
   AUTHOR: JAMES F ANGYAL, SEVEE & MAHER ENGINEERS INC
   DOC ID: 6504 06/23/1989 149 PAGES

2. LETTER: RESPONSE TO 12/07/1995 ME DEP COMMENTS ON REVISED TECHNICAL ANALYSIS OF ABILITY OF GROUNDWATER EXTRACTION & TREATMENT TO RESTORE AQUIFER IN AREA EAST OF MAYALL ROAD.
   TO: REBECCA HEWETT, ME DEPT OF ENVIRONMENTAL PROTECTION
   AUTHOR: JOHN SEVEE, SEVEE & MAHER ENGINEERS INC
   DOC ID: 6412 02/12/1996 11 PAGES

3. REPORT: TECHNICAL ANALYSIS OF ABILITY OF GROUNDWATER EXTRACTION & TREATMENT TO RESTORE AQUIFER IN AREA EAST OF MAYALL ROAD, VOLUME 1, REPORT.
   TO: ME DEPT OF ENVIRONMENTAL PROTECTION
   AUTHOR: SEVEE & MAHER ENGINEERS INC
   DOC ID: 6242 03/01/1996 76 PAGES

4. REPORT: TECHNICAL ANALYSIS OF ABILITY OF GROUNDWATER EXTRACTION & TREATMENT TO RESTORE AQUIFER IN AREA EAST OF MAYALL ROAD, VOLUME 2, APPENDICES.
   TO: ME DEPT OF ENVIRONMENTAL PROTECTION
   AUTHOR: SEVEE & MAHER ENGINEERS INC
   DOC ID: 6244 03/01/1996 633 PAGES

5. LETTER: RESPONSE TO ME DEP VERBAL COMMENTS ON 02/12/1996 REVISION OF TECHNICAL ANALYSIS OF ABILITY OF GROUNDWATER EXTRACTION & TREATMENT TO RESTORE AQUIFER IN AREA EAST OF MAYALL ROAD.
   TO: REBECCA HEWETT, ME DEPT OF ENVIRONMENTAL PROTECTION
   AUTHOR: JOHN SEVEE, SEVEE & MAHER ENGINEERS INC
   DOC ID: 6411 03/06/1996 2 PAGES

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1. REPORT: ADDENDUM TO SOIL REMEDIATION, SITE CLOSURE.
   TO: MCKIN PRP GROUP
   AUTHOR: CANONIE ENVIRONMENTAL
   DOC ID: 6247 10/01/1987 681 PAGES

2. REPORT: EVALUATION OF TECHNICAL IMPRACTICABILITY OF GROUND WATER RESTORATION & FEASIBILITY ANALYSIS OF REMEDIAL ALTERNATIVES.
TO: SEVEE & MAHER ENGINEERS INC
AUTHOR: GEI CONSULTANTS INC
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3. MEMO : COMMENTS ON DRAFT EVALUATION OF TECHNICAL IMPRACTICABILITY OF GROUND WATER RESTORATION & FEASIBILITY ANALYSIS OF REMEDIAL ALTERNATIVES, 05/31/1996.
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4. LETTER: DRAFT COMMENTS ON DRAFT EVALUATION OF TECHNICAL IMPRACTICABILITY FOR GROUNDWATER RESTORATION & FEASIBILITY OF REMEDIAL ALTERNATIVES.
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AUTHOR: REBECCA HEWETT, ME DEPT OF ENVIRONMENTAL PROTECTION
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5. LETTER: DRAFT COMMENTS ON DRAFT EVALUATION OF TECHNICAL IMPRACTICABILITY.
TO: JOHN SEVEE, SEVEE & MAHER ENGINEERS INC
AUTHOR: TERRENCE R CONNELLY, US EPA REGION 1
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6. LETTER: CALCULATIONS OF POSSIBLE FLUXES OF TCE FROM GROUND WATER TO ROYAL RIVER.
TO: TERRENCE R CONNELLY, US EPA REGION 1
AUTHOR: FOREST P LYFORD, US DOI/US GEOLOGICAL SURVEY
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7. LETTER: DRAFT OF REVISED CHAPTER 3 FOR EVALUATION OF TECHNICAL IMPRACTICABILITY OF GROUNDWATER RESTORATION & FEASIBILITY ANALYSIS OF REMEDIAL ALTERNATIVES.
TO: REBECCA HEWETT, ME DEPT OF ENVIRONMENTAL PROTECTION
TERRENCE R CONNELLY, US EPA REGION 1
AUTHOR: JOHN SEVEE, SEVEE & MAHER ENGINEERS INC
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AUTHOR: JOHN SEVEE, SEVEE & MAHER ENGINEERS INC
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9. SAMPLING & ANALYSIS DATA: REGRESSION GRAPHS OF MONITORING WELL DATA.
TO: KARL DEBISSCHOP, RAYTHEON ENVIRONMENTAL SERVICES
AUTHOR: RAYTHEON ENVIRONMENTAL SERVICES
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TO: RONALD HAUSMANN, MUNGER TOLLES & OLSON
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11. MEMO : TIME ESTIMATES TO MEET ROYAL RIVER CLEANUP CRITERIA.
TO: REBECCA HEWETT, ME DEPT OF ENVIRONMENTAL PROTECTION
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AUTHOR: JOHN SEVEE, SEVEE & MAHER ENGINEERS INC
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12. LETTER: CONCEPTUAL MODEL.
TO: JOHN SEVEE, SEVEE & MAHER ENGINEERS INC
AUTHOR: TERRENCE R CONNELLY, US EPA REGION 1
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13. REPORT: DATA TRANSMITTAL & SITE CONCEPTUAL MODEL DESCRIPTION, VOLUME 1, REPORT.
AUTHOR: SEVEE & MAHER ENGINEERS INC
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14. REPORT: DATA TRANSMITTAL & SITE CONCEPTUAL MODEL DESCRIPTION, VOLUME 2, ATTACHMENTS.
AUTHOR: SEVEE & MAHER ENGINEERS INC
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15. LETTER: DATA TRANSMITTAL & SITE CONCEPTUAL MODEL DESCRIPTION.
TO: REBECCA HEWETT, ME DEPT OF ENVIRONMENTAL PROTECTION
TERRENCE R CONNELLY, US EPA REGION 1
AUTHOR: JOHN SEVEE, SEVEE & MAHER ENGINEERS INC
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TO: MICHAEL LEWIS, ADR ASSOCIATES
AUTHOR: SEVEE & MAHER ENGINEERS INC
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TO: TERRENCE R CONNELLY, US EPA REGION 1
AUTHOR: FOREST P LYFORD, US DOI/US GEOLOGICAL SURVEY
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18. REPORT: REVIEW OF SEVEE & MAHER ENGINEERING'S DATA TRANSMITTAL & SITE CONCEPTUAL MODEL DESCRIPTION.
TO: TERRENCE R CONNELLY, US EPA REGION 1
AUTHOR: JAMES R FORRELLI, NUS/TETRA TECH INC
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19. LETTER: BUILDOUT CALCULATION.
TO: MARCIA LAMEL, US EPA REGION 1
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TO: REBECCA HEWETT, ME DEPT OF ENVIRONMENTAL PROTECTION
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AUTHOR: US EPA REGION 1
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TO: TERRENCE R CONNELLY, US EPA REGION 1
AUTHOR: SEVEE & MAHER ENGINEERS INC

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4. LETTER: COMMENTS ON 05/15/1996 & 08/1996 REBOUND ANALYSIS REPORT FOR SITE GETS.
TO: JOHN SEVEE, SEVEE & MAHER ENGINEERS INC
AUTHOR: REBECCA HEWETT, ME DEPT OF ENVIRONMENTAL PROTECTION
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6. SAMPLING & ANALYSIS DATA: REBOUND ANALYSIS REPORT FOR SITE GETS (GROUNDWATER EXTRACTION AND TREATMENT SYSTEM).
TO: TERRENCE R CONNELLY, US EPA REGION 1
AUTHOR: SEVEE & MAHER ENGINEERS INC
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7. SAMPLING & ANALYSIS DATA: ROYAL RIVER SAMPLE DATA OBTAINED BY SEVEE & MAHER ENGINEERS.
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AUTHOR: JOHN SEVEE, SEVEE & MAHER ENGINEERS INC
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AUTHOR: US EPA REGION 1
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AUTHOR: JAMES R SEBASTIAN, US EPA REGION 1
SHEILA M ECKMAN, US EPA REGION 1
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3. PRESS RELEASE: SETTLEMENTS REACHED AT MCKIN SUPERFUND SITE.
AUTHOR: BETH TOMASELLO, US EPA REGION 1
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4. PRESS RELEASE: EPA TO HOLD MEETING ON MCKIN CLEANUP.
AUTHOR: JAMES R SEBASTIAN, US EPA REGION 1
REBECCA HEWETT, ME DEPT OF ENVIRONMENTAL PROTECTION
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AUTHOR: AMY ROGERS, US EPA REGION 1
REBECCA HEWETT, ME DEPT OF ENVIRONMENTAL PROTECTION
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6. FACT SHEET: MCKIN SUPERFUND SITE.
AUTHOR: US EPA REGION 1
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7. NEWS CLIPPING: PULLING THE PLUG AT MCKIN.
AUTHOR: SUSAN RAYFIELD, LEWISTON MAINE SUNDAY
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8. NEWS CLIPPING: WASTE-SITE FIGHT DONE FOR ONE, ONLY JUST BEGUN FOR ANOTHER.
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AUTHOR: ALAN CROWELL, KENNEBEC JOURNAL
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10. NEWS CLIPPING: HIGH COSTS OF CLEANUP.
AUTHOR: DIANA BOWLEY, BANGOR DAILY NEWS
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AUTHOR: AMY WELCH, PORTLAND PRESS HERALD
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AUTHOR: MCKIN SITE NEGOTIATION COMMITTEE
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13. PRESS RELEASE: EPA AWARDS $50,000 TO MAINE RURAL WATER ASSOCIATION TO MONITOR MCKIN CLEANUP.
AUTHOR: ERIN HESKETT, US EPA REGION 1
MIKE MCGAGH, US EPA REGION 1
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14. NEWS CLIPPING: MCKIN SAGA FINALLY MAY BE NEAR ITS END.
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AUTHOR: DAVID HENCH, PORTLAND PRESS HERALD
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17. NEWS CLIPPING: MORE WELLS NEEDED TO TEST MCKIN WATER.
AUTHOR: DAVID HENCH, PORTLAND PRESS HERALD
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AUTHOR: PEYTON FLEMING, US EPA REGION 1
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AUTHOR: RANDY WHITEHOUSE, LEWISTON SUN-JOURNAL
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20. PRESS RELEASE: MCKIN SUPERFUND SITE FACT SHEET 1.
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AUTHOR: MCKIN SUPERFUND SITE CITIZENS ADVISORY GROUP
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23. NEWS CLIPPING: MAJOR HURDLE CLEARED IN CLEANUP OF GRAY'S MCKIN SITE.
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20.0 RECORDS MANAGEMENT

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MCKIN SUPERFUND SITE
OFFSITE OPERABLE UNIT
March 2001 ROD AMENDMENT

APPENDIX C - STATE CONCURRENCE LETTER

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

ANGUS S. KING, JR.
GOVERNOR

MARTHA KIRKPATRICK
COMMISSIONER

March 23, 2001

Ms. Patricia Meaney
U.S. EPA, Region 1
1 Congress Street
Suite 1100, (HBT)
Boston, MA 02114-2023

Subject: McKin Company Superfund Site, Gray, Maine

Dear Ms. Meaney:

The Maine Department of Environmental Protection (Maine DEP) has reviewed the March 2001 Final Draft Amended Record of Decision (Amended ROD) with regard to the Selected Remedy for the McKin Company Superfund Site located in Gray, Maine.

Based on the Final Draft Amended ROD review, the Maine DEP is pleased to concur with the Selected Remedy, for the Off-Site Operable Unit for the Site. The Selected Remedy relies on institutional controls with long-term monitoring of groundwater and surface water. The activities of the Selected Remedy are listed below:

1. A combination of institutional controls to prevent exposure to the contaminated grounding, including:
   - Town of Gray zoning ordinance to prevent use of groundwater within the Institutional Control Zone (ICZ).
   - An agreement between the Potential Responsible Parties and property owners with sub-dividable lots within the ICZ to not install wells. The EPA and Maine DEP are the signatories to these restrictive covenants.
2. Monitoring the groundwater to demonstrate that the contaminant plume will not expand and that natural processes will continue to decrease the concentrations of the contaminants.
   - Install a series of wells (900 Series wells) along Collyer Brook and the Royal River, as well as along the southern side of the eastern flowing plume to monitor the boundary of the contamination plume. Wells will be installed in both the overburden soils and in the bedrock.
   - Initiate a long-term groundwater monitoring program. This program is a modification of the current monitoring program.
   - Track the progress of attenuation by monitoring contaminant levels in the groundwater. This monitoring data will be used to verify that contaminant concentrations are decreasing, refine the time estimates necessary to reach federal and state standards, and support data from the new wells that the contaminants are not expanding through the aquifer.

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PRESQUE ISLE, MAINE 04769-2094
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3. Monitoring the Royal River to demonstrate that the continuing decrease in groundwater concentrations will result in further decreases of Trichloroethylene (TCE) in the river.
   - Monitor surface water to verify that TCE concentrations continue to decline. Because the amount of TCE moving from the groundwater into the Royal River is greatly diluted by river flow, it is projected that the TCE concentrations will meet the State Water Quality Criteria (SWQC) within four to six years, 2005 to 2007.
   - Provide for a contingency response approach which will allow development of active remediation in the Royal River if SWQC are not met in 2009 or 2013 at surface water sampling locations SW-1 and SW-201, respectively.
   - Cover Boiling Springs with a fabric/stone/soil layer cover to prevent contact with the contaminated spring water by humans and wildlife.
4. Evaluating the cleanup approach to confirm that it is protective of human health and the environment.
   - As long as contamination remains onsite, the Superfund law requires reviews every five years to evaluate the effectiveness of the implemented cleanup plan.
   - As part of each five year review, EPA will review the Site conditions to determine if the cleanup action is protecting public health and the environment.

This Amended ROD brings us a step closer to finalizing the long and difficult process that began with the TI Waiver request in 1995. Despite our occasional frustrations, EPA and Maine DEP have worked closely and productively over the years. We commend the Region 1 Case Team, especially Terry Connelly, Sheila Eckman, Beth Tomasello, Marcia Lamel, Mary Jane O'Donnell, Dick Willey and Forest Lyford of the U.S. Geologic Survey for their efforts and commitment.

The MEDEP looks forward to the day when the Royal River and the impacted aquifer are fully recovered. If you need additional information, do not hesitate to contact myself or members of my staff at (207) 287-2651.

Sincerely,

Martha G. Kirkpatrick, Commissioner
Maine Department of Environmental Protection

pc: Mary Jane O'Donnell, EPA
Terry Connelly, EPA
Rebecca Hewett, Maine DEP
Denise Messier, Maine DEP
Mark Hyland, Maine DEP
David Lennett, Maine DEP

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MCKIN SUPERFUND SITE
OFFSITE OPERABLE UNIT
March 2001 ROD AMENDMENT

APPENDIX D - REFERENCES CITED

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