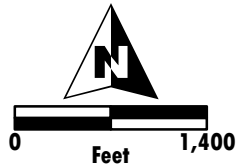


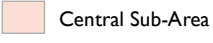

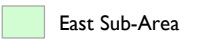
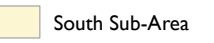

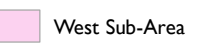




P:\Colstrip\350.0064.002 Plant Site\04. GIS\Projects\RemedyEvaluation\2017\_REVISION\FIGURES\FIGURE 7-1 Flow Through Cross Section for Mass Flux.mxd

Note: 2015 NAIP Imagery



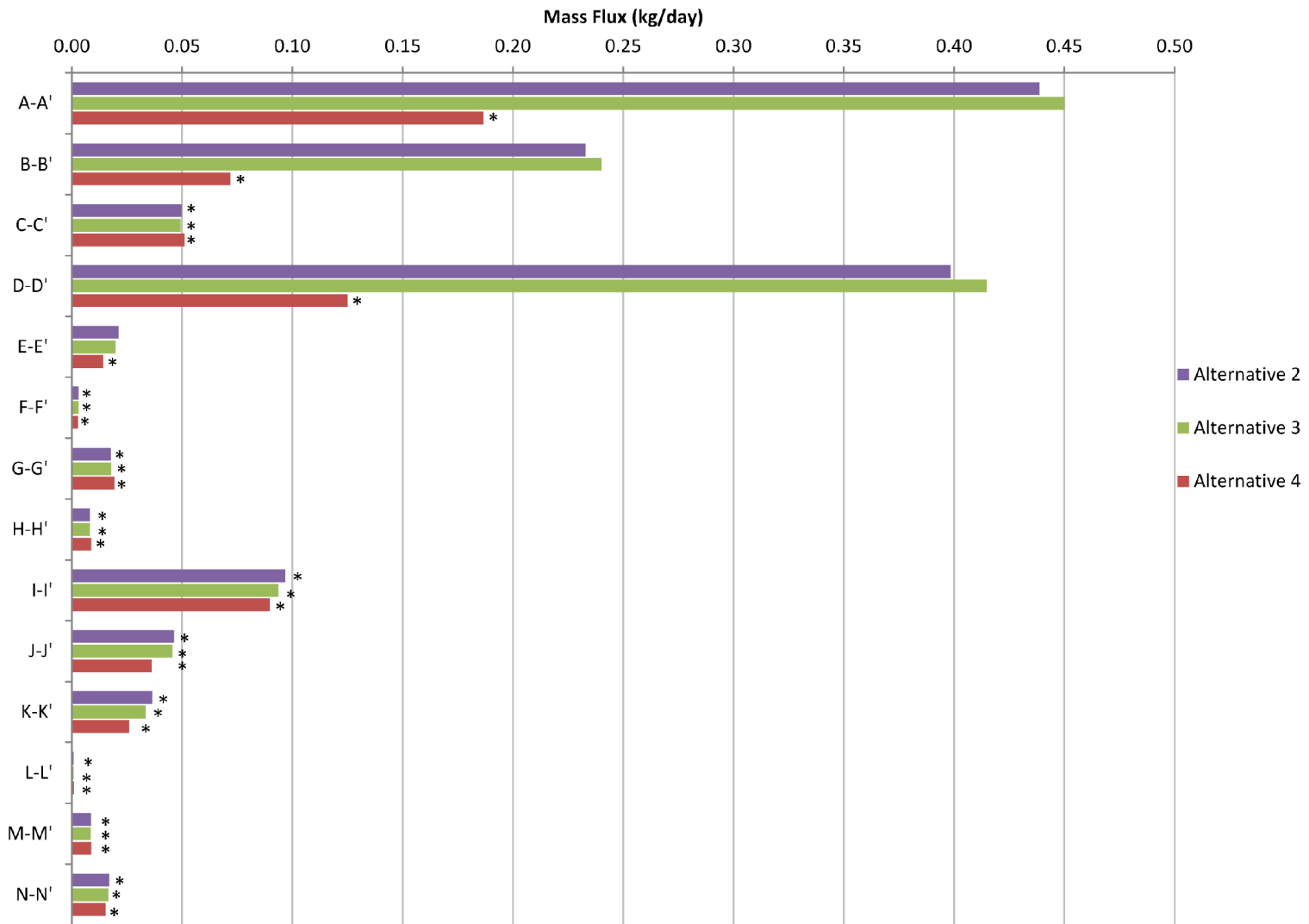
-  Direction of Groundwater Movement Used for Mass Flux Estimates
-  Transects
-  Central Sub-Area
-  Off-Site West Sub-Area
-  East Sub-Area
-  South Sub-Area
-  North Sub-Area
-  West Sub-Area

**Direction of Groundwater Flow through Transects for Mass Flux Calculations**  
**Plant Site Area Remedy Evaluation**  
**CSES-Colstrip, Montana**  
**FIGURE 7-1**



P:\Colstrip\360.0064.002 Plant Site\04\_GIS\Protects\Remedy\Evaluation\2017\_REVISION\FIGURES\FIGURE 7-2 Predicted Mass of Boron Crossing Each Transect in 2069.mxd

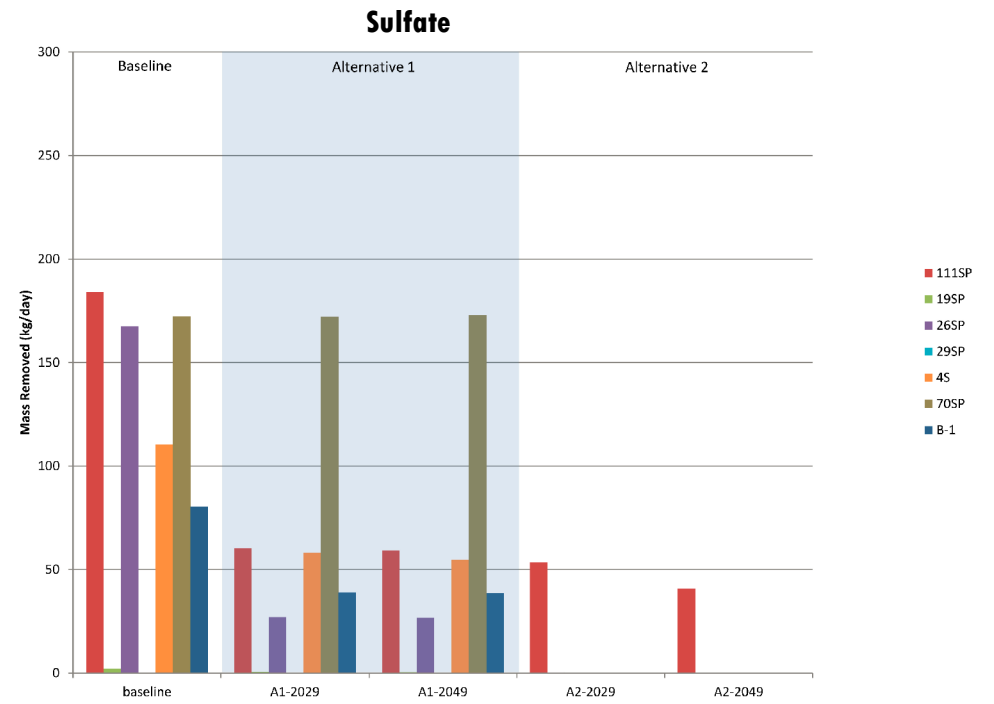
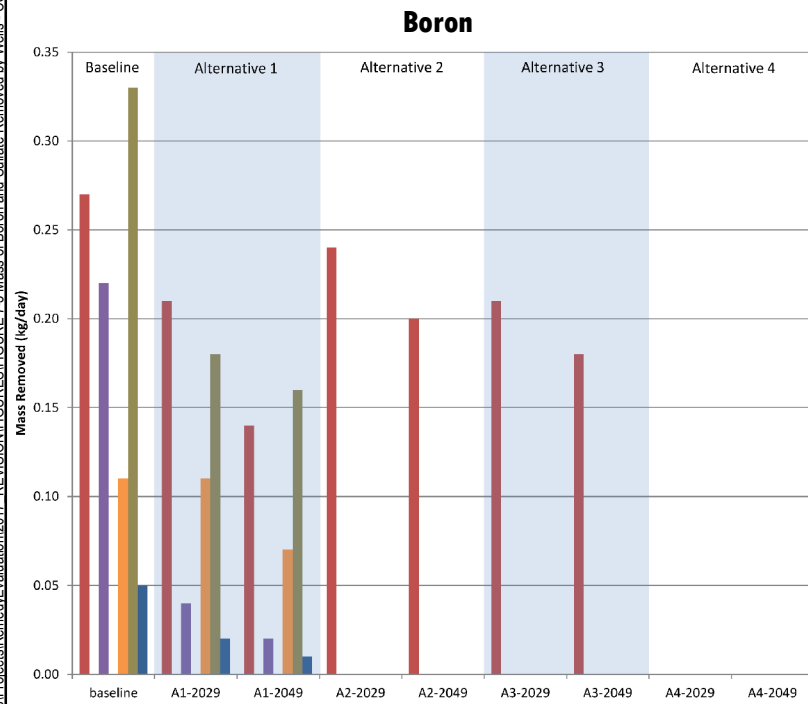
### Predicted Mass of Boron Crossing Each Transect in 2069



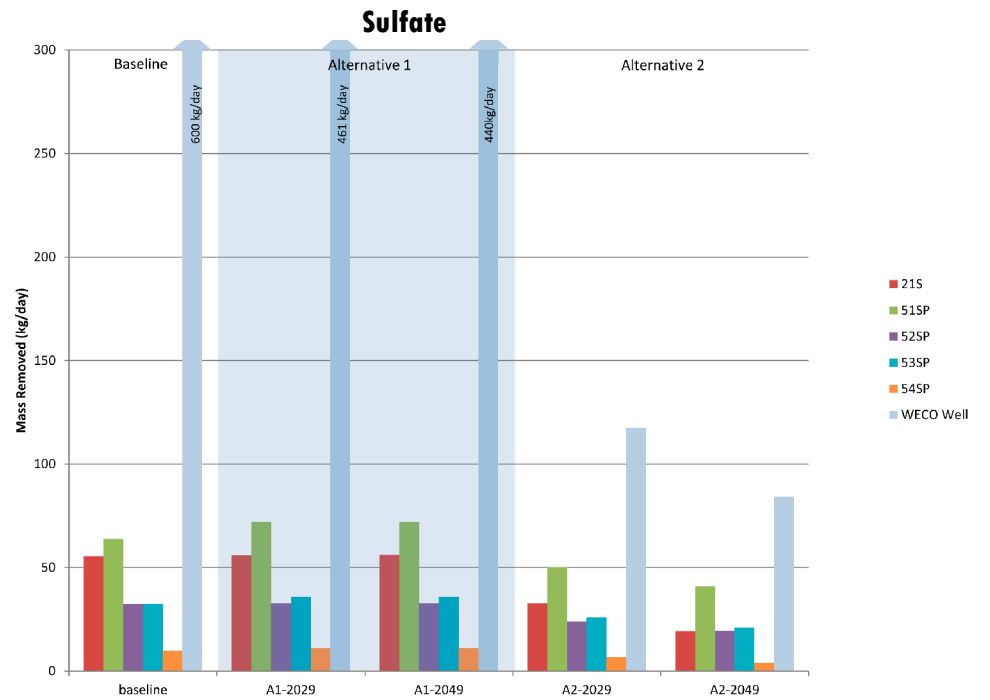
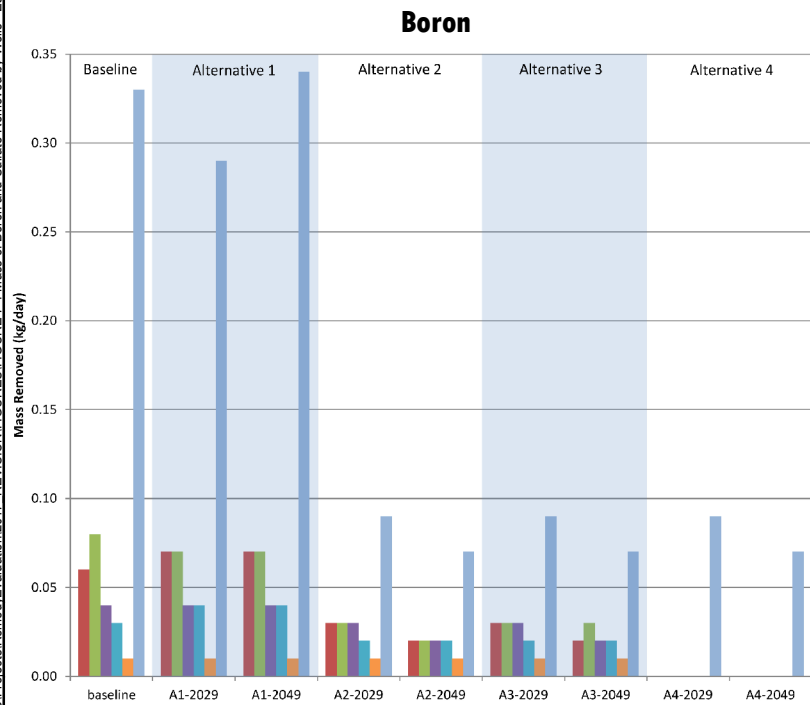
Note: \* indicates there are no Boron Concentrations above the PCC at the transect

Predicted Mass of Boron Crossing Each Transect in 2069  
Plant Site Area Remedy Evaluation  
CSES-Colstrip, Montana  
FIGURE 7-2

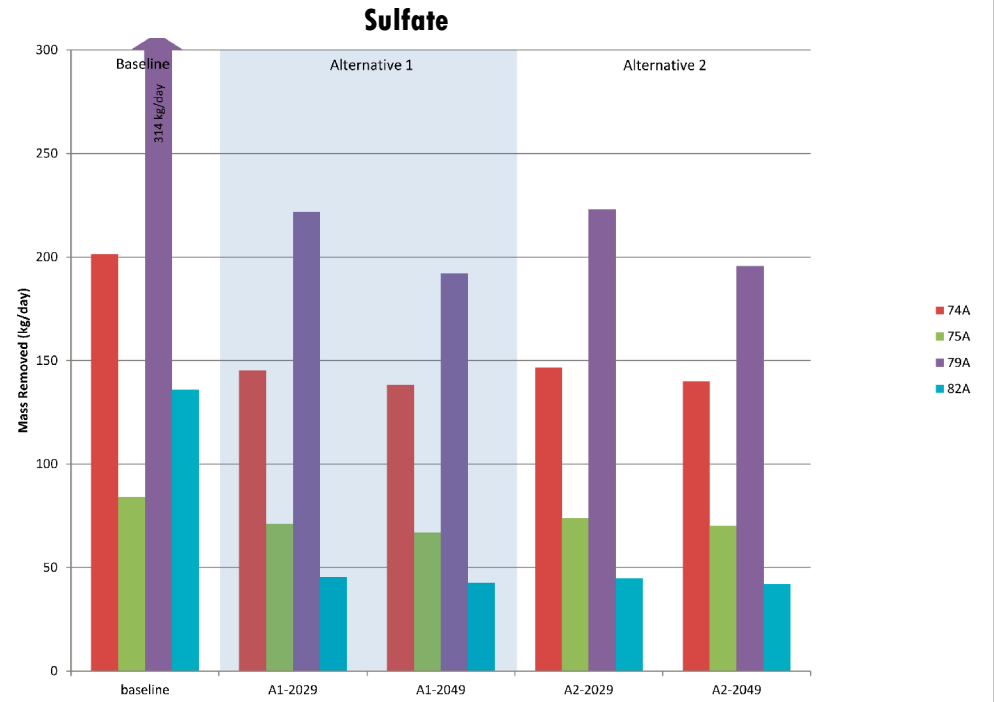
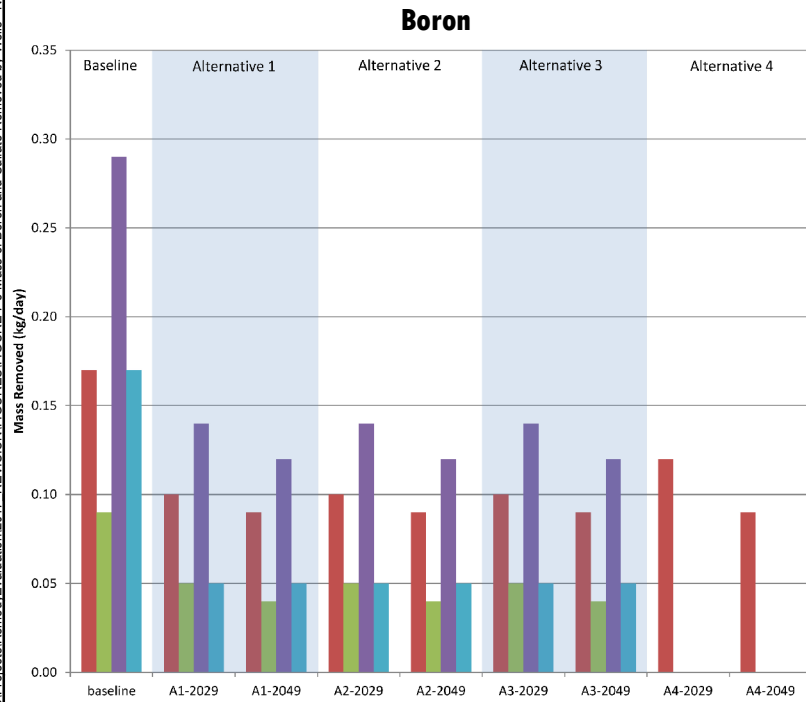
P:\Colstrip\360.0064.002 Plant Site\04\_GIS\Projects\Remedy\Evaluation\2017\_REVISION\FIGURES\FIGURE 7-3\_Mass of Boron and Sulfate Removed by Wells - Central Near Source Area.mxd



**Mass of Boron and Sulfate Removed by Wells**  
**Central Near Source Area**  
**Plant Site Area Remedy Evaluation**  
**CSES-Colstrip, Montana**  
**FIGURE 7-3**

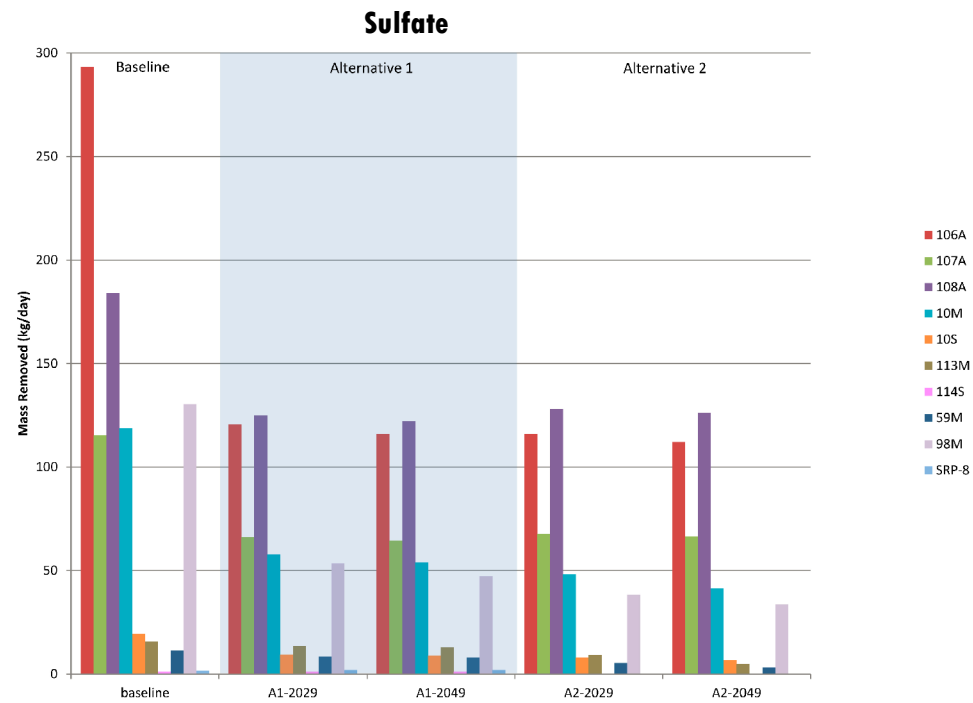
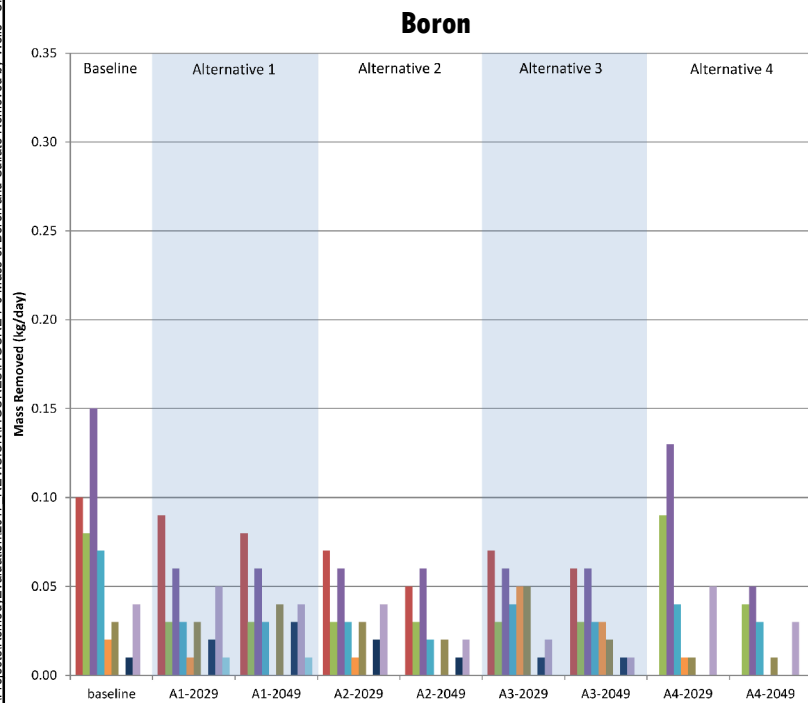


**Mass of Boron and Sulfate Removed by Wells**  
**East Near Source Area**  
**Plant Site Area Remedy Evaluation**  
**CSES-Colstrip, Montana**  
**FIGURE 7-4**

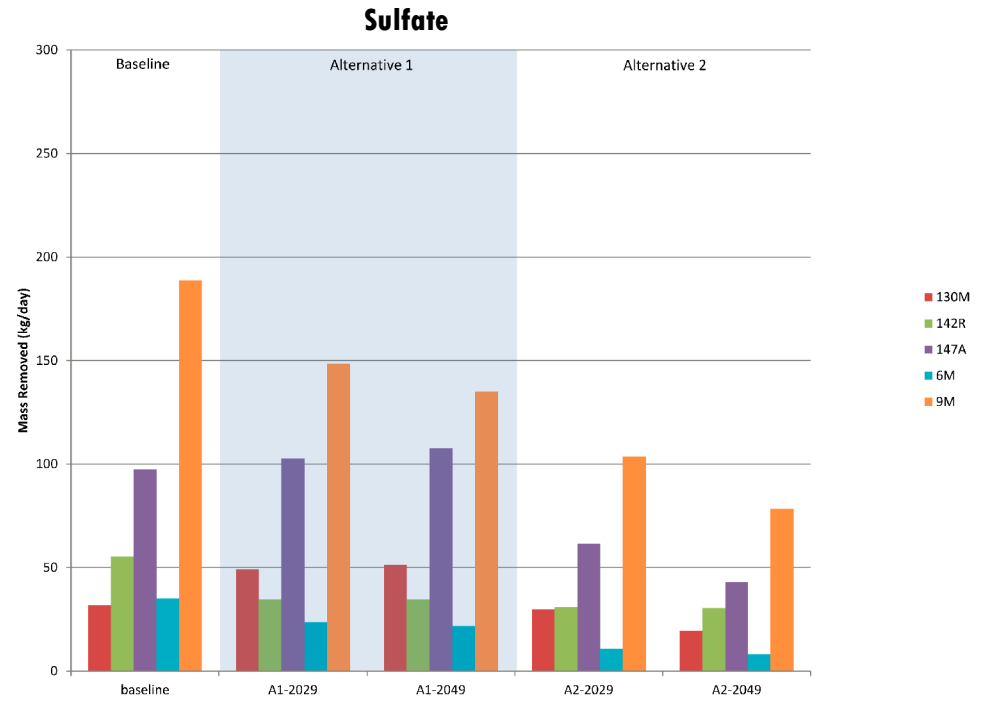
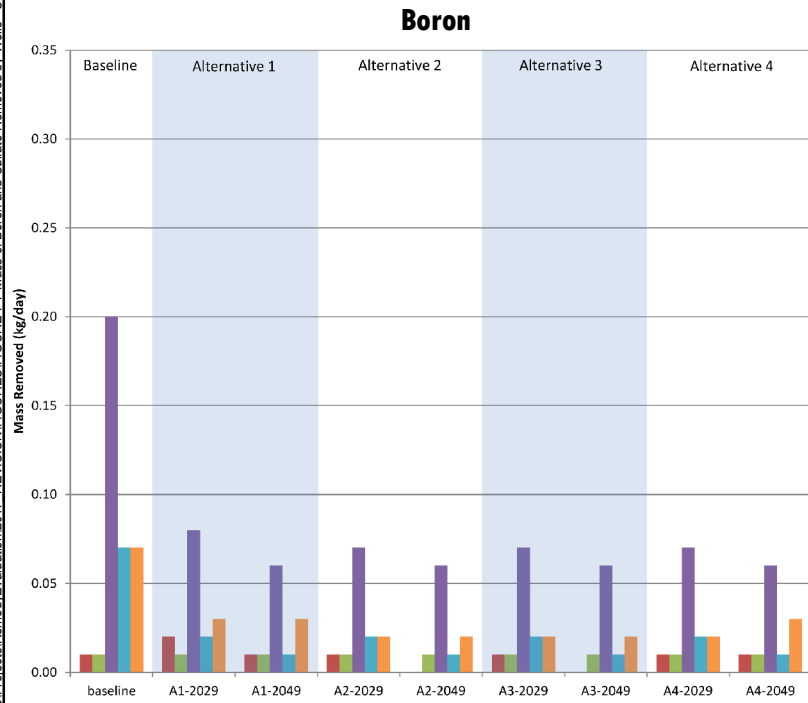


**Mass of Boron and Sulfate Removed by Wells**  
**North Distal Area**  
**Plant Site Area Remedy Evaluation**  
**CSES-Colstrip, Montana**  
**FIGURE 7-5**

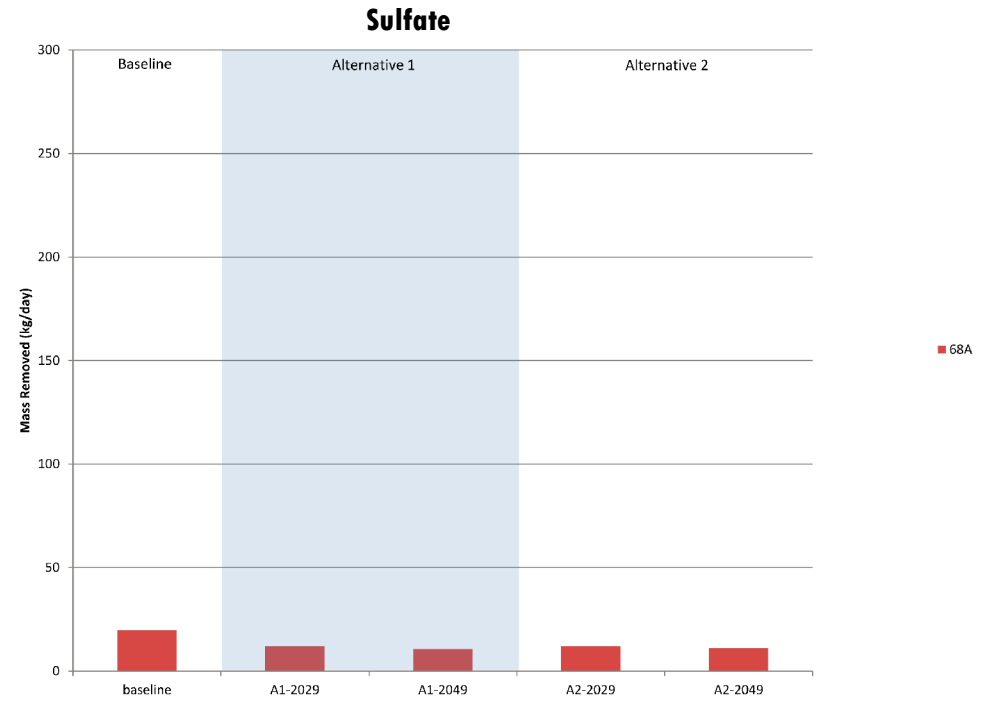
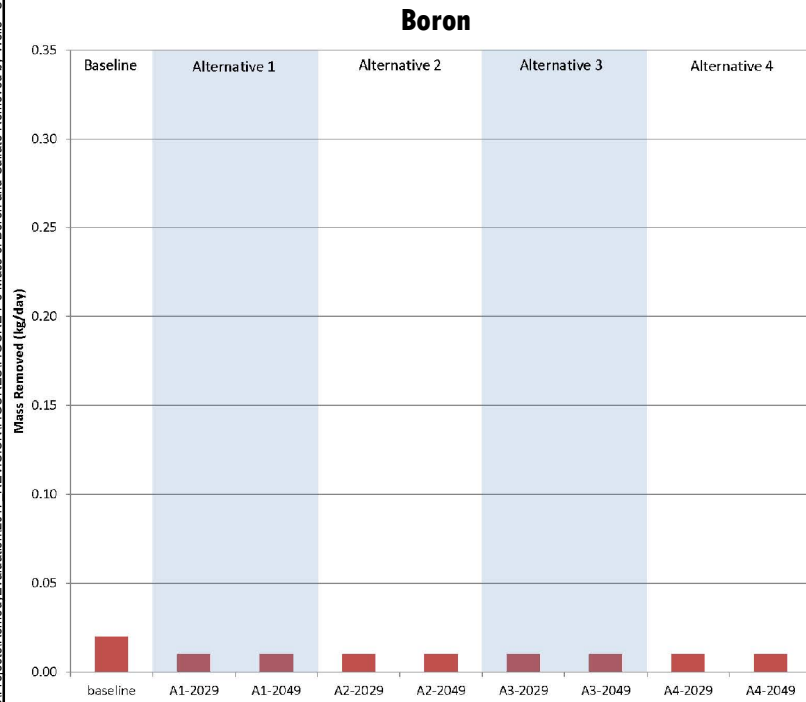
P:\Colstrip\360.0064.002 Plant Site\04\_GIS\Projects\Remedy\Evaluation\2017\_REVISION\FIGURES\FIGURE 7-6 Mass of Boron and Sulfate Removed by Wells - Off-site West Area.mxd



Mass of Boron and Sulfate Removed by Wells  
 Off-site West Area  
 Plant Site Area Remedy Evaluation  
 CSES-Colstrip, Montana  
 FIGURE 7-6



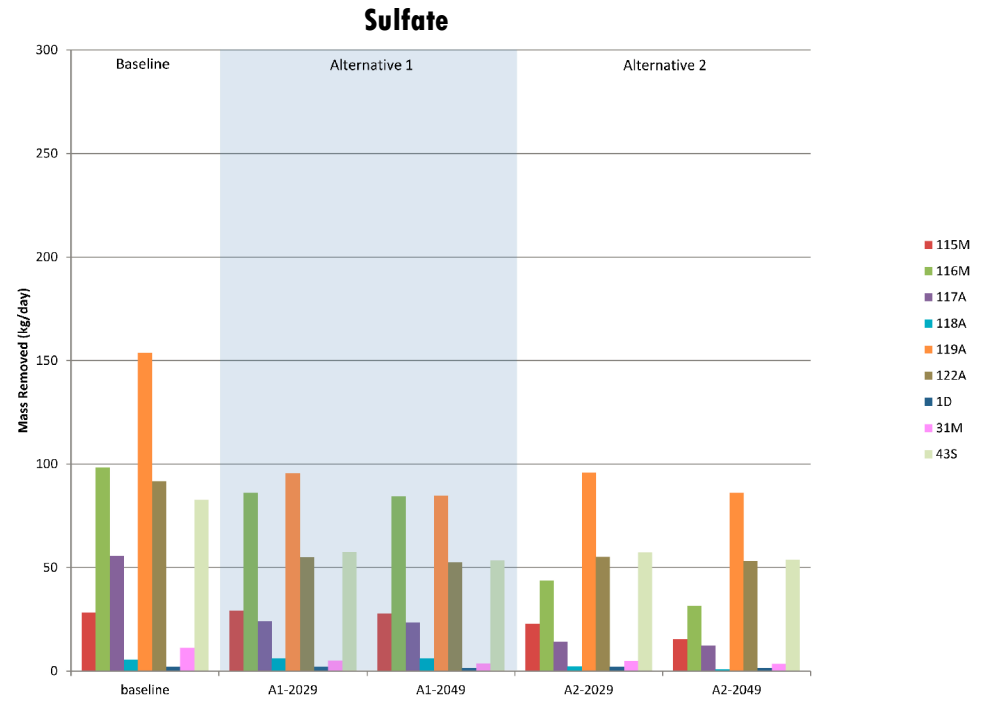
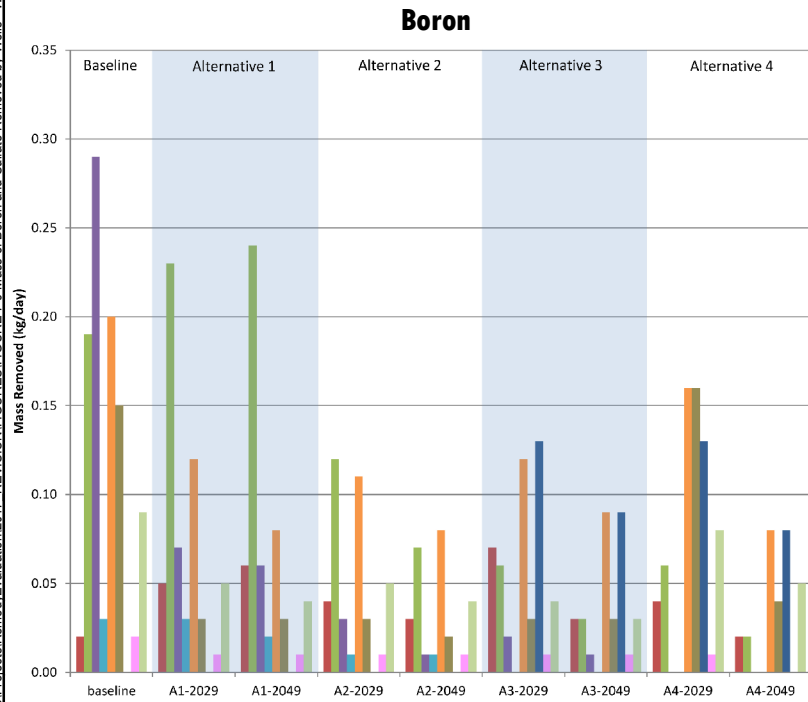
**Mass of Boron and Sulfate Removed by Wells**  
**South Near Source Area**  
**Plant Site Area Remedy Evaluation**  
**CSES-Colstrip, Montana**  
**FIGURE 7-7**



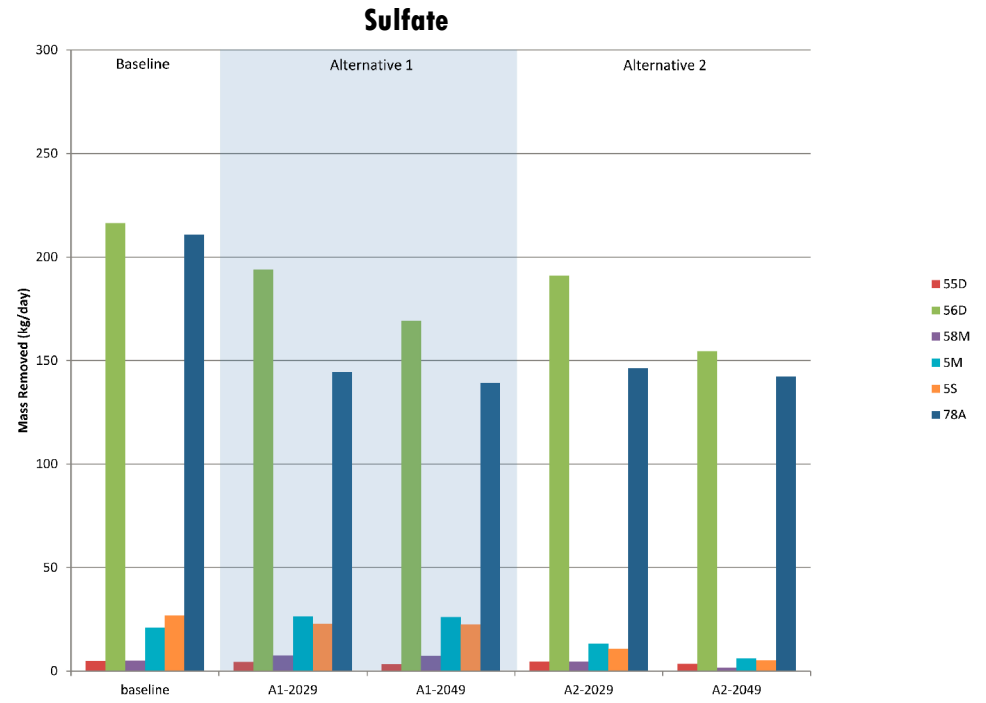
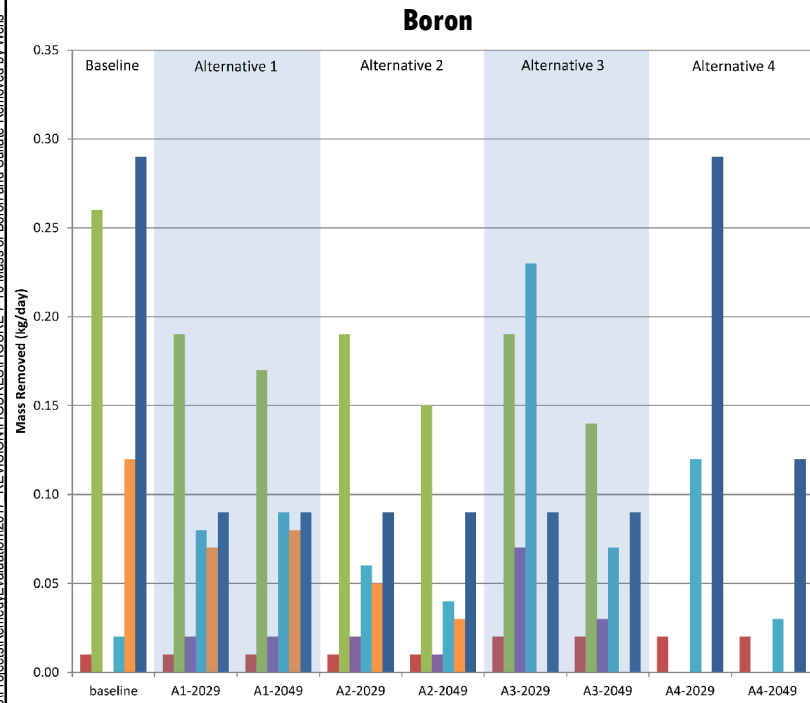
**Mass of Boron and Sulfate Removed by Wells**  
**Southwest Distal Area**  
**Plant Site Area Remedy Evaluation**  
**CSES-Colstrip, Montana**  
**FIGURE 7-8**



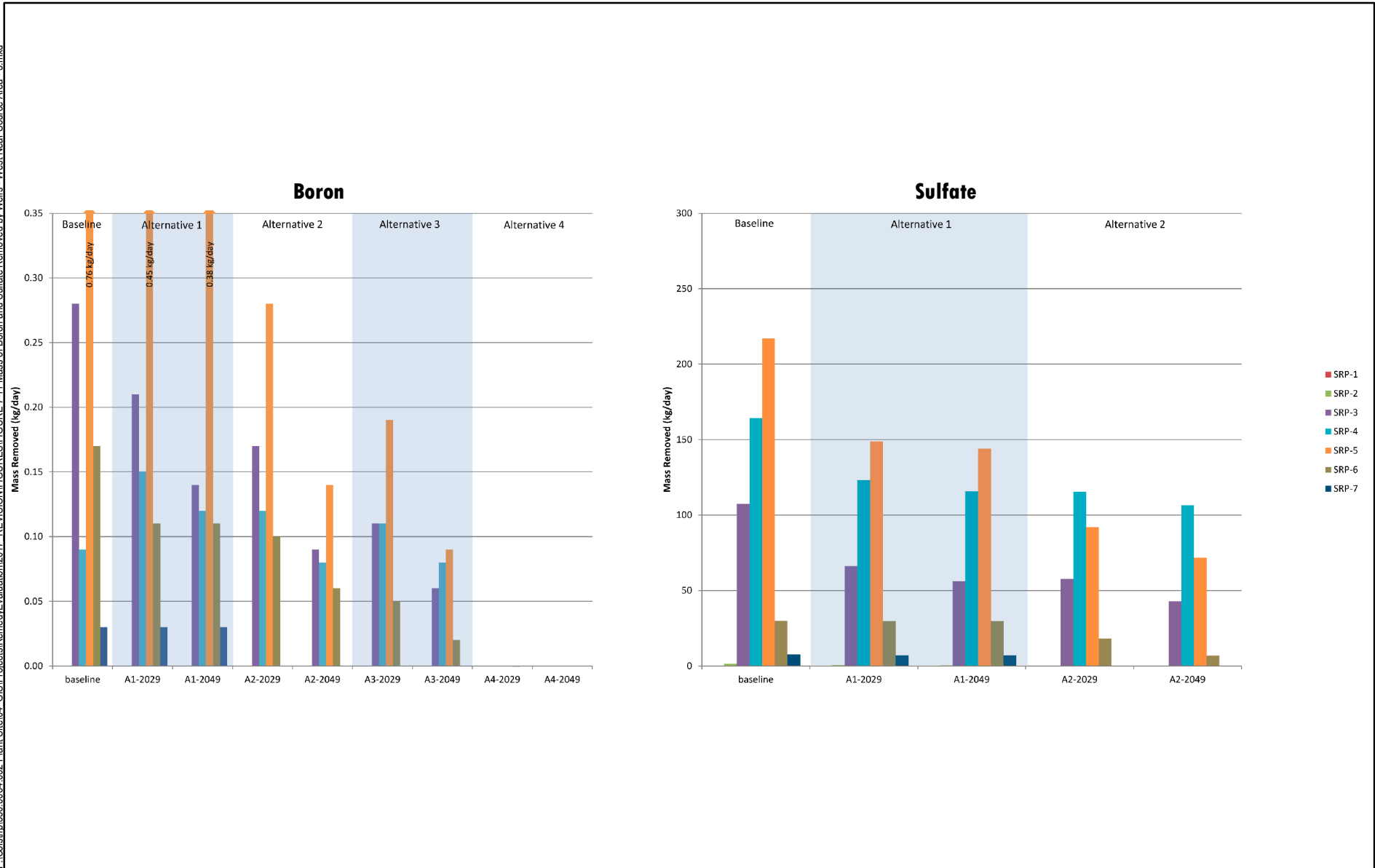
P:\Colstrip\360.0064.002 Plant Site\04\_GIS\Projects\Remedy\Evaluation\2017\_REVISION\FIGURES\FIGURE 7-9 Mass of Boron and Sulfate Removed by Wells - West Near Source Area-1.mxd



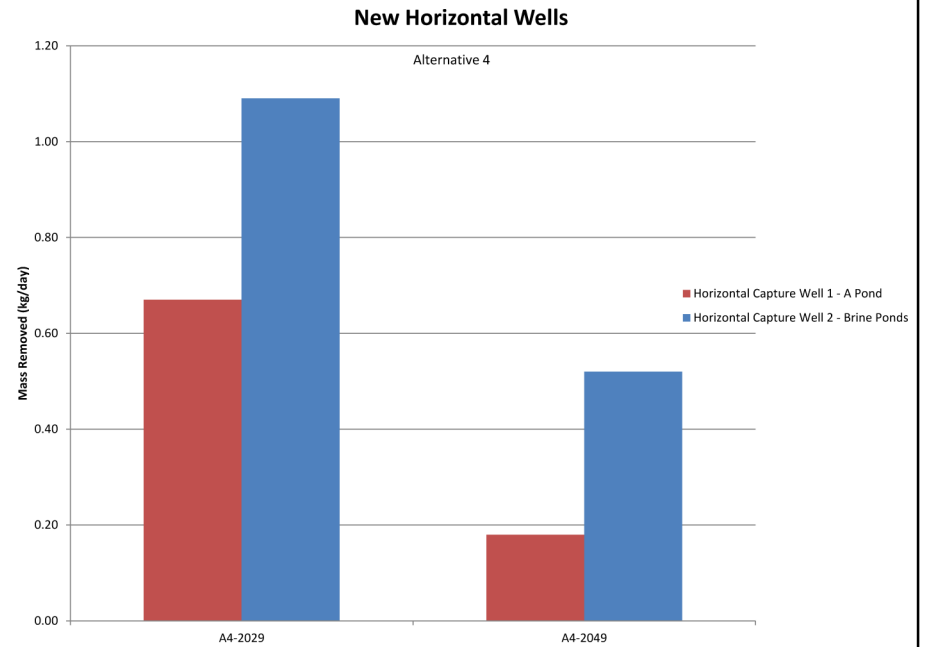
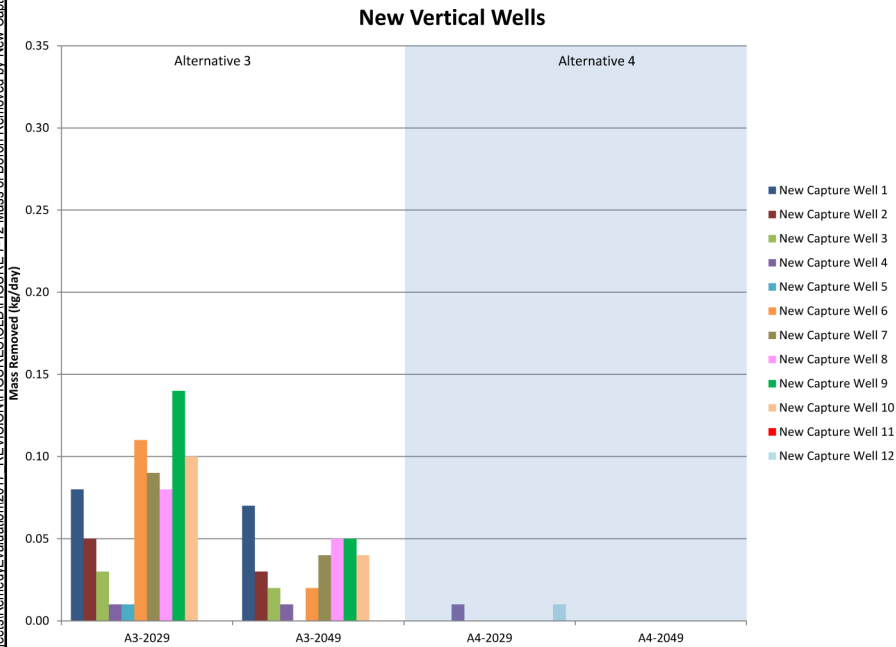
Mass of Boron and Sulfate Removed by Wells  
West Near Source Area - 1  
Plant Site Area Remedy Evaluation  
CSES-Colstrip, Montana  
FIGURE 7-9



**Mass of Boron and Sulfate Removed by Wells**  
**West Near Source Area - 2**  
**Plant Site Area Remedy Evaluation**  
**CSES-Colstrip, Montana**  
**FIGURE 7-10**



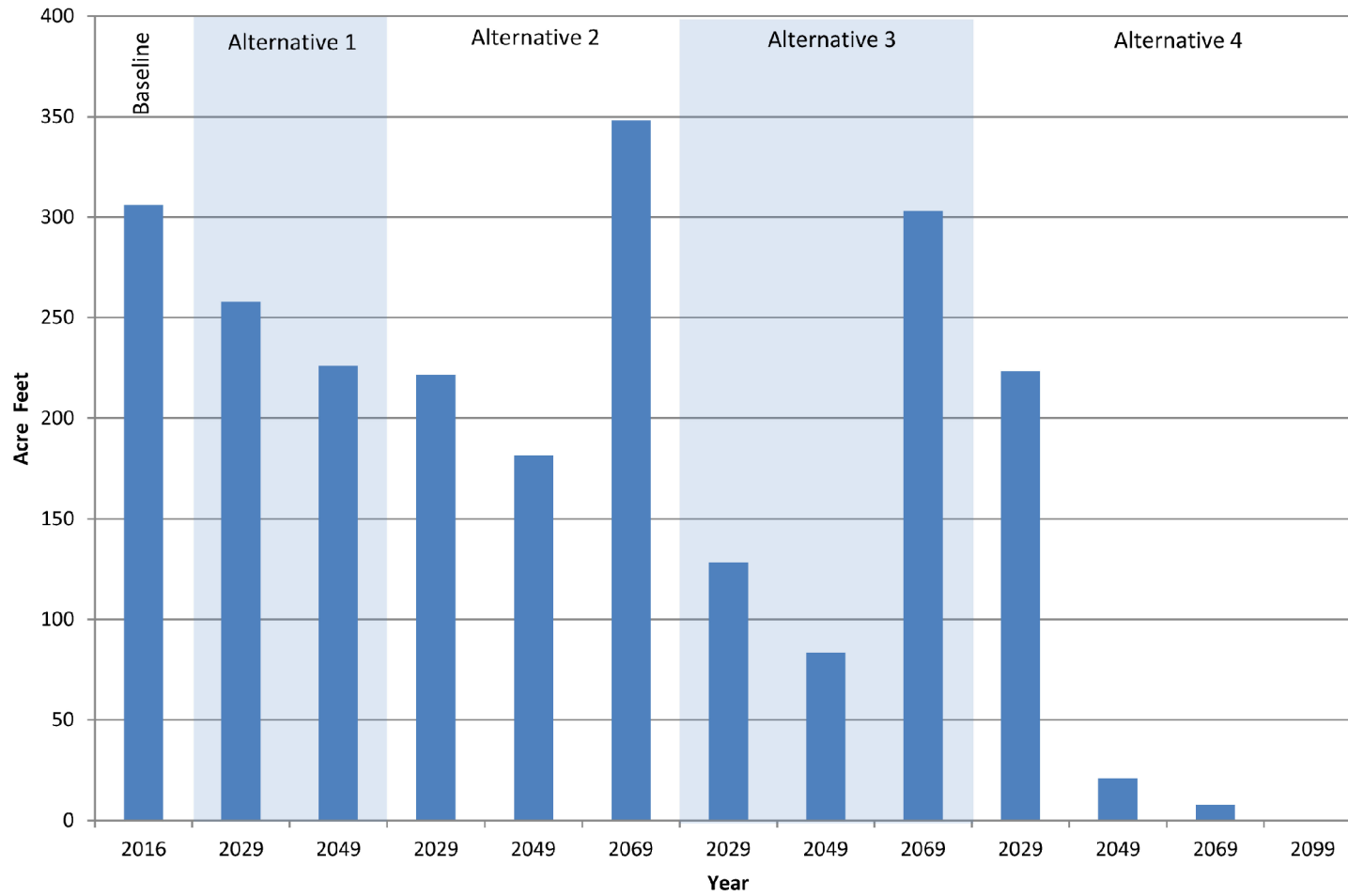
Mass of Boron and Sulfate Removed by Wells  
 West Near Source Area - 3  
 Plant Site Area Remedy Evaluation  
 CSES-Colstrip, Montana  
 FIGURE 7-11



Mass of Boron Removed by New Capture Wells and Horizontal Wells  
Plant Site Area Remedy Evaluation  
CSES-Colstrip, Montana  
FIGURE 7-12

P:\Colstrip\360.0064.002 Plant Site\04\_GIS\Projects\Remed\Evaluation\2017\_REVISION\FIGURES\FIGURE 7-13 Predicted Volume of Groundwater Exceeding Boron PCC.mxd

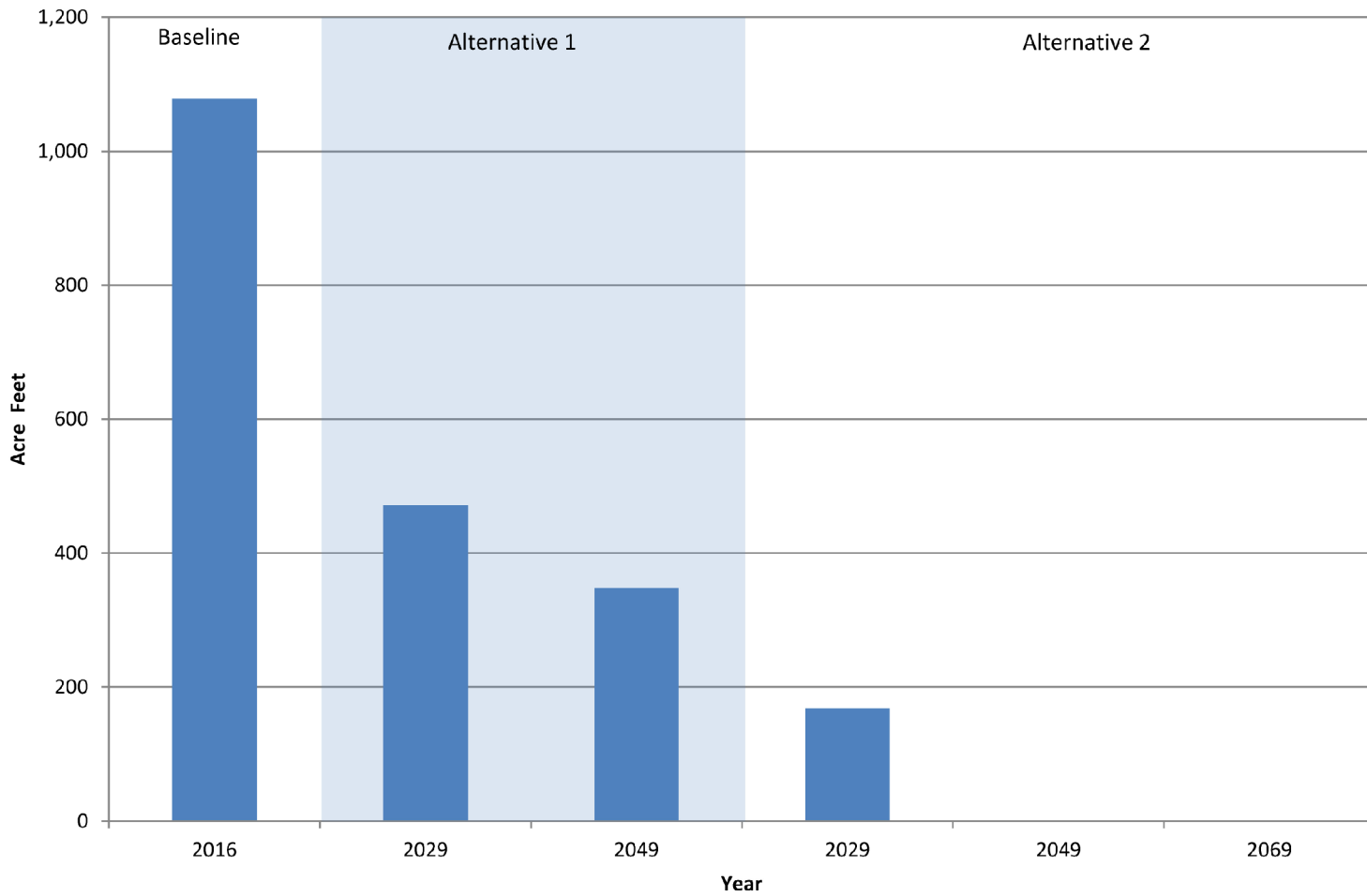
### Predicted Volume of Groundwater Exceeding Boron PCC



Predicted Volume of Groundwater Exceeding Boron PCC  
Plant Site Area Remedy Evaluation  
CSES-Colstrip, Montana  
FIGURE 7-13

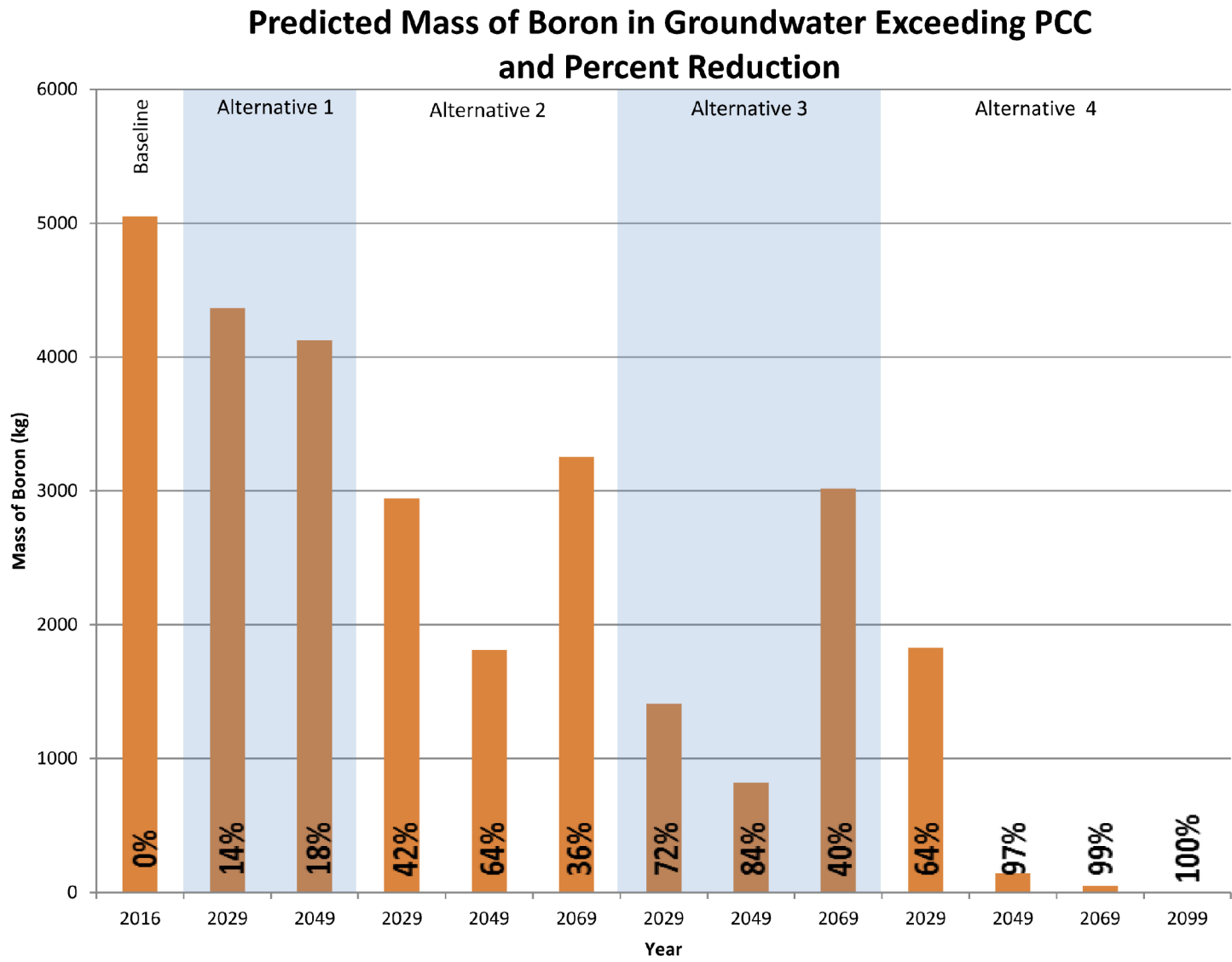
P:\Colstrip\360.0064.002 Plant Site\04\_GIS\Projects\Remed\Evaluation\2017\_REVISION\FIGURES\FIGURE 7-14 Predicted Volume of Groundwater Exceeding Sulfate PCC.mxd

### Predicted Volume of Groundwater Exceeding Sulfate PCC



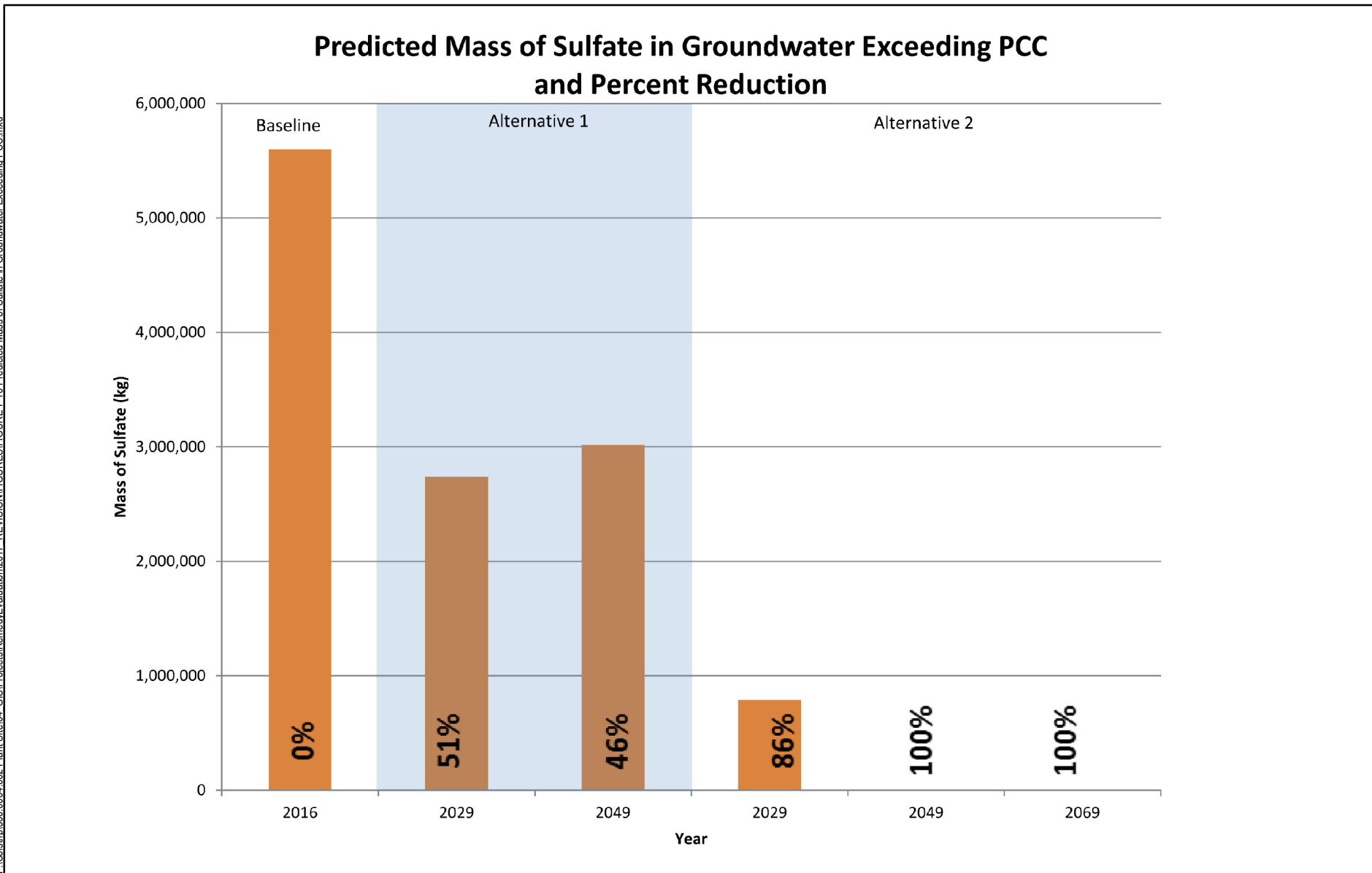
Predicted Volume of Groundwater Exceeding Sulfate PCC  
Plant Site Area Remedy Evaluation  
CSES-Colstrip, Montana  
FIGURE 7-14

P:\Colstrip\360.0064.002 Plant Site\04\_GIS\Protects\Remedy\Evaluation\2017\_REVISION\FIGURES\FIGURE 7-15 Predicted Mass of Boron in Groundwater Exceeding PCC.mxd



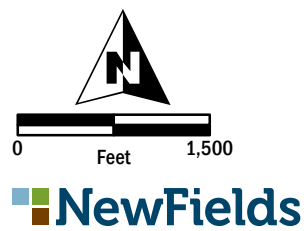
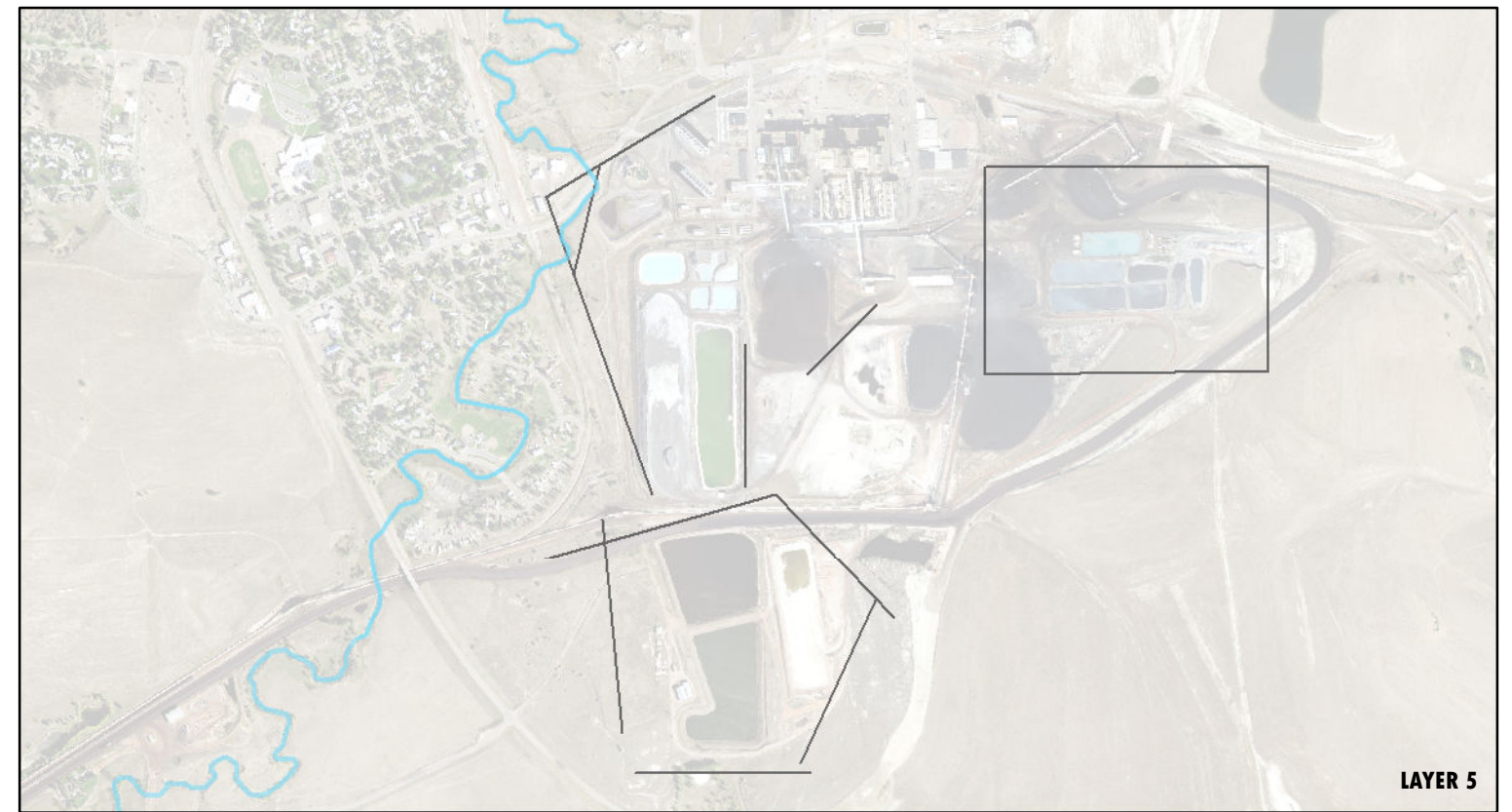
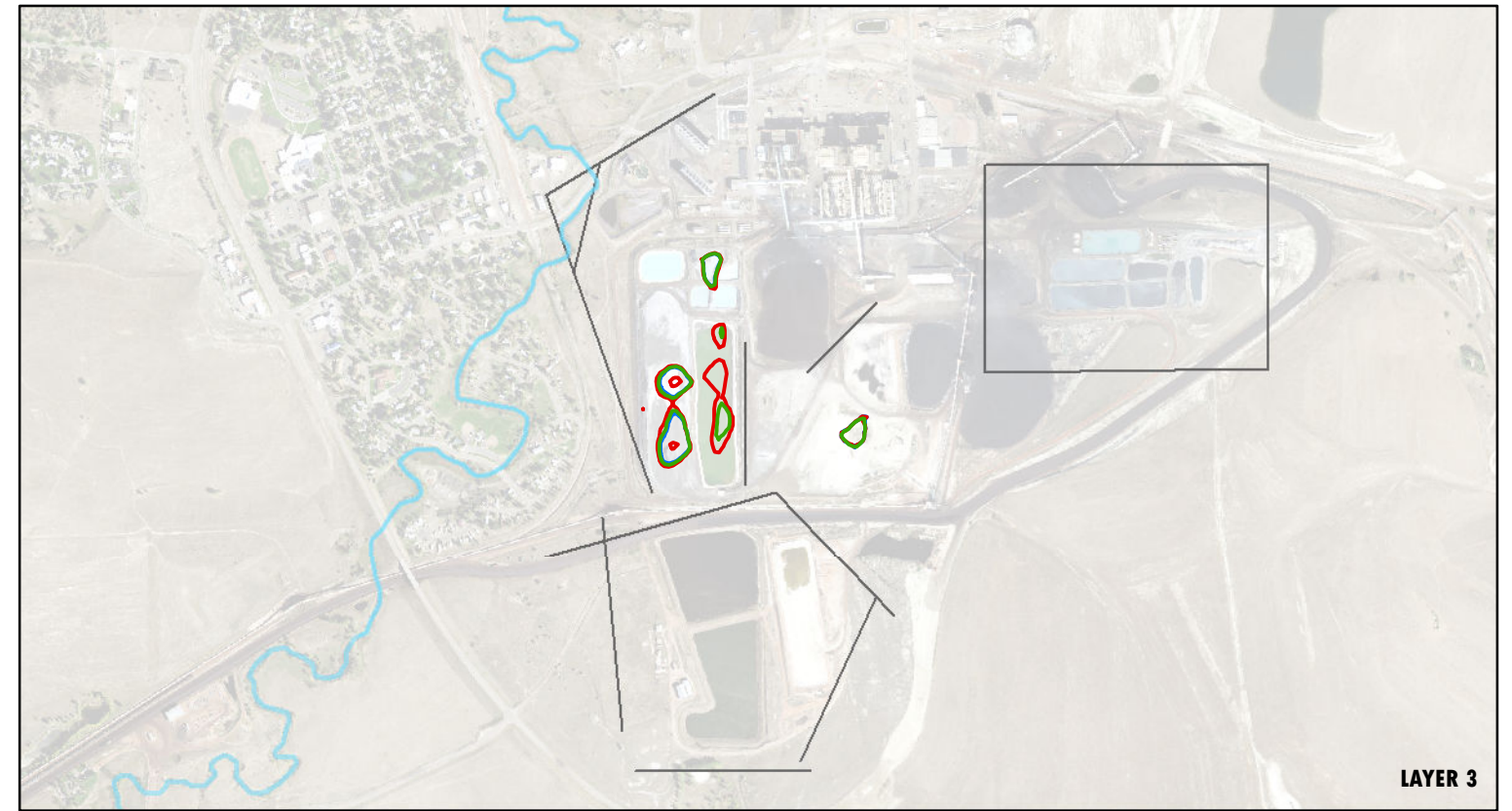
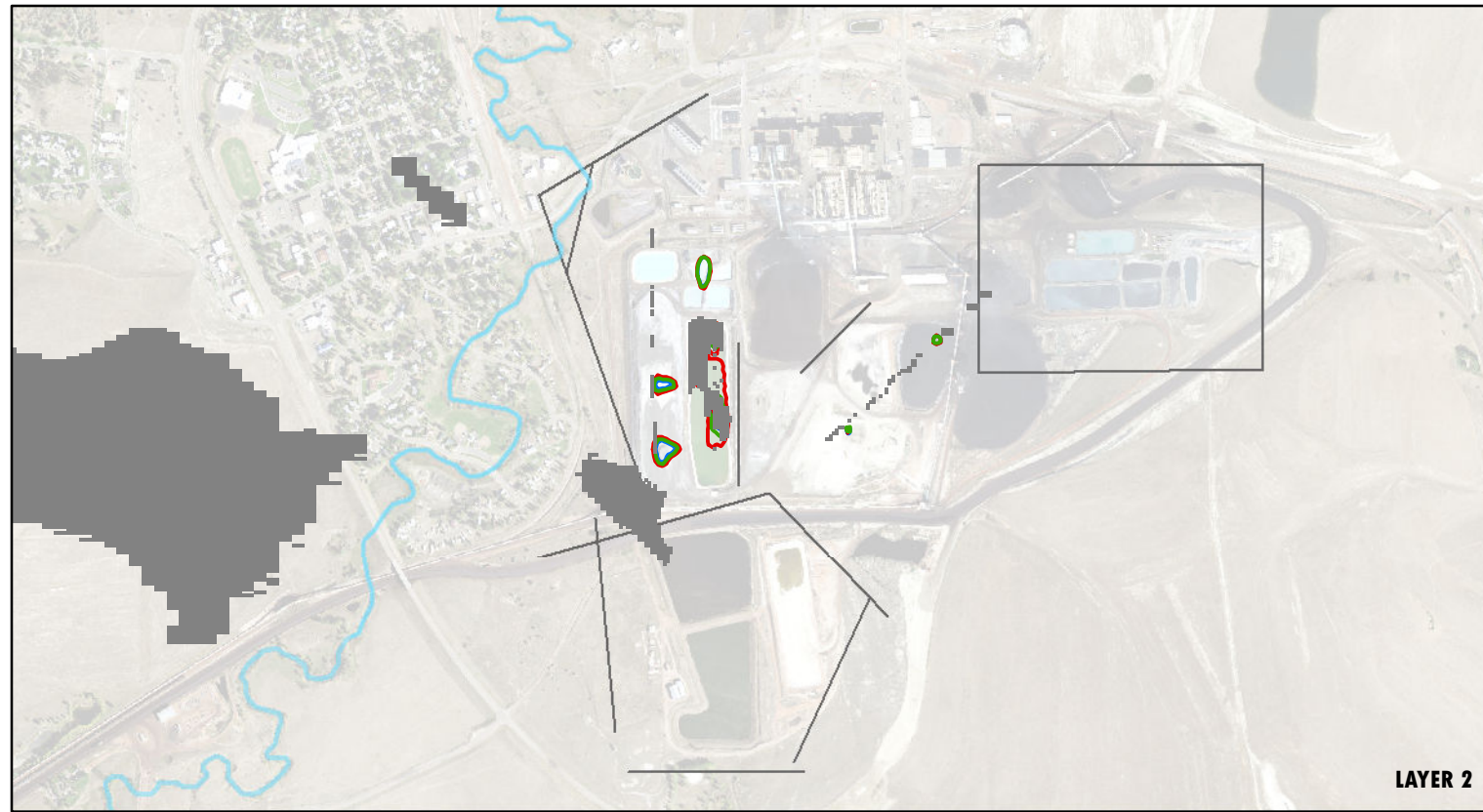
Predicted Mass of Boron in Groundwater Exceeding PCC  
Plant Site Area Remedy Evaluation  
CSES-Colstrip, Montana  
FIGURE 7-15

P:\Colstrip\360.0064.002 Plant Site\04\_GIS\Projects\Remedy\Evaluation\2017\_REVISION\FIGURES\FIGURE 7-16 Predicted Mass of Sulfate in Groundwater Exceeding PCC.mxd



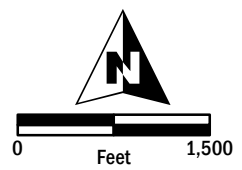
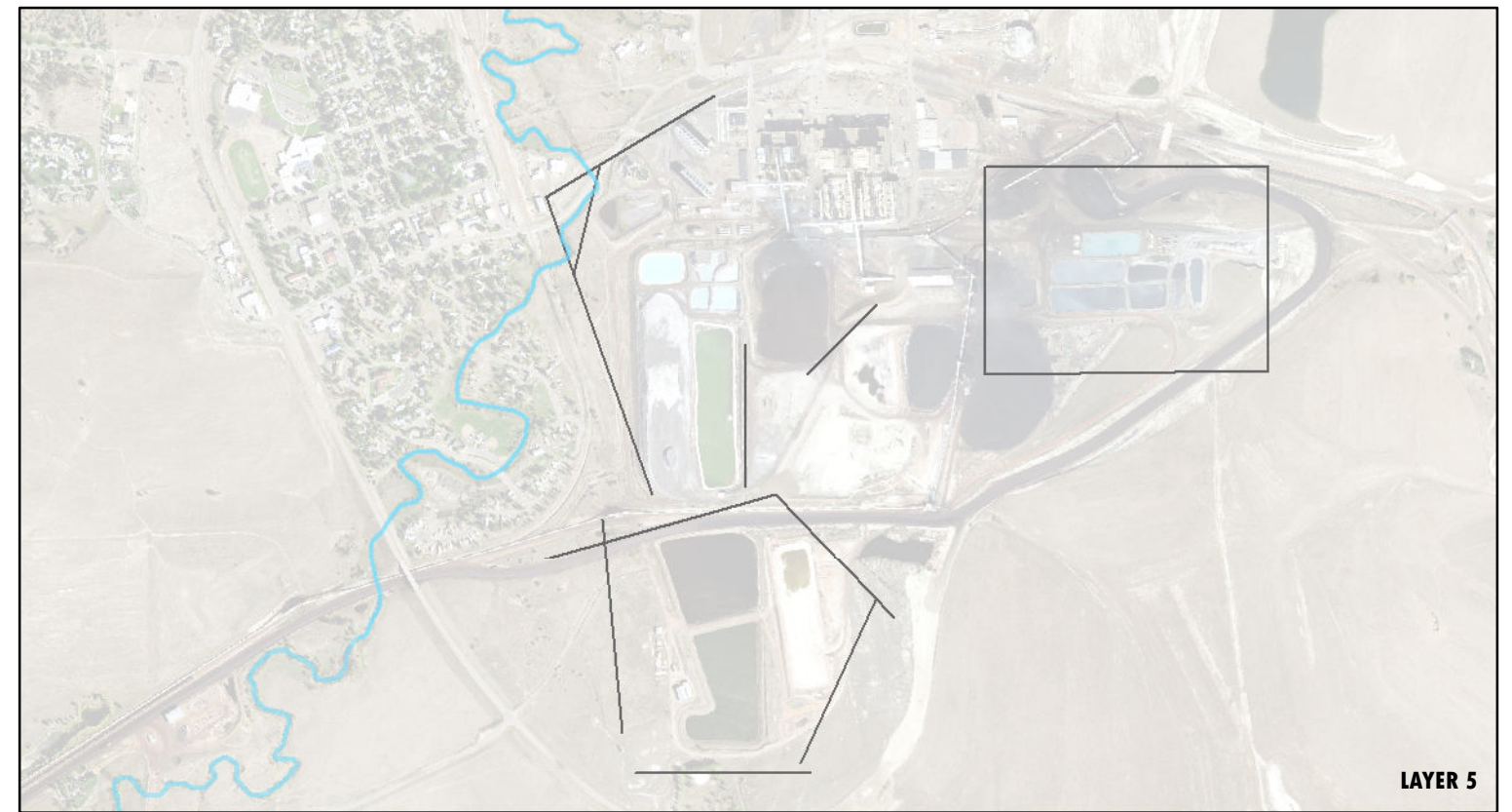
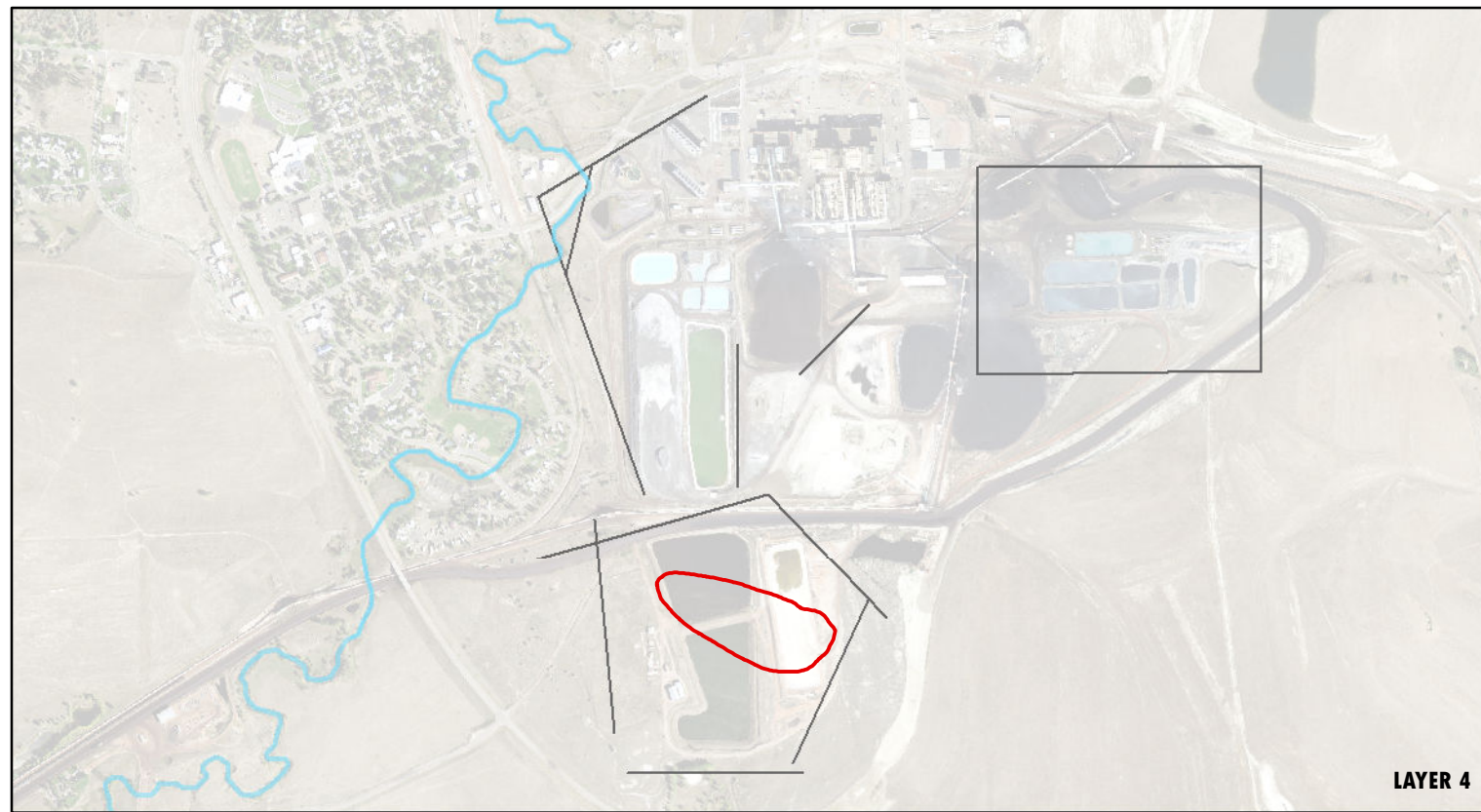
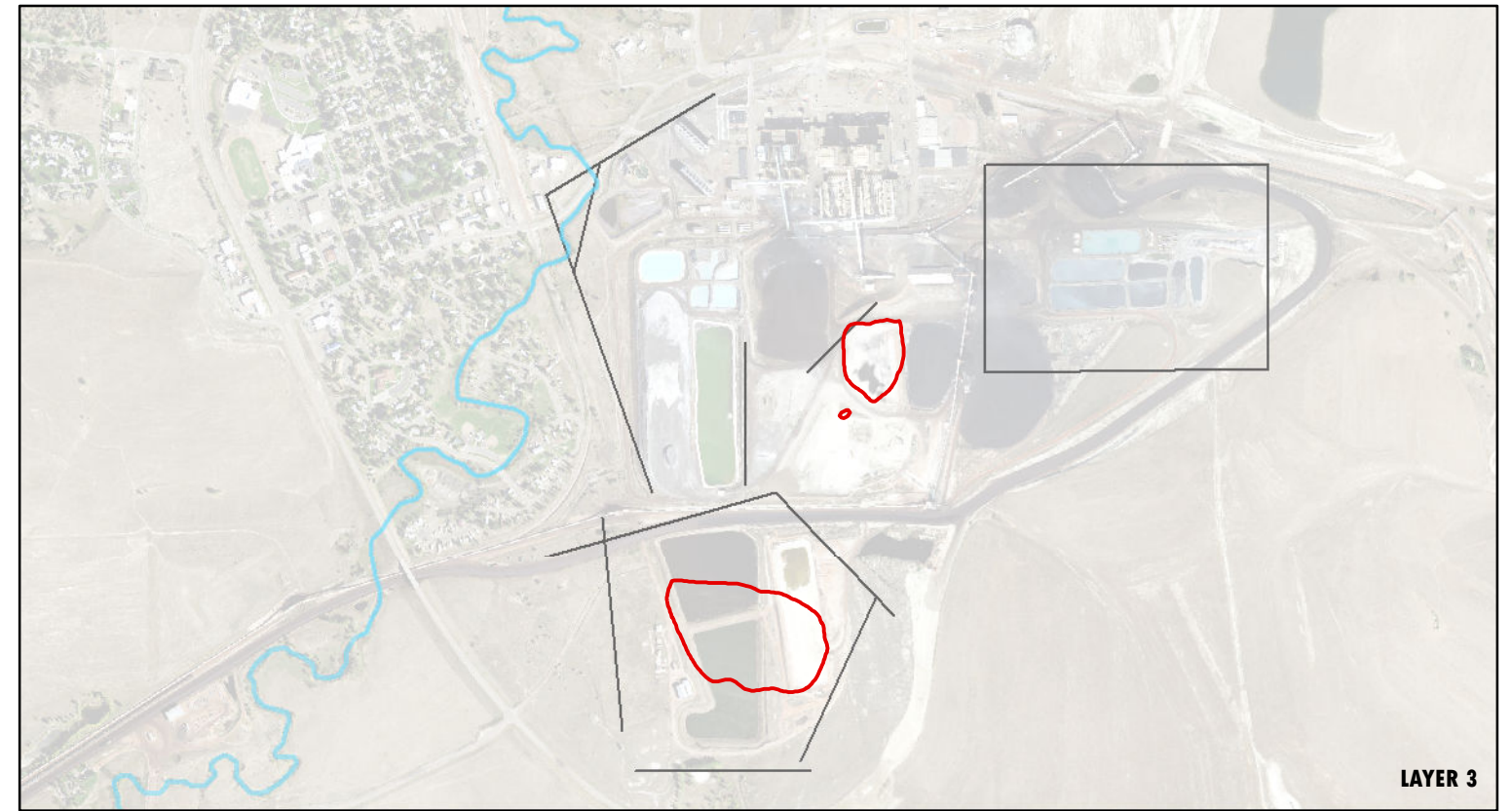
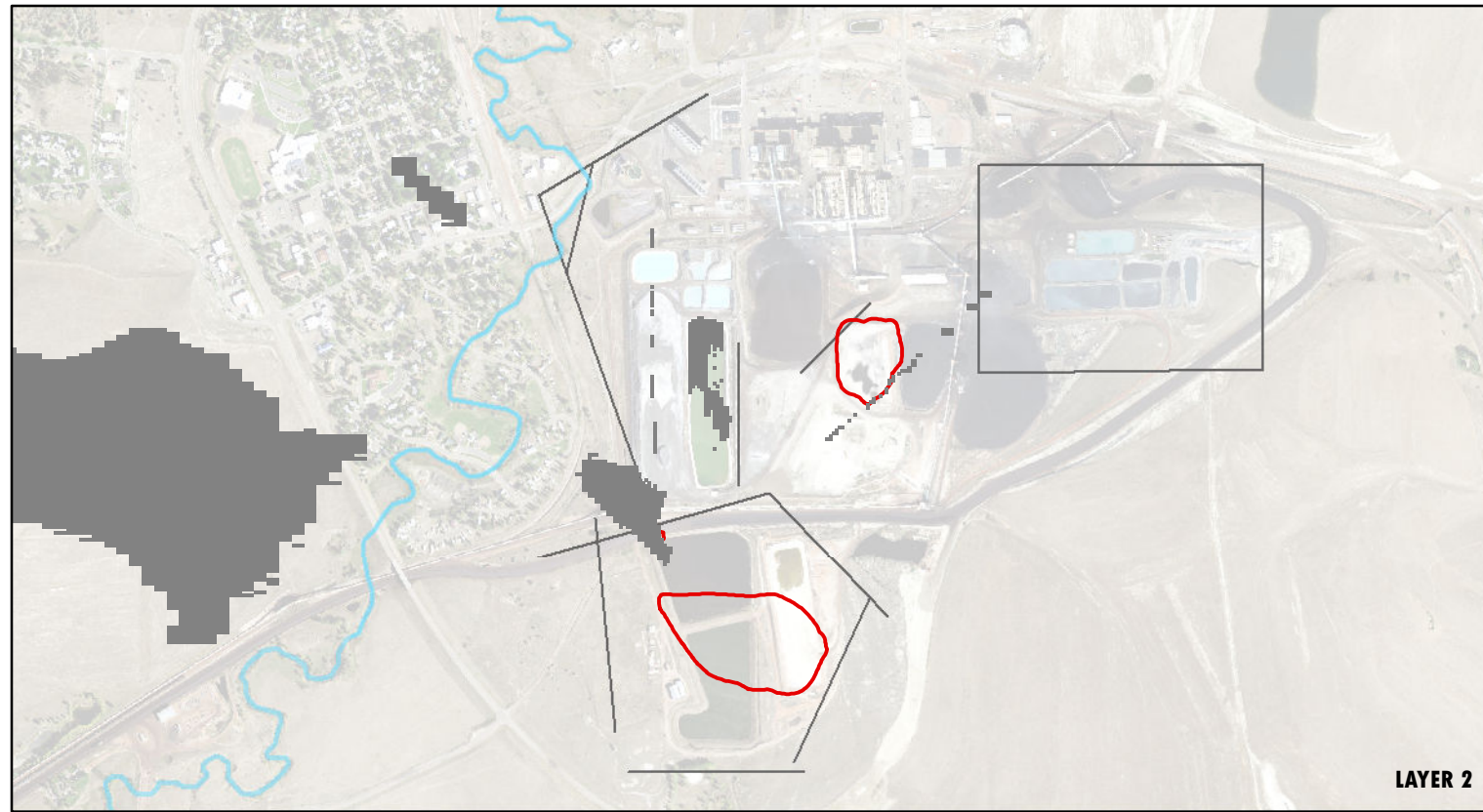
Predicted Mass of Sulfate in Groundwater Exceeding PCC  
Plant Site Area Remedy Evaluation  
CSES-Colstrip, Montana  
FIGURE 7-16





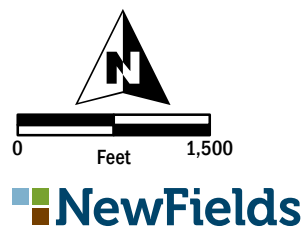
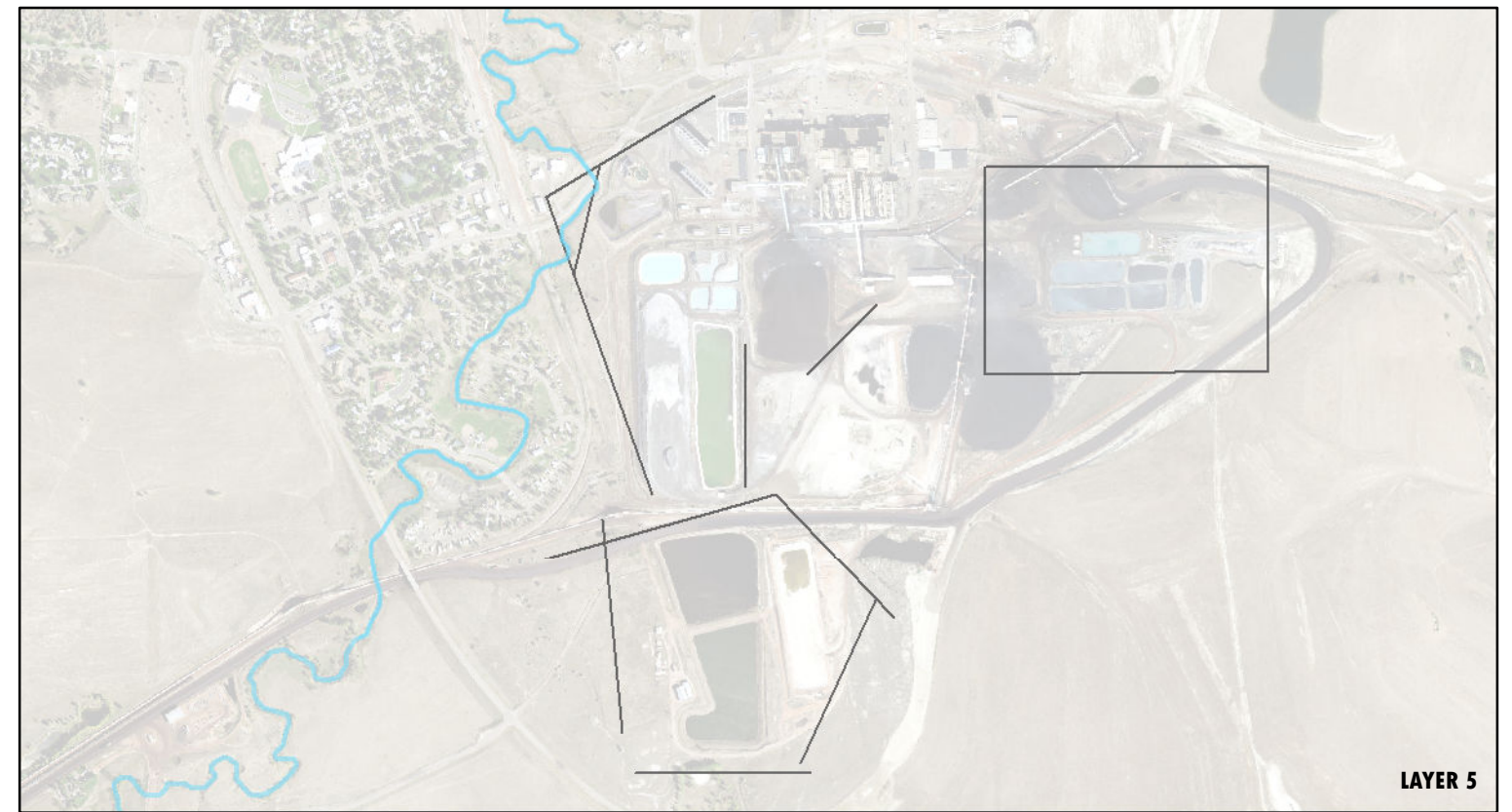
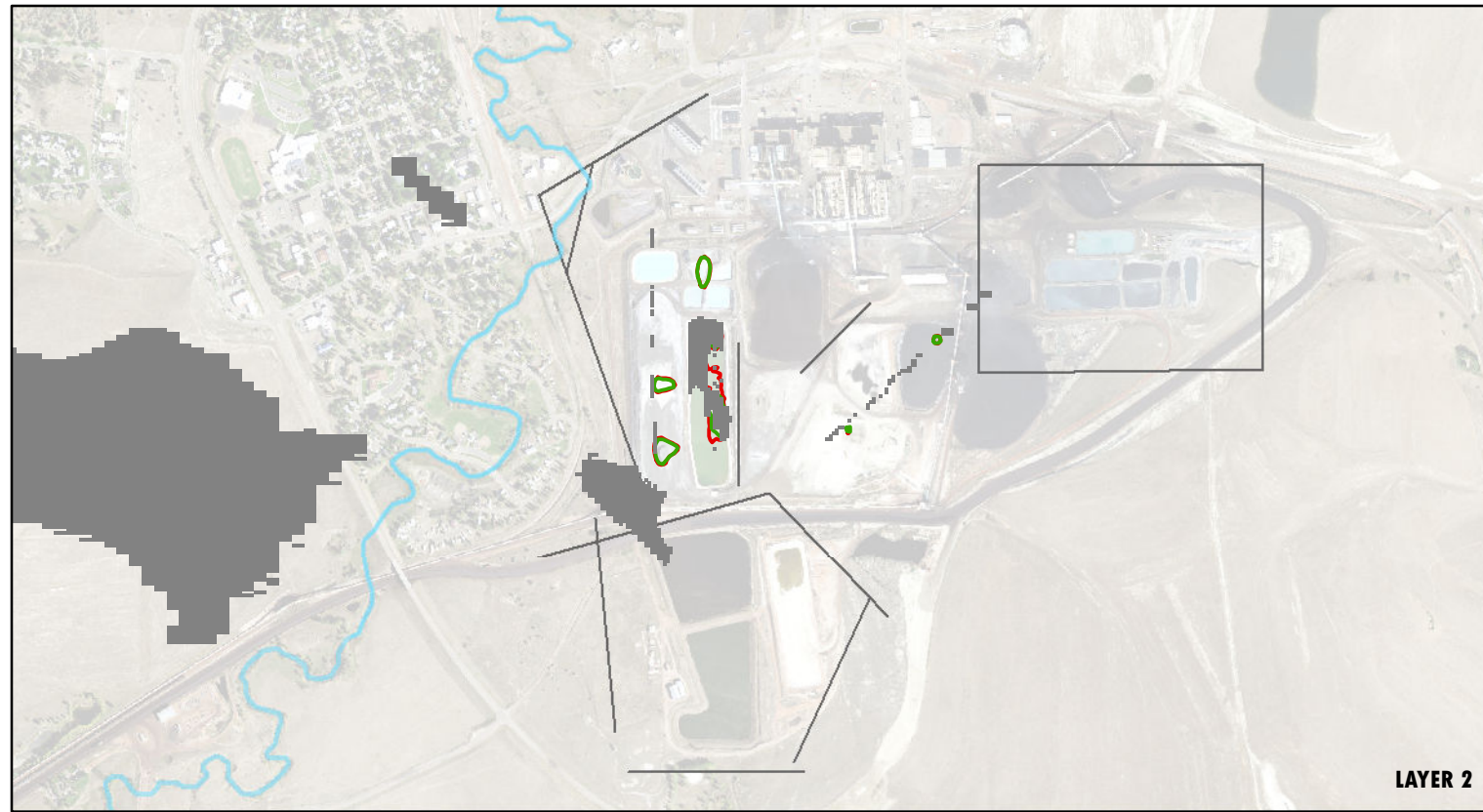
- Model-Predicted Boron Concentrations - Year 2049**
- 4 mg/L Contour- Base Source Concentrations
  - 4 mg/L Contour- Increase Source Concentrations (x2) (see Table 8-1)
  - 4 mg/L Contour- Decrease Source Concentrations (x0.5) (see Table 8-1)
  - Transects
  - Dry Cells

Sensitivity of Model-Predicted Boron Concentrations to Source Concentration  
 Plant Site Area Remedy Evaluation  
 CSES-Colstrip, Montana  
 FIGURE 8-1



**Model-Predicted Sulfate Concentrations - Year 2049**

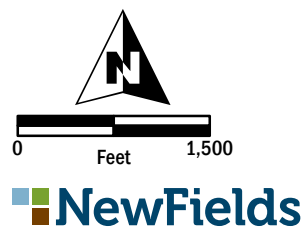
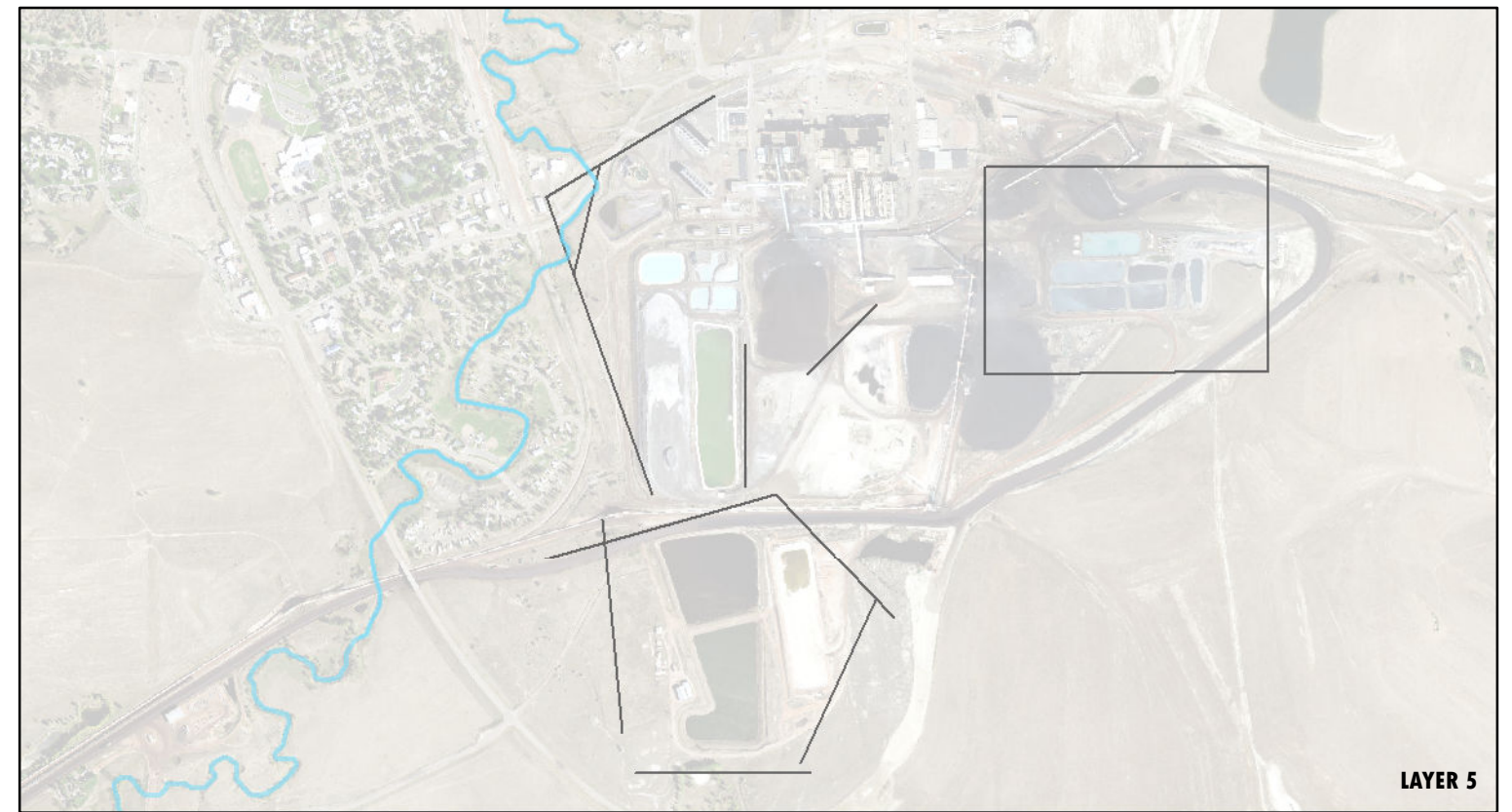
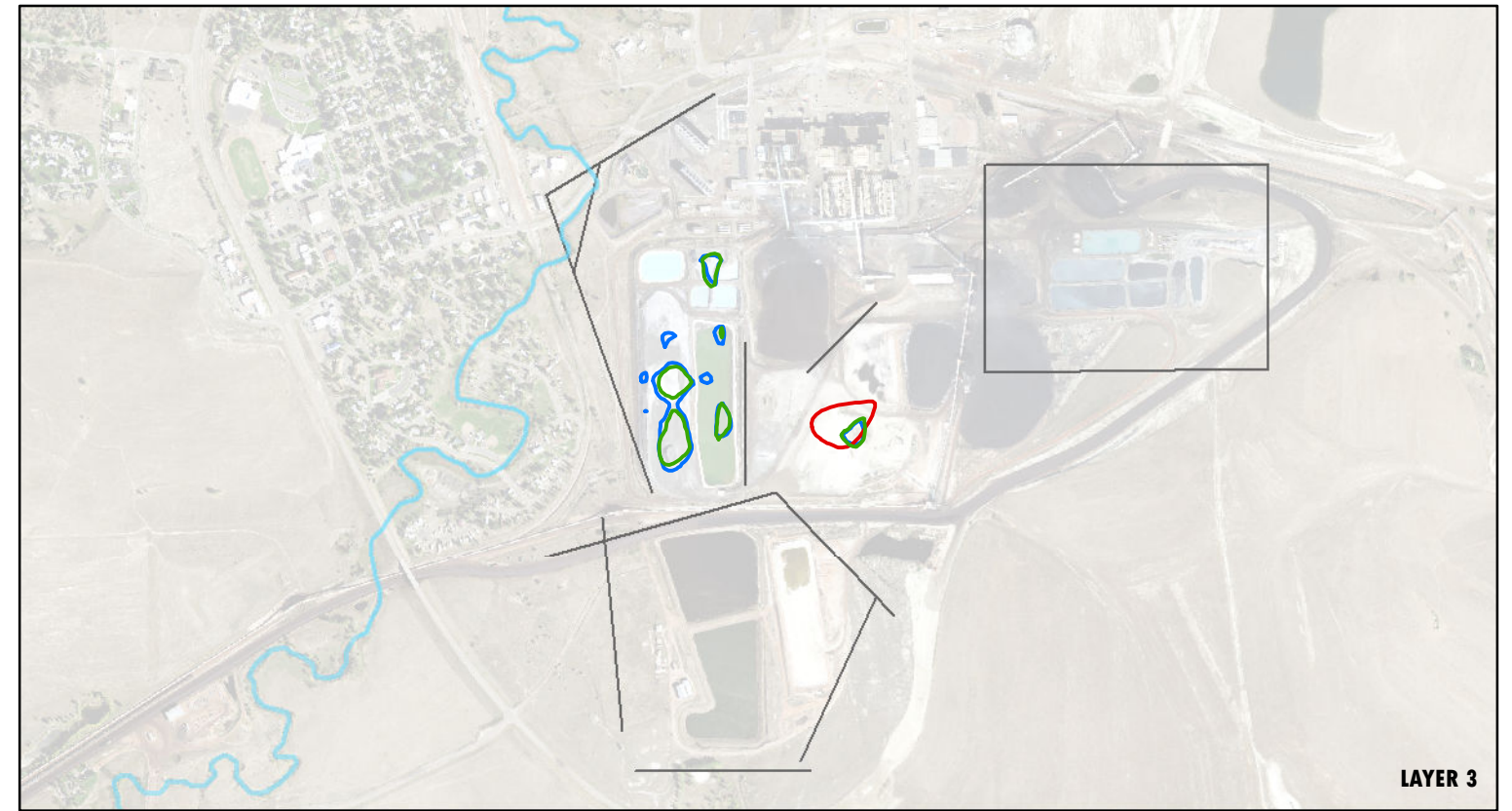
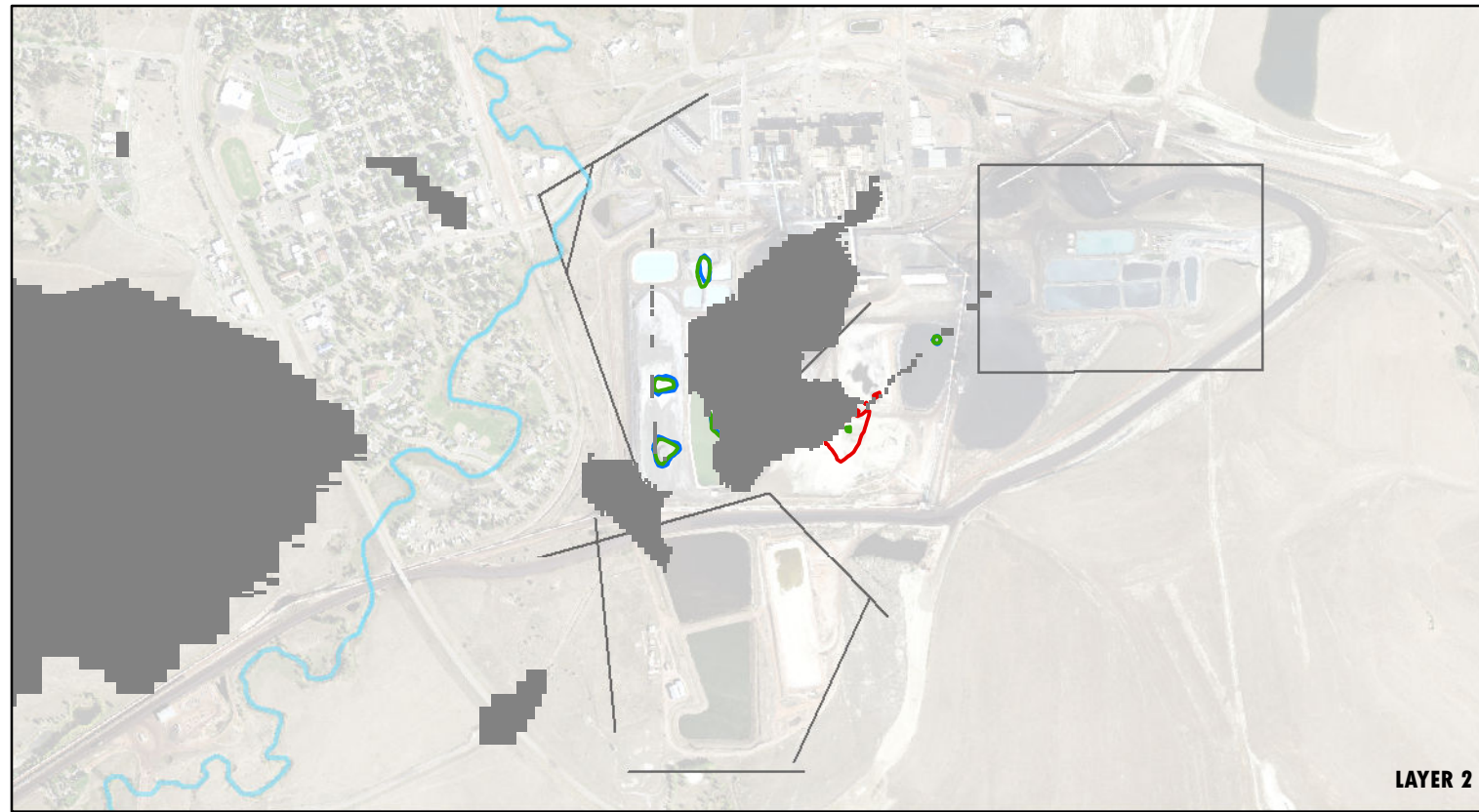
- 3,000 mg/L Contour- Base Source Concentrations
- 3,000 mg/L Contour- Increased Source Concentrations
- Transects
- Dry Cells



**Model-Predicted Boron Concentrations - Year 2049**

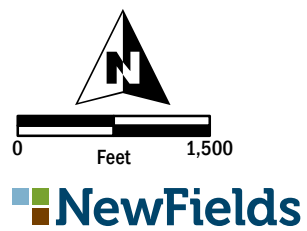
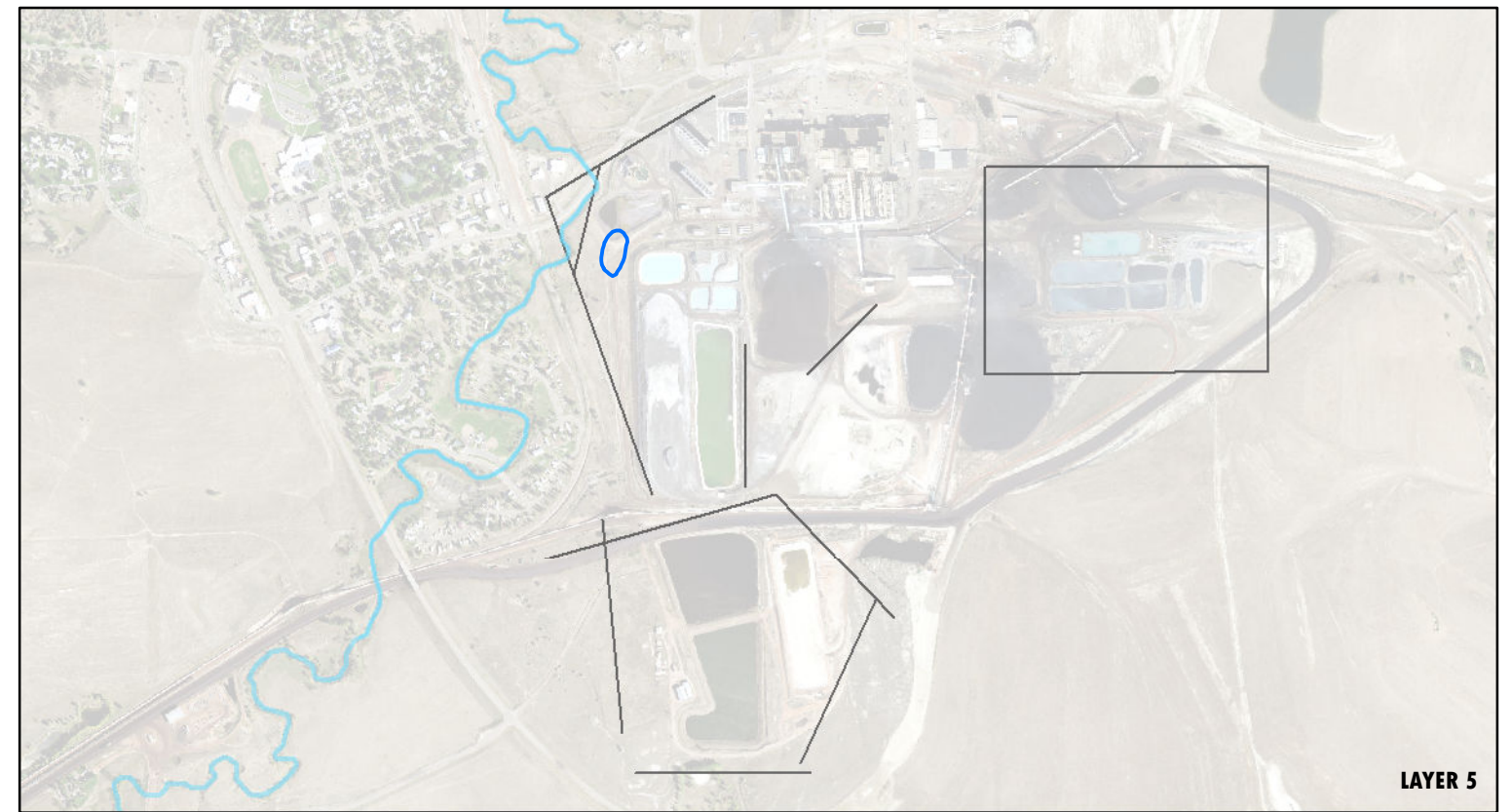
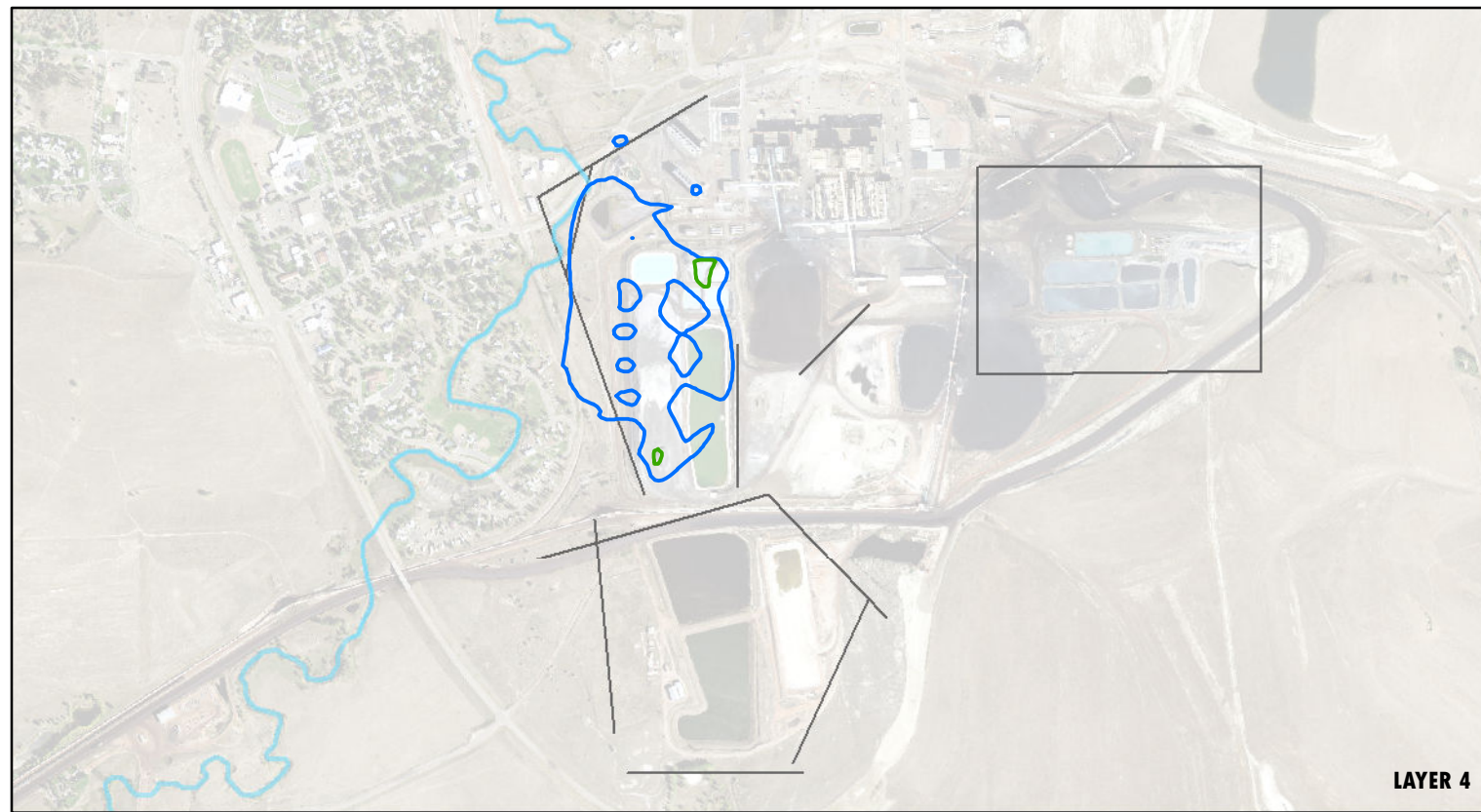
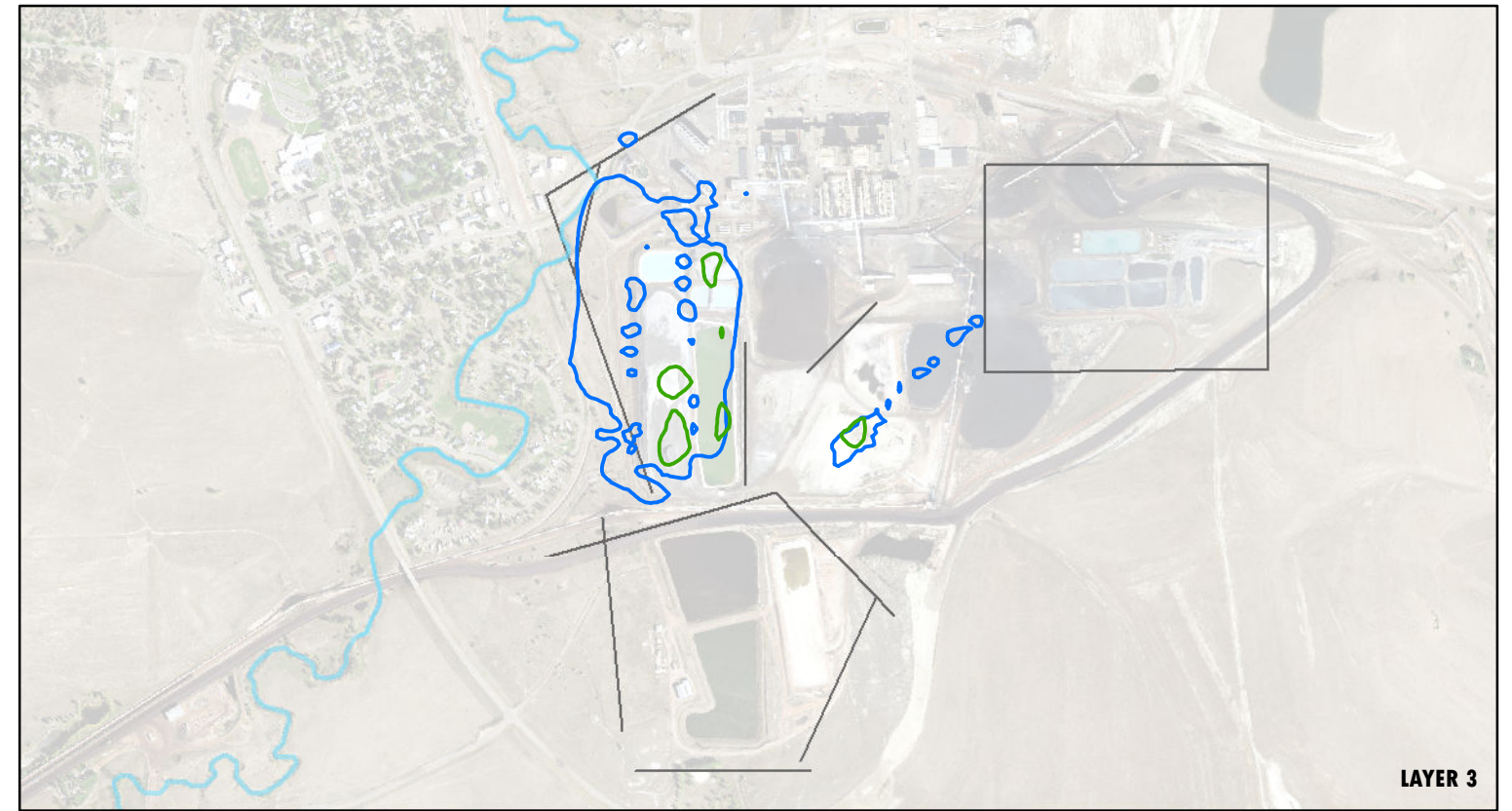
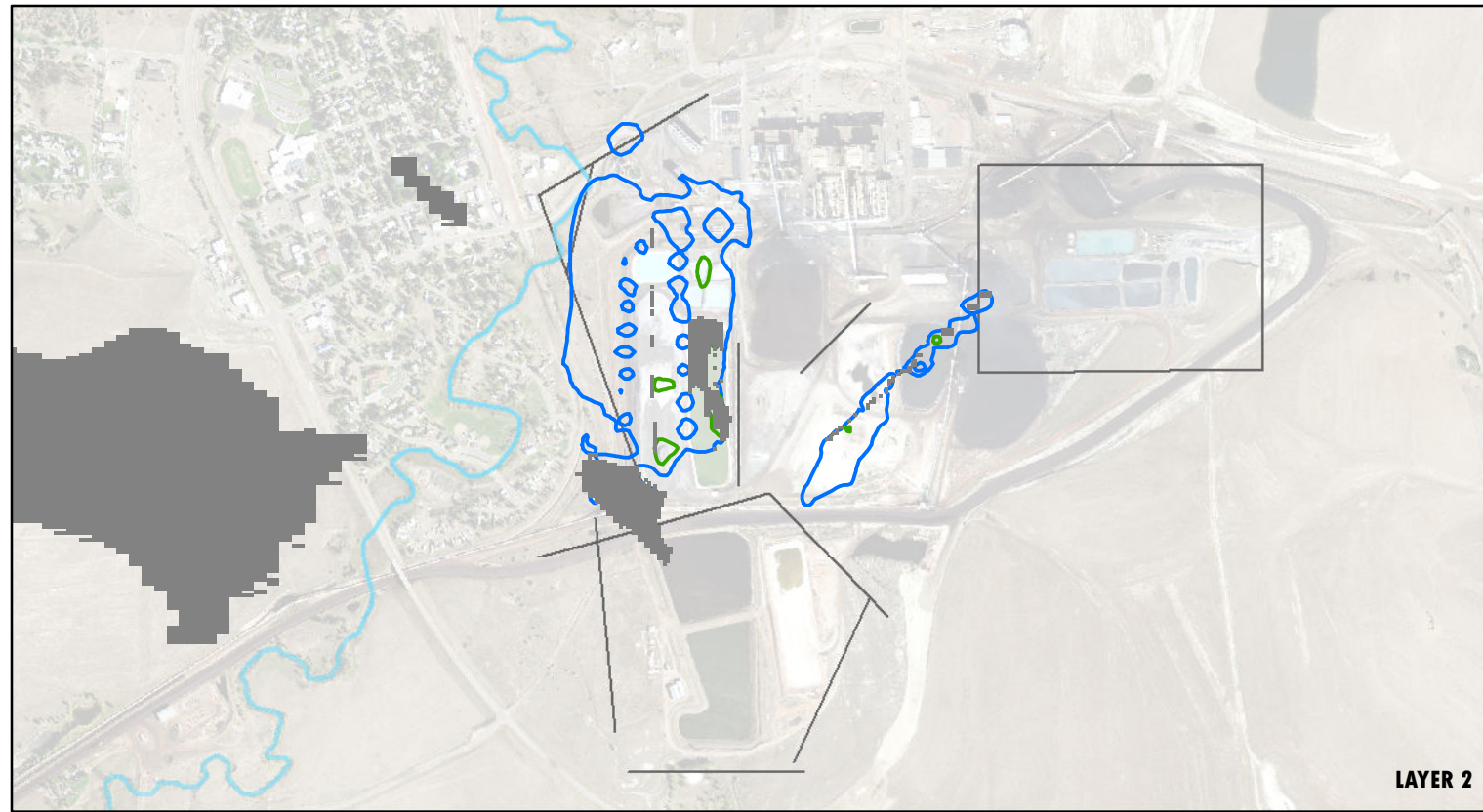
- 4 mg/L Contour- Base Seepage Rate
- 4 mg/L Contour- Seepage x 2
- Transects
- Dry Cells

Sensitivity of Model-Predicted Boron Concentrations to Seepage Rates  
 Plant Site Area Remedy Evaluation  
 CSES-Colstrip, Montana  
 FIGURE 8-3



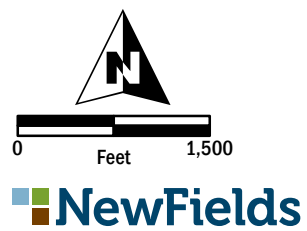
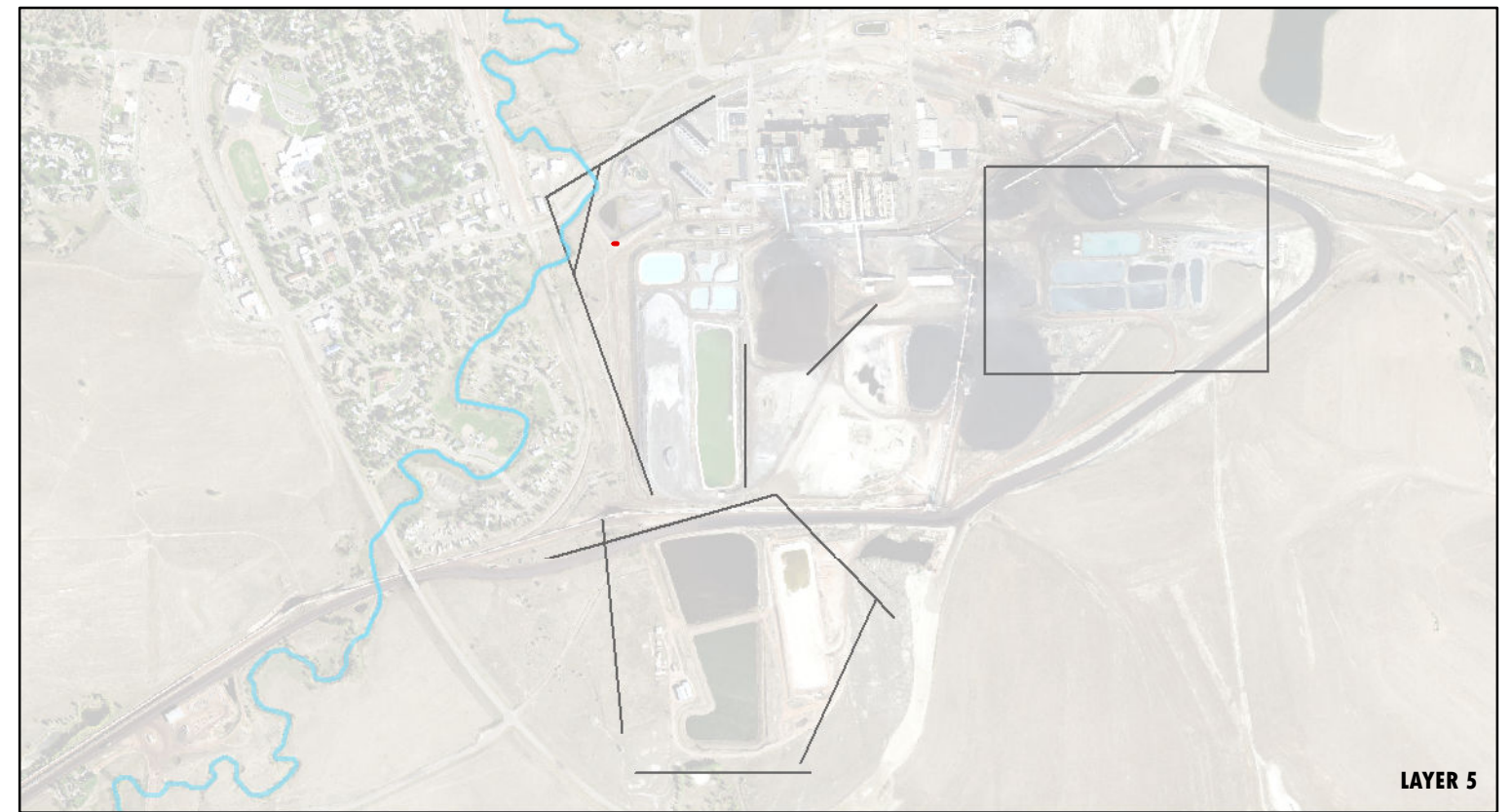
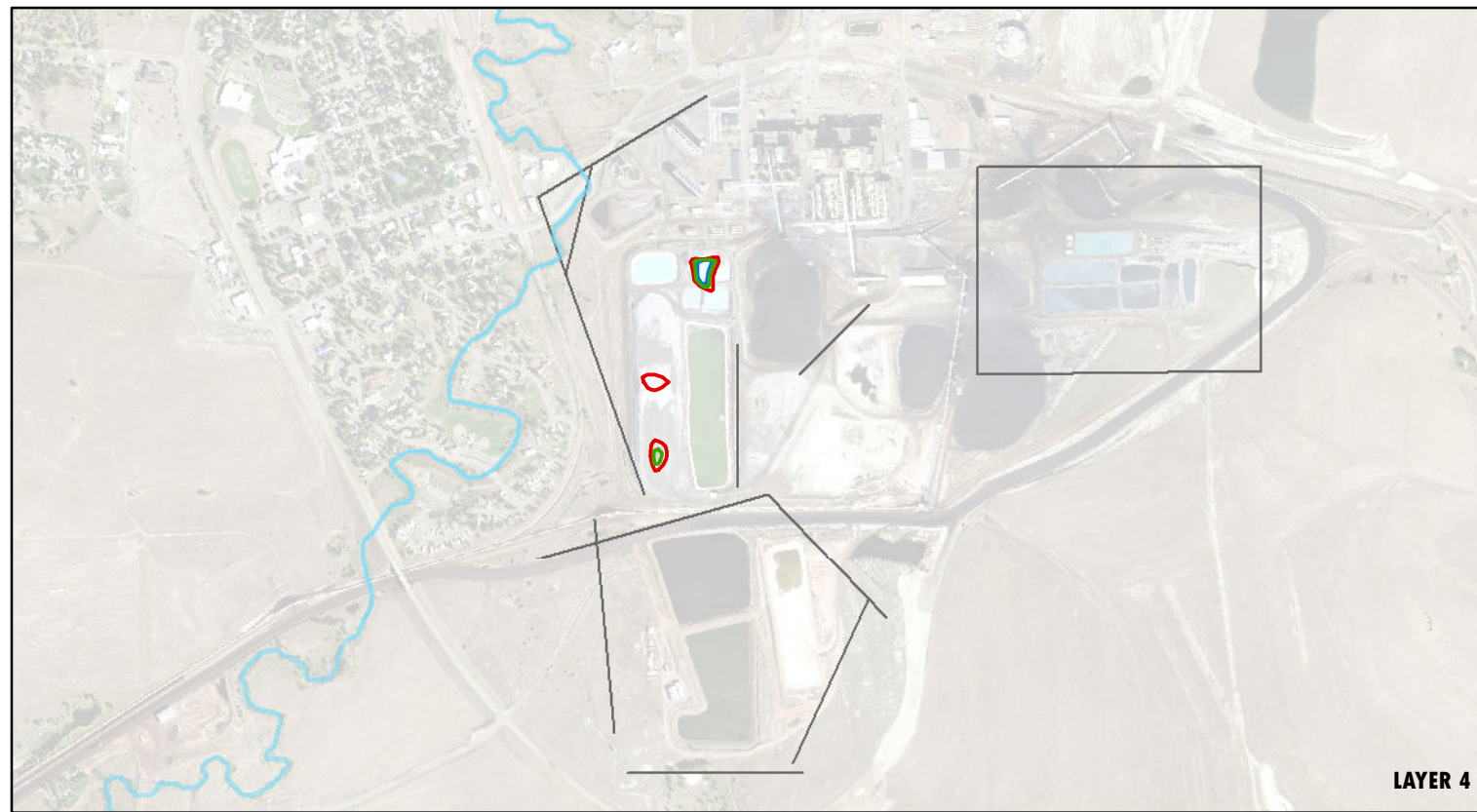
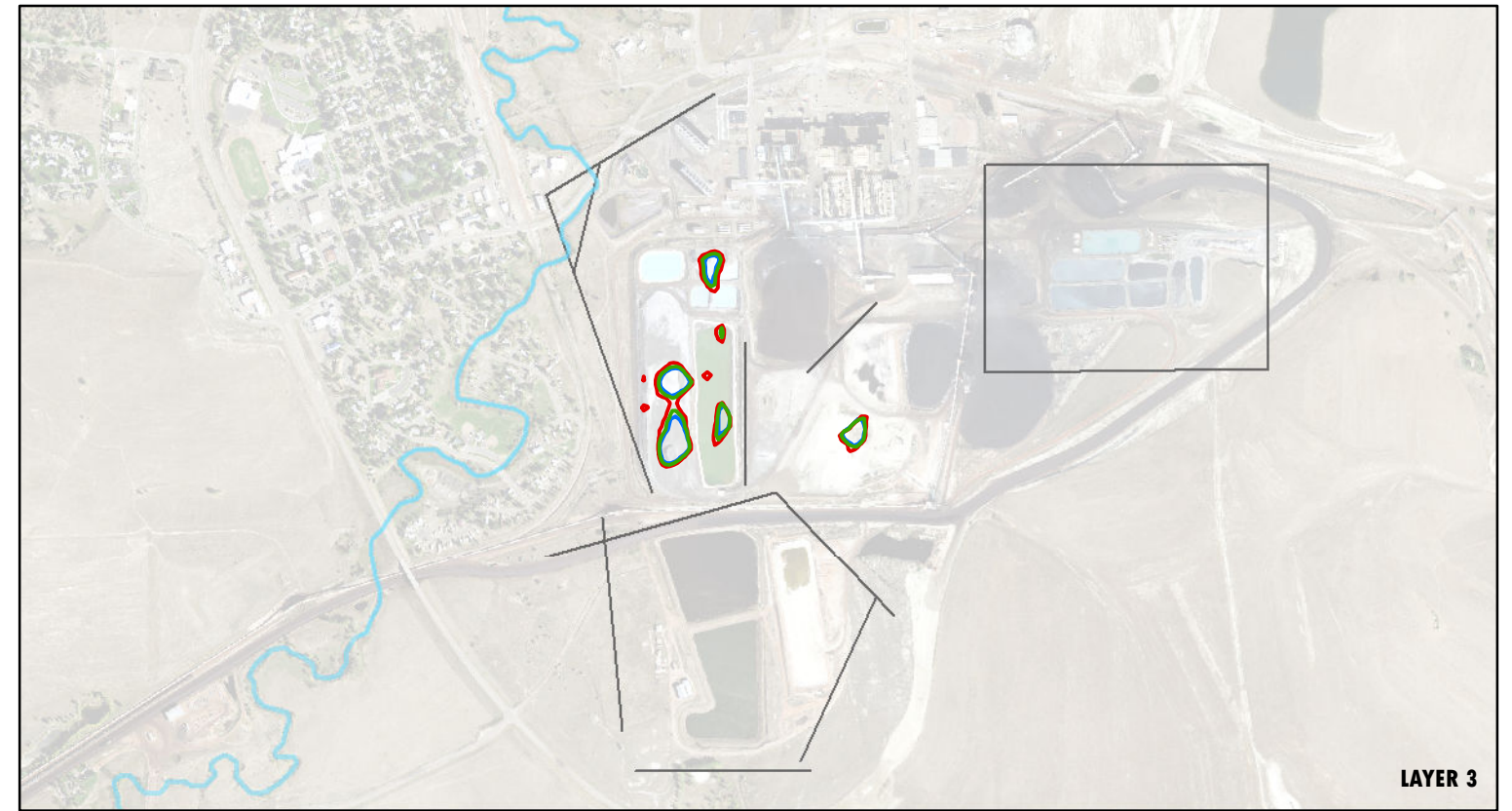
- Model-Predicted Boron Concentrations - Year 2049**
- 4 mg/L Contour- Base Hydraulic Conductivity
  - 4 mg/L Contour- Increase Hydraulic Conductivity (x10; except for zone 6 (McKay Coal) (x1.5) (see Table 8-3))
  - 4 mg/L Contour- Decrease Hydraulic Conductivity (x0.1) (see Table 8-3)
  - Transects
  - Dry Cells

**Sensitivity of Model-Predicted Boron Concentrations to Hydraulic Conductivity**  
 Plant Site Area Remedy Evaluation  
 CSES-Colstrip, Montana  
 FIGURE 8-4



**Model-Predicted Boron Concentrations - Year 2049**

- 4 mg/L Contour- Base Case  $K_d = 0.4$
- 4 mg/L Contour- Increase Retardation ( $K_d = 3$ )
- Transects
- Dry Cells



**Model-Predicted Boron Concentrations - Year 2049**

- 4 mg/L Contour- Base Effective Porosity
- 4 mg/L Contour- Effective Porosity x 2
- 4 mg/L Contour- Effective Porosity x 0.5
- Transects
- Dry Cells

Sensitivity of Model-Predicted Boron Concentrations to Effective Porosity  
 Plant Site Area Remedy Evaluation  
 CSES-Colstrip, Montana  
 FIGURE 8-6