

FIELD GUIDE

FOR THE USFS ABANDONED MINE LAND INVENTORY PROJECT

-general guidelines for the field geologist-

Mine Openings - record all features shown on the topographic map if they are on, or affect, public land. Features that are identified by literature search or field reconnaissance should be recorded, depending on size and other factors, as detailed in the following paragraphs.

Prospect pits and exploratory holes are not typically recorded because their environmental degradation potential is usually negligible. Exceptions are made for any workings shown on topographic maps, and for deep pits or exploratory shafts that could be a physical hazard. A quantitative guideline would be a hole or pit less than 10' in depth will not be recorded. This guideline is adaptable to accommodate site-specific conditions such as steepness of sidewalls, ability to climb out of a hole, public access, interaction with surface- or ground water, etc.

Dumps, Tailings, and Spoils Piles

Generally dumps, tailings, or spoils piles less than 50 cubic yards in volume do not need to be recorded as their environmental degradation and physical hazard potential are usually negligible. Piles less than this size may be recorded according to the discretion of the field geologist. One important exception is that any mine waste interacting with flowing water should be recorded.

Determining When a Site Needs to be Visited

DON'T JUDGE A MINE OPENING BY ITS DUMP! Some shafts, mine vents, etc. will not have large dumps associated with the hole, but will still be very deep. The waste rock may have been taken out an adit at a lower mine level, leaving very little dump material around the mine opening. The geometry of nearby adits and shafts can give clues to the probability of a feature being a vent or a connecting shaft. The general rule is -- if you're not sure it's just a prospect pit or a shallow exploratory hole, go to the site.

If there is a shaft, adit, or quarry indicated on the topographic quadrangle, you must go to the site and record data for it, even if it is collapsed, filled, overgrown with vegetation, etc. Information that a mine feature is not a problem at all is just as useful to the USFS as information about problem sites.

GUIDE FOR USING THE USFS-AMLI FIELD DATA FORM

LOCATION AND IDENTIFICATION

(1) **ID#** - a numeric code used for location information and for linking all the database files together. It is important for this number to be correct.

fst = two digit code for the specific National Forest

rd = two digit code for the specific ranger district

xutm,yutm = Universal Transverse Mercator coordinates, shown on the map edge. This defines a 1000 square meter cell. The coordinates are taken from the bottom left-hand corner of the utm cell containing the inventory area (the smallest x,y coordinates defining the cell).

area# = number assigned to differentiate between more than one inventory area within a utm cell. Number sequentially from 1, 2, 3, etc.

(2) **Site name** – Name of the mine or workings from the map or from literature. Cite the literature source if appropriate. If a proper name is unknown, the name of a nearby geographical feature may be used.

(3) **Other name/reference** – as above if more than one name.

(4) **Environmental Degradation** – Environmental Degradation Ratings (EDRs) are somewhat subjective. This is necessary, and even desirable, so that the field geologist can take into account site-specific conditions such as geology, effluent discharge volume, placement of the feature in the drainage basin, surface water interactions, precipitation, etc. Numerical pH and conductivity values are useful tools. Natural waters from alpine basins generally have conductivities of less than 100 μS , and streams at lower elevations often have conductivities of 100-300 μS . In areas of intensely altered rock, natural waters can have low pH and high conductivity. In addition, conductivity may be elevated in areas underlain by limestone, gypsum, or other easily soluble rocks. Mine effluent pH and conductivity should be compared to background values when assessing the environmental degradation. Conductivity and pH values, as well as the other criteria listed on the following table are general guidelines, and should not be considered absolutes. Ratings are usually based on combinations of listed characteristics, but occasionally one aspect of a feature may fully justify a rating. (See table 1).

Table 1. General guidelines for assigning Environmental Degradation Ratings (EDR).

Rating (EDR)	Feature usually displays one or more of the following characteristics:
1=EXTREME	<ul style="list-style-type: none"> • Contamination offsite is severe. • Receiving stream is "dead" or sterile at the mine and downstream. • Effluent has extremely low pH (<4). • Effluent has extremely high conductivity (>1500 μS; >1000 μS in alpine areas). • High flows of poor-quality water, relative to the receiving stream. • Abundant precipitate at the mine and in the receiving stream. • Very large dumps or tailings piles with evidence of severe erosion, especially if they have abundant sulfides.
2=SIGNIFICANT	<ul style="list-style-type: none"> • Receiving stream is significantly or obviously adversely affected, but not "dead" or sterile. • Effluent has low pH (<5). • Effluent has high conductivity (>1000 μS; >500 μS in alpine areas). • Moderate flows of poor-quality water, relative to the receiving stream. • High flows of moderate-quality water, relative to the receiving stream. • Moderate to abundant precipitate at the mine and/or in the receiving stream. • Large sulfide-rich dumps or tailings piles with evidence of moderate erosion. • Large dumps with sparse or no sulfides, but evidence of significant erosion.
3=POTENTIALLY SIGNIFICANT	<ul style="list-style-type: none"> • Evidence of degraded water quality, but serious effects are not obvious or detected. • Effluent has low pH (<5.5). • Effluent has moderate conductivity (>800 μS; >150 μS in alpine areas). • Poor-quality water with low or no flow (standing water). • Moderate to low flows of moderate-quality water, relative to the receiving stream. • Minor amounts of precipitate. • Very large dumps with little or no evidence of erosion and sparse or no sulfides. • Small and moderate-sized sulfide-rich dumps or tailings piles with evidence of moderate erosion.
4=SLIGHT	<ul style="list-style-type: none"> • Effluent with slightly acidic pH (<6.5). • Effluent with slightly elevated conductivity (600-800 μS; 100-150 μS in alpine areas). • Low flow volume with sparse or no precipitate. • Small to moderate-sized sulfide-rich dumps or tailings piles with little evidence of erosion.
5=NONE	<ul style="list-style-type: none"> • No effluent. • Effluent of high quality water. • Small dumps distant from surface water with little or no evidence of erosion.

(5) Mine Hazards – Features are given Physical Hazard Ratings (PHRs) based on definitions shown below.

E = EMERGENCY - This will seldom be noted on the data form since it reflects a "sudden danger or impairment that presents a high probability of substantial physical harm to the health, safety, or general welfare of people before the danger can be abated under normal program operation procedures" [Office of Surface Mining Rules and Regulations, Section 872.5(c)]. An emergency involves a sudden and recent change on which immediate action should be taken.

1 = EXTREME DANGER - This means a “condition that could reasonably be expected to cause substantial physical harm to persons, property....and to which persons or improvements on real property are currently exposed” [OSM Rules and Regulations 872.5(e)]. Sites falling in this category will generally have a high degree of exposure to the chance of injury or damage. A high degree of peril coupled with a high degree of jeopardy being placed on persons or property, either knowingly or unknowingly, is generally involved. Easy access to the general public is a factor. Situations involving open vertical shafts, unstable adits (incompetent rock), very high highwall, or collapsed stopes near roads or towns would fall into this category.

2 = DANGEROUS - The specific mining feature may be as perilous as in a #1 situation, but may be less likely to cause injury or damage because of the remoteness of the site or other constraints on uncontrolled access to the site.

3 = POTENTIALLY DANGEROUS - any open or partially filled adit, moderate height highwall, etc. that is not close to a road or town and would be infrequently accessed by people. This includes situations where the exact hazard is unknown, but could involve a degree of risk at certain times or under certain conditions.

4 = (not used during this inventory) - In order to maintain some degree of consistency, this Mine Hazard rating system is based on one used by Colorado Division of Minerals and Geology during an earlier, less detailed inventory. In the earlier inventory, a rating of "4" indicated possible environmental degradation, rather than physical hazard. The "4" rating is not applicable for physical hazards in this inventory.

5 = NO SIGNIFICANT HAZARD - includes collapsed or filled features that are being naturally or intentionally reclaimed, stable mine dumps, and mine sites where all physical hazards have been effectively mitigated.

(7) Quad name and date - write in the name and the last USFS revision or modification date (including "USFS correction guides") listed in the bottom left-hand corner of the PBS quad.

(10) Water Cataloguing Unit # - the number assigned to the drainage basins in Colorado according to the "Hydrologic Unit Map 1974–State of Colorado" published by the USGS.

ENVIRONMENTAL INFORMATION

(28) Vegetation type adjacent to site - use more than one category if appropriate.

(29) Evidence of intentional reclamation - evidence of reclamation includes re-grading, replacing topsoil, seeding, erosion control, fencing, sealing of mine openings.

(30) Size of disturbed area in acres - always give an estimate. Helpful rules of thumb: an acre =

43,560 ft² which is about equal to a football field playing area; a city block is about 5 to 6 acres.

TABULAR INFORMATION - pages 2-3 on the data form

Refer to the "Codes for Tabular Information" on page 5 of the data form. If the mine and dump features are associated, they should have the same last digit (i.e. dump #201 is related to adit #101, dump #202 to shaft #102). If an opening has no related dump, the corresponding dump # should be left blank and vice versa.

ADITS, SHAFTS, AND OPENINGS - all recorded mine openings must have an EDR and PHR.

Depth - For shafts (or pits), this means vertical distance from ground surface to the bottom of the shaft. For adits, this means horizontal distance from the portal to the back of the mine. If unknown, note the visible distance and add a "+" to the number.

Access deterrents - Indicates man-made access deterrents; use only those codes listed. More than one may be used if appropriate. A collapsed or filled mine opening is not used as a deterrent here.

Deterrent condition - Indicate the condition if there is an actual deterrent. If there is no deterrent (access deterrents=N) leave this item blank.

DUMPS, TAILINGS, AND SPOIL BANKS

Steepest slope angle - use the clinometer on the Brunton compass to determine this. Often these angles will be around 35 degrees.

Size of materials - Fine= powdery or silty, gravel= larger than sand up to about 3 inches diameter or "throwing rocks," cobbles are brick size, boulders are over 12 inches in diameter.

Stability - Unstable slopes show evidence of past failure, potentially unstable slopes appear to be likely to fail due to high slope angles and/or undercutting or removal of toe material by a stream.

Water erosion of feature - Rills are under 9" across and gullies are over 9" across. Sheet wash shows even overall erosion, but fines are absent.

Access deterrents/Deterrent condition - as above in ADITS, SHAFTS, & OPENINGS

DRAINAGE/WATER SAMPLES

Distance from stream - the distance from the sample location to the receiving stream.

Lab water sample No. - indicate the number given to water samples taken for laboratory analysis. When labeling the sample, use the inventory area id# (top page 1) appended with the water sample item # (300 series) for both the preserved (acidized) and neutral sample bottles.

GPS READINGS - if Global Positioning System equipment is used, record the entire latitude and longitude displayed on the GPS recorder and the mine feature.

DIAGRAM OF PROBLEM AREA - always sketch a detailed map of the inventory area. Locate and label all mine features and water test/sample locations along with roads, trails, streams, mine drainage, buildings, structures, fences, etc. It is sometimes helpful to outline patented land inholdings within the inventory area if pertinent. A separate larger scale sketch of important mine features is sometimes warranted.

COMMENTS - These may include anything the field geologist deems worth mentioning about the mine feature. Usually, comments will expand on any associated environmental degradation, physical hazards, historical structures, machinery, relation to other features, etc. Include identifiable mineralogy of dump (or vein) material, especially any acid-forming minerals (mainly sulfides, sulfosalts). Also note the presence of any neutralizing host or country rock (limestone, dolomite, marble, or other carbonate).

GUIDELINES FOR WATER AND SOIL SAMPLING FOR LAB ANALYSIS

Water Sampling

Water samples for laboratory analysis should be taken at sites that have very significantly degraded water. These will generally be sites with "Environmental Degradation (E.D.) Ratings" of 1 or 2. All sites with an E.D. rating of 1 (and water associated with it) should be sampled for lab analysis. Most sites with an E.D. rating of 2 should be sampled, but the field geologist may use discretion based on the site conditions.

Water Sampling Procedures:

- 1 a) All water samples to be analyzed for dissolved constituents will be filtered with a disposable 0.45-micron filter attached to the 60-cc syringe. The disposable filter should be rinsed by forcing 20 cc of sample water through it, **before** dispensing filtrate into the sample bottle. (i.e. the filtered acidified (FA) and filtered unacidified (FU) subsample bottles)
- b) Samples to be analyzed for total recoverable constituents are unfiltered raw water. (i.e. raw acidified (RA) subsample bottle)
- 2) All sample bottles must be **filled** to the bottom of the neck of the bottle. This insures there is enough sample to do the analyses needed.
- 3) Required analyses for water samples are:

Metals, Dissolved Phase:("FA" Bottle)

Aluminum
Cadmium
Calcium
Chromium (total)
Copper
Iron
Lead
Magnesium
Manganese
Nickel
Potassium
Silver
Sodium
Zinc

Metals, Total Recoverable Phase:("RA" Bottle)

Antimony
Aluminum
Arsenic
Iron
Thallium
Zinc

Anions (dissolved phase):("FU" Bottle)

Chloride
Fluoride
Sulfate
Dissolved Oxygen (done in field)
Alkalinity (done in field)

Other water sample analyses which may be requested on a site-specific basis are:

Barium (Trec)
Beryllium (TRec)
Mercury (Diss)

Molybdenum(TRec)
Selenium (Diss)
Uranium (Diss)

- 4) Analyses for total recoverable metals, dissolved metals, and total hardness are performed on the preserved (HNO₃ acidized) FA and RA subsamples. Samples should be acidified to pH=< 2.
- 5) Analyses for total alkalinity, sulfate, or other anions are performed on the neutral (unpreserved) sample. These have a 14-day holding time including delivery to the lab.
- 6) If water samples for cyanide analysis are needed, bottles with NaOH preservative must be ordered from the CDPHE Inorganic Lab. If water samples for mercury are needed, glass bottles with nitric acid must be ordered from the CDPHE Inorganic Lab.
- 7) All water samples should be refrigerated, but not frozen. Use a cooler in the field.
- 8) A Health Dept. **"Water Quality Data" form** which lists constituents for analysis must accompany every water sample we send them. The **constituents you want analyzed from a certain sample must be circled or highlighted** on the form. I've indicated our required analyses above. Optional analyses can be added - you may want data for other constituents that apply to specific sites (some likely ones are listed).
- 8) A **chain of custody form** must accompany any set of samples sent to the lab.
- 9) Samples should be sent by UPS or dropped off to:
 Sherri Alexander/Inorganic Lab
 Colorado Dept. of Health
 Room 153
 4210 East 11th Street
 Denver, CO 80220

Dump, Tailings, or Spoils Sampling

Sampling of dumps, tailings, or spoils piles will generally be rare. Samples should only be taken if there is evidence of: 1) extreme erosion into a perennial receiving stream, 2) significant amounts of material becoming airborne (aided by vehicles, machinery etc.), or 3) very frequent visitation/recreation at the site (possibility of frequent ingestion episodes). Sites where tailings are well impounded and/or "high and dry" will not be sampled.

Dump, Tailings, or Spoils Sampling Procedures:

- 1) Samples should be of the "composite" type. The composite sample should be taken from 10 different subsample locations, equally spaced on the top and slopes of the dump. Try to obtain material from the surface to 6 inches below the surface. Each subsample should be approximately 100 cubic centimeters. Attempt to collect material that is sand size or less. (Smaller grain sizes have larger surface areas for water-rock interaction and there are no lab grinding fees!) Take the sample from material that has not been in contact with your digging tool to avoid contamination. The sample can be put into a 1-gallon heavy-duty zip-lock type bag. Label with the date, time, site ID#, and the sampler's name. Indicate the subsample locations on a large-scale field sketch of the dump.

- 2) Soil samples must be analyzed for concentrations of the following constituents:

Aluminum	Iron	Silver
Arsenic	Lead	Zinc
Cadmium	Manganese	Paste pH
Chromium	Mercury	Acid-base potential
Copper	Nickel	Neutralization potential

⇒ Site-specific constituents such as barium, beryllium, selenium, uranium, or radionuclides (gross alpha, gross beta) may also be analyzed.

- 3) A **chain of custody form** must accompany any set of samples sent to the lab.

- 4) Samples should be sent by UPS or dropped off to:
Sherri Alexander/Inorganic Lab
Colorado Dept. of Public Health and Environment
Room 153
4210 East 11th Street
Denver, CO 80220

USFS-AMLI FIELD DATA FORM

LOCATION AND IDENTIFICATION

- (1) ID#: 02- 08- _____ - _____ - _____ / _____ - _____
rgn st fst rd xutm yutm area#
- (2) Site name: _____
- (3) Other name/reference: _____
- ____ (4) Highest priority Environmental Degradation occurring in this area:
1=extreme; 2=significant; 3=potentially significant; 4=slight; 5=none
- ____ (5) Highest priority Mine Hazard noted in this area:
E=emergency; 1=extreme danger; 2=dangerous; 3=potentially dangerous;
5=no significant hazard
- ____ (6) Commodity: C=coal; U=uranium; M=metals; I=industrial material.
(Metal or Indust. material type: _____)
- (7) Quad name and date: _____
- (8) County: _____
- (9) 2° map: _____
- (10) Water Cataloguing Unit #: _____
- (11) Mining district/coal field: _____
- (12) Land survey location: _____ - _____ - _____ sec _____, T _____, R _____
- (13) Receiving stream: _____ flowing into _____
nearest named stream next named stream
- (14) Elevation (ft): _____
- ____ (15) General Slope: 1=0-10°; 2=11-35°; 3=greater than 35°
- ____ (16) Regional terrain: R=rolling or flat; F=foothills; T=mesa; H=hogback;
M=mountains; S=steep/narrow canyon
- ____ (17) Type of access: N=no trail; T=trail; J=jeep road; G=gravel road;
M=paved road; P=private/restricted road
- ____ (18) Quality of access for construction vehicles: G=good; M=moderate; P=poor;
X=very poor
- (19) Nearest town on map: _____
- ____ (20) Road distance from nearest town (## miles)
- (21) Nearest road (name and/or #): _____
FR=forest rd; CR=county rd; SH=state highway; I=interstate

Distance to following types of public uses (## miles):

- ____ (22) Road _____ (25) Marked trail
- ____ (23) Dwelling (year-round) _____ (26) Other public use (explain)
- ____ (24) Campground/picnic area _____

ENVIRONMENTAL INFORMATION

- ____ (27) Vegetation density adjacent to site: D=dense; M=moderate; S=sparse;
B=barren
- ____ (28) Vegetation type adjacent to site: B=barren; W=weeds; G=grass; R=riparian
S=sagebrush/oakbrush/brush; J=juniper/piñon; A=aspen; P=pine/spruce/fir;
T=tundra
- ____ (29) Evidence of intentional reclamation: Y=yes; N=no (if yes, use comments)
- ____ (30) Size of disturbed area in acres
- ____ (31) Potential historical structures in area: Y=yes; N=no (if yes, use comments)
- ____ (32) Positive evidence of BATS: G=guano; I=insect remains; B=bat sighting;
O=other(use comments); N=no (use comments to expand on any positive evidence;
"No" only indicates absence of positive evidence, **not** absence of bats)
- ____ (33) Recorded by/date: _____

DIAGRAM OF PROBLEM AREA (Locate all adits, shafts, dumps, prospects, etc. on topo map.)

Check off upon completion: ☐ north arrow; ☐ scale bar or general size noted; ☐ direction to nearest trail/road/town noted;
☐ significant mine features numbered

Adit shaft prospect hole building dump or tailings collapsed adit and shaft fence

CODES FOR TABULAR INFORMATION

ALL TABLES: If appropriate code is not listed, use: **N** = none or no; **N/A** = not applicable; **UNK** = unknown; **O** = other, explain in #84

ADITS, SHAFTS, & OPENINGS

- Type of feature: **A** = adit; **S** = vertical shaft; **I** = incline shaft; **P** = prospect hole; **ST** = stope; **G** = glory hole;
SU = subsidence feature; **PT** = open pit; **O** = other, explain in #84.
- Condition: **I** = intact; **P** = partially collapsed or filled; **F** = filled or collapsed;
N = feature searched for but not found (mine symbol on map)
- Drainage: **N** = no water draining; **W** = water draining; **S** = standing water only (note at what depth below grade)
- Access deterrents: **N** = none; **S** = sign; **F** = fence; **C** = sealed or capped; **D** = open door or hatch; **L** = locked door or hatch;
G = open grill; **O** = other, explain in #84.
- Deterrent condition: **P** = prevents access; **D** = discourages access; **I** = ineffective
- Ratings: **Hazard:** **E** = emergency; **1** = extreme danger; **2** = dangerous; **3** = potential danger; **5** = no significant hazard
Env. Deg.: **1** = extreme; **2** = significant; **3** = potentially significant; **4** = slight; **5** = none
- Comments?: **Y** = yes; **N** = no

DUMPS, TAILINGS, AND SPOIL AREAS

- Type of feature: **D** = mine dump; **T** = mill tailings; **W** = coal waste bank; **S** = overburden or development spoil pile;
DS = dredge spoil; **HD** = placer or hydraulic deposit; **H** = highwall; **P** = processing site
- Size of materials: **F** = fine; **S** = sand; **G** = gravel; **L** = cobbles; **B** = boulders
- Cementation: **W** = well cemented; **M** = moderately cemented; **U** = uncemented
- Vegetation Type: **G** = mixed grass; **S** = sagebrush/oakbrush/brush; **J** = juniper/piñon; **A** = aspen; **P** = pine/spruce/fir; **T** = tundra;
R = riparian; **F** = tilled crops; **B** = barren/no vegetation; **W** = weeds
- Vegetation Density: **D** = dense; **M** = moderate; **S** = sparse; **B** = barren
- Drainage: **N** = no water draining; **W** = water draining across surface; **S** = standing water only;
SP = water seeping from side of feature
- Stability: **U** = unstable; **P** = potentially unstable; **S** = stable
- Water erosion: **of Feature:** **N** = none; **R** = rills; **G** = gullies; **S** = sheet wash
Storm Runoff: **C** = in contact with normal stream; **S** = near stream or gully, but only eroded during storm or flood;
N = no storm/flood runoff erosion
- Wind erosion: **N** = none; **D** = dunes; **B** = blowouts; **A** = airborne dust
- Radiation Count: **N** = none taken; record value of reading if taken
- Access deterrents: **N** = none; **S** = sign; **F** = fence; **O** = other, explain in #84
- Ratings: **Hazard:** **E** = emergency; **1** = extreme danger; **2** = dangerous; **3** = potential danger; **5** = no significant hazard
Env. Deg.: **1** = extreme; **2** = significant; **3** = potentially significant; **4** = slight; **5** = none
- Comments?: **Y** = yes; **N** = no

DRAINAGE/WATER SAMPLES

- Adit/Shaft/Dump No./Other: Indicate Feature No. associated with water information; **0** = other, explain in comments
- Flow (gpm): record unestimatable seeps as 0.1 gpm
- Method of flow measure: **E** = estimate; **T** = bobber/stopwatch/x-section; **W** = weir; **D** = catchment; **F** = flow meter
- Location of sample and flow: **A** = immediately adjacent to adit/shaft; **B** = below dump/tailings;
C = immediately above confluence with receiving stream; **SW** = standing water in/on feature;
RU = receiving stream upstream of feature; **RD** = receiving stream downstream of feature;
- Evidence of toxicity: **N** = none; **A** = absence of benthic organisms; **W** = opaque water; **P** = yellow or red precipitate;
S = suspended solids; **D** = salt deposits
- Comments?: **Y** = yes; **N** = no

Data Dictionary for USFS Attribute Database Files

Record Name: HDR

The HDR record is the header sheet data record. The header sheet contains the information recorded by the field geologist on the cover sheet of the field data form. There is exactly one HDR record for each field form completed. This information includes the location, topography, vegetation, and other characteristics of the inventory area. The outer boundary of this area is recorded in the GIS data files as a closed polygon that contains all the sites documented on the field data sheet. The numeric identifiers of the inventory area are shared by all sites that fall within the area.

Field Descriptions

Field Name: AREA

Field Type: Numeric

Field Format: F12.3

Field Description: Area of the polygon representing the outer boundary of the inventory area. The polygon encloses all sites in the hole, pile, water, and sample databases that were described on the field data form.

The units are square meters.

Field Name: PERIMETER

Field Type: Numeric

Field Format: F12.3

Field Description: Perimeter of the polygon representing the outer boundary of the inventory area. The polygon encloses all sites in the hole, pile, water, and sample databases that were described on the field data form.

The units are meters.

Field Name: HDR_

Field Type: Numeric

Field Format: I10

Field Description: Internal GIS data index used for linking geographic location records to corresponding attribute data records in Arc/Info. ArcView shape files assume that attribute records are sorted by this index to match the correct polygon data record in shape file.

Field Name: HDR_ID

Field Type: Numeric

Field Format: I10

Field Description: Internal GIS data index assigned by Arc/Info during the digitizing process. This number is only used during compilation of GIS files in the Arc/Info environment and is not used after that time.

Field Name: REGION

Field Type: Numeric

Field Format: I5

Field Description: USFS Region code, value=2 for all sites in Colorado.

Field Name: STATE

Field Type: Numeric

Field Format: I6

Field Description: USFS State code, value=8 for all sites in Colorado.

Field Name: FOREST

Field Type: Numeric

Field Format: I5

Field Description: USFS Forest code, values are derived from information obtained from the Denver Regional Office. This code is used to uniquely identify the National Forest that the data were collected in. Due to mergers of some forests since the beginning of this project some numbers may have been changed by the US Forest Service. When recent values were not available, unique numbers were assigned by the project data administrator until current values could be obtained.

Field Name: Rgr_Dist

Field Type: Numeric

Field Format: I5

Field Description: USFS ranger district code, values are derived from information obtained from the Denver Regional Office. This code is used to uniquely identify the ranger district that the data were collected in. Due to mergers of some forests and ranger districts since the beginning of this project some numbers may have been changed by the US Forest Service. When recent values were not available, unique numbers were assigned by the project data administrator until current values could be obtained.

Field Name: UTM_ZONE

Field Type: Numeric

Field Format: I5

Field Description: Universal Transverse Mercator (UTM) Zone in which the feature is located. Value=13. Early in the project this value was included so that areas west of 108 degrees west longitude could be uniquely located. UTM coordinates are not unique but are tied to the zone in which they reside. The western boundary of zone 13, which covers most of Colorado, falls at 108 west longitude. It was later realized that all GIS data could be stored in zone 13 without danger of duplicating values, as a result it was decided to set this value to 13 in recognition of the fact that all GIS files are stored in the UTM Zone 13 map projection.

Field Name: XUTM

Field Type: Numeric

Field Format: I4

Field Description: Unique X coordinate based on the X coordinate of the lower left corner of the 1000 meter UTM grid containing the majority of the inventory area. This value will range from about 138 to 765 depending on the longitude of the site.

Field Name: YUTM

Field Type: Numeric

Field Format: I4

Field Description: Unique Y coordinate based on the Y coordinate of the lower left corner of the 1000 meter UTM grid containing the majority of the inventory area. This value will range from about 4000 to 4550 depending on the latitude of the site.

Field Name: AREAID

Field Type: Numeric

Field Format: I4

Field Description: Unique identifier for densely mined areas where more than one inventory area may occur in the same UTM grid cell mentioned above. Values range from 1 to 3 usually and rarely 4 or more.

Field Name: NHOLE
Field Type: Numeric
Field Format: I6
Field Description: Number of mine features occurring in the inventory area.

Field Name: NPILE
Field Type: Numeric
Field Format: I6
Field Description: Number of mine dumps and similar features occurring in the inventory area.

Field Name: NWATER
Field Type: Numeric
Field Format: I6
Field Description: Number of water tests performed in the inventory area.

Field Name: SITENAME_1
Field Type: Character
Field Format: A60
Field Description: Primary name associated with the inventory area, or sites contained within it. Usually based on literature or map notations. When none were available then geographic names and relative references were used.

Field Name: SITENAME_2
Field Type: Character
Field Format: A60
Field Description: Secondary name associated with the inventory area, or sites contained within it. Usually based on literature or map notations. When none were available then geographic names and relative references were used. References to literature sources may also be included in this field.

Field Name: HPED
Field Type: Numeric
Field Format: A1
Field Description: Highest priority environmental degradation present in the inventory area. Values are 1=extreme; 2=significant; 3=potentially significant; 4=slight; 5=none, 0=unknown (0 was used to rate sites that were documented but not actually visited).

Field Name: HPMH
Field Type: Numeric
Field Format: A1
Field Description: Highest priority mine hazard (also referred to as "physical hazard) present in the inventory area. Values are E=emergency; 1=extreme danger; 2=dangerous; 3=potentially dangerous; 5=no significant hazard, 0=unknown (0 was used to rate sites that were documented but not actually visited). No rating of 4 was used to maintain compatibility with older inventories conducted by the Colorado Division of Minerals and Geology.

Field Name: MAX_RADS
Field Type: Numeric
Field Format: I6
Field Description: Maximum radiation measurement obtained within the inventory area. Consult the hole and pile records for specific information about radiation measurements, units of measure and other relevant information.

Field Name: COMMOD
Field Type: Character
Field Format: A1
Field Description: Code representing the class of commodity mined in the area. Values are C=coal; U=uranium; M=metals; I=industrial material.

Field Name: COMMOD_T
Field Type: Character
Field Format: A20
Field Description: Type of commodity mined in the area. Values vary depending upon the region. May include Gold, Silver, Gravel, etc.

Field Name: QUADNAME
Field Type: Character
Field Format: A24
Field Description: Name of USGS 1:24,000 scale base map in which the inventory area occurs.

Field Name: QUADDATE
Field Type: Numeric
Field Format: I4
Field Description: Date of issue of USGS 1:24,000 scale base map in which the inventory area occurs.

Field Name: COUNTY
Field Type: Character
Field Format: A20
Field Description: County in which the inventory area occurs.

Field Name: TWODEGNAME
Field Type: Character
Field Format: A24
Field Description: Name of USGS 1:250,000 scale base map in which the inventory area occurs.

Field Name: WCU
Field Type: Numeric
Field Format: I8
Field Description: Numeric identifier of EPA defined water cataloguing unit in which the inventory area occurs.

Field Name: MINE_DIST
Field Type: Character
Field Format: A30
Field Description: Mining district or other industry recognized designation for the area in which the inventory area occurs.

Field Name: QQQ
Field Type: Character
Field Format: A12
Field Description: Aliquot part of the section in which the inventory area occurs. The order of quarter designation goes from smallest to largest as in "NW of the Southwest of the Northeast quarter of section 6."

Field Name: SECD
Field Type: Numeric
Field Format: I2

Field Description: Number of the section in which the inventory area occurs.
Values are from 1 to 36.

Field Name: TWP

Field Type: Numeric

Field Format: F5.1

Field Description: Number of the township in which the inventory area occurs.

Field Name: TWPD

Field Type: Character

Field Format: A1

Field Description: Direction of the township in which the inventory area occurs.

Field Name: RGE

Field Type: Numeric

Field Format: F5.1

Field Description: Number of the range in which the inventory area occurs.

Field Name: RGED

Field Type: Character

Field Format: A1

Field Description: Direction of the range in which the inventory area occurs.

Field Name: NEAR_STRM

Field Type: Character

Field Format: A20

Field Description: Name of the stream flowing nearest to the inventory area.

Field Name: NEXT_STRM

Field Type: Character

Field Format: A20

Field Description: Name of the stream into which NEAR_STRM flows.

Field Name: ELEV

Field Type: Numeric

Field Format: I5

Field Description: Approximate elevation of the inventory area.

Field Name: SLOPE

Field Type: Numeric

Field Format: A1

Field Description: Slope of the terrain in the inventory area. Values are 1=0-10°; 2=11-35°; 3=greater than 35°

Field Name: TERRAIN

Field Type: Character

Field Format: A1

Field Description: Type of the terrain in the inventory area. Values are R=rolling or flat; F=foothills; T=mesa; H=hogback; M=mountains; S=steep/narrow canyon

Field Name: ACCESS_T

Field Type: Character

Field Format: A1

Field Description: Type of access to the inventory area. Values are N=no trail; T=trail; J=jeep road; G=gravel road; M=paved road; P=private/restricted road

Field Name: ACCESS_Q
Field Type: Character
Field Format: A1
Field Description: Quality of access to the inventory area. Values are G=good;
M=moderate; P=poor; X=very poor

Field Name: NEAR_TOWN
Field Type: Character
Field Format: A20
Field Description: Name of nearest town to the inventory area.

Field Name: DIST_TOWN
Field Type: Numeric
Field Format: F4.1
Field Description: Distance to town nearest the inventory area.

Field Name: NEAR_ROAD
Field Type: Character
Field Format: A30
Field Description: Name of nearest road to the inventory area.

Field Name: DIST_ROAD
Field Type: Numeric
Field Format: F4.1
Field Description: Distance to road nearest the inventory area.

Field Name: DIST_DWELL
Field Type: Numeric
Field Format: F4.1
Field Description: Distance to inhabited dwelling nearest the inventory area.

Field Name: DIST_CAMP
Field Type: Numeric
Field Format: F4.1
Field Description: Distance to campground nearest the inventory area.

Field Name: DIST_TRAIL
Field Type: Numeric
Field Format: F4.1
Field Description: Distance to trail nearest the inventory area.

Field Name: DIST_OTHER
Field Type: Numeric
Field Format: F4.1
Field Description: Distance to other feature(s) nearest the inventory area.

Field Name: OTHER_DESC
Field Type: Character
Field Format: A20
Field Description: Description of other feature(s) nearest the inventory area,
such as an unmarked trail, informal campground, cross-country ski hut, etc.

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Field Name: VEG_DENSE
Field Type: Character
Field Format: A1

Field Description: Density of vegetation in undisturbed areas adjacent to the inventory area. Values are D=dense; M=moderate; S=sparse; B=barren

Field Name: VEG_T

Field Type: Character

Field Format: A4

Field Description: Type of vegetation in undisturbed areas adjacent to the inventory area. Values are B=barren; W=weeds; G=grass; R=riparian; S=sagebrush/oakbrush/brush; J=juniper/piñon; A=aspen; P=pine/spruce/fir; T=tundra

Field Name: BATS

Field Type: Character

Field Format: A1

Field Description: Evidence of bat activity in/near any mine opening within the inventory area. Only positive evidence is recorded as "Yes". An answer of "No" does not ascertain the absence of bats, only that no positive evidence of bats was found. Values are G=guano; I=insect remains; B=bat sighting; O=other; N=No

Field Name: RECLAIMED

Field Type: Logical

Field Format: L1

Field Description: Has any reclamation been done in the inventory area. Values are -1=True; 0=False

Field Name: ACRES

Field Type: Numeric

Field Format: F5.1

Field Description: Number of acres reclaimed.

Field Name: HIST_STR

Field Type: Logical

Field Format: L1

Field Description: Are there any historical structures in the inventory area. Values are -1=True; 0=False

Field Name: HSTGENCMMT

Field Type: Memo

Field Format: Free-form text

Field Description: Comments about the site in general or the historical structures. This is a dBase memo field that is accessible from dBase or MS-Access. The memo fields cannot be accessed from ArcView. To view the memo fields use the databases in the /database folder of the CD-ROM, not the /shape folder.

Field Name: RECORDER

Field Type: Character

Field Format: A40

Field Description: Name of geologist who completed the inventory form with date of site visit.

Record Name: HOLE

The HOLE record contains the information recorded for each of the mine openings that occur in the field inventory area. There can be zero or more HOLE records for each HDR record in the database. The HOLE record contains the information recorded by the field geologist in the mine opening data section of the field data form. This information includes the dimensions, condition, access deterrents, water drainage and other characteristics of each mine opening in the inventory area.

Field Descriptions

Field Name: AREA

Field Type: Numeric

Field Format: F12.3

Field Description: Not used since point features have no area. Value=0

Field Name: PERIMETER

Field Type: Numeric

Field Format: F12.3

Field Description: Not used since point features have no perimeter. Value=0

Field Name: HOLE_

Field Type: Numeric

Field Format: I10

Field Description: Internal GIS data index used for linking geographic location records to corresponding attribute data records in Arc/Info. ArcView shape files assume that attribute records are sorted by this index to match the correct polygon data record in shape file.

Field Name: HOLE_ID

Field Type: Numeric

Field Format: I10

Field Description: Internal GIS data index assigned by Arc/Info during the digitizing process. This number is only used during compilation of GIS files in the Arc/Info environment and is not used after that time.

Field Name: REGION

Field Type: Numeric

Field Format: I5

Field Description: USFS Region code, value=2 for all sites in Colorado.

Field Name: STATE

Field Type: Numeric

Field Format: I6

Field Description: USFS State code, value=8 for all sites in Colorado.

Field Name: FOREST

Field Type: Numeric

Field Format: I5

Field Description: USFS Forest code, values are derived from information obtained from the Denver Regional Office. This code is used to uniquely identify the National Forest that the data were collected in. Due to mergers of some forests since the beginning of this project some numbers may have been changed by the US Forest Service. When recent values were not available, unique

numbers were assigned by the project data administrator unit current values could be obtained.

Field Name: Rgr_Dist

Field Type: Numeric

Field Format: I5

Field Description: USFS ranger district code, values are derived from information obtained from the Denver Regional Office. This code is used to uniquely identify the ranger district that the data were collected in. Due to mergers of some forests and ranger districts since the beginning of this project some numbers may have been changed by the US Forest Service. When recent values were not available, unique numbers were assigned by the project data administrator unit current values could be obtained.

Field Name: UTM_ZONE

Field Type: Numeric

Field Format: I5

Field Description: Universal Transverse Mercator (UTM) Zone in which the feature is located. Value=13. Early in the project this value was included so that areas west of 108 degrees west longitude could be uniquely located. UTM coordinates are not unique but are tied to the zone in which they reside. The western boundary of zone 13 which covers most of Colorado falls at 108 west longitude. It was later realized that all GIS data could be stored in zone 13 without danger of duplicating values, as a result it was decided to set this value to 13 in recognition of the fact that all GIS files are stored in the UTM Zone 13 map projection.

Field Name: XUTM

Field Type: Numeric

Field Format: I4

Field Description: Unique X coordinate based on the X coordinate of the lower left corner of the 1000 meter UTM grid containing the majority of the inventory area. This value will range from about 138 to 765 depending on the longitude of the site.

Field Name: YUTM

Field Type: Numeric

Field Format: I4

Field Description: Unique Y coordinate based on the Y coordinate of the lower left corner of the 1000 meter UTM grid containing the majority of the inventory area. This value will range from about 4000 to 4550 depending on the latitude of the site.

Field Name: AREAID

Field Type: Numeric

Field Format: I4

Field Description: Unique identifier for densely mined areas where more than one inventory area may occur in the same UTM grid cell mentioned above. Values range from 1 to 3 usually and rarely 4 or more.

Field Name: HID

Field Type: Numeric

Field Format: I4

Field Description: Unique hole id assigned to each mine opening in the inventory area. Values range from 100-199. This serves as a unique index to all holes found in a particular inventory area.

Field Name: HTYPE

Field Type: Character

Field Format: A2

Field Description: Type of mine opening. Values are: A = adit; S = vertical shaft; I = incline shaft; P = prospect hole; ST = stope; G = glory hole; SU = subsidence feature; PT = open pit; O = other (explained in comments).

Field Name: HEIGHT

Field Type: Numeric

Field Format: I5

Field Description: Height of the mine opening in feet.

Field Name: WIDTH

Field Type: Numeric

Field Format: I5

Field Description: Width of the mine opening in feet.

Field Name: DEPTH

Field Type: Numeric

Field Format: I5

Field Description: Actual or estimated depth of the mine opening in feet.

Field Name: DEPTH_MOD

Field Type: Character

Field Format: A1

Field Description: Contains a '+' if the depth cannot be accurately estimated, and a minimum depth value is recorded in the DEPTH field.

Field Name: CONDITION

Field Type: Character

Field Format: A1

Field Description: Condition of the mine opening. Values are I = intact; P = partially collapsed or filled; F = filled or collapsed; N = feature is said to exist but was searched for and not found.

Field Name: DRAINAGE

Field Type: Character

Field Format: A1

Field Description: Description of water draining from the mine opening. Values are N = no water draining; W = water draining; S = standing water only (note at what depth below grade in comments)

Field Name: RADS

Field Type: Numeric

Field Format: I6

Field Description: Radiation counts measured at or near the mine opening. Range of values vary, units are in counts per second.

Field Name: DETER_T

Field Type: Character

Field Format: A2

Field Description: Type of access deterrent installed at mine opening. Values are N = none; S = sign; F = fence; C = sealed or capped; D = open door or hatch; L = locked door or hatch; G = open grill; O = other, explain in comments.

Field Name: DETER_C

Field Type: Character

Field Format: A1

Field Description: Condition of access deterrent installed at mine opening.

Values are : P = prevents access; D = discourages access; I = ineffective

Field Name: ENV_RATING

Field Type: Character

Field Format: A1

Field Description: Rating of environmental degradation attributable to mine opening or activities related to construction/development of mine opening.

Values are : 1 = extreme; 2 = significant; 3 = potentially significant; 4 = slight; 5 = none

Field Name: HAZ_RATING

Field Type: Character

Field Format: A1

Field Description: Rating of physical hazard posed to human life by mine opening or activities/structures related to construction/development of mine opening.

Values are E = emergency; 1 = extreme danger; 2 = dangerous; 3 = potential danger; 5 = no significant hazard. No rating of 4 was used to maintain compatibility with older inventories conducted by the Colorado Division of Minerals and Geology.

Field Name: ROLL

Field Type: Character

Field Format: A6

Field Description: Identifier code/name of slide film roll used to photograph appearance of mine opening.

Field Name: FRAME

Field Type: Character

Field Format: A12

Field Description: Frame number(s) of the slide film roll used to photograph appearance of mine opening.

Field Name: SAMPLED

Field Type: Logical

Field Format: L1

Field Description: Not used. Originally intended to indicate when additional water sampling had been performed.

Field Name: COMMENTS

Field Type: Memo

Field Format: Free form text

Field Description: Contains extended comments describing the mine opening and other information of importance relevant to the site.

Field Name: SAMPLE_IDS

Field Type: Memo

Field Format: Free form text

Field Description: Not used. Originally intended to store additional information and identifiers related to water sampling at the site.

Record Name: PILE

The PILE record contains the information recorded for each of the mine dumps or tailing piles that occur in the field inventory area. There can be zero or more PILE records for each HDR record in the database. The PILE record contains the information recorded by the field geologist in the mine dump data section of the field data form. This information includes the dimensions, condition, access deterrents, water drainage and other characteristics of each mine dump or tailings pile in the inventory area.

Field Descriptions

Field Name: AREA

Field Type: Numeric

Field Format: F12.3

Field Description: Not used since point features have no area. Value=0

Field Name: PERIMETER

Field Type: Numeric

Field Format: F12.3

Field Description: Not used since point features have no perimeter. Value=0

Field Name: PILE_

Field Type: Numeric

Field Format: I10

Field Description: Internal GIS data index used for linking geographic location records to corresponding attribute data records in Arc/Info. ArcView shape files assume that attribute records are sorted by this index to match the correct polygon data record in shape file.

Field Name: PILE_ID

Field Type: Numeric

Field Format: I10

Field Description: Internal GIS data index assigned by Arc/Info during the digitizing process. This number is only used during compilation of GIS files in the Arc/Info environment and is not used after that time.

Field Name: REGION

Field Type: Numeric

Field Format: I5

Field Description: USFS Region code, value=2 for all sites in Colorado.

Field Name: STATE

Field Type: Numeric

Field Format: I6

Field Description: USFS State code, value=8 for all sites in Colorado.

Field Name: FOREST

Field Type: Numeric

Field Format: I5

Field Description: USFS Forest code, values are derived from information obtained from the Denver Regional Office. This code is used to uniquely identify the National Forest that the data were collected in. Due to mergers of some forests since the beginning of this project some numbers may have been changed by the US Forest Service. When recent values were not available, unique numbers were assigned by the project data administrator unit current values could be obtained.

Field Name: Rgr_Dist

Field Type: Numeric

Field Format: I5

Field Description: USFS ranger district code, values are derived from information obtained from the Denver Regional Office. This code is used to uniquely identify the ranger district that the data were collected in. Due to mergers of some forests and ranger districts since the beginning of this project some numbers may have been changed by the US Forest Service. When recent values were not available, unique numbers were assigned by the project data administrator unit current values could be obtained.

Field Name: UTM_ZONE

Field Type: Numeric

Field Format: I5

Field Description: Universal Transverse Mercator (UTM) Zone in which the feature is located. Value=13. Early in the project this value was included so that areas west of 108 degrees west longitude could be uniquely located. UTM coordinates are not unique but are tied to the zone in which they reside. The western boundary of zone 13, which covers most of Colorado, falls at 108 west longitude. It was later realized that all GIS data could be stored in zone 13 without danger of duplicating values, as a result it was decided to set this value to 13 in recognition of the fact that all GIS files are stored in the UTM Zone 13 map projection.

Field Name: XUTM

Field Type: Numeric

Field Format: I4

Field Description: Unique X coordinate based on the X coordinate of the lower left corner of the 1000 meter UTM grid containing the majority of the inventory area. This value will range from about 138 to 765 depending on the longitude of the site.

Field Name: YUTM

Field Type: Numeric

Field Format: I4

Field Description: Unique Y coordinate based on the Y coordinate of the lower left corner of the 1000 meter UTM grid containing the majority of the inventory area. This value will range from about 4000 to 4550 depending on the latitude of the site.

Field Name: AREAID

Field Type: Numeric

Field Format: I4

Field Description: Unique identifier for densely mined areas where more than one inventory area may occur in the same UTM grid cell mentioned above. Values range from 1 to 3 usually and rarely 4 or more.

Field Name: PID

Field Type: Numeric

Field Format: I4

Field Description: Unique pile id assigned to each mine waste or tailings pile in the inventory area. Values range from 200-299. This serves as a unique index to all dumps found in a particular inventory area.

Field Name: PTYPE

Field Type: Character

Field Format: A2
Field Description: Type of mine dump. Values are D = mine dump; T = mill tailings; W = coal waste bank; S = overburden or development spoil pile; DS = dredge spoil; HD = placer or hydraulic deposit; H = highwall; P = processing site

Field Name: LENGTH
Field Type: Numeric
Field Format: I5
Field Description: Length of the long dimension of the mine dump (in feet).

Field Name: WIDTH
Field Type: Numeric
Field Format: I5
Field Description: Width of the shorter dimension of the mine dump (in feet).
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Field Name: VOLUME
Field Type: Numeric
Field Format: I6
Field Description: Estimated volume of the mine dump material (in cubic yards).

Field Name: SLOPE_ANG
Field Type: Numeric
Field Format: I2
Field Description: Steepest slope angle of the mine dump materials (in degrees from horizontal).

Field Name: SLOPE_LNTH
Field Type: Numeric
Field Format: I4
Field Description: Length of the steepest slope area of mine dump (in feet).

Field Name: MAT_SIZE
Field Type: Character
Field Format: A4
Field Description: Grain size(s) of material in mine dump. Values are F = fine; S = sand; G = gravel; L = cobbles; B = boulders

Field Name: CEMENT
Field Type: Character
Field Format: A1
Field Description: Degree of overall cementation of mine dump materials. Values are : W = well cemented; M = moderately cemented; U = uncemented

Field Name: VEG
Field Type: Character
Field Format: I4
Field Description: Types of vegetation occurring on or around the mine dump. Values are G = mixed grass; S = sagebrush/oakbrush/brush; J = juniper/piñon; A = aspen; P = pine/spruce/fir; T = tundra; R = riparian; F = tilled crops; B = barren/no vegetation; W = weeds

Field Name: VEG_D
Field Type: Character
Field Format: A3

Field Description: Density of vegetation occurring on or around the mine dump.
Values are: D = dense; M = moderate; S = sparse; B = barren

Field Name: DRAINAGE

Field Type: Character

Field Format: A4

Field Description: Type of water drainage occurring on or around the mine dump.
Values are N = no water draining; W = water draining across surface; S = standing water only; SP = water seeping from side of feature

Field Name: STABILITY

Field Type: Character

Field Format: A1

Field Description: Estimated stability of the overall mine dump feature. Values are U = unstable; P = potentially unstable; S = stable

Field Name: NORML_EROD

Field Type: Character

Field Format: A3

Field Description: Description of types of erosion affecting the dump site during periods of normal precipitation. Values are N = none; R = rills; G = gullies; S = sheet wash

Field Name: STORM_EROD

Field Type: Character

Field Format: A1

Field Description: Description of erosional susceptibility of the dump site during storm events. Values are C = in contact with normal stream; S = near stream or gully, but only eroded during storm or flood; N = no storm/flood runoff erosion

Field Name: WIND_EROD

Field Type: Character

Field Format: A1

Field Description: Description of susceptibility of mine dump to wind erosion. Values are N = none; D = dunes; B = blowouts; A = airborne dust

Field Name: RADS

Field Type: Numeric

Field Format: I6

Field Description: Radiation counts measured at or near the mine dump. Range of values vary, units are in counts per second unless otherwise indicated in the RAD_UNITS field.

Field Name: RAD_UNITS

Field Type: Character

Field Format: A5

Field Description: Units of the radiation measurements shown in RADS. Values are Blank=Counts per second, CPS=counts per second, CPM=counts per minute, MR/10=millirems per hour divided by ten (the value in the RADS field is actually one tenth of the value displayed), TBG=times background.

Field Name: DETER_T

Field Type: Character

Field Format: A2

Field Description: Type of access deterrent installed at mine dump. Values are N = none; S = sign; F = fence; C = sealed or capped; D = open door or hatch; L = locked door or hatch; G = open grill; O = other, explain in comments.

Field Name: DETER_C

Field Type: Character

Field Format: A1

Field Description: Condition of access deterrent installed at mine dump. Values are : P = prevents access; D = discourages access; I = ineffective

Field Name: ENV_RATING

Field Type: Character

Field Format: A1

Field Description: Rating of environmental degradation attributable to mine dump or activities related to construction/development of mine opening. Values are: 1 = extreme; 2 = significant; 3 = potentially significant; 4 = slight; 5 = none

Field Name: HAZ_RATING

Field Type: Character

Field Format: A1

Field Description: Rating of physical hazard posed to human life by mine opening or activities/structures related to construction/development of mine dump. Values are E = emergency; 1 = extreme danger; 2 = dangerous; 3 = potential danger; 5 = no significant hazard. No rating of 4 was used to maintain compatibility with older inventories conducted by the Colorado Division of Minerals and Geology.

Field Name: ROLL

Field Type: Character

Field Format: A6

Field Description: Identifier code/name of slide film roll used to photograph appearance of mine dump.

Field Name: FRAME

Field Type: Character

Field Format: A12

Field Description: Frame number(s) of the slide film roll used to photograph appearance of mine dump.

Field Name: SAMPLED

Field Type: Logical

Field Format: L1

Field Description: Not used. Originally intended to indicate when additional water sampling had been performed.

Field Name: COMMENTS

Field Type: Memo

Field Format: Free form text

Field Description: Contains extended comments describing the mine dump and other information of importance relevant to the site.

Field Name: SAMPLE_IDS

Field Type: Memo

Field Format: Free form text

Field Description: Not used. Originally intended to store additional information and identifiers related to water sampling at the site.

Record Name: WATER

The WATER record contains the information recorded for each of the water tests/samples conducted in the field within the inventory area. There can be zero or more WATER records for each HDR record in the database. The WATER record contains the information recorded by the field geologist in the water test/sample data section of the field data form. This information includes the pH, conductivity, discharge rate, biological effects of water contamination and other characteristics of each water test conducted in the inventory area.

Field Descriptions

Field Name: AREA

Field Type: Numeric

Field Format: F12.3

Field Description: Not used since point features have no area. Value=0

Field Name: PERIMETER

Field Type: Numeric

Field Format: F12.3

Field Description: Not used since point features have no perimeter. Value=0

Field Name: WATER_

Field Type: Numeric

Field Format: I10

Field Description: Internal GIS data index used for linking geographic location records to corresponding attribute data records in Arc/Info. ArcView shape files assume that attribute records are sorted by this index to match the correct polygon data record in shape file.

Field Name: WATER_ID

Field Type: Numeric

Field Format: I10

Field Description: Internal GIS data index assigned by Arc/Info during the digitizing process. This number is only used during compilation of GIS files in the Arc/Info environment and is not used after that time.

Field Name: REGION

Field Type: Numeric

Field Format: I5

Field Description: USFS Region code, value=2 for all sites in Colorado.

Field Name: STATE

Field Type: Numeric

Field Format: I6

Field Description: USFS State code, value=8 for all sites in Colorado.

Field Name: FOREST

Field Type: Numeric

Field Format: I5

Field Description: USFS Forest code, values are derived from information obtained from the Denver Regional Office. This code is used to uniquely identify the National Forest that the data was collected in. Due to mergers of some forests since the beginning of this project some numbers may have been changed by the US Forest Service. When recent values were not available, unique numbers were assigned by the project data administrator unit current values could be obtained.

Field Name: Rgr_Dist

Field Type: Numeric

Field Format: I5

Field Description: USFS ranger district code, values are derived from information obtained from the Denver Regional Office. This code is used to uniquely identify the ranger district that the data were collected in. Due to mergers of some forests and ranger districts since the beginning of this project some numbers may have been changed by the US Forest Service. When recent values were not available, unique numbers were assigned by the project data administrator unit current values could be obtained.

Field Name: UTM_ZONE

Field Type: Numeric

Field Format: I5

Field Description: Universal Transverse Mercator (UTM) Zone in which the feature is located. Value=13. Early in the project this value was included so that areas west of 108 degrees west longitude could be uniquely located. UTM coordinates are not unique but are tied to the zone in which they reside. The western boundary of zone 13, which covers most of Colorado, falls at 108 west longitude. It was later realized that all GIS data could be stored in zone 13 without danger of duplicating values, as a result it was decided to set this value to 13 in recognition of the fact that all GIS files are stored in the UTM Zone 13 map projection.

Field Name: XUTM

Field Type: Numeric

Field Format: I4

Field Description: Unique X coordinate based on the X coordinate of the lower left corner of the 1000 meter UTM grid containing the majority of the inventory area. This value will range from about 138 to 765 depending on the longitude of the site.

Field Name: YUTM

Field Type: Numeric

Field Format: I4

Field Description: Unique Y coordinate based on the Y coordinate of the lower left corner of the 1000 meter UTM grid containing the majority of the inventory area. This value will range from about 4000 to 4550 depending on the latitude of the site.

Field Name: AREAID

Field Type: Numeric

Field Format: I4

Field Description: Unique identifier for densely mined areas where more than one inventory area may occur in the same UTM grid cell mentioned above. Values range from 1 to 3 usually and rarely 4 or more.

Field Name: WID

Field Type: Numeric

Field Format: I4

Field Description: Unique water id assigned to each water test/sample taken in the inventory area. Values range from 300-399. This serves as a unique index to all water samples in a particular inventory area.

Field Name: FID

Field Type: Numeric

Field Format: I3

Field Description: Feature id of the mine opening or dump where the water sample was taken. In many cases this id can be used as a link from the water sample record to the hole or pile record describing the feature sampled. In some cases there is no FID assigned if the water test was taken independent of any mine feature. Values are either 100-199 or 200-299.

Field Name: PH

Field Type: Numeric

Field Format: F5.2

Field Description: pH value of the water measured in the field in standard units. Values are in the pH measurement range of 0 to 14 with <7 being acidic, and >7 being alkaline.

Field Name: CONDUCT

Field Type: Numeric

Field Format: I6

Field Description: Specific conductance of the water measured in the field in microSiemens per centimeter. Values may be zero and greater, but values greater than 2500 are rare.

Field Name: CFS

Field Type: Numeric

Field Format: F8.2

Field Description: Water discharge in gallons per minute. Inestimable seeps are recorded as 0.1 gpm (The field name "CFS" may be confusing, as this acronym is commonly used for the discharge measurement unit, cubic feet per second. After the database was constructed, the standard unit of measurement for field geologists was changed to gallons per minute. All values in the "CFS" field are recorded in gallons per minute.)

Field Name: CFS_METHOD

Field Type: Character

Field Format: A1

Field Description: Method of measuring water discharge. Values are E=estimate; T=bobber/stopwatch/x-section; W=weir; D=catchment; F=flow meter; L=flume

Field Name: CFS_DATE

Field Type: Date

Field Format: D8

Field Description: Date water discharge was measured, in the format mm/dd/yy

Field Name: SAMPLE_LOC

Field Type: Character

Field Format: A2

Field Description: Indicates location where water data was obtained in relation to the mine feature. Values are A=immediately adjacent to adit/shaft; B=below dump/tailings; C=immediately above confluence with receiving stream; SW=standing water in/on feature; RU=receiving stream upstream of feature; RD=receiving stream downstream of feature;

Field Name: TSD

Field Type: Character

Field Format: A3

Field Description: Evidence of toxicity in site drainage. Values are N = none; A = absence of benthic organisms; W = opaque water; P = yellow or red precipitate; S = suspended solids; D = salt deposits

Field Name: ETRS

Field Type: Character

Field Format: A3

Field Description: Evidence of toxicity in the closest receiving stream to the mine feature. Values are N = none; A = absence of benthic organisms; W = opaque water; P = yellow or red precipitate; S = suspended solids; D = salt deposits

Field Name: DIST_STR

Field Type: Numeric

Field Format: I4

Field Description: The distance from the water test and/or sample location to the receiving stream, measured in feet.

Field Name: SAMPLED

Field Type: Logical

Field Format: L1

Field Description: Not used. Originally intended to indicate when additional water sampling had been performed. Data for water samples taken for laboratory analysis are found in the SAMPLE record.

Field Name: COMMENTS

Field Type: Memo

Field Format: Free form text

Field Description: Contains extended comments describing the water test and other information of importance relevant to the testing event.

Field Name: SAMPLE_IDS

Field Type: Memo

Field Format: Free form text

Field Description: Not used. Originally intended to store additional information and identifiers related to water sampling at the site.

Record Name: SAMPLE

The SAMPLE record contains information about all water samples taken for laboratory analysis during the USFS Abandoned Mine Land Inventory in Colorado. There can be zero or more SAMPLE records for each HDR record in the database. Field measurements and laboratory analysis results are included. Field measurements (pH, conductivity, discharge rate, discharge method, discharge date) for these water samples are duplicated in the WATER record with the same ID#.

Field Name: FOO_ID_

Field Type: Numeric

Field Format: I16

Field Description: Internal GIS data index assigned by Arc/Info during the digitizing process. This number is only used during compilation of GIS files in the Arc/Info environment and is not used after that time.

Field Name: REGION

Field Type: Numeric

Field Format: I5

Field Description: USFS Region code, value=2 for all sites in Colorado.

Field Name: STATE

Field Type: Numeric

Field Format: I6

Field Description: USFS State code, value=8 for all sites in Colorado.

Field Name: FOREST

Field Type: Numeric

Field Format: I5

Field Description: USFS Forest code, values are derived from information obtained from the Denver Regional Office. This code is used to uniquely identify the National Forest that the data were collected in. Due to mergers of some forests since the beginning of this project some numbers may have been changed by the US Forest Service. When recent values were not available, unique numbers were assigned by the project data administrator unit current values could be obtained.

Field Name: Rgr_Dist

Field Type: Numeric

Field Format: I5

Field Description: USFS ranger district code, values are derived from information obtained from the Denver Regional Office. This code is used to uniquely identify the ranger district that the data were collected in. Due to mergers of some forests and ranger districts since the beginning of this project some numbers may have been changed by the US Forest Service. When recent values were not available, unique numbers were assigned by the project data administrator unit current values could be obtained.

Field Name: RANGER_DIS

Field Type: Character

Field Format: A254

Field Description: Eight character ranger district name used for file processing and indexing purposes by CGS staff during database compilation.

Field Name: UTM_ZONE

Field Type: Numeric

Field Format: F16.6

Field Description: Universal Transverse Mercator (UTM) Zone in which the feature is located. Value=13. Early in the project this value was included so that areas west of 108 degrees west longitude could be uniquely located. UTM coordinates are not unique but are tied to the zone in which they reside. The western boundary of zone 13, which covers most of Colorado, falls at 108 west longitude. It was later realized that all GIS data could be stored in zone 13 without danger of duplicating values, as a result it was decided to set this value to 13 in recognition of the fact that all GIS files are stored in the UTM Zone 13 map projection.

Field Name: XUTM

Field Type: Numeric

Field Format: F16.6

Field Description: Unique X coordinate based on the X coordinate of the lower left corner of the 1000 meter UTM grid containing the majority of the inventory area. This value will range from about 138 to 765 depending on the longitude of the site.

Field Name: YUTM

Field Type: Numeric

Field Format: F16.6

Field Description: Unique Y coordinate based on the Y coordinate of the lower left corner of the 1000 meter UTM grid containing the majority of the inventory area. This value will range from about 4000 to 4550 depending on the latitude of the site.

Field Name: AREA

Field Type: Numeric

Field Format: F16.6

Field Description: Unique identifier for densely mined areas where more than one inventory area may occur in the same UTM grid cell mentioned above. Values range from 1 to 3 usually and rarely 4 or more.

Field Name: FID

Field Type: Numeric

Field Format: F16.6

Field Description: Unique water id assigned to each water test/sample taken in the inventory area or feature id of the mine opening or dump where the water sample was taken. Values range from 100-399. When concatenated with XUTM, YUTM, and AREA fields, this serves as a unique index within the SAMPLE record. The concatenated fields can be used as a link to the WATER HOLE or PILE record the sample is associated with.

Field Name: SAMPLE_COD

Field Type: Character

Field Format: A51

Field Description:

Field Name: BASIN

Field Type: Character

Field Format: A254

Field Description: Drainage basin of sample location. This field has only been completed for the Columbine Ranger District.

Field Name: SITE_DESCR

Field Type: Character
Field Format: A254
Field Description: Text description of the sample site. These descriptions are sometimes the same as the inventory area name (SITENAME_1 field), but may differ.

Field Name: SITE_CODE
Field Type: Character
Field Format: A254
Field Description: A concatenated version of the FST, RD, XUTM, YUTM, AREA, and FID fields. The site code is unique for each water sample.

Field Name: SITE_ALIAS
Field Type: Character
Field Format: A254
Field Description: A secondary or alternative description of the sample site.

Field Name: SAMPLED_DA
Field Type: Character
Field Format: A27
Field Description: Date water sample was taken (mm/dd/yyyy).

Field Name: LAB_RECEIV
Field Type: Character
Field Format: A27
Field Description: Date the laboratory received the water sample (mm/dd/yyyy).

Field Name: TIME_24HR
Field Type: Character
Field Format: A27
Field Description: Time of day water sample was taken in military time (##:##).

Field Name: AGENCY
Field Type: Character
Field Format: A254
Field Description: Entity for which sampling was performed. Values are blank=United States Forest Service or USFS=United States Forest Service. This does not indicate the entity performing the sampling.

Field Name: COMMENT
Field Type: Character
Field Format: A254
Field Description: Comments that may include a description of the physical sample location, type of sample, and any factors that may affect the analysis results.

Field Name: TYPE
Field Type: Character
Field Format: A51
Field Description: Describes the type of water source from which the water sample was taken. Values are adit, shaft, portal, leachate, dump seep, natural spring, stream, lake, or other. Values of "other" are described in comments.

Field Name: LABORATORY
Field Type: Character
Field Format: A51

Field Description: Values are CDPHE/ICL or CDPHE=Colorado Department of Public Health and Environment-Inorganic Chemistry Laboratory, SLV Analytical=San Luis Valley Analytical Laboratory Inc., USGSBGC=U.S. Geological Survey-Branch of Geochemistry, VISTA=Vista Laboratory Inc.

Field Name: SAMPLER

Field Type: Character

Field Format: A254

Field Description: Entity performing the sampling. Values are blank=Colorado Geological Survey, CDH=Colorado Department of Public Health and Environment, CGS=Colorado Geological Survey, SLV Analytical=San Luis Valley Analytical Laboratory Inc., USGSBGC=U.S. Geological Survey-Branch of Geochemistry, USGSWRD=U.S. Geological Survey-Water Resources Division. When more than one entity was involved in sampling, the field contains both values separated by a forward slash between them.

Field Name: LAT_DD

Field Type: Numeric

Field Format: F16.6

Field Description: Latitude north in decimal degrees.

Field Name: LONG_DD

Field Type: Numeric

Field Format: F16.6

Field Description: Longitude west in decimal degrees.

Field Name: ELEV_FT

Field Type: Numeric

Field Format: F16.6

Field Description: Approximate elevation of sample location in feet.

Field Name: FLOW_CFS

Field Type: Numeric

Field Format: F16.6

Field Description: Water discharge at sample location in cubic feet per second. Values are greater than zero. Occurrences may be estimated or measured as indicated in the OD_Q_GPM field.

Field Name: EST_Q_GPM

Field Type: Numeric

Field Format: F16.6

Field Description: Water discharge at sample location measured in gallons per minute. Values are greater than zero. Occurrences may be estimated or measured as indicated in the OD_Q_GPM field.

Field Name: OD_Q_GPM

Field Type: Character

Field Format: A11

Field Description: A modifier for water discharge given in the FLOW_CFS field or EST_Q_GPM field. Values are blank=not applicable or no data, e(or E)=estimated, m(or M)=measured, -= less than indicated value, +=greater than indicated value.

Field Name: STANDING_W

Field Type: Numeric

Field Format: I6

Field Description: Indicates whether water tested was standing water. Values are -1=sample from standing water, 0=sample not from standing water.

Field Name: STREAM_DESC
Field Type: Character
Field Format: A254
Field Description: Description of the streambed at the sample location.

Field Name: WATER_DESC
Field Type: Character
Field Format: A254
Field Description: Description of the water at the sample location

Field Name: FIELD_PH
Field Type: Numeric
Field Format: F16.6
Field Description: pH measured in the field in standard units. Values are in the pH measurement range of 0 to 14 with <7 being acidic, and >7 being alkaline.

Field Name: LAB_PH
Field Type: Numeric
Field Format: F16.6
Field Description: pH measured in the laboratory in standard units. Values are in the pH measurement range of 0 to 14 with <7 being acidic, and >7 being alkaline.

Field Name: TEMP_C
Field Type: Numeric
Field Format: F16.6
Field Description: Temperature of the water sample measured in the field in degrees Celsius.

Field Name: FIELD_COND
Field Type: Numeric
Field Format: F16.6
Field Description: Specific conductance of the water sample measured in the field in microSiemens per centimeter. Values may be zero and greater, but values greater than 2500 are rare.

Field Name: MOD_COND
Field Type: Character
Field Format: A11
Field Description: A modifier for the field specific conductance measurement (FIELD_COND field). The only valid modifier is -=below instrument sensitivity.

Field Name: LAB_COND
Field Type: Numeric
Field Format: F16.6
Field Description: Specific conductance of the water sample measured in the laboratory in microSiemens per centimeter. Values may be zero and greater, but values greater than 2500 are rare.

Field Name: DIS_OXY_MG
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved oxygen measured in the field in milligrams per liter.

Field Name: MOD_DIS_OX

Field Type: Character

Field Format: A11

Field Description: A modifier for the dissolved oxygen measurement (DIS_OXY_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: HARD_MG

Field Type: Numeric

Field Format: F16.6

Field Description: Hardness measured in the lab in milligrams per liter calcium carbonate equivalent.

Field Name: MOD_HARD

Field Type: Character

Field Format: A3

Field Description: A modifier for the hardness measurement (HARD_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: FIELD_ALK_

Field Type: Numeric

Field Format: F16.6

Field Description: Alkalinity measured in the field in milligrams per liter.

Field Name: FIELD_MOD_

Field Type: Character

Field Format: A3

Field Description: A modifier for the field alkalinity measurement (FIELD_ALK_ field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: LAB_ALK_MG

Field Type: Numeric

Field Format: F16.6

Field Description: Alkalinity measured in the lab in milligrams per liter.

Field Name: LAB_MOD_AL

Field Type: Character

Field Format: A3

Field Description: A modifier for the lab alkalinity measurement (LAB_ALK_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: ACIDITY

Field Type: Numeric

Field Format: F16.6

Field Description: Acidity measured in the lab in milligrams per liter.

All the following constituents are measured in the laboratory. Analyses for dissolved constituents were from samples filtered through a 0.45-micron filter:

Field Name: CA_TOT_MG

Field Type: Numeric

Field Format: F16.6

Field Description: Total recoverable calcium in milligrams per liter.

Field Name: MOD_CA_TOT

Field Type: Character

Field Format: A3
Field Description: A modifier for the total recoverable calcium measurement (CA_TOT_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: CA_DIS_MG
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved calcium in milligrams per liter.

Field Name: MOD_CA_DIS
Field Type: Character
Field Format: A3
Field Description: A modifier for the dissolved calcium measurement (CA_TOT_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: MG_TOT_MG
Field Type: Numeric
Field Format: F16.6
Field Description: Total recoverable magnesium in milligrams per liter.

Field Name: MOD_MG_TOT
Field Type: Character
Field Format: A3
Field Description: A modifier for the total recoverable magnesium measurement (MG_TOT_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: MG_DIS_MG
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved magnesium in milligrams per liter.

Field Name: MOD_MG_DIS
Field Type: Character
Field Format: A3
Field Description: A modifier for dissolved magnesium the measurement (MG_DIS_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: AL_TOT
Field Type: Numeric
Field Format: F16.6
Field Description: Total recoverable aluminum in micrograms per liter.

Field Name: MOD_AL_TOT
Field Type: Character
Field Format: A3
Field Description: A modifier for the total recoverable aluminum measurement (AL_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: AL_DIS
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved aluminum in micrograms per liter.

Field Name: MOD_AL_DIS
Field Type: Character
Field Format: A3
Field Description: A modifier for the dissolved aluminum measurement (AL_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: AG_TOT
Field Type: Numeric
Field Format: F16.6
Field Description: Total recoverable silver in micrograms per liter

Field Name: MOD_AG_TOT
Field Type: Character
Field Format: A3
Field Description: A modifier for the total recoverable silver measurement (AG_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: AG_DIS
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved silver in micrograms per liter.

Field Name: MOD_AG_DIS
Field Type: Character
Field Format: A3
Field Description: A modifier for the dissolved silver measurement (AG_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: AS_TOT
Field Type: Numeric
Field Format: F16.6
Field Description: Total recoverable arsenic in micrograms per liter

Field Name: MOD_AS_TOT
Field Type: Character
Field Format: A3
Field Description: A modifier for the total recoverable arsenic measurement (AS_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: AS_DIS
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved arsenic in micrograms per liter.

Field Name: MOD_AS_DIS
Field Type: Character
Field Format: A3
Field Description: A modifier for the dissolved arsenic measurement (AS_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: AU_DIS

Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved gold in micrograms per liter.

Field Name: MOD_AU_DIS
Field Type: Character
Field Format: A3
Field Description: A modifier for the dissolved gold measurement (AU_DIS field).
Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: B_TOT
Field Type: Numeric
Field Format: F16.6
Field Description: Total recoverable boron in micrograms per liter

Field Name: MOD_B_TOT
Field Type: Character
Field Format: A3
Field Description: A modifier for the total recoverable boron measurement (B_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: B_DIS
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved boron in micrograms per liter.

Field Name: MOD_B_DIS
Field Type: Character
Field Format: A3
Field Description: A modifier for the dissolved boron measurement (B_DIS field).
Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: BR
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved bromine in milligrams per liter.

Field Name: MOD_BR
Field Type: Character
Field Format: A3
Field Description: A modifier for the dissolved bromine measurement (BR field).
Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: SB_TOT
Field Type: Numeric
Field Format: F16.6
Field Description: Total recoverable antimony in micrograms per liter

Field Name: MOD_SB_TOT
Field Type: Character
Field Format: A3
Field Description: A modifier for the total recoverable antimony measurement (SB_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: SB_DIS

Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved antimony in micrograms per liter.

Field Name: MOD_SB_DIS
Field Type: Character
Field Format: A3
Field Description: A modifier for the dissolved antimony measurement (SB_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: BA_TOT
Field Type: Numeric
Field Format: F16.6
Field Description: Total recoverable barium in micrograms per liter

Field Name: MOD_BA_TOT
Field Type: Character
Field Format: A3
Field Description: A modifier for the total recoverable barium measurement (BA_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: BA_DIS
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved barium in micrograms per liter.

Field Name: MOD_BA_DIS
Field Type: Character
Field Format: A3
Field Description: A modifier for the dissolved barium measurement (BA_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: BE_TOT
Field Type: Numeric
Field Format: F16.6
Field Description: Total recoverable beryllium in micrograms per liter

Field Name: MOD_BE_TOT
Field Type: Character
Field Format: A3
Field Description: A modifier for the total recoverable beryllium measurement (BE_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: BE_DIS
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved beryllium in micrograms per liter.

Field Name: MOD_BE_DIS
Field Type: Character
Field Format: A3

Field Description: A modifier for the dissolved beryllium measurement (BE_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: CO_TOT

Field Type: Numeric

Field Format: F16.6

Field Description: Total recoverable cobalt in micrograms per liter

Field Name: MOD_CO_TOT

Field Type: Character

Field Format: A3

Field Description: A modifier for the total recoverable cobalt measurement (CO_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: CO_DIS

Field Type: Numeric

Field Format: F16.6

Field Description: Dissolved cobalt in micrograms per liter.

Field Name: MOD_CO_DIS

Field Type: Character

Field Format: A3

Field Description: A modifier for the dissolved cobalt measurement (CO_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: CD_TOT

Field Type: Numeric

Field Format: F16.6

Field Description: Total recoverable cadmium in micrograms per liter

Field Name: MOD_CD_TOT

Field Type: Character

Field Format: A3

Field Description: A modifier for the total recoverable cadmium measurement (CD_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: CD_DIS

Field Type: Numeric

Field Format: F16.6

Field Description: Dissolved cadmium in micrograms per liter.

Field Name: MOD_CD_DIS

Field Type: Character

Field Format: A3

Field Description: A modifier for the dissolved cadmium measurement (CD_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: CU_TOT

Field Type: Numeric

Field Format: F16.6

Field Description: Total recoverable copper in micrograms per liter

Field Name: MOD_CU_TOT
Field Type: Character
Field Format: A3
Field Description: A modifier for the total recoverable copper measurement (CU_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: CU_DIS
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved copper in micrograms per liter.

Field Name: MOD_CU_DIS
Field Type: Character
Field Format: A3
Field Description: A modifier for the dissolved copper measurement (CU_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: CR_TOT
Field Type: Numeric
Field Format: F16.6
Field Description: Total recoverable chromium in micrograms per liter

Field Name: MOD_CR_TOT
Field Type: Character
Field Format: A3
Field Description: A modifier for the total recoverable chromium measurement (CR_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: CR_DIS
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved chromium in micrograms per liter.

Field Name: MOD_CR_DIS
Field Type: Character
Field Format: A3
Field Description: A modifier for the dissolved chromium measurement (CR_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: CN_TOT_MG
Field Type: Numeric
Field Format: F16.6
Field Description: Total recoverable cyanide in milligrams per liter

Field Name: MOD_CN_TOT
Field Type: Character
Field Format: A3
Field Description: A modifier for the total recoverable cyanide measurement (CN_TOT_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: FE_TOT
Field Type: Numeric

Field Format: F16.6

Field Description: Total recoverable iron in micrograms per liter

Field Name: MOD_FE_TOT

Field Type: Character

Field Format: A3

Field Description: A modifier for the total recoverable iron measurement (FE_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: FE_DIS

Field Type: Numeric

Field Format: F16.6

Field Description: Dissolved iron in micrograms per liter.

Field Name: MOD_FE_DIS

Field Type: Character

Field Format: A3

Field Description: A modifier for the dissolved iron measurement (FE_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: GA_TOT

Field Type: Numeric

Field Format: F16.6

Field Description: Total recoverable gallium in micrograms per liter

Field Name: MOD_GA_TOT

Field Type: Character

Field Format: A3

Field Description: A modifier for the total recoverable gallium measurement (GA_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: GA_DIS

Field Type: Numeric

Field Format: F16.6

Field Description: Dissolved gallium in micrograms per liter.

Field Name: MOD_GA_DIS

Field Type: Character

Field Format: A3

Field Description: A modifier for the dissolved gallium measurement (GA_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: GE_TOT

Field Type: Numeric

Field Format: F16.6

Field Description: Total recoverable germanium in micrograms per liter

Field Name: MOD_GE_TOT

Field Type: Character

Field Format: A3

Field Description: A modifier for the total recoverable germanium measurement (GE_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: GE_DIS
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved germanium in micrograms per liter.

Field Name: MOD_GE_DIS
Field Type: Character
Field Format: A3
Field Description: A modifier for the dissolved germanium measurement (GE_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: HG_TOT
Field Type: Numeric
Field Format: F16.6
Field Description: Total recoverable mercury in micrograms per liter

Field Name: MOD_HG_TOT
Field Type: Character
Field Format: A3
Field Description: A modifier for the total recoverable mercury measurement (HG_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: HG_DIS
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved mercury in micrograms per liter.

Field Name: MOD_HG_DIS
Field Type: Character
Field Format: A3
Field Description: A modifier for the dissolved mercury measurement (HG_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: LI_TOT
Field Type: Numeric
Field Format: F16.6
Field Description: Total recoverable lithium in micrograms per liter

Field Name: MOD_LI_TOT
Field Type: Character
Field Format: A3
Field Description: A modifier for the total recoverable lithium measurement (LI_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: LI_DIS
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved lithium in micrograms per liter.

Field Name: MOD_LI_DIS
Field Type: Character
Field Format: A3

Field Description: A modifier for the dissolved lithium measurement (LI_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: MO_TOT

Field Type: Numeric

Field Format: F16.6

Field Description: Total recoverable molybdenum in micrograms per liter

Field Name: MOD_MO_TOT

Field Type: Character

Field Format: A3

Field Description: A modifier for the total recoverable molybdenum measurement (MO_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: MO_DIS

Field Type: Numeric

Field Format: F16.6

Field Description: Dissolved molybdenum in micrograms per liter.

Field Name: MOD_MO_DIS

Field Type: Character

Field Format: A3

Field Description: A modifier for the dissolved molybdenum measurement (MO_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: MN_TOT

Field Type: Numeric

Field Format: F16.6

Field Description: Total recoverable manganese in micrograms per liter

Field Name: MOD_MN_TOT

Field Type: Character

Field Format: A3

Field Description: A modifier for the total recoverable manganese measurement (MN_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: MN_DIS

Field Type: Numeric

Field Format: F16.6

Field Description: Dissolved manganese in micrograms per liter.

Field Name: MOD_MN_DIS

Field Type: Character

Field Format: A3

Field Description: A modifier for the dissolved manganese measurement (MN_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: NI_TOT

Field Type: Numeric

Field Format: F16.6

Field Description: Total recoverable nickel in micrograms per liter

Field Name: MOD_NI_TOT
Field Type: Character
Field Format: A3
Field Description: A modifier for the total recoverable nickel measurement (NI_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: NI_DIS
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved nickel in micrograms per liter.

Field Name: MOD_NI_DIS
Field Type: Character
Field Format: A3
Field Description: A modifier for the dissolved nickel measurement (NI_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: PB_TOT
Field Type: Numeric
Field Format: F16.6
Field Description: Total recoverable lead in micrograms per liter

Field Name: MOD_PB_TOT
Field Type: Character
Field Format: A3
Field Description: A modifier for the total recoverable lead measurement (PB_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: PB_DIS
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved lead in micrograms per liter.

Field Name: MOD_PB_DIS
Field Type: Character
Field Format: A3
Field Description: A modifier for the dissolved lead measurement (PB_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: SE_TOT
Field Type: Numeric
Field Format: F16.6
Field Description: Total recoverable selenium in micrograms per liter

Field Name: MOD_SE_TOT
Field Type: Character
Field Format: A3
Field Description: A modifier for the total recoverable selenium measurement (SE_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: SE_DIS
Field Type: Numeric
Field Format: F16.6

Field Description: Dissolved selenium in micrograms per liter.

Field Name: MOD_SE_DIS

Field Type: Character

Field Format: A3

Field Description: A modifier for the dissolved selenium measurement (SE_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: SN_TOT

Field Type: Numeric

Field Format: F16.6

Field Description: Total recoverable tin in micrograms per liter

Field Name: MOD_SN_TOT

Field Type: Character

Field Format: A3

Field Description: A modifier for the total recoverable tin measurement (SN_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: SN_DIS

Field Type: Numeric

Field Format: F16.6

Field Description: Dissolved tin in micrograms per liter.

Field Name: MOD_SN_DIS

Field Type: Character

Field Format: A3

Field Description: A modifier for the dissolved tin measurement (SN_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: SR_TOT

Field Type: Numeric

Field Format: F16.6

Field Description: Total recoverable strontium in micrograms per liter

Field Name: MOD_SR_TOT

Field Type: Character

Field Format: A3

Field Description: A modifier for the total recoverable strontium measurement (SR_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: SR_DIS

Field Type: Numeric

Field Format: F16.6

Field Description: Dissolved strontium in micrograms per liter.

Field Name: MOD_SR_DIS

Field Type: Character

Field Format: A3

Field Description: A modifier for the dissolved strontium measurement (SR_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: TH_TOT

Field Type: Numeric
Field Format: F16.6
Field Description: Total recoverable thorium in micrograms per liter

Field Name: MOD_TH_TOT
Field Type: Character
Field Format: A3
Field Description: A modifier for the total recoverable thorium measurement (TH_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: TH_DIS
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved thorium in micrograms per liter.

Field Name: MOD_TH_DIS
Field Type: Character
Field Format: A3
Field Description: A modifier for the dissolved thorium measurement (TH_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: TI_TOT
Field Type: Numeric
Field Format: F16.6
Field Description: Total recoverable titanium in micrograms per liter

Field Name: MOD_TI_TOT
Field Type: Character
Field Format: A3
Field Description: A modifier for the total recoverable titanium measurement (TI_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: TI_DIS
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved titanium in micrograms per liter.

Field Name: MOD_TI_DIS
Field Type: Character
Field Format: A3
Field Description: A modifier for the dissolved titanium measurement (TI_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: TL_TOT
Field Type: Numeric
Field Format: F16.6
Field Description: Total recoverable thallium in micrograms per liter

Field Name: MOD_TL_TOT
Field Type: Character
Field Format: A3

Field Description: A modifier for the total recoverable thallium measurement (TL_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: TL_DIS

Field Type: Numeric

Field Format: F16.6

Field Description: Dissolved thallium in micrograms per liter.

Field Name: MOD_TL_DIS

Field Type: Character

Field Format: A3

Field Description: A modifier for the dissolved thallium measurement (TL_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: U_DIS

Field Type: Numeric

Field Format: F16.6

Field Description: Dissolved uranium in micrograms per liter.

Field Name: U_DIS_PCI_

Field Type: Numeric

Field Format: F16.6

Field Description: Dissolved uranium in picocuries per liter.

Field Name: MOD_U_DIS

Field Type: Character

Field Format: A3

Field Description: A modifier for the dissolved uranium measurements (U_DIS and/or U_DIS_PCI_ fields). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: U_TOT

Field Type: Numeric

Field Format: F16.6

Field Description: Total recoverable uranium in micrograms per liter

Field Name: MOD_U_TOT

Field Type: Character

Field Format: A3

Field Description: A modifier for the total recoverable uranium measurement (U_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: V_TOT

Field Type: Numeric

Field Format: F16.6

Field Description: Total recoverable vanadium in micrograms per liter

Field Name: MOD_V_TOT

Field Type: Character

Field Format: A3

Field Description: A modifier for the total recoverable vanadium measurement (V_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: V_DIS
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved vanadium in micrograms per liter.

Field Name: MOD_V_DIS
Field Type: Character
Field Format: A3
Field Description: A modifier for the dissolved vanadium measurement (V_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: ZN_TOT
Field Type: Numeric
Field Format: F16.6
Field Description: Total recoverable zinc in micrograms per liter

Field Name: MOD_ZN_TOT
Field Type: Character
Field Format: A3
Field Description: A modifier for the total recoverable zinc measurement (ZN_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: ZN_DIS
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved zinc in micrograms per liter.

Field Name: MOD_ZN_DIS
Field Type: Character
Field Format: A3
Field Description: A modifier for the dissolved zinc measurement (ZN_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: ZR_TOT
Field Type: Numeric
Field Format: F16.6
Field Description: Total recoverable zirconium in micrograms per liter

Field Name: MOD_ZR_TOT
Field Type: Character
Field Format: A3
Field Description: A modifier for the total recoverable zirconium measurement (ZR_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: ZR_DIS
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved zirconium in micrograms per liter.

Field Name: MOD_ZR_DIS
Field Type: Character
Field Format: A3

Field Description: A modifier for the dissolved zirconium measurement (ZR_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: TSS_MG
Field Type: Numeric
Field Format: F16.6
Field Description: Total suspended solids in milligrams per liter.

Field Name: MOD_TSS
Field Type: Character
Field Format: A3
Field Description: A modifier for the total suspended solids measurement (TSS_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: TDS_MG
Field Type: Numeric
Field Format: F16.6
Field Description: Total dissolved solids in milligrams per liter

Field Name: MOD_TDS
Field Type: Character
Field Format: A3
Field Description: A modifier for the total dissolved solids measurement (TDS_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: T_PHOS_MG
Field Type: Numeric
Field Format: F16.6
Field Description: Total recoverable phosphorus in milligrams per liter

Field Name: MOD_T_PHOS
Field Type: Character
Field Format: A3
Field Description: A modifier for the total recoverable phosphorus measurement (T_PHOS_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: P_DIS_MG
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved phosphorus in milligrams per liter.

Field Name: MOD_P_DIS
Field Type: Character
Field Format: A3
Field Description: A modifier for the dissolved phosphorus measurement (P_DIS_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: PO4_DIS_MG
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved phosphate in milligrams per liter.

Field Name: MOD_PO4_DI

Field Type: Character

Field Format: A3

Field Description: A modifier for the dissolved phosphate measurement (PO4_DIS_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: SI_TOT_MG

Field Type: Numeric

Field Format: F16.6

Field Description: Total recoverable silicon in milligrams per liter

Field Name: MOD_SI_TOT

Field Type: Character

Field Format: A3

Field Description: A modifier for the total recoverable silicon measurement (SI_TOT_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: SI_DIS_MG

Field Type: Numeric

Field Format: F16.6

Field Description: Dissolved silicon in milligrams per liter.

Field Name: MOD_SI_DIS

Field Type: Character

Field Format: A3

Field Description: A modifier for the dissolved silicon measurement (SI_DIS_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: NA_TOT_MG

Field Type: Numeric

Field Format: F16.6

Field Description: Total recoverable sodium in milligrams per liter

Field Name: MOD_NA_TOT

Field Type: Character

Field Format: A3

Field Description: A modifier for the total recoverable sodium measurement (NA_TOT_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: NA_DIS_MG

Field Type: Numeric

Field Format: F16.6

Field Description: Dissolved sodium in milligrams per liter.

Field Name: MOD_NA_DIS

Field Type: Character

Field Format: A3

Field Description: A modifier for the dissolved sodium measurement (NA_DIS_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: CL_MG

Field Type: Numeric

Field Format: F16.6

Field Description: Dissolved chlorine in milligrams per liter.

Field Name: MOD_CL

Field Type: Character

Field Format: A3

Field Description: A modifier for the dissolved chlorine measurement (CL_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: F_MG

Field Type: Numeric

Field Format: F16.6

Field Description: Dissolved fluorine in milligrams per liter.

Field Name: MOD_F

Field Type: Character

Field Format: A3

Field Description: A modifier for the dissolved fluorine measurement (F_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: BR_MG

Field Type: Numeric

Field Format: F16.6

Field Description: Dissolved bromine in milligrams per liter.

Field Name: MOD_BR_MG

Field Type: Character

Field Format: A3

Field Description: A modifier for the dissolved bromine measurement (BR_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: HCO3_MG

Field Type: Numeric

Field Format: F16.6

Field Description: Dissolved bicarbonate in milligrams per liter.

Field Name: MOD_HCO3

Field Type: Character

Field Format: A3

Field Description: A modifier for the dissolved bicarbonate measurement (HCO3_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: CO3_MG

Field Type: Numeric

Field Format: F16.6

Field Description: Dissolved carbonate in milligrams per liter.

Field Name: MOD_CO3

Field Type: Character

Field Format: A3

Field Description: A modifier for the dissolved carbonate measurement (CO3_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: OH_MG
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved hydroxide in milligrams per liter.

Field Name: MOD_OH
Field Type: Character
Field Format: A3
Field Description: A modifier for the dissolved hydroxide measurement (OH_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: NH3_MG
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved ammonia in milligrams per liter.

Field Name: MOD_NH3_MG
Field Type: Character
Field Format: A3
Field Description: A modifier for the dissolved ammonia measurement (NH3_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: NO2_MG
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved nitrite in milligrams per liter.

Field Name: MOD_NO2
Field Type: Character
Field Format: A3
Field Description: A modifier for the dissolved nitrite measurement (NO2_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: NO3_MG
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved nitrate in milligrams per liter.

Field Name: MOD_NO3
Field Type: Character
Field Format: A3
Field Description: A modifier for the dissolved nitrate measurement (NO3_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: NO2_NO3_MG
Field Type: Numeric
Field Format: F16.6
Field Description: Dissolved nitrate plus nitrite in milligrams per liter.

Field Name: MOD_NO2_NO
Field Type: Character
Field Format: A3

Field Description: A modifier for the dissolved nitrate plus nitrite measurement (NO2_NO3_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: K_TOT_MG

Field Type: Numeric

Field Format: F16.6

Field Description: Total recoverable potassium in milligrams per liter

Field Name: MOD_K_TOT

Field Type: Character

Field Format: A3

Field Description: A modifier for the total recoverable potassium measurement (K_TOT_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: K_DIS_MG

Field Type: Numeric

Field Format: F16.6

Field Description: Dissolved potassium in milligrams per liter.

Field Name: MOD_K_DIS

Field Type: Character

Field Format: A3

Field Description: A modifier for the dissolved potassium measurement (K_DIS_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: SO4_MG

Field Type: Numeric

Field Format: F16.6

Field Description: Dissolved sulfate in milligrams per liter.

Field Name: MOD_SO4

Field Type: Character

Field Format: A3

Field Description: A modifier for the dissolved sulfate measurement (SO4_MG field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: BI_TOT

Field Type: Numeric

Field Format: F16.6

Field Description: Total recoverable bismuth in micrograms per liter

Field Name: MOD_BI_TOT

Field Type: Character

Field Format: A3

Field Description: A modifier for the total recoverable bismuth measurement (BI_TOT field). Values are -=below instrument sensitivity, +=above instrument sensitivity.

Field Name: BI_DIS

Field Type: Numeric

Field Format: F16.6

Field Description: Dissolved bismuth in micrograms per liter.

Field Name: MOD_BI_DIS

Field Type: Character

Field Format: A3

Field Description: A modifier for the dissolved bismuth measurement (BI_DIS field). Values are -=below instrument sensitivity, +=above instrument sensitivity.