

# **Report of Findings**

**Ute Ladies'-Tresses and  
Colorado Butterfly Weed  
Surveys**

*Rocky Flats Buffer Zone  
Jefferson Co., Colorado*

Prepared for:

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**September 13, 1994**

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ADMIN RECORD

**ESCO**

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## INTRODUCTION

The Ute Ladies'-Tresses orchid (Spiranthes diluvialis Sheviak) was listed as a threatened species by the U.S. Fish and Wildlife Service (Federal Register 57:2048 January 17, 1992) pursuant to the Endangered Species Act of 1973. This level of protection is provided for plant species which are threatened with extinction throughout all or a significant portion of their ranges. Colorado Butterfly Weed (Gaura neomexicana ssp. coloradensis) is a Category 1 (C1) species, indicating that it is a taxon "for which the (U. S. Fish and Wildlife) Service currently has on file substantial information on biological vulnerability and threat(s) to support the appropriateness of proposing to list the taxon as (an) Endangered or Threatened species."

ESCO Associates Inc. was contracted by E. G. & G. Rocky Flats, Inc. to survey the areas of the Buffer Zone surrounding the Rocky Flats Plant that potentially could harbor the Ute Ladies'-Tresses orchid or Colorado Butterfly Weed (see attached map). Habitats of the Buffer Zone had been evaluated for their potential to support Ute Ladies'-Tresses in 1992; the map of those areas was used to direct previous (1993) as well as the present (1994) searches for Ute Ladies'-Tresses. Areas identified in 1993 searches as potential habitat for Colorado Butterfly Weed were those searched in 1994 surveys.

Specific tasks to be accomplished in this study included the following:

- Search potential and degraded potential habitat (as identified in 1992 surveys) for Ute Ladies'-Tresses within the Buffer Zone in accordance with U. S. Fish and Wildlife Service guidelines for surveys for Ute Ladies'-Tresses published July 13, 1992.
- Refine the delineation of potential habitats for Ute Ladies'-Tresses on the Rocky Flats site.
- Search potential habitat identified and searched in 1993 for Colorado Butterfly Weed.

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### List of Maps

Ute Ladies'-Tresses and Colorado Butterfly Weed Surveys, Buffer Zone, 1994 (showing areas of suitable habitat surveyed).

The Ute Ladies'-Tresses orchid is known to occur in Colorado, Wyoming, and Utah (as well as historically in Nevada). In Colorado it has been found in wet meadows or floodplains with or without associated tree and shrub cover near the base of the Front Range in Jefferson, Larimer, and Boulder Counties, as well as historically in El Paso and Weld Counties (but not found there during searches in recent years). This plant is best identified from late July through August, when it produces a flowering stalk of about 14 in. (36 cm) bearing white to ivory-colored flowers (Figure 1). The bulk of leaves are basal, with stem leaves rapidly reduced upwards along the stem.

The Colorado Butterfly Weed was historically known from Douglas, Larimer, and Weld Counties along the East Slope of the Front Range of Colorado, but had not been relocated in the wild at any of these sites in recent years. Fortunately, populations still exist in extreme southern Wyoming (Laramie County) and was recently relocated in Larimer County, Colorado in late summer 1994. It occurs in alluvial soils on stream terraces; these sites are generally moist, but may not be wet enough to qualify as wetlands by current federal definitions. The Colorado Butterfly Weed differs from the New Mexico Butterfly Weed (Gaura neomexicana ssp. neomexicana) in that the stem of the latter has, in addition to short pubescence, scattered long (villous) hairs; it also has at least some glandular pubescence in the inflorescence. The latter is known from New Mexico and Archuleta County in Colorado. The Colorado Butterfly Weed flowers from late June through August, achieving an overall height of 16 to 36 in. (40 to 90 cm). It is typically branched from the lower half of the stem, with the branches arching gently upward to produce a "candelabra" effect. The flowers are large, with four pinkish-white 8 to 10 mm petals arranged on one side of the floral circumference (Figure 2). Perhaps the most similar plant known to occur in the Rocky Flats area is Small-flower Butterfly Weed (Gaura parviflora); this plant has much smaller flowers, with petals 1 to 2 mm long and usually dark pink in color, and has finely pubescent leaves and stems.

## **METHODS**

Existing Buffer Zone area maps, created as part of 1992 studies, indicating potential habitat and degraded habitat for Ute Ladies'-Tresses were used to determine the areas to be searched during this study (attached map).

Potential Colorado Butterfly Weed habitat was identified during 1993 along the drainage ways of the Buffer Zone area - (from north to south) Rock Creek, Walnut Creek, Woman Creek, and "Smart Ditch" (which encompasses the natural drainage that supplies Smart Ditch), and tributaries. Suitable habitat in these areas consisted of the alluvium across the drainage bottom between the side-slopes. In some areas, parts of this alluvial bottom area were probably somewhat too wet or too dry, but, in order to be thorough, they were searched nonetheless.

Areas of potential habitat were visited twice between the period of July 24 and August 31, 1994, with visits to any one locale occurring no closer than two weeks apart, in accordance with U.S. Fish and Wildlife Service (USFWS) Ute Ladies'-Tresses survey guidelines published July 12, 1992. Surveys consisted of pedestrian traverse, covering an area no wider than 5 meters at any one pass.

In order to install fresh search images for Ute Ladies'-Tresses orchid in the minds of all personnel involved, known populations of the Ute Ladies'-Tresses and Colorado Butterfly Weed were visited before beginning 1994 studies in the Rocky Flats Buffer Zone. Ute Ladies'-Tresses was observed at the "Turnpike" population near 55th and South Boulder Road in Boulder on August 1, 1994 and again on August 15, 1994 (Figure 1). Colorado Butterfly Weed had been observed and photographed at its nearest natural occurrence at Warren Air Force Base west of Cheyenne, Wyoming (Figure 2) on July 23, 1993. Photographs of both species were available in the field for search image refreshment.

## RESULTS

**Refined Identification of Potential Ute Ladies'-Tresses Habitat**  
Areas of the Buffer Zone shown on the attached map that were determined to be potential Ute Ladies'-Tresses habitat in 1992 studies, refined by 1993 observations, were still the most suitable Ute Ladies'-Tresses habitat following 1994 observations. Much of the habitat that is sufficiently moist and otherwise suitable for the orchid has been substantially altered through the invasion of Canada thistle (Breea (Cirsium) arvense). Dense growth of this noxious weed chokes out many other wetland plants and probably eliminates any chance that the orchid could occur there.

### **Absence of Ute Ladies'-Tresses**

No individuals of Spiranthes diluvialis were observed during the 1994 surveys.

### **Absence of Colorado Butterfly Weed**

No individuals of Gaura neomexicana ssp. coloradensis were observed during the 1994 surveys.

## DISCUSSION

### **Characterization of Potential Ute Ladies'-Tresses Habitat**

Although no orchid plants were found, this is not for lack of favorable habitat conditions. The orchid would probably (based on what is presently known) occur at these sites if it ever occurs on the Rocky Flats site. The high suitability of these sites is indicated by the presence of the wetland plants blue vervain (Verbena hastata), great lobelia (Lobelia siphilitica), and/or swamp milkweed (Asclepias incarnata). Presence of these "indicator" plants in an area of moderate to low cover of other wetland plant species and without substantial invasion by Canada thistle (Cirsium arvense) suggests high quality habitat for Spiranthes diluvialis. Such areas of potential habitat are shown on the attached map. Although the 1992, 1993, and 1994 searches of these areas did not locate any individuals of

the orchid, there is yet a possibility that the plant could make its presence apparent. Other potential habitats for the orchid in the Boulder-Jefferson County area have been examined with negative results for more than 5 years before the orchid finally made a flowering appearance.

#### **Management of Potential Ute Ladies'-Tresses Habitat**

As mentioned above, much of the wetland habitat on the Rocky Flats site that could be Ute Ladies'-Tresses habitat is severely degraded by the invasion of Canada thistle. In the central and northern Great Plains and lower mountain areas, this weed is a common invader in moist grassland/wetland vegetation that has had a history of grazing by domestic animals. Typically, after initial infestation, the thistle is not a problem while the lands are being grazed prudently; however, as a reaction to complete removal of livestock (as has happened in the Buffer Zone), thistle often proliferates. E.G. & G. has undertaken a weed control program to control the abundance of Canada thistle, as well as musk thistle and other problem plants.

At such time as a recovery plan for the species were to necessitate location of suitable habitat for propagated Ute Ladies'-Tresses orchids, the best habitats at Rocky Flats, especially areas around Antelope Springs and sideslope seeps above Rock Creek would potentially be good recipient sites.

#### **Rocky Flats Buffer Zone as Potential Habitat for Colorado Butterfly Weed**

Evidence available from observation of the Colorado Butterfly Weed populations at Warren Air Force Base suggests that several areas along the drainages of the Rocky Flats Buffer Zone would satisfy the apparent basic habitat needs of the plant. These are 1) alluvial substrate, 2) moderate moisture availability, and 3) sparse to moderate competing vegetation cover. The sites at Warren AFB are sufficiently dry that they would probably not qualify as wetlands by standards such as those used by the U.S. Army Corps of Engineers. Although the Colorado Butterfly Weed plants at Warren AFB do not occur beneath willows, there are sandbar

willows (Salix exigua) nearby. Such sites exist in fair abundance along Woman Creek above the C-series ponds and along Rock Creek. Walnut Creek has limited natural alluvial terraces still extant. The "Smart Ditch" drainages in the southern part of the Buffer Zone are largely incised drainages with little natural development of terraces, although some very narrow and young terraces associated with the active channel along some of the upper portions of Smart Ditch are potential habitat.

Although no Colorado Butterfly Weed plants were found during the 1993 or 1994 surveys, the presence of potential habitat suggests that the plant, a biennial, could germinate and establish at a future time in the RFP Buffer Zone. Such establishment might either occur as the result of natural seed dispersal, or as a result of planting as part of a species recovery plan, should the plant eventually be listed as Threatened or Endangered.

## QUALIFICATIONS OF SURVEYORS

David L. Buckner

**Education:** B.A., M.A., and Ph.D. in Plant Ecology, University of Colorado at Boulder.

**Rare Plant Survey Experience (representative):**

Asclepias ruthiae, Grand Co., Utah, 1982; Stellaria irrigua, La Plata County, Colorado; Sclerocactus glaucus, Mesa & Garfield Counties, Colorado, 1987; Penstemon harringtonii, Eagle, Grand, and Routt Counties, Colorado, 1982, 1990, 1991.

**Familiarity with Spiranthes diluvialis:** Observation of flowering populations in Boulder County, 1991, 1992, 1993, and 1994; observation of sprouting individuals in Boulder County populations, January to April, 1992.

**Familiarity with Gaura neomexicana ssp. coloradensis:** Observation of flowering populations at Warren Air Force Base, Laramie County, WY, July 1993.

**Documentation of Familiarity:** See Figures 1 and 2 of this report.

**Contacted References:** William F. Jennings, Louisville, Colorado.

William F. Jennings

**Education:** B.S., M.S. Geology, University of Colorado at Boulder.

**Rare Plant Survey Experience (representative):**

Spiranthes diluvialis, Boulder and Jefferson Counties, Colorado,

1987, 1988, 1990, 1991, 1992, 1993 and 1994; Aletes humilis, Larimer County, Colorado, 1989 and 1990; Limnorchis zothecina, Mesa, Montrose, and San Miguel Counties, Colorado, 1991; Sisyrinchium pallidum, Park County, Colorado, 1990; Physaria bellii, Boulder, Larimer Counties, Colorado, 1989.

**Familiarity with Spiranthes diluvialis:** Observation of flowering populations in Jefferson County, most years since 1981. Observation of flowering populations in Boulder County all years since 1985. Also observed flowering and fruiting plants in Daggett County, Utah, 1981 and 1989, Uintah County, Utah, 1989 (overwinter rosette, 1990), Wayne County, Utah, 1989, Garfield County, Utah, 1989. Research cited in USFWS Final Rule Listing S. diluvialis as a threatened species. Assistance acknowledged by C. J. Sheviak in original description of species (Brittonia 36:8-14). Observation of sprouting individuals in Boulder County populations, Oct. 1989, Feb. 1990 and Jan. to April, 1992. Observation of sprouting individuals in Jefferson County populations March to April, 1992, 1993, and 1994.

**Familiarity with Gaura neomexicana ssp. coloradensis:** Observation of flowering populations, Laramie County, WY, July 1988.

**Documentation of Familiarity:** See Figure 1 of this report; photographs and text for S. diluvialis in Rare Plants of Colorado, Colorado Native Plant Society (1989).

John A. Carney

**Education:** B.A., University of Michigan

**Rare Plant Survey Experience:** Spiranthes diluvialis, Boulder County, Colorado, 1993 Rocky Flats Buffer Zone Project, and City of Westminster Standley Lake Diversion Project.

**Familiarity with Spiranthes diluvialis:** Observation of flowering populations at the Turnpike site in Boulder County, July and Aug., 1993, August 1994.

**Familiarity with Gaura neomexicana ssp. coloradensis:** Observation of photographs from flowering populations at Warren Air Force Base, Laramie County, WY, July 1993.

**Documentation of Familiarity:** See Figures 1 and 2 of this report.

**Contacted References:** William F. Jennings, Louisville, Colorado; David L. Buckner, Boulder, Colorado.

Karen L. Prentice

**Education:** B.A., The Evergreen State College, Olympia, WA

**Rare Plant Survey Experience:** Spiranthes diluvialis and Gaura neomexicana ssp. coloradensis Jefferson County, Colorado, 1993 Rocky Flats Buffer Zone Project, and City of Westminster Standley Lake Diversion Project.

**Familiarity with Spiranthes diluvialis:** Observation of flowering populations at the Turnpike site in Boulder County, July and Aug., 1993, August 1994.

**Familiarity with Gaura neomexicana ssp. coloradensis:** Observation of flowering populations at Warren Air Force Base, Laramie County, WY, July 1993.



Figure 1. Ute Ladies'-Tresses orchid growing in Boulder County "Turnpike" population, August 1994.

**Documentation of Familiarity:** See Figures 1 and 2 of this report.

**Contacted References:** William F. Jennings, Louisville, Colorado; David L. Buckner, Boulder, Colorado.

Cynthia M. Pritekel

**Education:** B.A., University of Colorado, Boulder, CO

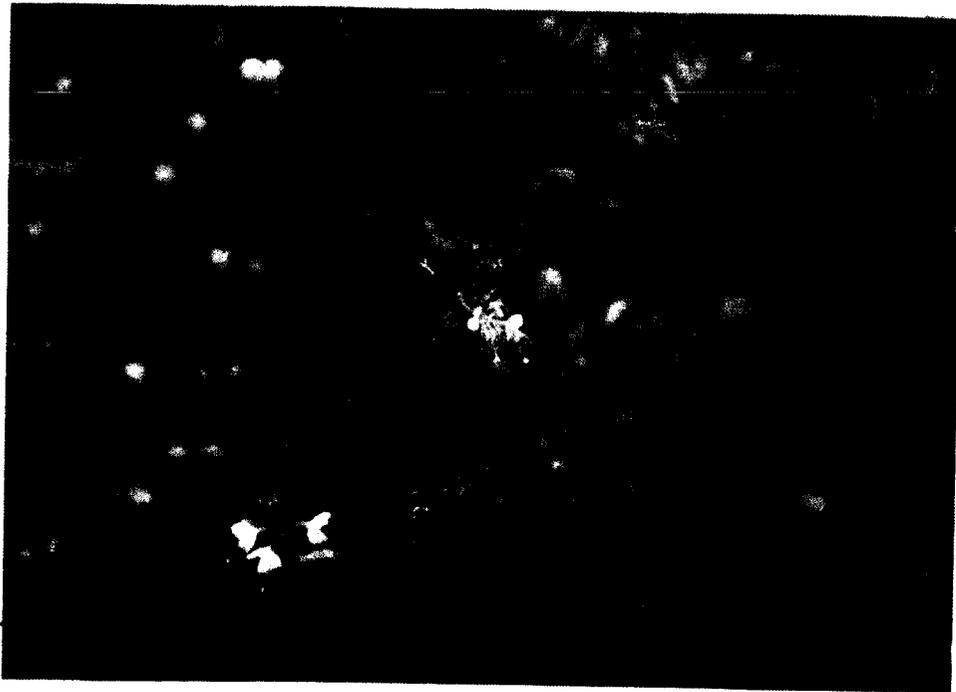
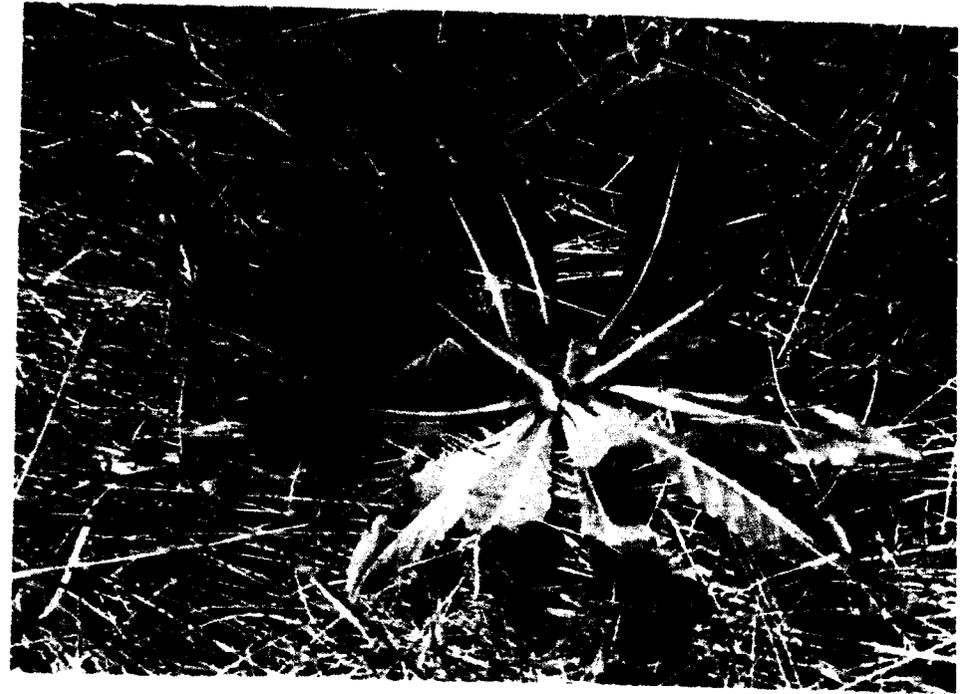
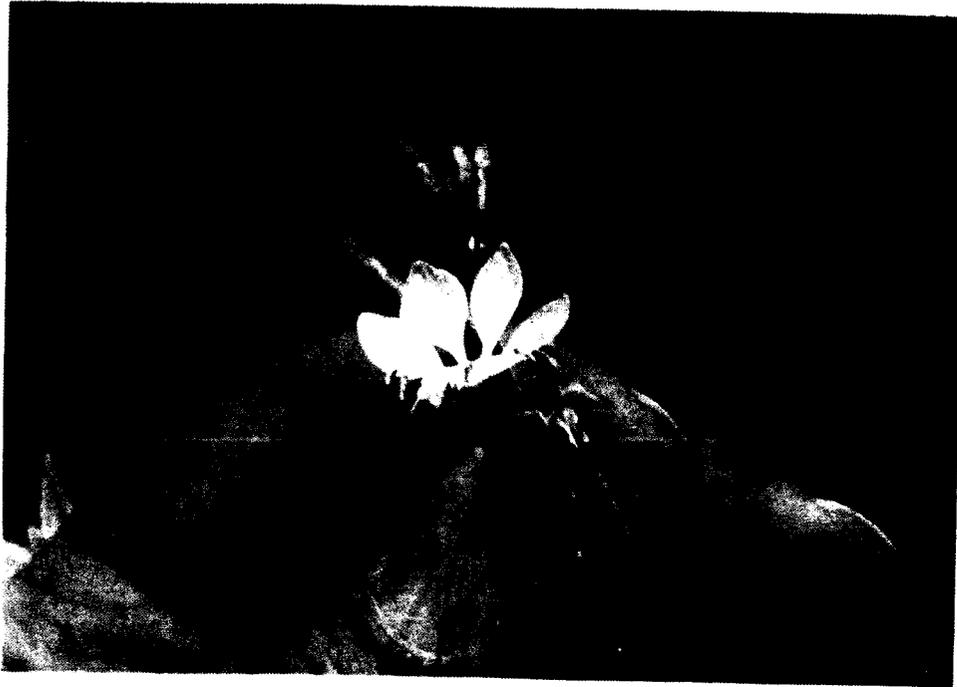
**Rare Plant Survey Experience:** Spiranthes diluvialis, Boulder County, Colorado, 1994 City of Westminster Standley Lake Diversion Project.

**Familiarity with Spiranthes diluvialis:** Observation of flowering populations at the Turnpike site in Boulder County, Aug., 1994.

**Familiarity with Gaura neomexicana ssp. coloradensis:** Observation of photographs from flowering populations at Warren Air Force Base, Laramie County, WY, July 1993.

**Documentation of Familiarity:** See Figures 1 and 2 of this report.

**Contacted References:** William F. Jennings, Louisville, Colorado; David L. Buckner, Boulder, Colorado.



**Figure 2.** Colorado Butterfly Weed growing in Laramie County  
on Warren Air Force Base, Wyoming - July 23, 1993

# Ute Ladies' Tresses Survey and Colorado Butterfly Weed, Buffer Zone 1994

## Habitat Types

-  Potential Ute Ladies' - Tresses Habitat
-  Potential Colorado Butterfly Weed Habitat
-  Buildings or other structures
-  Lakes and ponds
-  Streams, ditches, or other drainage features
-  Fences
-  Contours (20' intervals)
-  Rocky Flats boundary
-  Paved roads
-  Dirt roads

**DATA SOURCE:**  
Buildings, roads, and fences provided by  
Facilities Engr.,  
EG&G Rocky Flats, Inc. - 1991.  
Hydrology provided by  
USGS - (date unknown)

**DISCLAIMER:**  
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Scale = 1 : 20240  
1 inch represents approximately 1696.66 feet  
0 100 2000ft

State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD27

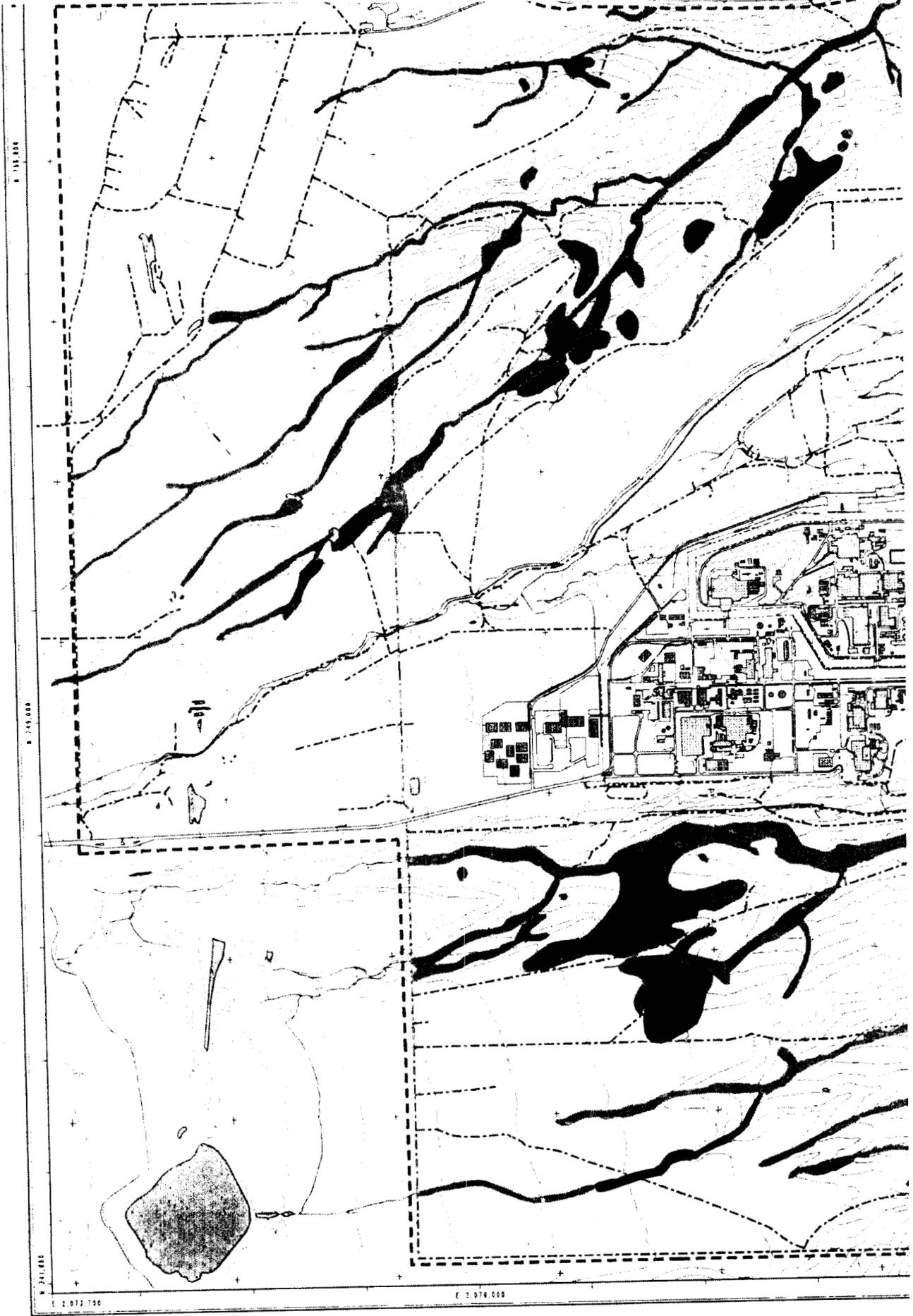
U.S. Department of Energy  
Rocky Flats Environmental Technology Site

Prepared by:  
**EG&G ROCKY FLATS**

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PROJECT NO.	BY / DEPARTMENT	DATE
None Assigned	GIS Analyst: Wendell Cheeka/EP/GRS	10/31/94
MAP ID	Checked:	
ute-0001	Approved: Merrisa Murdoch EP/EWM	
DATE CREATED		
October 31, 1994		

Form 10/31/94 11:18:16 AM Rocky Flats Environmental Technology Site



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