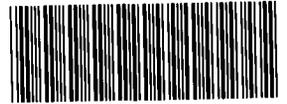


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September 20, 1995

95-RF-07273
95-RM-ER-009-DOE

Jessie M. Roberson
Manager
Environmental Restoration Program Division
DOE, RFFO

Attn: C. L. Row

SUBMITTAL OF THE ECOLOGICAL MONITORING PROGRAM FOURTH QUARTER REPORT - AMP-102-95

Action: None

Enclosed is the Ecological Monitoring Program Fourth Quarterly Report for Fiscal Year 1995. This report fulfills Milestones 614055411, 614055421, 614055431, 614055441, 614055451, 614055461, and 614055481.

If you have any questions or comments regarding this transmittal, please contact Jeff Krause of my staff at extension 3363 or digital page 5331.

Sincerely,

Alan M. Parker
Vice President
Environmental Restoration Projects



JDK:jg

Orig. and 1 cc - J. M. Roberson

Enclosure:
As Stated

- cc:
- C. S. Evans - RMRS w/ Encl (080)
 - T. G. Hedahl - KH w/ Encl (T130C)
 - J. D. Krause - RMRS w/ Encl (T130H)
 - L. E. Woods - KH w/ Encl (T130B)
 - Correspondence Control w/Encl (T130G)
 - ERP Project File (2)
 - DOE Order #5400.1
 - 22.053.F

ADMIN RECCRD

SW-A-004174

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INTRODUCTION

As with the rest of Rocky Flats, the Ecological Monitoring Program (EcMP) has undergone major changes in the last quarter of FY95. RMRS, LLC, has taken over the field ecology work from EG&G; our staff has been reduced from 15 to 6 (with another in Kaiser Hill); and the program is changing focus from long-term monitoring to compliance support. Work force restructuring has affected the scope of individual EcMP modules. All ecology personnel directly involved with aquatic sampling, two of the primary staff members responsible for the small mammal module, and the technical lead for the soil invertebrates module were involuntarily separated from EG&G in June.

This is the final EcMP report; in FY96, the Ecology team (formerly "Ecology and Watershed Management") will be consolidated under a single work package.

The following report gives the current status of the EcMP technical modules.

AQUATIC ECOLOGY

The outside laboratory contract with Ecosystem Testing Design, Inc. (ETDI) to process aquatic samples was closed in mid-July. Therefore, there was no aquatics activity, including the planned "Seep Characterization Study," during the fourth quarter of FY95.

Possible projects during FY96 would be sampling for National Resource Damage Assessment injury determination.

TERRESTRIAL VEGETATION

The spring terrestrial vegetation sampling session at the EcMP permanent sites for 1995 was completed in early July. Species richness was determined by sampling a total of 60 belt transects (five per site). These data are currently in the final stages of data entry and quality assurance and will be available for analysis in the near future.

The fall terrestrial vegetation sampling at the EcMP permanent sites was scaled back to accommodate the fewer number of Ecology personnel available. Species richness and vegetation cover were sampled from mid-August through September. A total of 60 belt transects (species richness) and 60 point-intercept transects (vegetation cover) were sampled. The belt transects and point-intercept transects were sampled to provide two complete years of data at these reference sites. No production plot sampling was conducted because two complete years of data already exist for the production plot data. The belt transect and point-intercept transect data are currently in the process of data entry and quality assurance and will be available for analysis during the latter part of 1995.

Plant collections were also made during the growing season this year to improve the quality of the Site herbarium. Collecting was conducted to provide a voucher specimen for each of the species listed on the Current Approved Species Code List (CASCL). The vouchers act as a quality assurance check for the vegetation work conducted for regulatory and compliance activities. Ecology personnel hope to complete the herbarium after additional collections are made during the 1996 growing season.

SMALL MAMMALS

General Small Mammal Trapping Activities

The emphasis of the small mammal module has changed from characterizing small mammal communities at permanent sites to conducting Preble's Meadow Jumping Mouse surveys in areas influenced by remediation and construction projects. The scope of the module has been reduced

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due to staff reductions and a change in emphasis to compliance activities.

The fall small mammal trapping activities at the 12 EcMP permanent sample sites has been canceled for this year. The two prior years, 1993 and 1994, spring and fall sampling have provided some data to characterize the small mammal communities in the Site buffer zone. These two years of trapping data and habitat characterization coupled with environmental evaluation data from the Operable Units make up one of the largest bodies of information for any of the ecological components under EcMP. Two years of data from the permanent sites, however, do not provide sufficient information for population or community trend analysis. At a minimum, an additional year of both spring and fall trapping would be needed to establish trends.

Unfortunately, trapping in 1995 was canceled during a year when anecdotal evidence points to a crash in small mammal populations, presumably from Bubonic plague. Plague reduced prairie dog populations in Boulder and Jefferson counties in 1994. A 1995 trapping effort would have provided information on natural population fluctuations of small mammals at the permanent sites. The 1994 plague is an example of how rodent populations can fluctuate greatly from season to season because of natural phenomena. Long term monitoring measures the "pulse rate" of these natural fluctuations. This is an important consideration when evaluating ecological health and diversity for environmental evaluations, ecological risk assessments, natural resource damage assessments, and reclamation monitoring.

Preble's Meadow Jumping Mouse Surveys

Three activities surrounding the Preble's Meadow Jumping Mouse (PMJM) were conducted during the fourth quarter; trapping in the Protected Area (PA), trapping for the Dam Toe Slope Sand/Rock Blanket project, and interpreting DOE guidance for administrative classification of PMJM habitat.

PA activities included trapping three areas, the Bowman's Pond Area, the Building 371 Gulch area and the "southeast park" (west of Building 991). The Building 371 gulch is the location for the proposed PIDAS reconfiguration project. All areas include marginal to likely habitat for PMJM. The U.S. Fish and Wildlife Interim Survey Guidelines for Preble's Meadow Jumping Mouse were followed during trapping. After 1,435 trap-nights with the largest effort in the building 371 gulch area, no PMJM were captured.

Trapping conducted under the Dam Toe Slope Sand/Rock Blanket project took place at Ponds B2 and B4. No PMJM were found in the marginal habitat at Pond B2, but one individual was captured below Pond B4. Following the Dam Toe Slope Sand/Rock Blanket Study plan, Pond B4 was trapped one week prior to construction of the sand/rock blanket, again during construction, and a final time after the project was complete. The study objective was to see how the project disturbance affects the PMJM in the vicinity. Results will be provided in a separate report.

The RMRS Ecology team received direction from Kaiser-Hill to implement the Preble's Meadow Jumping Mouse Interim Policy, Rev 4, provided by DOE, RFFO. The policy states that the probable impacts to PMJM from a project must be assessed when the project work area falls within "Essential Habitat" or "Essential Habitat Extension." These two habitat delineations along with "Probable Range" have been proposed by DOE, RFFO. The project impact assessment is conducted by the "DOE contractor's ecology specialists." The policy stipulates a two week review period for the DOE, RFFO Endangered Species Act Coordinator before the project can receive final approval to start.

ECOSYSTEM FUNCTIONS

A contract for laboratory analysis of ecosystem functions is now in place again after it was

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inadvertently cancelled during the transition from EG&G to Kaiser Hill. Ecology staff anticipate collecting samples from background sites and from sites that may be injured either by CERCLA releases or by remedial activities. These data provide information on the loss of natural services from injuries under the Natural Resource Damage Assessment regulations.

Data were received from 20 samples sent to the contracted laboratory in January, 1995. These data represent randomly-chosen sites from each community type. These winter-time samples should reveal the normal seasonal variations in ecosystem functions. These data have not been summarized or statistically analyzed yet. The data set will be completed when results from further samples are received.

SOIL INVERTEBRATES

All data files and contract documentation existing as of June, 1995, were given to the Ecology database coordinator. No new samples have been collected since the last quarterly report. Data from 20 samples collected in January, 1995, were received. These samples were collected from the same sites as the ecosystem function samples. These data will be examined along with any data from future samples as they may become available.

RECLAMATION MONITORING

Ecology staff sampled the reclamation success of the OU1 reconstructed wetland area on the 881 Hillside during August. A report was sent to the Environmental Protection Agency at the end of August.

Vegetation sampling of two reclaimed areas onsite were conducted by Ecology staff in the fall. Species richness and vegetation cover was determined on the 881 Hillside reclaimed area by belt transects and point-intercept transects, respectively. A qualitative sampling of the Systematic Evaluation Program Trench revegetation success was conducted by Ecology staff during September as well. Data from both sites are currently in the process of data entry and quality assurance and will be available for analysis during the latter part of 1995.

TERRESTRIAL ARTHROPODS

Laboratory Activity

Taxonomic information for the 1994 sampling effort from the laboratory subcontract with Colorado State University (CSU) was received in late May. The data have been checked for quality assurance and uploaded in the Terrestrial Arthropod Database:

On June 30th, the subcontract with the CSU Entomology Laboratory (Task ASC 501058J03) was inadvertently terminated. The contract was reopened in August with sufficient funds to finish the FY95 sampling plans. Terrestrial arthropods is an ecological component that has not been properly characterized. The cost of finishing the scheduled activities was minimal compared to simply ceasing the activities with no final results.

Field Activities

RMRS ecology team personnel collected 64 taxonomic samples during two sampling sessions in July and September. The methods of collection were sweep netting, pitfall traps, malaise traps and hand selecting. Hand selecting was used to collect arthropod taxa not susceptible to collection using any other method.

Samples were shipped to the CSU Entomology Laboratory in September. After results of taxonomic analysis are received, a year-to-year comparison can be made for late summer as well

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as a characterization for an entire season (late spring, early summer and late summer). The relative abundance and taxonomic richness for the sampled reference sites can then be documented for comparisons to arthropod abundance and richness in Operable Units.

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