Department of Energy
Office of Civilian Radioactive Waste Management
Yucca Mountain Site Characterization Office
P.O. Box 30307
North Las Vegas, NV 89036-0307

QA: N/A

JAN 27 1999

OVERNIGHT MAIL

Sandra L. Wastler
High Level Waste & Uranium Recovery
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards
U.S. Nuclear Regulatory Commission
2 White Flint North
Rockville, MD 20852

SUBMITTAL OF PARTICIPANTS' MONTHLY PROGRESS REPORT

As you have requested, the U.S. Nuclear Regulatory Commission is on distribution to receive a copy of the Yucca Mountain Site Characterization Project participants' monthly status report on a regular basis. Enclosed is the U.S. Geological Survey Progress Report for December 1998.

If you have any questions, please contact April V. Gil at (702) 794-5578.

Stephan Brocoum
Acting Assistant Manager, Office of
Licensing and Regulatory Compliance

OL&RC:AVG-0704

Enclosure:
Ltr, 1/14/99, Craig to Kozai, w/encl.

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NH03
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WM-11

YMP-5

cc w/encl:
L. H. Barrett, DOE/HQ (RW-1) FORS
A. B. Brownstein, DOE/HQ (RW-52) FORS
C. E. Einberg, DOE/HQ (RW-52) FORS
S. H. Hanauer, DOE/HQ (RW-2) FORS
R. A. Milner, DOE/HQ (RW-2) FORS
N. H. Slater, DOE/HQ (RW-52) FORS
Richard Major, ACNW, Washington, DC
B. J. Garrick, ACNW, Washington, DC
J. K. Kessler, EPRI, Palo Alto, CA
Steve Kraft, NEI, Washington, DC
W. D. Barnard, NWTRB, Arlington, VA
R. R. Loux, State of Nevada, Carson City, NV
John Meder, State of Nevada, Carson City, NV
Jim Regan, Churchill County, Fallon, NV
D. A. Bechtel, Clark County, Las Vegas, NV
Susan Dudley, Esmeralda County, Goldfield, NV
Leonard Fiorenzi, Eureka County, Eureka, NV
B. R. Mettam, Inyo County, Independence, CA
Tammy Manzini, Lander County, Austin, NV
Eve Culverwell, Lincoln County, Caliente, NV
Jackie Wallis, Mineral County, Hawthorne, NV
L. W. Bradshaw, Nye County, Pahrump, NV
Jerry McKnight, Nye County, Tonopah, NV
Wayne Cameron, White Pine County, Ely, NV
R. I. Holden, National Congress of American Indians, Washington, DC
Tom Burton, Nevada Indian Environmental Coalition, Reno, NV
K. L. Ashe, M&O, Las Vegas, NV
M. A. Lugo, M&O, Las Vegas, NV
E. F. O'Neill, M&O, Las Vegas, NV
C. M. Newbury, DOE/YMSCO, Las Vegas, NV
OL&RC Library
Records Processing Center = "25"

United States Department of the Interior

U.S. GEOLOGICAL SURVEY
Box 25046 M.S. 425
Denver Federal Center
Denver, Colorado 80225

IN REPLY REFER TO:

INFORMATION ONLY

January 14, 1999

Wayne Kozai
Yucca Mountain Site Characterization
Project Office
U. S. Department of Energy
P.O. Box 30307
Las Vegas, Nevada 89036-0307

SUBJECT: Yucca Mountain Project Branch - U.S. Geological Survey (YMPB-USGS) Progress Report, December, 1998

Attached is the USGS progress report in the required format for the month of December, 1998.

If you have any questions or need further information, please call Raye Ritchey Arnold at (303)236-0516, ext. 282.

Sincerely,

Raye Ritchey Arnold

for Robert W. Craig
Technical Project Officer
Yucca Mountain Project Branch
U.S. Geological Survey

Enclosure:
cc: J. Bresee, DOE/OCRWM-HQ/Forrestal
S. Hanauer, DOE/Forrestal
R. Dyer, DOE, Las Vegas
C. Fox, DOE, Las Vegas
A. Gil, DOE, Las Vegas
T. Gunter, DOE, Las Vegas
S. Morris, DOE, Las Vegas

07.11

Enclosure

R. Patterson, DOE, Las Vegas
R. Spence, DOE, Las Vegas
T. Sullivan, DOE, Las Vegas
M. Tynan, DOE, Las Vegas
D. Williams, DOE, Las Vegas
C. Glenn, NRC, Las Vegas (2 copies)
R. Wallace, USGS, Reston
K. Ashe, M&O/Duke, Las Vegas
P. Burke, M&O/TRW, Las Vegas
N. Biggar, M&O/Woodward & Clyde, Las Vegas
L. Hayes, M&O/TRW, Las vegas
C. Lugo, M&O/SAIC, Las Vegas
R. Craig, USGS, Las Vegas
M. Chornack, USGS, Denver
L. Ducret, USGS, Denver
W. Dudley, USGS, Denver
D. Edwards, USGS, Las Vegas
D. Gillies, USGS, Denver
D. Hoxie, USGS, Las Vegas
C. Hunter, USGS, Denver
R. Keefer, USGS, Denver
B. Parks, USGS, Denver
Z. Peterman, USGS, Denver
W. Scott, USGS, Las Vegas
R. Arnold, USGS, Denver
A. Whiteside, SAIC, Denver

U.S. GEOLOGICAL SURVEY
EXECUTIVE SUMMARY

December 1998

COORDINATION and PLANNING

The U.S. Geological Survey-Yucca Mountain Project Branch currently is processing some 53 documents prepared by USGS authors. Of these listed items, 33 are USGS reports (18 concerning geological topics and 15 concerning hydrologic topics), 15 are journal articles (five are geologic in topic and 10 are hydrologic), and five are abstracts for which records packages are in process. In December, thirteen QA deficiencies were resolved and sent to the Records Coordinator for transmittal to the RPC.

GEOLOGY

The underground mapping team continued work on geologic and geotechnical data from the ECRB Cross-Drift project, checking maps in the tunnel for consistency between detailed line surveys and full-periphery maps. Work began on a milestone report titled *Geology of the ECRB Cross Drift, Stations 0+00 to 26+64*. USGS staff performed technical reviews of full-periphery geologic maps of the Cross Drift from Stations 10+00 to 15+00. Bureau of Reclamation staff assisted in the seismic hazards assessment (PSHA) tour of the Cross Drift on December 2, and staff also participated at the request of DOE in the Drift Stability Workshop on December 9 and 10. Staff members accompanied members of the NWTRB in a field trip to examine the Cross Drift.

USGS staff submitted a report tentatively titled *Preliminary lithologic logs of boreholes USW UZ-7a and USW UZ-14 at Yucca Mountain, Nevada* (by D.C. Buesch and others) for technical review as a USGS open-file report on December 2. That review continued during December.

The structural studies group again provided support to several efforts. USGS staff and LANL personnel spent three days in the Cross Drift collecting samples for chlorine-36 analyses. Samples were collected from competent wall rock throughout the tunnel, with mining and TCO support. Sampled locations have been described in terms of their local structural setting and in relation to features mapped by the underground mapping team. Another sampling trip was planned for early January to collect the remaining portion of the 47 sample localities in the Cross Drift which have been identified to date. Staff continued responses to the review comments on USGS Scientific Notebook SN-0103, "Structural Description of ESF Sampling Localities." In fault-zone studies, hand samples taken from fault zones in the vicinity of the Central Block of Yucca Mountain and in Solitario Canyon were sent for thin-section preparation. Fault-zone data collected at three faults during November were tabulated in digital format. In support to TSPA/VA and LA, staff spent much of the month modifying text which accompanies the 1:50,000-scale geologic map to conform to the new document-development guidelines.

- In unscheduled work, USGS staff also spent several days with the PSHA team, evaluating the Solitario Canyon fault. That work involved a joint USGS/DOE/PSHA visit to the Cross Drift and included a write-up of findings. Staff spent additional days modifying figures from the Geology section of the Site Description for presentation on the M&O web page.

HYDROLOGY

Unsaturated-Zone Hydrology

Evaluation of percolation flux across the repository horizon continued. Temperature, relative humidity, and wind-speed data were collected from monitoring stations located at Cross Drift Stations 0+25, 2+37, 2+88, 3+38, 10+03, 21+07, and 24+75. Temperature and relative humidity data were collected from the vent line at Cross Drift Station 0+00. Collection of temperature and relative humidity data on the TBM was discontinued. Water potential in the Cross Drift was monitored with 100 heat-dissipation (HD) probes installed in 2-m drill holes placed at 25-m intervals from Cross-Drift Station 0+50 to Station 25+25. Measured water potentials indicated that the rock mass is wetter (that is, the potentials are higher) and that the moisture is more uniformly distributed than expected, consistent with prior indications reported last month. A programming mistake in the data-logger program used to collect HD probe data from the Cross Drift was discovered and corrected. Previously collected data also were corrected. The correction resulted in measured water potentials that are slightly lower and less uniformly distributed, but even with these corrections, the rock mass is wetter and the moisture is more evenly distributed than previously expected. The measured potentials now range from –6.0 bars to about –0.5 bars. (The potentials previously were thought to range from and –0.5 and –0.2 bars.) On-going preliminary laboratory tests and field measurements continued to indicate that the Cross-Drift water-potential measurements are accurate after correction for the data-logger programming mistake. Probes installed at shallower depths into the Cross-Drift wall are showing signs of drying due to ventilation. The drying front is progressing into the wall as expected, demonstrating that the Cross-Drift HD probes would read lower potentials if the rock were drier. Laboratory tests and field measurements using sand as a contact medium instead of silica flour provided the same wet-potential measurements regardless of the contact medium. Laboratory measurements in rocks brought to a known water potential on pressure pots also confirmed that the probes provide accurate measurements. A tensiometer was installed in the Cross Drift to measure the water potential independently.

In air-permeability work, the Northern Ghost Dance Fault Testing data package has completed technical review and been submitted for final QA review. Report preparation on the Ghost Dance fault pneumatic and tracer testing continued. USGS staff successfully developed both an equivalent-continuum model and a discrete-fracture model that replicate the field-test pressure and tracer-transport responses. The USGS authors are reviewing the report, data, and references and making revisions to meet the new QA requirements for reports.

Monitoring of temperature, relative humidity, and barometric pressure continued in the ESF Main Drift and niches, and in Alcoves #1 and #7. Data are being collected from 51 HD probes in Alcove #7. Eight surface-based HD probes monitored the soil moisture potential in and adjacent to the Ghost Dance fault. Dust samples were collected in Alcove #7. Twenty-one HD probes monitored the rock water potential in Niche #1. Monitoring of Alcove #1 with 21 HD probes and eight sets of time-domain reflectometry probes continued. Temperature, relative humidity, and barometric pressure currently are being measured in that alcove. Eight HD probes monitored changes in water potential at the surface soil/rock interface. All of the sample collection trays have been washed and reinstalled in the alcove. Water application was resumed on November 16, and to date, 1546 gallons of water have been applied to the plot. No water has yet been detected in the alcove. On December 8, breaks were found in the water-supply line. Temperatures had dropped below freezing for an extended period causing the pipes to freeze. New parts and replacement pipe have been ordered and will be installed as quickly as possible. All data are being assembled for a data-package submittal. Data also are being collected, reviewed, and assembled for the general ESF-monitoring data package

In moisture-monitoring activities in the ECRB Cross Drift, nine temperature and relative humidity stations were monitored. Five of those stations also monitored wind speed. Some 106 HD probes recorded soil moisture potential 2 m into the rock wall, using probes placed every 25 m in the Cross Drift. Fifty HQ-size drill holes periodically are neutron-logged to monitor the tunnel-wall dry-out. Two tensiometers with transducers were installed at two depths (60 cm and 200 cm) in the tunnel wall. Those probes were placed next to a set of HD probes to check operation of the probes. All data collection continued, and data are being assembled in data-package format.

Staff continued familiarization efforts with the new inductively coupled plasma mass spectrometer (ICP-MS) in support of isotopic analyses in drift-scale tests (as well as in support of more general UZ hydrochemical work). Semi-quantitative analyses of multiple test samples were performed, and standards and expendables for quantitative analysis were obtained.

In work on hydrochemistry, P. Glynn (USGS) has completed geochemical modeling for the draft report *^{14}C age correction on perched water at Yucca Mountain, Nevada, using the NETPATH geochemical model.* Writing of that report continued. Strontium isotopic analysis of core samples from SD-12 also continued, for Sr compositions of both pore water and rock. Pore-water analyses are complete, and whole rock analyses continued. Staff presented pore-water Sr results and the linkage to Sr in calcite fracture coatings to NWTRB board members and NWTRB staff in an informal briefing in Denver on December 7. USGS staff also attended the NWTRB geochemistry meeting held in Denver on December 14. Maintenance was performed on the Finnigan MAT262 thermal ionization mass spectrometer in December.

Hydrochemical work on cores continued on several fronts. Eight SD-6 and one CWAT #1 pore-water samples were counted for tritium concentration, and the data were reduced.

Pore water was extracted by centrifuge from two WT-24 and 12 SD-6 core samples; that water will be analyzed for major-ion chemistry. Pore water was extracted from 12 ESF and eight WT-24 core samples by vacuum distillation. Extracted pore water will be analyzed for tritium. Dissolved CO_2 and pore water were extracted from one ESF core sample. The CO_2 will be analyzed for carbon isotopes, and the pore water will be analyzed for tritium. Nineteen water samples, collected from SD-6 and WT-24 core samples using compression, centrifuge, and distillation methods, were delivered for isotopic analyses including D/H, $^{18}O/^{16}O$, and DIC [dissolved inorganic carbon, undifferentiated by species]. Pore-water collected by centrifuge, compression, and distillation during December was recorded in the water-collection data base. Results from water samples analyzed for tritium were recorded in the tritium data base. A data package containing stable isotope data from borehole UZ-14 was forwarded to the data-management group. A data package containing carbon-isotope data in support of the paper *^{14}C activity of the carbon dioxide obtained by vacuum-distillation and one-dimensional compression methods and tritium by enrichment on Yucca Mountain, Nevada, cores* was prepared, reviewed, and forwarded to the data-management group. Analyses of major ions in pore-water samples, performed by Huffman Laboratories, were compiled in a data package and sent for technical review. Staff provided technical review of data packages and assisted the data-management group in various data-package efforts.

Saturated-Zone Hydrology

The USGS will contribute to the LANL Level 3 milestone on testing the Prow Pass interval at the C-hole complex by providing two data packages and text. One data package will be for the concentrations of the 2,4,5 trifluorobenzoic acid (245 TFBA) and iodide tracers used in conservative tracer testing, and the other will cover pressures in the observation wells and pumping and re-injection rates. The text primarily will be in two stand-alone sections, one for hydraulic interpretations and the other for interpretation of the conservative tracer testing that the USGS conducted. The hydraulic-testing part, already written in stand-alone format in November, was condensed during December for inclusion into the LANL Level 3 milestone. Work on the conservative-tracer analysis section commenced in December and is expected to be completed during January 1999 for inclusion into the LANL milestone.

During December 1998, the USGS supported LANL in the Prow Pass reactive tracer testing at the C-holes, manning one 5-day shift during every 15-day period and providing as-needed consultation from Denver on running and maintaining the equipment and data-acquisition software at the site. While the reactive tracer test progressed, the conservative tracer tests that the USGS had initiated from c#3 to c#2 and from c#1 to c#2 also progressed concurrently. Samples of water from the pumped well, c#2, obtained at four-hour intervals, are being transported weekly from the C-holes to UNLV in Las Vegas for analysis. Analysis of those c#2 samples continued for iodide and 245 TFBA, the tracers injected into c#3 on June 17, 1998, and for 2,3,4,5 tetrafluorobenzoic acid (2345 TeFBA), the tracer injected into c#1 on July 31. On December 21, pumping out of

c#2 and re-injection into c#3 were stopped for the Christmas holiday. Pumping is expected to be restarted on January 4, 1999.

Water-level measurements were made at numerous wells during December, including UE-25 WT#16 on December 9; UE-25 WT#15 and UE-25 WT#13 on December 14; USW VH-1, USW WT-10, USW WT-7, and USW H-6 (upper and lower intervals) on December 15; UE-25 J-11, UE-25 J-12, and UE-25 WT#12 on December 16; UE-25 J-13, USW H-1 (tubes 1, 2, 3, and 4), USW H-4 (lower interval), and USW WT-2 on December 17; USW WT-1 on December 21; UE-25 WT-17 on December 22; and UE-25 WT-3 on December 23. No data were retrieved during December. The fourth-quarter FY1998 data package was submitted to the Technical Data Base on December 28, meeting Level 4 **milestone SPH38PM4 [Water-level data 4th quarter FY98: Data package to RPC/TDB].** All water-level data collected during October were processed and reviewed. October data are ready for final review prior to Records Center submittal. More water-level data than originally scheduled will be collected due to increases in funding of the water-level network.

Saturated-zone hydrologic testing of boreholes USW WT-24 and USW SD-6 remained stalled, awaiting funding in the case of WT-24 to complete the borehole into the lower volcanic aquifer. There was no drilling activity during December, with WT-24 at 2,834 ft below land surface (bls). No new hydrochemical samples have been collected. Existing data have been entered into the hydrochemical data base. The WT-24 perched-water report was submitted to (WRD) Colorado District for editorial review and to YMPB for transcription check and technical review. Editorial review and transcription check have been completed. Progress on SD-6 was also stalled (at a depth of 2,541 ft bls) with drilling gear still stuck in the bottom of the hole, and no drilling occurred during December. In other work on SZ hydrochemistry, samples were collected from Nye Country boreholes NC-EWDP-01DX and NC-EWDP-09SX during the week of December 14.

Work on the SZ flow models continued. In work on license-application flow-model sensitivity, planning continued with USGS and SNL staff for the upcoming Abstraction/Testing Workshop. Discussion covered the scope of the workshop, technical issues to be included, and possible participants. In other work on the hydrogeological framework/flow model, staff refined the list of MODFLOW input arrays required for the revised model and developed strategy for formatting. A 15-layer discretization scenario for the regional model and associated zone-array classes were developed. Staff developed a method for creating target head and flow tables for calibration. Errors in programming were corrected, and the programming was completed so that MODFLOWP works for convertible layers for both steady-state and transient simulations. MODFLOW2000 was modified so that parameters for vertical anisotropy and vertical hydraulic conductivity could be defined over parts of layers, and the test case used in QA documents for MODFLOWP was converted to MODFLOW2000, including all of the features of the first version of the Death Valley regional flow system (DVRFS) model. Staff produced a report describing changes to MODFLOWP and to MODFLOW2000 and verifying performance of the code using variations of the DVRFS test case. That report

and associated computer files are organized such that they can be incorporated into required QA reports verifying the performance of MODFLOW2000. Input files from DVRFS to MODFLOWP were converted to MODFLOW2000. The forward problem tested correctly, but an error was detected in the sensitivity calculations, which is being investigated. The MODFLOW2000 files were delivered for use in constructing the updated model. Efforts to parallelize MODFLOWP continued with ARSC staff. Sensitivities of the different processors are now being calculated correctly but still need to be accumulated to perform the regression. Work continued on the sensitivity report. The corrected results obtained last month were evaluated to determine the parameters that most likely are important to advective transport from beneath Yucca Mountain and the UGTA sites. Data sets produced by a post-processing program for the ADV package were modified based on suggestions made at the modeling meeting held in Tucson on December 3 and 4.

Numerous other efforts continued on regional SZ flow models. Source verification of UGTA spring sites and discharge measurements began, for eventual incorporation of data into the DVRFS modeling data base. Documentation was updated for the ACCESS data base and mapping of NWIS data. Staff attended the Bechtel/USGS Red Book and Surface Effects GIS Mapping Project informational meeting on December 16 to finalize information exchange as the Red Book data base is finalized. (The Red Book is the definitive publication, maintained by Bechtel, which contains information on all wells, boreholes, and tunnels on the NTS. The information, when available, will be used to update the USGS NWIS data base and thence the DVRFS data base.) Development of methodology to account for cumulative errors in water-level altitude measurements was initiated. Standardized quantification of errors will allow calculation of non-biased variance for head observations which will constrain the flow model. Staff created an EXCEL spreadsheet for entry of detailed DVRFS data. Spreadsheet flags facilitate linkage to model files. Work also began on an interface between the DVRFS data base and MODFLOW to create model input files directly from the ACCESS data base. The beta version of a dynamic analysis environment using ARCVIEW and ACCESS was tested on historical trends in water level and spring discharge. New GIS coverages were extended to the full Death Valley region. A new 83-m-resolution digital elevation model and shaded relief map were completed. A revision to procedure GP-01 ("Geologic Mapping") was written, and review began. Flight summary reports were obtained from NASA Ames Research Center for 1997 Mojave photography; some flight lines may be useful for detailed 1:24,000 mapping. Quaternary mapping (photointerpretive mapping and digital compilation) was completed, and bedrock boundaries for Nevares Peak and Bullfrog Mountain quadrangles were completed. Planning began with the National Park Service (NPS) for a Spring 1999 meeting of Death Valley researchers, including a Death Valley field trip. Planning also began for a multi-day conference on geologic and geophysical research in the Death Valley area, likewise intended for Spring 1999 and jointly funded by the USGS and NPS. Digitization (in AUTOCAD) of the Indian Springs 1:100,000 geologic quadrangle began. GIS coverages were compiled and exported to aid development of a standardized GIS data base for the DVRFS model. Regional hydrogeological surficial mapping units were correlated to Quaternary/Tertiary units used in the region, including units for detailed mapping in the Amargosa Desert. Additional

lithologic logs for existing boreholes in the northern Amargosa were compiled for correlation in the subsurface. Initial versions of several of the geologic cross sections for the Death Valley region were completed. Work continued on other geologic sections for the Death Valley flow model. Transfer of geologic facts from existing maps to a new mosaic (at a scale of 1:250,000) began. Digitization of cross sections continued. Hydrogeologically significant areas within the DVRFS were evaluated for additional detailed study. Efforts to update the hydrogeologic flow model continued, including evaluations to support calibration. Staff participated in meetings to refine various elements of regional recharge estimates. Improvements to the regional conceptual model were rasterized into the new 983 x 1300 grid domain. Calibration using stream-flow records continued. Work with hydrochemical data, regional flow paths, and entry into the regional data base also continued.

CLIMATE and PALEOHYDROLOGY

Fluid-inclusion studies have been expanded, and a revised work scope has been submitted. The work will be conducted in parallel with fluid-inclusion verification studies to be performed at UNLV. Pending completion of planning, further sample and data collection is on hold. Many samples remain to be collected and analyzed for U-series and U-Pb dating and for Sr and stable isotopes. In preparation for fluid-inclusion analysis of calcite, reactivation of geochemical procedure GCP-27 ("Determination of Temperature and Salinity from Mineral-Hosted Fluid Inclusions") was initiated. The procedure (rescinded in 1995) was revised and prepared for technical review.

Preparation of a report on fracture-mineral dating and chlorine-36 studies was initiated in November (with LANL staff participation) and continued in December. Due to budget constraints, LANL will not participate in a joint product, and the report will consist of a USGS open-file report based on the 1996 milestone report [3GQH450M: "Ages and origins of subsurface secondary minerals in the Exploratory Studies Facility (ESF)"]. The original report has been revised to improve organization and clarity of content and to meet USGS-WRD standards. The revised report was completed in late December and is being checked by co-authors prior to submittal to the YMPB Reports Unit. No sampling or verification trips to the ESF were conducted in December, but and additional ESF trip is scheduled for January, as is additional analytical work on North and South Ramp samples.

In work to develop a uranium-isotope evolution model for fracture minerals, UZ flow modelers at LBNL were contacted about running chemical evolution models using ^{234}U and ^{238}U as independent variables. That process should allow modeling of the evolution of $^{234}U/^{238}U$ ratios with depth through the Yucca Mountain UZ using a QA-accepted model code. Initial numerical modeling is expected by late January, but additional development time is anticipated.

WATER-RESOURCES MONITORING

- Ground-water levels were measured at 35 sites, and ground-water discharge was measured at one flowing well. Ground-water data collected during November were checked and filed. Staff coordinated concurrent steel- and electric-tape measurements for water levels between about 600 and 1500 ft below land surface and arranged to obtain periodic water-level measurements collected at seven sites as part of the site-characterization program. Data packages (including TDIF preparation) and the report describing water-level measurements for calendar year 1997 were prepared by USGS-ESIP, and the report was forwarded to USGS-YMPB on December 8 for policy and QA reviews.

USGS Level 3 Milestone Report

October 1, 1998 - December 31, 1998

Sorted by Baseline Date

Deliverable	Due Date	Expected Date	Completed Date	Comments
Letter Report: 4th Qtr FY98 Milestone Number: SSH14HM3	10/30/98	10/29/98	10/29/98	
Preliminary Geologic Map for SZ Site Area Milestone Number: SPG258M3	12/4/98	~~2/2/99~~ 3/5/99 RSH		
Ghost Dance Fault Data Pkg and Testing Report Milestone Number: SP3515M3	12/9/98	1/29/99		

USGS Level 4 Milestone Report

October 1, 1998 - December 31, 1998

Sorted by Baseline Date

Deliverable	Due Date	Expected Date	Completed Date	Comments
Cross-Drift Q Stratigraphic Picks to TDB Milestone Number: SPG470M4	10/15/98	12/1/98	12/1/98	
Water-Level Data 4th Qtr FY98 DP to RPC/TDB Milestone Number: SPH38PM4	11/30/98	12/31/98	12/31/98	
UZ-7a & UZ-14 Draft Rpt to Tech Review Milestone Number: SPG626M4	12/2/98	12/9/98	12/9/98	
1st Qtr Status of Data Package Development Milestone Number: SP37A1M4	12/30/98	1/15/99		
1st Qtr Status Supp Line Org Doc Issues/Backlog Milestone Number: SE9601M4	12/31/98	12/31/98	12/31/98	

USGS Level 4 Milestone Report

October 1, 1998 – December 31, 1998
Sorted by Baseline Date

Deliverable	Due Date	Expected Date	Completed Date	Comment
FY99 milestone (from FY98/outyears schedule) delivered in October				
Water-Level Altitude Data from the Periodic Network 10/1/97 through 6/30/98 Milestone SPH37KM4	10/30/98	10/30/98	10/9/98	Not in FY99 planning
Late FY98 milestones delivered in October				
Memo to TPO: Analy Cond for Input to Site Scale Mdl Milestone SPH253M4	9/30/98	9/30/98	10/2/98	
Memo to TPO: Analy Boundary Conds Oct-Jul 98 Milestone SPH225M4	9/30/98	9/30/98	10/2/98	
Memo to TPO: Chem/Iso Analy on Wtr Samples WT-17 Milestone SPC34CM4	9/15/97	9/30/98	10/8/98	

YMP PLANNING AND CONTROL SYSTEM (PACS

MONTHLY COST/FTE REPORT

Participant U.S. Geological Survey
Date Prepared 1/14/99 08:54 AM

Fiscal Month/Year December 31, 1998
Page 1 of 1

	CURRENT MONTH END						FISCAL YEAR		
SPAM	ACTUAL COSTS	PARTICIPANT HOURS	SUBCONTRACT HOURS	PURCHASE COMMITMENTS	SUBCONTRACT COMMITMENTS	ACCRUED COSTS	APPROVED BUDGET	APPROVED FUNDS	CUMMULATIVE COSTS
M2DX	53	592	865	0	331	0	639	0	142
M2NE	120	1314	490	0	60	0	1209	0	335
M2NL	295	5368	1961	0	524	0	3234	0	854
M2NU	44	497	0	0	204	0	1033	0	114
M2NW	425	5735	1212	0	572	0	2877	0	983
M2PP	45	934	194	0	78	0	669	0	132
M2PW	170	2329	402	0	165	0	2055	0	512
M2RF	9	269	0	0	0	0	75	0	25
	1161	17038	5124	0	1934	0	11791	0	3097

YMP PLANNING AND CONTROL SYSTEM (PACS

MONTHLY COST/FTE REPORT

Participant U.S. Geological Surve
Date Prepared 1/14/99 08:54 AM

Fiscal Month/Year December 31, 1998

	CURRENT MONTH END						FISCAL YEAR		
WBS ELEMENT	ACTUAL COSTS	PARTICIPANT HOURS	SUBCONTRACT HOURS	PURCHASE COMMITMENTS	SUBCONTRACT COMMITMENTS	ACCRUED COSTS	APPROVED BUDGET	APPROVED FUNDS	CUMMULATIVE COSTS
1.2.1	45	934	194	0	78	0	669	0	132
1.2.3	854	12619	3663	0	1361	0	7855	0	2199
1.2.5	49	302	865	0	331	0	651	0	125
1.2.8	33	446	0	0	0	0	462	0	98
1.2.9	45	873	130	0	85	0	601	0	136
1.2.12	10	408	0	0	0	0	100	0	29
1.2.15	125	1456	272	0	80	0	1454	0	376
	1161	17038	5124	0	1935	0	11792	0	3095

U.S. GEOLOGICAL SURVEY
ESTIMATED COSTS FOR October 1, 1998 December 31, 1[illegible]
1/11/99 11:50:06 AM

		OCT EST	NOV EST	DEC EST	JAN EST	FEB EST	MAR EST	APR EST	MAY EST	JUN EST	JUL EST	AUG EST	SEP EST	TOTAL
0G1CW81	Conduct Engineering Assurance Activit	38.0	36.6	38.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	113.35
81912019U1	Engineering Assurance FY99	38.0	36.6	38.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	113.35
	Personnel Qualifications - Deferred	3.0	3.9	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.25
0G1CW82	Support Line Org. Doc. Issues/Backlog	2.8	3.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.59
81912019UX	Support Line Organization, Docume	5.9	6.9	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.84
81912019		43.9	43.6	44.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	132.19
1.2.1		43.9	43.6	44.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	132.19
0G33124W89	Conduct Air-K & Hydrochemistry Testing	62.0	11.7	23.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	96.77
0G33124W8F	Characterize Seepage into Alcoves I	14.1	18.6	18.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	51.39
0G33124W8G	Characterize Seepage into Alcoves II	1.7	4.1	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.57
0G33127W82	Conduct Isotopic & Hydrochemical Anal	16.2	20.8	26.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	63.28
0G36221W81	Conduct Fluid Inclusion Studies	4.4	20.9	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.28
0G36221W83	Cond Frac Mineral Dtg & Iso Analy - ES	32.2	21.3	16.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	69.78
81912025U1	Moisture Monitoring & Fault Fractur	130.7	97.4	104.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	332.08
0G36221W85	Water Flux Thru Repository Block	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
81912025UX	Geochronology of Fracture Minerals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
81912025		130.7	97.4	104.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	332.08
0G33131W82	Cond. Hydraulic & Tracer Testing of Pro	39.9	34.4	57.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	132.21
0G33132W81	Cond Isotopic & Hydrochemical Studies	8.6	29.9	26.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	65.27
0G36221W??	Paleodischarge at Nye County Sites	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
0G3XXXXW??	Provide SMF Well-Site Support	0.0	3.9	30.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34.77
0G3XXXXW81	Oversee Nye County Drilling Program	8.3	-5.2	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.98
81912029U1	SZ Data Analysis for SR FY99	56.8	62.9	120.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	240.22
81912029		56.8	62.9	120.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	240.22
	Reduce Uncertainty - Recharge Work	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.18
	Hydrogeologic Framework Model	8.1	2.5	-6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.56
	Ground Water Flow Modeling	0.4	12.7	20.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.87
	Comp. Geo. Interpretations - Cross Sect	2.1	6.5	17.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.18
	Reduce Uncertainty - Hydrochemical Flo	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.52
	Comp. Geo. Interpretations - Amargosa	2.5	10.7	7.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.46

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	Comp. Geo. Interpretations - Hydrostruc	2.4	13.6	-0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.30
	Comp. Geo. Interpretations - Geologic	7.4	16.0	12.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35.77
0633133W82	Conduct LA SZ Flow Model Sensitivity A	0.0	3.0	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.59
0633133W83	Refine Geologic Framework Model	0.0	0.4	8.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.82
0633133W84	Develop Regional SZ Model	0.0	6.3	15.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.93
81912031U1	Regional and Site Scale Saturated Z	22.9	71.8	86.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	181.17
0633132W82	Iso & Hhdrochem Studies SZ Water (WT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
0633133W87	Reduce Uncertain Flux Values to Calibr	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.83
0633133W8A	Refine Regional Hydrogeologic Framew	0.0	0.0	85.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	85.31
81912031UX	SZ Modeling & Hydrochem Studies (	0.0	0.0	86.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	86.14
81912031		22.9	71.8	172.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	267.31
0632212W87	Conduct Geologic Mapping of the ECRB	0.0	16.3	78.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	94.28
81912050U2	Geologic Testing in the ECRB FY99	0.0	16.3	78.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	94.28
0633124W88	Eval Percolation Flux Across Repository	3.6	12.6	16.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.02
0633124W8D	Conduct Moisture Monitoring in the ESF	17.1	27.8	20.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	65.45
0636221W84	Cond E-W X-Drift Frac Min Dtng & Isoto	21.2	-14.1	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.01
81912050U3	Moisture Monitoring & Infiltration St	41.9	26.3	42.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	110.48
0632212W85	Conduct Geologic Mapping of the ECRB	75.0	55.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	130.00
81912050UX	Geologic Mapping of the ECRB (Def	75.0	55.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	130.00
81912050		116.9	97.6	120.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	334.76
0632211W83	Complete Stratigraphic Descriptions UZ-	0.6	8.3	11.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.68
0632211W85	Correlate Lithostratigraphy & Geophysic	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.22
0632212W81	Provide Structural Support to Isotopic A	4.0	0.2	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.99
0632212W82	Conduct Fracture Syn in Sup of Reposit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
0632212W83	Conduct Spatial Analysis of Fracture Int	0.4	-0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
0632212W84	Provide Geo Sup to LBNL Geophys Inve	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
0632212W85	Evaluate Short Trace Length Fract. Distr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
0632212W86	Char. Structure of Alcove - X-Drift Infl. E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
0632212W83	Conduct Fault Zone Studies	0.9	5.8	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.23
0632212W89	Provide Structural Support to TSPA/VA	29.8	18.9	9.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	58.46
0639SW81	Provide USGS Support to 3-D Model G	17.4	0.0	-9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.12

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0625951182	Provide USGS Support to 3-D Model: St	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
81912210U1	Geologic Studies FY99	53.1	32.8	22.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	108.69
0632211182	Conduct Stratigraphic Descriptions	8.9	14.0	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.72
81912210UX	Stratigraphic Description of SD6WT	8.9	14.0	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.72
81912210		62.0	46.8	22.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	131.41
0633123W77	Hydraulic properties - Busted Butte Core	0.0	4.6	-0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.90
0633124W87	Characterize Seepage into Alcoves I	0.0	13.7	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.76
0633124W86	Characterize Seepage into Alcoves II	0.0	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.32
0633127W82	Cond Iso/Hydrochem Studies of UZ & P	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
81912215U1	Moisture Monitoring & Fault Fractur	0.0	22.6	12.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34.98
	Paleodischarge/Paleoclimate - Deferred	0.0	0.0	15.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.20
81912215UX	Paleodischarge/Paleoclimate (Deferr	0.0	0.0	15.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.20
81912215		0.0	22.6	27.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.18
0633132W81	Cond Isotopic & Hydrochemical Studies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
0630000W82	Oversee Nye County Drilling Program	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
81912245U1	SZ Data Analysis for SR/LA FY99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
0633127W83	Iso & Hydrochem Studies of UZ Water a	0.0	3.9	7.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.81
0633131W86	SZ Hydrologic Testing	9.0	7.2	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.98
81912245UX	SZ Testing & UZ Hydrochemistry (D	9.0	11.2	10.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.78
81912245		9.0	11.2	10.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.78
0639W89	Support Preparation of the WDLA	26.3	23.1	54.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	103.50
81916105U1	Support for Preparation of the WDL	26.3	23.1	54.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	103.50
0632836W81	Rvw Impacts of New Data on Volcanic &	15.7	-11.4	22.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.94
0632000W77	LADS Support - Expansion Area	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.27
0633129W81	Provide Updated UZ Model Abstractions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
0633100W81	Provide Support to Flow & Transport Mo	3.9	7.9	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.85
0633000W77	LADS Support	0.0	5.1	-0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.77
81916105U2	Review of Literature and Special Stu	19.7	1.6	28.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	49.84
	Coupled Infiltration Surface Water Flow	0.0	1.8	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.46
	Tectonic Closeout Activities	0.0	1.5	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.38

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	Climate Closeout Activities	0.0	12.1	49.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	61.19
	Surface Based Testing Closeout Activiti	0.0	9.1	46.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	55.76
0639811A1	Support Closeout Activities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
0639811A1	Supports KTIs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
0639811A1	Support Semiannual Progress Reports	0.0	5.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.29
0639811A1	Support Peer Reviews	4.9	-2.0	-0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.44
0639811A1	Support Topical Rpts; NWTRB, ACNW,	5.8	-5.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.20
81916105U3	Technical Interactions and Special P	10.7	22.3	103.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	136.73
81916105		56.7	47.0	186.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	290.07
0633127M81	Conduct Chem. & Isotopic Analyses Drif	9.3	17.9	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.60
81916107U1	Isotope Support for Thermal Testing	9.3	17.9	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.60
81916107		9.3	17.9	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.60
0633131M81	Conduct Water-Level Monitoring	7.3	8.3	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.89
81917027U1	Long-Term PC Monitoring FY99	7.3	8.3	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.89
81917027		7.3	8.3	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.89
		0.0	3.4	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.90
	Unfunded Work	91.7	97.0	-23.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	165.27
0631M81	Support Scientific Programs Mgmt & Int	9.8	24.6	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.39
0631M82	Manage Nevada Operations/Earth Scien	40.4	57.7	45.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	143.88
81919090U1	USGS SP&I FY99	141.9	182.7	40.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	365.44
0639811A1C	Provide Site Investigations Technical Su	27.1	38.5	34.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	99.70
81919090U3	USGS Site Investigations Technical	27.1	38.5	34.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	99.70
0639811A2C	Support QA Compliance, Implementatio	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
81919090U4	QA Compliance, Implementation, an	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
81919090		169.0	221.2	75.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	465.14
	1.2.3	640.4	704.9	854.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,199.45
0G54XX	Provide Support to Performance Assess	0.9	6.1	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.42
81912220U1	USGS Support to Performance Asse	0.9	6.1	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.42
81912220		0.9	6.1	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.42

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	OCT EST	NOV EST	DEC EST	JAN EST	FEB EST	MAR EST	APR EST	MAY EST	JUN EST	JUL EST	AUG EST	SEP EST	TOTAL
0G535NB1 Provide Technical Data Coordination	38.8	31.1	43.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	112.99
81912470U1 Technical Data Management FY99	38.8	31.1	43.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	112.99
81912470	38.8	31.1	43.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	112.99
1.2.5	39.7	37.2	48.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	125.41
0G825NB1 Implement Federal Safety & Occupation	6.8	7.6	7.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.32
81919121U1 Federal Occupational Safety & Healt	6.8	7.6	7.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.32
0G847NB1 Conduct Water Resources Studies	15.8	34.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	74.78
81919121U2 Water Resources FY99	15.8	34.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	74.78
0G847NB2 Water Appropriation Hearings	0.0	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.33
81919121U3 Water Appropriation Hearings	0.0	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.33
81919121	22.6	42.3	33.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.42
1.2.8	22.6	42.3	33.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.42
0G912NB1 Provide TPO Office Support	14.3	26.9	25.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.42
81919135U1 USGS Project Management FY99	14.3	26.9	25.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.42
0G922NB1 Conduct Project Control Activities	27.7	22.4	19.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	69.85
81919135U2 USGS Project Control FY99	27.7	22.4	19.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	69.85
81919135	42.0	49.3	44.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	136.27
1.2.9	42.0	49.3	44.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	136.27
0GC522NB1 Conduct Satellite Records Operations	10.3	8.8	10.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.26
81919197U1 USGS Satellite Records Operations	10.3	8.8	10.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.26
81919197	10.3	8.8	10.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.26
1.2.12	10.3	8.8	10.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.26
0GFZ3NB1 Provide Support/Personnel Services	18.8	22.6	23.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	64.52
0GFZ3NB5 Provide Procurement & Property Manag	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
0GFZ3NB6 Provide Computer Support	13.6	25.2	16.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	54.93
81919110U1 Personnel, Procurement, Property S	32.4	47.8	39.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	119.45
0GFZ3NB2 Provide Facilities Management (space)	65.3	65.3	65.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	196.00

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08FZ3883	Provide Facilities Management (comput	13.7	13.7	13.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41.00
08FZ3884	Provide Facilities Management (other)	2.5	2.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.50
81919110U2	Facilities Management (USGS)	81.5	81.5	81.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	244.50
08FZ3881	Provide USGS Training Support	6.1	1.7	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.91
81919111U1	USGS Training Support	6.1	1.7	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.91
81919110		120.0	131.0	124.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	375.86
1.2.15		120.0	131.0	124.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	375.86
1.2 OPERATING		919.0	1,017.0	1,160.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3,096.88
CAPITAL EQUIPMENT		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GRAND TOTAL		919.0	1,017.0	1,160.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3,096.88
FTEs														
· FEDERAL		86.0	96.5	98.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CONTRACT		29.2	27.4	32.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	
TOTAL		115.2	123.9	131.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	