DISTRIBUTION:
~~WM:S/f~~
NMSS:r/f
PAltomare
RWright
JJSurmeier
MKearney
DMattson
JOBunting
LHigginbotham
MKnapp
LBarrett
HMiller
MJBell
REBrowning

101.2/AB/84/08/17 did not send 8/20/84



O. L. Olson, Project Manager
Basalt Waste Isolation Project Office
U.S. Department of Energy
P. O. Box 550
Richland, WA 99352

Dear Mr. Olson:

SUBJECT: TRANSMITTAL OF BRIEFING MATERIAL

As requested by Jim Bazemore of Rockwell on August 14, I am enclosing copies of briefing material that was provided to NRC during our visit to the Salt Repository project on August 8 at Columbus, OHio. Many of the information management systems computer records were not, however, discussed in detail.

Contact Phil Altomare (FTS 427-4677) if there are any questions about this matter.

Sincerely,

Robert J. Wright
Senior Technical Advisor
Repository Projects Branch
Division of Waste Management

cc w/encl:
Jim Bazemore
Rockwell Hanford Operation
P.O Box 800, PBB/518
Richland, WA 99352

WM Record File 101.2
WM Project 10
Docket No.
PDR ✓
LPDR ✓
Distribution:
GORN
(Return to WM, 623-SS)

8409170022 840820
PDR WASTE
WM-10 PDR

| | | | | | | |
|---|---|---|---|---|---|---|
| OFC | :WMPC | :WMRP | :WMPC | : | : | : |
| NAME | :PAltomare:dh | RWright | JOBunting | : | : | : |
| DATE | :84/08/17 | : 8/17 | : 8/20/84 | : | : | : |

1022/84/119 H

947

for

**Briefing to the NRC AND NRC Contractors on the SRP Information Management Systems**
**August 8, 1984**
**in the Program Control Center**
**Room 13-6-080**
**in Columbus, Ohio**

Viewgraphs from M. Golis

| | | |
|---|---|---|
| 9:00 | Welcome and Introduction<br>Purpose and Objectives | SRPO/NRC |
| 9:15 | Overview of the Technical Data Management System (TDMS) | M. Golis |
| | • System Philosophy (Purpose, Users)<br>• System Features (BASIS, structures)<br>• Logical Designs<br>RIS/RTP<br>SRP/TDB<br>Tracking Systems (SIMS/Catalog/Ref Tracking System)<br>• Utilization Issues<br>Special User Groups<br>Security<br>Backup Systems | |
| 10:30 | Break | |
| 10:45 | Questions about the Existing Information Management Systems<br>Question/Answer session with technical support staff | ONWI/BPMD/BCL |
| 11:00 | Planned Enhancements to Existing Systems | |
| | • RIS (Link Between Documents in RIS and EA/SCP) | R. Linebaugh |
| | • SRP/TDB (Raw Data Tape Access, Computer-Code Status) | M. Golis |
| | • SCP/License Issue Tracking System | R. Klingensmith |
| 11:15 | Overview of NRC Activities/Plans for Information Management Systems | NRC |
| 12:00 | Lunch | |
| 1:00 | Demonstration of SRP Information Management Systems | |
| | • Bibliographic and Records (RIS/RTP) | R. Linebaugh |
| | • Technical Data (SRP/TDB) | G. LaRue |
| | • Tracking Systems (Catalog/Ref Track/SIMS) | A. Kirk |
| 3:00 | Summary and Response<br>• Preparation of meeting notes | DOE/NRC |
| 4:00 | Adjourn | |

## TOPICS OF INTEREST RELATED TO SRPO INFORMATION MANAGEMENT SYSTEMS

-- Type of information/data elements (data, documents, samples, issues, etc.)

-- Type of information storage used (full text, abstracts)

-- Type of searches and retrievals (full text, keyword, title, etc.)

-- Type of interfaces with other DOE systems

-- Type of users

-- Volume of information/data handled

-- Type of security in place (user I.D., password)

-- Information/data reliability for system input

-- Type of system reliability (backup tapes, backup hard copy system, system recovery/reconstruction)

-- Type of issue tracking systems

-- Requirements analyses used

# TDMS

| | | |
|---|---|---|
| BIBLIOGRAPHIC SOURCES | - | RIS |
| PROJECT RECORDS | - | RTP |
| PROJECT DATA | - | TBD |
| STATUS TRACKING | - | SIMS, EDRS<br>CATALOG, REFERENCE<br>TRACKING |

SUMMARY OF HOW THE SYSTEM WILL ANSWER STAFF CONCERNS

| Concerns of Staff | Characteristics of System | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ownership (PM) | Level Control | Team (Indexer-PM) | Weekly Update (Input) | User Record | Stepped Access | Unlimited Access | Ready Access to Summary | Historic Track | Update Reports | Audits |
| Validity | X | X | X | | | | | | X | | X |
| Consistency | X | X | X | | | | | | | X | X |
| Timeliness | X | | X | X | | | | | | | |
| Traceability | X | | X | | | | | X | X | | X |
| Technical Staff Inv. | X | X | X | | X | | | | | | |
| Subcontractor Data | X | X | | | | X | | | | | |
| Dissemination | X | X | | X | X | | X | X | X | X | |
| Usefulness | X | | | X | X | | X | X | X | X | |
| Visibility of Central Source | X | X | X | | X | | X | X | | X | |
| Universality of System | X | | | | | | X | X | | X | |
| Monitored (Internal Checks) | | X | X | | | | | X | | X | X |
| Non-Contractor Data | | X | X | | | X | | | X | | |

X = a characteristic that is designed to help remove a staff concern.

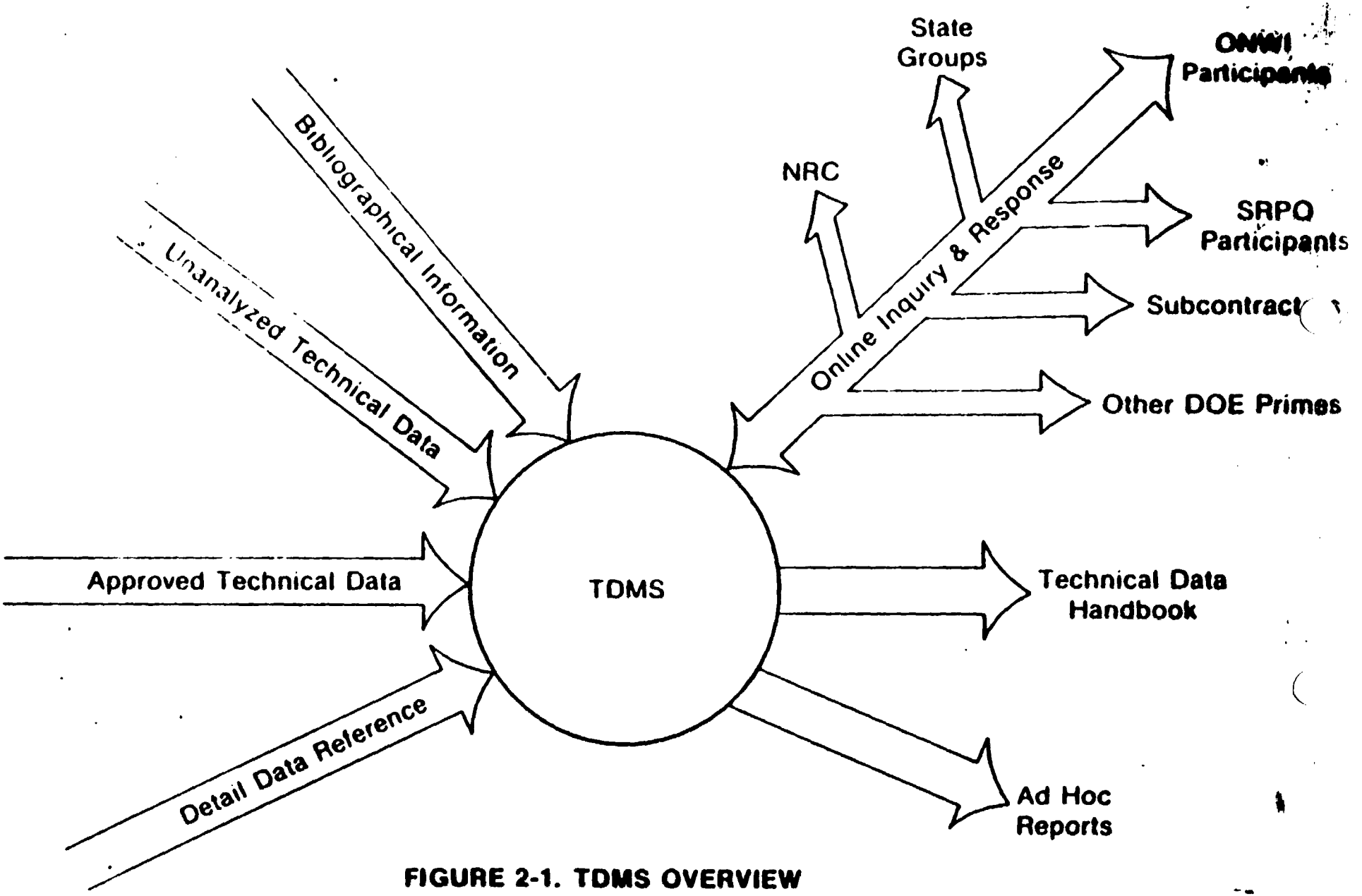


**FIGURE 2-1. TDMS OVERVIEW**

1/ Field

Sample

| FIELD NAME | NUMBER | TYPE | LABEL |
|---|---|---|---|
| ACC | 1 | I KEY | ACC NO |
| DTENT | 2 | I | DATE ENTERED |
| TI | 6 | S NN | TITLE |
| DTDOC | 10 | I | DOC DATE |
| COAU | 12 | S | CORP AUTH |
| PREP | 13 | S | PREPARED FOR |
| ADDR | 14 | S | RECEIVER |
| TYPE | 15 | S | DOC TYPE |
| DE | 20 | S | DESCRIPTOR |
| CODE | 24 | S | CODE |
| LIBNO | 30 | I | REF.LIBRARY NO |
| DOCREF | 31 | S | DOC. REF. BY |
| STATUS | 32 | S | DOC. STATUS |
| MFN | 51 | I | MFLM FR NO. |
| OCN | 52 | S | ONWI CTL NOS. |
| ECN | 53 | S | EXT CTL NOS. |
| ATTM | 56 | S | ATTACHMTS |
| SEN | 57 | S | SENDER |
| CRN | 58 | I | X REF NOS. |
| MN | 59 | S | MEETING |
| DTCHG | 60 | I | DATE LAST CHG |
| ABS | 61 | S | ABSTRACT |
| COREC | 62 | S | RECEIVING CO |
| MFCN | 65 | S | MICROFICHE NO |
| DIVCODE | 66 | S | DIVISION CODE |
| DISTR | 67 | S | RPT DIST |
| CALLNO | 75 | S | CALL NUMBER |
| RPTCAT | 76 | S | RPT CATEGORY |
| RPTNO | 77 | S | REPORT NO |
| WBS | 78 | S | WBS NO |
| DESCRIP | 79 | S | DESCRIPTION |
| AUORG | 80 | S | AUTHOR ORG |
| MAILNO | 81 | S | MAIL LOG NO. |
| COMAC | 82 | S | COMMIT/ACTION |
| SEC | 98 | I NP | SECURITY |
| FLD | 99 | MAP | |
| RPT | 100 | MAP | |
| MAILNO | 101 | MAP | |

1/

Sample Record

```
   5/ find 1 and 2
*     0    5/  1 AND 2
   6/ find 2 and 3
*     1    6/  2 AND 3
   7/ display all for all
```

ITEM 1

| | |
|---|---|
| ACC NO | 95266 |
| DATE ENTERED | 840210 |
| TITLE | PERMIAN BASIN LOCATION RECOMMENDATION REPORT |
| DOC DATE | 830901 |
| CORP AUTH | ONWI |
| PREPARED FOR | DOE |
| DOC TYPE | R |
| DESCRIPTOR | SITE GEOMETRY;GEOHYDROLOGY;GEOCHEMISTRY;STRATIGRAPHY; ATMOSPHERE |
| CODE | RTE |
| REF.LIBRARY NO | 464 |
| DOC. REF. BY | EA-PM |
| DOC. STATUS | C |
| EXT CTL NOS. | DOE-CH-10140-2;DE-AC02-83CH10140 |
| SENDER | NONE |
| DATE LAST CHG | 840327 |

ABSTRACT

CANDIDATE STUDY AREAS ARE SCREENED FROM THE PALO DURO AND DALHART BASIN AREAS USING DATA OBTAINED FROM STUDIES TO DATE AND CRITERIA AND SPECIFICATIONS THAT CONSIDER ROCK GEOMETRY; ROCH CHARACTERISTICS; HUMAN INTRUSION POTENTIAL; SURFACE CHARACTERISTICS; AND ENVIRONMENTAL AND SOCIOECONOMIC CONDITIONS. TWO PREFERRED LOCATIONS ARE RECOMMENDED FROM AMONG THESE AREAS FOR ADDITIONAL CHARACTERIZATION TO IDENTIFY POTENTIAL NATIONAL WASTE TERMINAL STORAGE (NWTS) SALT REPOSITORY SITES. ONE LOCATION, IN NORTHEASTERN DEAF SMITH COUNTY AND SOUTHEASTERN OLDHAM COUNTY, IS UNDERLAIN BY TWO SALT UNITS THAT MEET THE ADOPTED SCREENING SPECIFICATIONS. THE OTHER LOCATION, IN NORTHCENTRAL SWISHER COUNTY, IS UNDERLAIN BY ONE SALT UNIT THAT MEETS THE ADOPTED SCREENING SPECIFICATIONS. BOTH LOCATIONS HAVE SEVERAL FAVORABLE FEATURES, RELATIVE TO SURROUNDING AREAS, AND NO OBVIOUSLY UNDESIRABLE CHARACTERISTICS. BOTH LIE WHOLLY ON THE SOUTHERN HIGH PLAINS SURFACE, ARE IN RELATIVELY SPARSELY POPULATED AREAS, CONTAIN NO UNIQUE LAND USE CONFILCTS, AND COMPRISE LARGE ENOUGH GEOGRAPHIC AREAS TO PROVIDE FLEXIBILITY IN SITE SELECTION. DATA GATHERED TO DATE INDICATE THAT THESE LOCATIONS CONTAIN SALT UNITS SUFFICIENT IN THICKNESS AND IN DEPTH FOR THE SAFE CONSTRUCTION AND OPERATION OF THE UNDERGROUND FACILITIES UNDER CONSIDERATION.

| | |
|---|---|
| MICROFICHE NO | 84-01-0187 |
| DIVISION CODE | ONWI |
| RPT CATEGORY | LIT |
| SECURITY | 1 |

7/

Sample

| DOC DATE | TITLE | SENDER |
|---|---|---|
| 610926 | INVESTIGATIONS ON THE MOVEMENT | BAETSLE L;DEJON |
| 781231 | AN INVESTIGATION OF THE UTILIT | MARTINEZ JD;THO |
| 830901 | PERMIAN BASIN LOCATION RECOMME | NONE |
| 830101 | REGIONAL GEOHYDROLOGY OF THE N | RYALS GN |
| 781231 | AN INVESTIGATION OF THE UTILIT | MARTINEZ JD;THO |
| 781231 | AN INVESTIGATION OF THE UTILIT | MARTINEZ JD;THO |
| 610926 | INVESTIGATIONS ON THE MOVEMENT | BAETSLE L;DEJON |
| 781231 | AN INVESTIGATION OF THE UTILIT | MARTINEZ JD;THO |
| 830901 | PERMIAN BASIN LOCATION RECOMME | NONE |

```
ENTER REPORT DIRECTIVE
    / end
  10/
```

```
  10/ display doc
USER ERROR.
DISPLAY DOC
        *
USER ERROR.  NO SUCH FIELD/MAP NAME
  10/
```

```
  10/ display dtdoc,ti,sen for 1-2

ITEM 1

DOC DATE        610926
TITLE           INVESTIGATIONS ON THE MOVEMENT OF RADIOACTIVE SUBSTANCE
                IN THE GROUND: PART III PRACTICAL ASPECTS OF THE
                PROGRAM AND PHYSIOCHEMICAL CONSIDERATIONS, PG 198
SENDER          BAETSLE L;DEJONGHE P

ITEM 2

DOC DATE        610926
TITLE           INVESTIGATIONS ON THE MOVEMENT OF RADIOACTIVE SUBSTANCE
                IN THE GROUND: PART III PRACTICAL ASPECTS OF THE
                PROGRAM AND PHYSIOCHEMICAL CONSIDERATIONS, PG 198
SENDER          BAETSLE L;DEJONGHE P
  10/
```

2/ fi[illegible]eochem*

* 12 2/ DE-GEOCHEM*

3/ display rpt for 1-2

Sample

ITEM 1

ACC NO 60467
DOC DATE 790901
TITLE TECHNICAL REQUIREMENTS FOR QUALIFICATION OF A POTENTIAL NUCLEAR WASTE REPOSITORY SITE IN BASALT
SENDER JOHNSON RE;DEJU RA
CORP AUTH RHO;RHO
ABSTRACT
THIS DOCUMENT IS THE IDENTIFICATION AND DEFINITION OF THE REQUIREMENTS FOR LONG-TERM RADIOACTIVE WASTE STORAGE IN A REPOSITORY IN BASALT, WHICH ARE BASED ON RADIOLOGICAL STANDARDS, TECHNICAL, AND SOCIOECONOMIC SITE-SUITABILITY CONSIDERATIONS. THE PRINCIPAL REQUIREMENTS ARE CATEGORIZED BY DISCIPLINE AND INCLUDE RADIOLOGICAL ENGINEERING, HYDROLOGIC, GEOCHEMICAL, GEOLOGIC, AND SOCIOECONOMIC. EACH REQUIREMENT IS DEFINED AND BRIEFLY DISCUSSED IN THIS DOCUMENT. THE BASALT WASTE ISOLATION PROJECT ACTIVITIES NEEDED TO ASSURE THAT THE REQUIREMENTS CAN BE MET ARE ALSO NOTED.

ITEM 2

ACC NO 72926
DOC DATE 830101
TITLE SELECTED HYDROLOGIC AND GEOCHEMICAL ISSUES IN SITE CHARACTERIZATION FOR NUCLEAR WASTE DISPOSAL. FLOOD BASALTS AT THE HANFORD RESERVATION
SENDER CARNAHAN CL;DELANY JM;LONG JC;SILVA RJ;WATKINS DJ;WHITE AF;WILSON CR
CORP AUTH LBL;LBL;LBL;LBL;LBL
ABSTRACT
FOUR ISSUES ARE CONSIDERED THAT MUST BE ADDRESSED BY A SITE CHARACTERIZATION PROGRAM DESIGNED TO EVALUATE THE SUITABILITY OF THE FLOOD BASALTS OF THE PASCO BASIN IN CENTRAL WASHINGTON AS A SITE FOR THE CONSTRUCTION OF A REPOSITORY FOR THE DISPOSAL OF HIGH-LEVEL NUCLEAR WASTE. THE FOUR ISSUES ARE (1) IDENTIFICATION OF HYDROSTRATIGRAPHIC UNITS WITHIN A SEQUENCE OF FLOOD BASALTS, (2) MECHANISMS AND POINTS OF GROUNDWATER RECHARGE AND DISCHARGE, (3) SOLUBILITY OF RADIONUCLIDES, AND (4) PHASE TRANSFORMATION OF FRACTURE FILLING MATERIALS. EACH ISSUE IS DISCUSSED IN TERMS OF ITS SIGNIFICANCE TO WASTE ISOLATION. AVAILABLE APPROACHES FOR RESOLVING THE ISSUES ARE PRESENTED AND THEIR LIMITATIONS IDENTIFIED. WHERE APPROPRIATE, RESEARCH PROGRAMS FOR OVERCOMING THESE LIMITATIONS ARE INDICATED.

3/

Sample

16/ ?fields

| FIELD NAME | NUMBER | TYPE | LABEL |
|---|---|---|---|
| ACC | 1 | I KEY | ACC NO |
| DTENT | 2 | I NP | DATE ENTERED |
| ID | 5 | I NN | ID |
| TI | 6 | S | TITLE |
| DTDOC | 10 | I | DOC DATE |
| CTR | 12 | S | CONTRACTOR |
| ADDR | 14 | S | ADDR |
| TYPE | 15 | S NN | DOC TYPE |
| DE | 20 | S | DESCRIP |
| CODE | 24 | S | CODE |
| DTCST | 30 | I | CTR ST DTE |
| DTCED | 31 | I | CTR END DTE |
| PM | 32 | S | PGM MGR |
| OPM | 33 | S | ONWI PGM MGR |
| SCTR | 34 | S | SUBCTR |
| STI | 35 | S | SHORT TITLE |
| MFN | 51 | I | MFLM FR NO. |
| OCN | 52 | S | ONWI CTL NOS. |
| ECN | 53 | S | EXT CTL NOS. |
| SEN | 57 | S | SENDER |
| DTCHG | 60 | I | DATE LAST CHG |
| SEC | 98 | I NP | SECURITY |
| RTP | 99 | MAP | |
| RTPP | 100 | MAP | |

Sample

5/ disolay all for 6-8,10,13,18

ITEM 6

| | |
|---|---|
| ACC NO | 38002 |
| DATE ENTERED | 831220 |
| ID | 00015 |
| DOC DATE | 800114 |
| DOC TYPE | P |
| CODE | VOU |
| SHORT TITLE | GEOMORPHOLOGY AND FLUVIAL PROCESSES CAPROCK CANYON ST PARK WTWI |
| MFLM FR NO. | 50267-3553 |
| DATE LAST CHG | 840419 |
| SECURITY | 2 |

ITEM 7

| | |
|---|---|
| ACC NO | 43207 |
| DATE ENTERED | [illegible] |
| ID | [illegible] |
| DOC DATE | [illegible] |
| [illegible] | [illegible] |
| CODE | [illegible] |
| [illegible] | [illegible] OF GEOMORPHIC PROCESSES IN SELECTED AREAS OF THE ROLLING PLAINS AND SOUTHERN HIGH PLAINS, TEXAS PANHANDLE |
| MFLM FR NO. | 50267-[illegible] |
| [illegible] | [illegible] R |
| [illegible] | [illegible] |
| [illegible] | [illegible] |

[illegible]

| | |
|---|---|
| ACC NO | [illegible] |
| DATE ENTERED | [illegible] |
| ID | [illegible] |
| DOC DATE | [illegible] |
| [illegible] | [illegible] |
| [illegible] | [illegible] |
| [illegible] | [illegible] RE IN GEOMORPHIC ANALYSIS |
| [illegible] | [illegible] |
| [illegible] | [illegible] |
| [illegible] | 840113 |

# SRP TECHNICAL DATA BASE

## DATA CATEGORIES, RECORD AND TOPIC TYPES

- MATERIAL PROPERTIES
- SITE DESCRIPTIONS
- DESIGNS
- IMPACTS/ASSESSMENTS
- AUXILLARY SUPPORT

# SRP TECHNICAL DATA BASE
## DATA CATEGORIES, RECORD AND TOPIC TYPES

### SITE DESCRIPTIONS

- AREAL GEOLOGY
  - GEOLOGIC DESCRIPTION
  - FORMATION DESCRIPTION
  - GEOLOGIC PROCESSES
  - GEOCHEMISTRY

- AREAL HYDROLOGY
  - HYDROSTRATOGRAPHIC UNIT
  - SURFACE WATER HYDROLOGY
  - HYDROGECHEMISTRY

- BACKGROUND ENVIRONMENTAL
  - AIR QUALITY
  - SOUND LEVEL
  - SURFACE WATER QUALITY
  - WATER SUPPLY AND USE
  - METEROLOGY
  - CLIMATILOGICAL INFORMATION
  - LAND USE
  - AGRICULTURE PRODUCTION
  - CULTURAL RESOURCES
  - AESTHETICS
  - TRANSPORTATION UNIT FACTORS
  - TRANSPORTATION CHARACTERISTICS
  - ECOSYSTEMS
  - SOILS
  - EXTERNAL RADIATION
  - RADIOLOGICAL MEASUREMENTS

- BACKGROUND SOCIOECONOMICS
  - DEMOGRAPHICS
  - ECONOMICS
  - GOVERNMENT AND FISCAL

- BOREHOLE SUMMARIES

# SRP TECHNICAL DATA BASE
# DATA CATEGORIES, RECORD AND TOPIC TYPES

## MATERIAL PROPERTIES

- MATERIAL PROPERTIES
  - THERMAL
  - MECHANICAL
  - HYDROLOGY
  - CHEMICAL
  - RADIATION EFFECTS
  - INTERACTION

# SRP TECHNICAL DATA BASE

## DATA CATEGORIES, RECORD AND TOPIC TYPES

### DESIGNS

- WASTE PACKAGE DESIGN
- EXPLORATORY SHAFT DESIGN
- EXPLORATORY SHAFT SOURCE TERMS
  - AIR EMISSIONS
  - SOUND EMISSIONS
  - SALT
- REPOSITORY DESIGN
  - EXPECTED WASTE
  - DESIGN
- REPOSITORY SOURCE TERMS
  - AIR EMISSIONS
  - SOUND EMISSIONS
  - SALT
  - RADIOLOGICAL EMISSIONS

# SRP TECHNICAL DATA BASE

## DATA CATEGORIES, RECORD AND TOPIC TYPES

### IMPACTS/ASSESSMENTS

- EXPLORATORY SHAFT ENVIRONMENTAL IMPACT
  - AIR QUALITY
  - SOUND LEVEL
  - SALT
- REPOSITORY ENVIRONMENTAL IMPACT
  - AIR QUALITY
  - SOUND LEVEL
  - SALT
  - RADIOLOGICAL DOSE
  - TRANSPORTATION
- PERFORMANCE ASSESSMENT
  (TEST CASES)

# SRP TECHNICAL DATA BASE
## DATA CATEGORIES, RECORD AND TOPIC TYPES

### AUXILLARY SUPPORT

- REVISION
- DATA ELEMENT DICTIONARY
- UNITS CONVERSION
- METHODOLOGY

# Data Base Conventions/Standards

- Measurement Units – always metric units; English optional
- Reference – one with each data element for primary
- Comments – may be used to handle secondary references
- Revisions – all are logged; indicated by *
- Baseline data – indicated by B
- NR, NA

Battelle
Project Management Division

# Data Base Conventions/Standards

- Measurement Units – always metric units; English optional
- Reference – one with each data element for primary
- Comments – may be used to handle secondary references
- Revisions – all are logged; indicated by *
- Baseline data – indicated by B
- NR, NA

Battelle
Project Management Division

B6-4

Sample

ITEM 2

ACCESSION NUMBER :260
RECORD TYPE :background environmental
TOPIC TYPE :water supply and use
BASIN,SUBBASIN :(14-1), Permian, Palo Duro
COUNTY,STATE :(14-6), Castro, TX
SITE :(14-1), Deaf Smith
WATER RESOURCE REGION [region, subregion]:
, NR
RIVER BASIN :
, NR
TOTAL WATER USE RATE :
, NR
[use, year, rate in bil.l/day(mgd)]
SURFACE WATER USE RATE :
, NR
[use, year, rate in bil.l/day(mgd)]
GROUND WATER USE RATE :
, NR
[use, year, rate in bil.l/day(mgd)]
WATER USE RATE METHODS/UNCERTAINTIES :, NA
TOTAL WATER USE VOLUME :
(14-6), irrigation, 800000, 515.810, (418174)
(14-6), municipal, 800000, 2.397, (1943)
(14-6), livestock, 800000, 4.222, (3423)
(14-6), manufacturing, 800000, 1.673, (1356)
[use, year, vol. in cu-m X 10E6(acre-ft)]
SURFACE WATER USE VOLUME :
(14-6), irrigation, 800000, 0.000, (0)
(14-6), municipal, 800000, 0.000, (0)
(14-6), livestock, 800000, 0.000, (0)
[use, year, vol. in cu-m X 10E6(acre-ft)]
GROUND WATER USE VOLUME :
(14-6), irrigation, 800000, 515.810, (418174)
(14-6), municipal, 800000, 2.397, (1943)
[use, year, vol. in cu-m X 10E6(acre-ft)]
WATER USE VOLUME METHODS/UNCERTAINTIES :(14-6), Texas Natural
Resources Information System
TOTAL MUNICIPAL WATER USE VOLUME :
(14-8), Dimmitt, 800000, 1.511, (1225)
(14-8), Hart, 800000, 0.229, (186)
[city/town,year,vol. in cu-m X 10E6(acre-ft)]
MUNICIPAL SURFACE WATER USE VOLUME :
(14-8), Dimmitt, 800000, 0.000, (0)
(14-8), Hart, 800000, 0.000, (0)
[city/town,year,vol. in cu-m X 10E6(acre-ft)]
MUNICIPAL GROUND WATER USE VOLUME :
(14-8), Dimmitt, 800000, 1.511, (1225)
(14-8), Hart, 800000, 0.229, (186)
[city/town,year,vol. in cu-m X 10E6(acre-ft)]
MUNICIPAL WATER USE METHODS/UNCERTAINTIES:(14-8), Texas Natural
Resources Information System

BE-9 cont.

Sample

TOTAL WATER SUPPLY :
, NR
[use, year, vol. in cu-m X 10E6(acre-ft)]
SURFACE WATER SUPPLY :
, NA
[use, year, vol. in cu-m X 10E6(acre-ft)]
GROUND WATER SUPPLY :
, NR
[use, year, vol. in cu-m X 10E6(acre-ft)]
WATER SUPPLY METHODS/UNCERTAINTIES :, NOTE: go to Hydrology-Surface water record type for impoundment data
EFFECTIVE ANNUAL GROUND WATER RECHARGE :
(14-24), 800000, 4/083, (3310), Ogallala Formation
[year,vol. in cu-m X10E6(acre-ft),source]
GROUND WATER WITHDRAWAL :
(14-24), 800000, 523.778, (424634), Ogallala Formation
[year,vol. in cu-m X10E6(acre-ft),source]
GROUND WATER RECHARGE/WITHDRAWAL METHODS/UNCERTAINTIES:(14-24), TDWR data
SURFACE WATER SOURCES :
(14-29), lake, Lake Meredith, principal source of surface water operated by Canadian River Municipal Water Authority
[type, name, comments]
GROUND WATER SOURCES :
(14-34), aquifer, Ogallala, principal source of all water, Santa Rosa formation and Wolfcamp series under Ogallala yields water
[type, name, comments]
RECOVERABLE STORAGE :
(14-25), Ogallala, 800000, 15200.800, (12323488)
[source,year,volume in cu-m(acre-ft)]
RECOVERABLE STORAGE METHODS/UNCERTAINTIES:(14-25), TDWR data for high growth rate projections
INITIALIZATION :
000000, , , BJM
[date,tech authority,SRP authority,data entry]
SOURCES :
(14), NUS Corporation for ONWI, October 1983

4/ [illegible] all for all

Sample

ITEM 1

ACCESSION NUMBER :2
RECORD TYPE :borehole results
WELL ID :, Gibson Dome #1
UNIT,SUBUNIT :, Cycle 6
BASIN,SUBBASIN :, Paradox, Gibson Dome
COUNTY,STATE :, San Juan, UT
TEST LAB :, RE/SPEC Inc
CORE SUPPLIER :, Woodward Clyde Consultants
MATERIALS ID :, salt
FORMATION :, PARADOX
HORIZON :, 1000.1, (3281) meters(feet)
CREEP LAW PARAMETER: A :, 6.33 x 10E-4 MPaE-n per sec
CREEP LAW PARAMETER: n :, 1.86
CREEP LAW PARAMETER: Ea :, 11.9 x 10E-2
CREEP LAW PARAMETER: B :, 192
CREEP LAW PARAMETER: Ess* :. 5 x 10E-8 per sec
CREEP LAW PARAMETER: Q/R :, 6835 deg K
CREEP LAW PARAMETER: TEST CONDITIONS :, (5 MPA, 100C), (10 MPa, 100C) and (5 MPa, 200C)
CREEP LAW PARAMETER: METHODS/UNCERTAINTIES:
, three triaxial creep tests
FAILURE CRITERION: k :, 2.2 MPa
FAILURE CRITERION: ALPHA :, 48.2 MPa
FAILURE CRITERION: BETA :, 0.0129 1/MPa
FAILURE CRITERION: EQUATION :, Mises-Schleicher
FAILURE CRITERION: METHODS/UNCERTAINTIES:
, triaxial compression tests, indirect tension tests
YOUNGS MODULUS [STATIC]: MIN :, 21.9 GPa
YOUNGS MODULUS [STATIC]: MAX :, 32.6 GPa
YOUNGS MODULUS [STATIC]: MEAN :, 26.9 GPa
YOUNGS MODULUS [STATIC]: STD DEV :, 3.2 GPa
POISSONS RATIO [STATIC]: MIN :, 0.17
POISSONS RATIO [STATIC]: MAX :, 0.39
POISSONS RATIO [STATIC]: MEAN :, 0.31
POISSONS RATIO [STATIC]: STD DEV :, 0.06
SORT WELL NAME :, Gibson Dome #1
INITIALIZATION [date,authorities,field numbers,source] :
830825, S Versluis, MJ Golis, BJM, 1-100,102-202, (1)
831114, S Versluis, KA St. John, CAB, 101, (2)
SOURCES:
, (1) Pfeifle, T.W. et al, 1983. Preliminary Constitutive Properties for Salt and Nonsalt Rocks from Four Potential Repository Sites, ONWI-450, RE/SPEC Inc.
, (2) Woodward Clyde Consultants, 1982. Well Completion Report for Gibson Dome #1 Borehole. ONWI-388

ITEM 1

ACCESSION NUMBER :2
RECORD TYPE :borehole results
WELL ID :, Gibson Dome #1
UNIT,SUBUNIT :, Cycle 6
BASIN,SUBBASIN :, Paradox, Gibson Dome
COUNTY,STATE :, San Juan, UT
TEST LAB :, RE/SPEC Inc
CORE SUPPLIER :, Woodward Clyde Consultants
MATERIALS ID :, salt
FORMATION :, PARADOX
DEPTH :, 1000.1, (3281) meters(feet)
CREEP LAW PARAMETER: A :, 6.33 x 10E-4 MPaE-n per sec
CREEP LAW PARAMETER: n :, 1.86
CREEP LAW PARAMETER: Ea :, 11.9 x 10E-2
CREEP LAW PARAMETER: B :, 192
CREEP LAW PARAMETER: Ess* :, 5 x 10E-8 per sec
CREEP LAW PARAMETER: Q/R :, 6835 deg K
CREEP LAW PARAMETER: TEST CONDITIONS :, (5 MPa, 100C), (10 MPa, 100C) and (5 MPa, 200C)
CREEP LAW PARAMETER: METHODS/UNCERTAINTIES:
, triaxial creep tests
FAILURE CRITERION: k :, 2.2 MPa
FAILURE CRITERION: ALPHA :, 40.2 MPa
FAILURE CRITERION: BETA :, 0.0129 1/MPa
FAILURE CRITERION: EQUATION :, Mises-Schleicher
FAILURE CRITERION: METHODS/UNCERTAINTIES:
, triaxial compression tests, indirect tension tests
YOUNG'S MODULUS (STATIC): MIN :, 21.9 GPa
YOUNG'S MODULUS (STATIC): MAX :, 32.6 GPa
YOUNG'S MODULUS (STATIC): MEAN :, 26.9 GPa
YOUNG'S MODULUS (STATIC): STD DEV :, 3.2 GPa
POISSON'S RATIO (STATIC): MIN :, 0.17
POISSON'S RATIO (STATIC): MAX :, 0.39
POISSON'S RATIO (STATIC): MEAN :, 0.31
POISSON'S RATIO (STATIC): STD DEV :, 0.06
NEAR WELL NAME :, Gibson Dome #1
CRYSTALIZATION [date,authorities,field numbers,source] :
830825, S Versluis, RJ Golis, BJM, 1-100,102-202, (1)
831110, S Versluis, KA St. John, CAB, 101, (2)
SOURCES:
(1) Pfeifle, T.W. et al, 1983. Preliminary Constitutive Properties for Salt and Basalt Rocks from Four Potential Repository Sites, RE/SPEC Inc.
(2) Woodward Clyde Consultants, 1982. Well Completion Report for Gibson Dome #1 Borehole.

TABLE 4.3

SUMMARY OF EXPONENTIAL-TIME CREEP LAW PARAMETERS FOR FOUR SALTS

| SITE | A ($MPa^{-n}s^{-1}$) | n | Q/R (K) | $\dot{\epsilon}_{ss}^{a}$ ($s^{-1}$) | $\epsilon_a$ | B |
|---|---|---|---|---|---|---|
| Richton [2] | $2.60 \times 10^{-2}$ | 5.01 | 9,895 | $5 \times 10^{-8}$ | $4.22 \times 10^{-2}$ | 126 |
| Vacherie [2] | $8.71 \times 10^{-3}$ | 2.22 | 7,569 | $5 \times 10^{-8}$ | $5.93 \times 10^{-2}$ | 108 |
| Permian [2] (Cycle 4) | $4.66 \times 10^{-3}$ | 4.60 | 8,660 | $5 \times 10^{-8}$ | $3.97 \times 10^{-2}$ | 82 |
| Permian (Cycle 5) | $1.93 \times 10^{-4}$ | 4.15 | 7,154 | $5 \times 10^{-8}$ | $5.50 \times 10^{-2}$ | 180 |
| Paradox [2] (Cycle 7) | $1.52 \times 10^{-7}$ | 1.39 | 3,468 | $5 \times 10^{-8}$ | $14.1 \times 10^{-2}$ | 158 |
| Paradox (Cycle 6) | $6.33 \times 10^{-4}$ | 1.86 | 6,835 | $5 \times 10^{-8}$ | $11.9 \times 10^{-2}$ | 192 |
| | | | | | | |

[a] Assumed value based on large Avery Island and S.E. New Mexico data sets.

TABLE 4.2

FAILURE CRITERIA SUMMARY[a]

| SITE | k (MPa) | α (MPa) | β ($MPa^{-1}$) |
|---|---|---|---|
| Richton | 0.2 | 40.0 | 0.0180 |
| Vacherie | 0.7 | 46.4 | 0.0133 |
| Permian | | | |
| Cycle 4 | 1.0 | 38.8 | 0.0174 |
| Cycle 5 | 1.1 | 43.5 | 0.0151 |
| Paradox | | | |
| Carnallite | 1.5 | 47.1 | 0.0149 |
| Cycle 6 | 2.2 | 40.2 | 0.0129 |
| Cycle 7 | 1.6 | 51.4 | 0.0134 |

Sample

Sample

```
ENTER YOUR REQUEST
   1/ /show

DATA BASE FILE
B1     BOREFORM
B2     BOREHOLE SUMMARY
B3     DIRECTORY
B4     FORMATIONS
B5     MECHANICAL FAILURE SALT
B6     MECHANICAL PROPERTIES NONSALT
B7     MECHANICAL PROPERTIES SALT
B8     MISS DEEP PRINT
B9     MISS SHALLOW PRINT
B10    MISSISSIPPI DEEP
B11    MISSISSIPPI SHALLOW
B12    REPORT BOREFORM
B13    REVISION
B14    STATE
B15    STATE PRINT
B16    THERMAL PROPERTIES SALT
B17    THERMAL PROPS PRINT

DO YOU WANT TO EXECUTE ANY OF THE PROFILES?
    / b5
```

## MECHANICAL FAILURE CRITERIA (SALT) Sample

| | BASIN,SUBBASIN, UNIT | HORIZON (M) | k MPa | ALPHA MPa | BETA 1/MPa |
|---|---|---|---|---|---|
| Gibson Dome #1 | Paradox Gibson Dome Cycle 6 | 1000.1 | 2.2 | 48.2 | 0.0129 |
| Gibson Dome #1 | Paradox Gibson Dome Cycle 7 | 1040.0 | 1.6 | 51.4 | 0.0134 |
| MRIG-9 | Gulf Interior Richton Dome | 374.9 | 0.2 | 40.0 | 0.0180 |
| US DOE-Smith #1 | Gulf Interior Vacherie Dome | 599.9 | 0.7 | 46.4 | 0.0133 |
| Grabbe #1 | Permian Palo Duro Cycle 4 | 799.8 | 1.0 | 38.8 | 0.0174 |
| Mansfield #1 | Permian Palo Duro Cycle 5 | 449.9 | 1.1 | 43.5 | 0.0151 |

```
   3/ find horiz=1000.1
*        1    3/  horiz=1000.1
   4/ display 3,11,4,102,151,152,153

ITEM 1

BASIN,SUBBASIN              :, Paradox, Gibson Dome
UNIT,SUBUNIT                :, Cycle 6
HORIZON                     :, 1000.1, (3281) meters(feet)
FAILURE CRITERION: k        :, 2.2 MPa
FAILURE CRITERION: ALPHA    :, 48.2 MPa
FAILURE CRITERION: BETA     :, 0.0129 1/MPa
```

[illegible]

| | |
|---|---|
| RECORD TYPE | :borehole summary |
| WELL ID | :, MRIG-9 |
| BASIN,SUBBASIN | :, Gulf Interior, Richton Dome |
| COUNTY,STATE | :, Perry, MS |
| LATITUDE | :, 31-32 deg-min |
| LONGITUDE | :, 88-58 deg-min |
| SECTION,BLOCK | :, Sec 26, T5N R10W |
| DRILLING COMPLETION DATE | :, 791130 (yymmdd) |
| BOREHOLE STATUS | :, plugged |
| GROUND LEVEL ELEVATION | :, 78.2, (256.7) meters(feet) |
| KELLY BUSHING ELEVATION | :, 81.5, (267.48) meters(feet) above msl |
| TOTAL DEPTH OF BOREHOLE | :, 388.6, (1275) meters(feet) |
| DRILLING TECHNIQUE | :, mud rotary; |
| DRILLING FLUID PROGRAM | :, fresh water bentonite mud to 174 meters and brine based mud from 174 to 389 meters. |

Sample

DRILLING PROGRAM [bit,dia.-cm(in),interval-m(ft),comments] :
, NR, 66.0, (26), 0.0, 18.0, (0-59)
, NR, 38.1, (15), 18.0, 138.1, (59-453)
, NR, 27.9, (11), 137.2, 203.9, (450-669)
, NR, 19.8, (7-13/16), 170.4, 388.3, (559-1274)

CASING SUMMARY [diameter in cm(in),depth in m(ft),comments]:
, 40.6, (16), 18.0, (59)
, 32.4, (12-3/4), 137.2, (450)
, 21.9, (8-5/8), 170.4, ([illegible])

| | |
|---|---|
| LITHOLOGIC LOGS | [illegible] lithologic descriptions, photographs |
| GEOPHYSICAL LOGS | [illegible], acoustilog, gamma ray, caliper, temperature, compensated density, compensated neutron, SP, dual induction focused logs, laterolog, differential temperature, resistivity |
| CORE LOGS | :, YES, conventional core |
| MUD LOGS | :, YES, gas detector, mud condition |

FORMATIONS PENETRATED [interval in meters(ft)] :
, HATTIESBURG-CATAHOULA, 0.0, 178.0, (0-584)
, CAPROCK, 178.0, 233.8, (584-767)
, SALT, 233.8, 388.6, (767-1275)

CORES [diameter in cm(in), interval in meters(ft),comments]:
, 10.2, (4), 138.4, 388.6, (454-1255)

SAMPLING PROGRAM [type, interval in meters(ft),comments] :
, sidewall, 138.4, 388.6, (454-1275)
, fluid samples, 170.4, 234.7, (559-770)

FORMATION TESTS [type,num.,interval in meters(ft),comments]:
, slug, NR, 228.6, 234.7, ([illegible])
, production, NR, 170.4, 234.7, (559-770)
, drawdown and recovery, NR, 170.4,234.7, ([illegible])

HYDROGEOLOGIC MONITORING :, YES, water levels on monthly basis, initially [illegible]

GEOMECHANICAL FIELD TESTS [type,comments] :
, NA
GEOMECHANICAL LAB TESTS [type,comments] :
, strength
, index
, creep
, density
, thermal
ROCK SAMPLE TESTS [type,comments] :
, grain size analysis
, petrographic analysis
, permeability
, elemental composition
HYDROCHEMICAL TESTS [type,comments]
, dissolved organic and inorganic mate[illegible]
, gas analysis
LITHOLOGY [formation,description]:
, NR
SORT WELL NAME :, MRIG- [illegible]
INITIALIZATION [date,authorities,[illegible]] :
830825, CZ Kuntz, KA St. John, DJM, [illegible],63,70,72-80,[illegible]
830825, CS Kuntz, KA St. John, DJM, [illegible]
830825, CZ Kuntz, KA St. John, DJM, [illegible]
831031, CZ Kuntz, KA St. John, CAB, 47,[illegible], (4)
831031, CS Kuntz, KA St. John, [illegible], [illegible], (DE Swanson)
SOURCES:
, (1) Law Engineering Testing Company, 1982. Gulf Coast Salt Domes Well Completion Report: Site MRIG-9, ONWI-178
, (2) Drumheller, J.C. et al, 1982. Petrographic and Geochemical Characteristics of the Richton Salt Core, ONWI-277, Law Engineering Testing Company
, (3) Pfeifle, T. W. et al, 1983. Constitutive Properties of Salt from Four Sites, ONWI-314, RE/SPEC Inc.
, (4) Law Engineering Testing Company, July 1982. Gulf Coast Salt Domes Geologic Area Characterization Report Mississippi Study Area, Volume VII, ONWI-120
47/ find type=rev*
* 4 47/ type=rev*
48/ display all for 1

ITEM 1

ACCESSION NUMBER :8
RECORD TYPE :revision
RECORD REFERENCE :5
REVISION [#,field num,old value,reason,authority,source]:
[illegible]rsmat, 0.39, typo, Nieboff (1)
[illegible] acc=5

Sample

[illegible] #269
[illegible] :repository design
BASIN,SU[illegible] :BE, Paradox
SITE :BE, Lavender Canyon
WASTE TYPE :BE, spent fuel
WASTE MATERIAL :BE, BWR fuel assemblies (24 each)
ROOM DIMENSIONS[length,height,width] :BE, 152.4, 6.1, 4.2 m
ROWS OF PACKAGES/ROOM :BE, 1
BOREHOLE DIMENSIONS [diameter, depth] :BE, 93.0, 590.0 cm
SPACINGS [waste packages, rooms] :BE, 18.3, 20.1 m
LOCAL EXTRACTION RATIO :BE, 21.1 %
HEAT DENSITY :BE, 15. W/sq-m
ROOMS/REPOSITORY :BE, NR
WASTE PACKAGES/ROOM :BE, NR
WASTE PACKAGES/REPOSITORY :BE, NR
TOTAL ROOM AREA :BE, NR sq-m X 10E6
SITE TEMPERATURE PROFILE [depth in m(ft), deg C, comments] :
NR
MEAN ANNUAL SURFACE TEMPERATURE :BE, 15.5 deg C
TEMPERATURE GRADIENT :BE, 20. deg C/km depth
REPOSITORY HORIZON :BE, 914.4, (3000) meters(feet)
THERMAL CONDUCTIVITY CONSTANT, SALT [constant, comment]: A :
BE, 4.19, Gibson Dome Unit 6
BE, 4.24, Gibson Dome Various Halite Units
BE, 3.82, Salt Valley Halite
THERMAL CONDUCTIVITY CONSTANT, SALT [constant, comment]: B :
BE, 0.899, Gibson Dome Unit 6
BE, 1.05, Gibson Dome Various Halite Units
BE, 0.778, Salt Valley Halite
THERMAL CONDUCTIVITY CONSTANT, SALT [constant, comment]: C :
BE, 1152.62, Gibson Dome Unit 6
BE, 1322.72, Gibson Dome Various Halite Units
BE, 931.57, Salt Valley Halite
THERMAL CONDUCTIVITY CONSTANT, SALT [constant, comment]: D :
BE, 0.347, Gibson Dome Unit 6
BE, 0.168, Gibson Dome Various Halite Units
BE, 0.713, Salt Valley Halite
THERMAL CONDUCTIVITY CONSTANT, SALT: TEST CONDITIONS :
NR
THERMAL CONDUCTIVITY CONSTANT, SALT: METHODS/UNCERTAINTIES :
BE, least squares analysis, NR
PEAK SALT TEMPERATURE :BE, NR deg C
INITIALIZATION [date,authorities,field numbers,source] :
000000, SC Matthews, JL Easterday, RMM,
951,952,954,956,958,960,962,964,966, (1), 000000, SC Matthews, JL Easterday, RMM, 953, (2), 000000, SC Matthews, JL Easterday, RMM, 968,969, (3), 000000, SC Matthews,JL Easterday, RMM, 973,974,975,976,977,979, (4), 000000, SC Matthews, JL Easterday, RMM, 970 (5),

[illegible] Survey, [illegible] Dome, Paradox Valley [illegible]

BE, (4) Lagedrost, J.T., and Capp S.W., December 1983, Thermal Property and Density Measurements of Samples Taken From Drilling Cores for Potential Geologic Media, Fiber Materials, Inc., ONWI-522

BE, (5) Stearns-Rogers Services, Inc., February 7, 1984. Repository Depths at Four Sites: Lavender Canyon, Cypress, Vacherie and Richton Domes.Communications to N.C. Henderson (ONWI)

```
  41/ find type
*       0   41/  type
  42/ find type=waste*
*       8   42/  type=waste*
  43/ display all for1
```

Sample

ITEM 1

```
ACCESSION NUMBER            :253
RECORD TYPE                 :waste package design
SITE                        :BE, NR
WASTE TYPE                  :BE, commercial high level waste
WASTE MATERIAL              :BE, NR
CANISTER MATERIAL                          :BE, NR
CANISTER DIMENSIONS [ID, OD, length]       :BE, 53.5, 56.0, 409.0 cm
WASTE FORM WEIGHT [gross, net]             :BE, NR kg
CANISTER HEAT LOAD                         :BE, 9500 W
RADIOACTIVITY CONTENT, DESIGN              :BE, NR Ci
LEACH RATE                                 :BE, NR g/sq-cm/day
CANISTER HEAT LOAD HEIGHT                  :BE, 368.0 cm
CANISTER SURFACE RAD. [illegible] [total]  :BE, NR mrem/hr
CANISTER SURFACE RA[illegible] [neutron]   :BE, NR mrem/hr
CANISTER SURFACE RAD. [illegible] [gamma]  :BE, NR mrem/hr
OVERPACK MATERIAL                          :BE, NR
OVERPACK DIMENSIONS [illegible] length]    :BE, 59.0, 89.0, NR cm
OVERPACK THICKNESS[wall, [illegible], bottom]:BE, 15.0, 21.0, 21.0 cm
OVERPACK WEIGHT[tot.lifting,body,head]:BE, NR kg
ANNULUS THICKNESS                          :BE, 2.5 cm
OVERPACK SURFACE RADIATION LEVEL           :BE, NR mrem/hr
PEAK TEMPERATURE [(in deg C)for waste form,canister,overpack]  :
BE, NR
OVERPACK CORROSION, ALLOWANCE [depth] :BE, NR cm
OVERPACK CORROSION, PREDICTED [medium,depth(cm) after 1000 yrs]:
BE, NR
WASTE PACKAGE COSTS [date, components]      :BE, NR dollars
WASTE PACKAGE COSTS [date, defense waste]   :BE, NR dollars/kg
WASTE PACKAGE COSTS [date, commercial waste]:BE, NR dollars/kg U
INITIALIZATION [date,authorities,field numbers,source]  :
840328, SC Matthews, KA St. John, RMM, all, (1),
SOURCES:
Westinghouse Electric Corporation, 1983. Engineered Waste Package
 Conceptual Design: Defense High-Level Waste (form 1), Commercial
 High-Level Waste (form 2),and Spent Fuel (form 3) Disposal in Salt,
 ONWI-422
```

[illegible] Gibson Dome, Paradox Valley,

[illegible] BE, (4) Lagedrost, J.T., and Capp S.M., December 1983, Thermal Property and Density Measurements of Samples Taken From Drilling Cores for Potential Geologic Media, Fiber Materials, Inc., ONWI-522
BE, (5) Stearns-Rogers Services, Inc., February 7, 1984. Repository Depths at Four Sites: Lavender Canyon, Cypress, Vacherie and Richton Domes,Communications to N.C. Henderson (ONWI)

Sample

```
  41/ find type
*       0   41/  type
  42/ find type=waste*
*       8   42/  type=waste*
  43/ display all for1
```

ITEM 1

```
ACCESSION NUMBER                :253
RECORD TYPE                     :waste package design
SITE                            :BE, NR
WASTE TYPE                      :BE, commercial high level waste
WASTE MATERIAL                  :BE, NR
CANISTER MATERIAL                          :BE, NR
CANISTER DIMENSIONS [ID, OD, length]       :BE, 53.5, 56.0, 409.0 cm
WASTE FORM WEIGHT [gross, net]             :BE, NR kg
CANISTER HEAT LOAD                         :BE, 9500 W
RADIOACTIVITY CONTENT, DESIGN              :BE, NR Ci
LEACH RATE                                 :BE, NR g/sq-cm/day
CANISTER HEAT LOAD HEIGHT                  :BE, 368.0 cm
CANISTER SURFACE RAD. LEVEL [total]        :BE, NR mrem/hr
CANISTER SURFACE RAD. LEVEL [neutron]      :BE, NR mrem/hr
CANISTER SURFACE RAD. LEVEL [gamma]        :BE, NR mrem/hr
OVERPACK MATERIAL                          :BE, NR
OVERPACK DIMENSIONS [ID, OD, length]       :BE, 59.0, 89.0, NR cm
OVERPACK THICKNESS[wall, head, bottom]:BE, 15.0, 21.0, 21.0 cm
OVERPACK WEIGHT[tot.lifting,body,head]:BE, NR kg
ANNULUS THICKNESS                          :BE, 2.5 cm
OVERPACK SURFACE RADIATION LEVEL           :BE, NR mrem/hr
PEAK TEMPERATURE [(in deg C)for waste form,canister,overpack]  :
BE, NR
OVERPACK CORROSION, ALLOWANCE [depth] :BE, NR cm
OVERPACK CORROSION, PREDICTED [medium,depth(cm) after 1000 yrs]:
BE, NR
WASTE PACKAGE COSTS [date, components]      :BE, NR dollars
WASTE PACKAGE COSTS [date, defense waste]   :BE, NR dollars/kg
WASTE PACKAGE COSTS [date, commercial waste]:BE, NR dollars/kg U
INITIALIZATION [date,authorities,field numbers,source]  :
840328, SC Matthews, KA St. John, RMM, all, (1),
SOURCES:
Westinghouse Electric Corporation, 1983. Engineered Waste Package
 Conceptual Design: Defense High-Level Waste (form 1), Commercial
 High-Level Waste (form 2),and Spent Fuel (form 3) Disposal in Salt,
```

```
  NT   CAR[illegible]
  NT   CARBONATES
  NT   CARNALLITE
  NT   CHAOTIC MUDSTONE/SALT
  NT   CLASTICS
  NT   CLAYSTONE
  NT   DOLOMITE
  NT   EVAPORITE
  NT   HALITE
  NT   LIMESTONE
  NT   MUDSTONE
  NT   SALT
  NT   SANDSTONE
  NT   SHALE
  NT   SILTSTONE
  NT   SILTY SANDSTONE

ENTER TERM
    / clastics
clastics
  BT   SEDIMENTARY ROCK
  NT   CLAYSTONE
  NT   MUDSTONE
  NT   SANDSTONE
  NT   SHALE
  NT   SILTSTONE
  NT   SILTY SANDSTONE
  RT   CARBONATES
  RT   EVAPORITE

ENTER TERM
    / carbonates
carbonates
  BT   SEDIMENTARY ROCK
  NT   DOLOMITE
  NT   LIMESTONE
  RT   CLASTICS
  RT   EVAPORITE

ENTER TERM
    / evaporite
evaporite
  BT   SEDIMENTARY ROCK
  NT   ANHYDRITE
  NT   HALITE
  NT   SALT
  RT   CARBONATES
  RT   CLASTICS

ENTER TERM
    / texas
texas
  EQ   TX

ENTER TERM
    / tx
tx
  UF   TEXAS
  NT   DEAF SMITH
  NT   DETTEN #1
  NT   DETTEN #2
  NT   DONLEY
  NT   FREESTONE
  NT   FRIEMEL G #1
  NT   FRIEMEL J #1
  NT   GRABBE #1
  NT   HARMAN #1
  NT   HOLTZCLAW #1
  NT   KEECHI DOME
  NT   LEON
  NT   MANSFIELD #1
  NT   MANSFIELD #2
  NT   OAKWOOD DOME
  NT   OLDHAM
  NT   RANDALL
  NT   REX WHITE #1
  NT   SAWYER #1
  NT   SAWYER #2
  NT   SWISHER
  NT   TOG-1
  NT   TOH-2A
  NT   TOH-5D
  NT   ZEECK #1

ENTER TERM
    / oldham
oldham
  BT   PALO DURO
  BT   PERMIAN
  BT   TX
  UF   OLDHAM COUNTY
  NT   MANSFIELD #1
  NT   MANSFIELD #2

ENTER TERM
    / oldham county
oldham county
  EQ   OLDHAM
```

Samp

```
   1/ ?fields

FIELD NAME   NUMBER  TYPE    LABEL
----------     ----  -----   ---------------
ACC               1  I KEY   ACCESSION NO
RPTNO             2  S       REPORT NO
TI                3  S       TITLE
BASIN             4  S       BASIN
ABS               5  S       ABSTRACT
STAT              6  S NP    STATUS
PLNDT             7  I       PLANNED DATE
DTISS             8  I NP    DATE ISSUED
SAF               9  S NP    SAFTEY CLASS.
QA               10  S NP    QA CATEGORY
WBS              11  S       WBS CATEGORY
PMGR             12  S       PROJECT MANAGER
REVIEW           13  S       PLANNED REVIEW
ORIG             14  S       ORIGINATOR
FORM             15  S       FORM
RPTDT            16  I       REPORT ISSUE DT.
SUBMIT           17  S       SUBMITTED
DTENT            90  I NP    DATE ENTERED
DTCHG            91  I NP    DATE CHANGED
   1/ set talk=2
ENTER YOUR REQUEST
   1/ ?fields

FIELD NAME   NUMBER  TYPE    LABEL
----------     ----  -----   ---------------
ACC               1  I KEY   ACCESSION NO
RPTNO             2  S       REPORT NO
TI                3  S       TITLE
BASIN             4  S       BASIN
ABS               5  S       ABSTRACT
STAT              6  S NP    STATUS
PLNDT             7  I       PLANNED DATE
DTISS             8  I NP    DATE ISSUED
SAF               9  S NP    SAFTEY CLASS.
QA               10  S NP    QA CATEGORY
WBS              11  S       WBS CATEGORY
PMGR             12  S       PROJECT MANAGER
REVIEW           13  S       PLANNED REVIEW
ORIG             14  S       ORIGINATOR
FORM             15  S       FORM
RPTDT            16  I       REPORT ISSUE DT.
SUBMIT           17  S       SUBMITTED
DTENT            90  I NP    DATE ENTERED
DTCHG            91  I NP    DATE CHANGED

LEGEND FOR THE TYPE COLUMN
R=REAL, I=INTEGER, S=STRING, B=BOOLEAN
KEY=DOCUMENT UNIQUE KEY (ACCESSION NUMBER), MAP=MAPPED PSEUDO FIELD
NN=NO.NULL (REQUIRED FIELD), NP=NO.PROMPT (VERY OPTIONAL FIELD)
ENTER YOUR REQUEST
   1/
```

Sample

```
   2/ look orig=w*

  .ITEMS.    TERMS
A       2  ORIG=WESTERN RURAL DEVELOPMENT CENTER
B       2  ORIG=WESTINGHOUSE
C      12  ORIG=WOODWARD-CLYDE
END OF TERMS WITH YOUR STEM
PICK LETTERS TO COMBINE
   2/ b
      2 ITEMS SAVED AS SET 2
CONTINUE PICKS OR REQUESTS
   3/ display all for 1

ITEM 1

ACCESSION NO     7
REPORT NO        0-1255
TITLE
BRINE MIGRATION TEST EQUIPMENT FINAL REPORT - ASSE SALT MINE
BASIN            GENERIC
ABSTRACT
THIS REPORT WILL INCLUDE A DESCRIPTION OF THE TEST EQUIPMENT,
 PROCEDURES INCLUDING INSTALLATION, START-UP AND ANY DIFFICULTIES ON
 ANOMOLIES DISCOVERED DURING ALL PHASES OF THIS PROJECT. INCLUDED WILL
 BE A DESCRIPTION OF THE ASSE SALT MINE AND VARIOUS PROPERTIES OF THE
 SALT IN THE TEST AREA. ALSO INCLUDED WILL BE THE INITIAL DATA ON BRINE
 MIGRATION AND SALT BEHAVIOR VERSUS PREDICTED RESULTS.
STATUS           WORK IN PROGRESS
PLANNED DATE     840701
DATE ISSUED      830815
WBS CATEGORY     1.3.6.2
PROJECT MANAGER  COYLE
PLANNED REVIEW   ONWI-INTERNAL;DOE/[illegible]0;PATENT REVIEW
ORIGINATOR       WESTINGHOUSE
FORM             ANALYSIS REPORT
SUBMITTED        N
DATE ENTERED     830902
DATE CHANGED     840423
   3/


   3/ find plndt gt 840501
*     208     3/  PLNDT GT 840501
   4/ find plndt lt 840530
*      35     4/  PLNDT LT 840530
   5/ find 3 and 4
*       5     5/  3 AND 4
```

```
  19/ list 1-[illegible]

  .ITEMS. LINE    REQUEST
*       0    1/  SHOW PREFIX
*       2    2/  ORIG=WESTINGHOUSE
*     208    3/  PLNDT GT 840501
*      35    4/  PLNDT LT 840530
*       5    5/  3 AND 4
*       9    6/  TI=BRINE
*       4    7/  TI=MIGRATION
*       3    8/  TI=BRINE AND TI=MIGRATION
*       0    9/  DS
*       0   10/  BASIN=BARADOX
*      19   11/  BASIN=PARADOX
*      19   12/  BASIN=PARADOX SORT=ORIG
*      19   13/  BASIN=PARADOX SORT=ORIG SORT=SORT ORIG,PLNDT
  19/ expand,line=11,orig,tally

    THE UNIQUE VALUES ARE

      4     BECHTEL GROUP INC
      1     DAPPOLONIA
      1     INTERA
      1     ONWI
      1     STEARNS-ROGER
     11     WOODWARD-CLYDE

  19/ expand,line=11,orig,count

     6  UNIQUE VALUES

  19/




  19/ set univ=11
  19/ find plndt gt 840501
*      13   19/  PLNDT GT 840501 ** UNIVERSE= 11 **
  20/ find plndt lt 840501
*       0   20/  PLNDT LT 840501 ** UNIVERSE= 11 **
  21/ find plndt lt 840531
*       7   21/  PLNDT LT 840531 ** UNIVERSE= 11 **
  22/ find 19 and 21
*       1   22/  19 AND 21
  23/ display plndt

ITEM 1

PLANNED DATE     840530
  23/ set universe off
  23/
```

Sample

Sample

2/ ?commands

```
DISPLAY   SHOW SOURCE FILE DATA ONLINE
COMP      CREATE AND PERFORM ARITHMETICAL AND STATISTICAL
          OPERATIONS ON DATASETS.
PRINT     SHOW SOURCE FILE DATA OFFLINE
FIND      FIND TERMS IN THE INDEX AND COMBINE THEM
LOOK      LOOK AT VARIOUS INDEX TERM LISTS (ADJACENT, STEM, BROWSE)
SCAN      SEARCH RECORDS FROM A DOCUMENT SET SEQUENTIALLY
LIST      LIST THE DOCUMENT SETS YOU HAVE FOUND, OR SHOW
          COMMANDS,PARAMETERS,STATUS,TOPICS,FIELDS,PROFILES,REPORTS
SET       CHANGE VARIOUS PARAMETERS
          FOR MORE INFORMATION ENTER  LIST PARAMETERS
QUIT,END  TERMINATE THE USAGE OF BASIS
LOGOUT    TERMINATE THE USAGE OF THE COMPUTER SYSTEM
RESTART   START THE SESSION FROM THE BEGINNING AGAIN
RUN       EXECUTE USER OWNCODE PROGRAMS
STOP      STOP THE PRESENT FUNCTION AND RETURN TO REQUEST MODE
ABORT     ABORT THE PRESENT FUNCTION AND RETURN TO REQUEST MODE
CLOCK     SHOW TIME USED SO FAR
?         EXPLAIN THE LAST MESSAGE OR A TOPIC
ROUTE     ROUTE A PRINT FILE TO A PRINTER IMMEDIATELY
EXPAND    EXPAND, TALLY, OR COUNT RECORDS IN A DOCUMENT SET
SORT      SORT A DOCUMENT SET BASED ON THE CONTENTS OF THE RECORDS
OLIVE     USE THE ON-LINE INPUT VERIFICATION AND EDITING SUB-SYSTEM
REPORT    INITIATE THE USE OF THE REPORT WRITER SUB-SYSTEM
XEQ       EXECUTE INTERCOM COMMANDS AND RETURN TO BASIS
SUSPEND   SUSPEND AND RETURN TO TIME-SHARING MODE
            (RETURN BY ENTERING= ADVANCE.)
PROFILE   INITIATE THE USE OF THE PROFILE MODULE
DOCSET    SAVE A DOCUMENT SET FOR USE IN A LATER SESSION
ALSO:     ASK,TELL,OUTPUT
  2/
```

Sample

```
   2/ look de=geohy*

  .ITEMS.    TERMS
A        1  DE=GEOHYDROLOGIC
B        1  DE=GEOHYDROLOGICAL
C        2  DE=GEOHYDROLOGY
END OF TERMS WITH YOUR STEM
PICK LETTERS TO COMBINE
   2/ a,b,c
      4 ITEMS SAVED AS SET 2
CONTINUE PICKS OR REQUESTS
   3/ display de for all

ITEM 1

DESCRIPTOR      WILCOX-CARRIZO;SPARTA AQUIFERS;GEOHYDROLOGIC RELATIONS;
                POTENTIOMETRIC LEVELS

ITEM 2

DESCRIPTOR      GEOHYDROLOGICAL INVESTIGATIONS;SILICA SAND LAYERS;
                STRONTIUM

ITEM 3

DESCRIPTOR      SITE GEOMETRY;GEOHYDROLOGY;GEOCHEMISTRY;STRATIGRAPHY;
                ATMOSPHERE

ITEM 4

DESCRIPTOR      GEOMECHANICS;QUATERNARY STUDIES;VACHERIE DOME;RAYBURN'S
                DOME' GEOHYDROLOGY;REGIONAL GEOLOGY
   3/
```

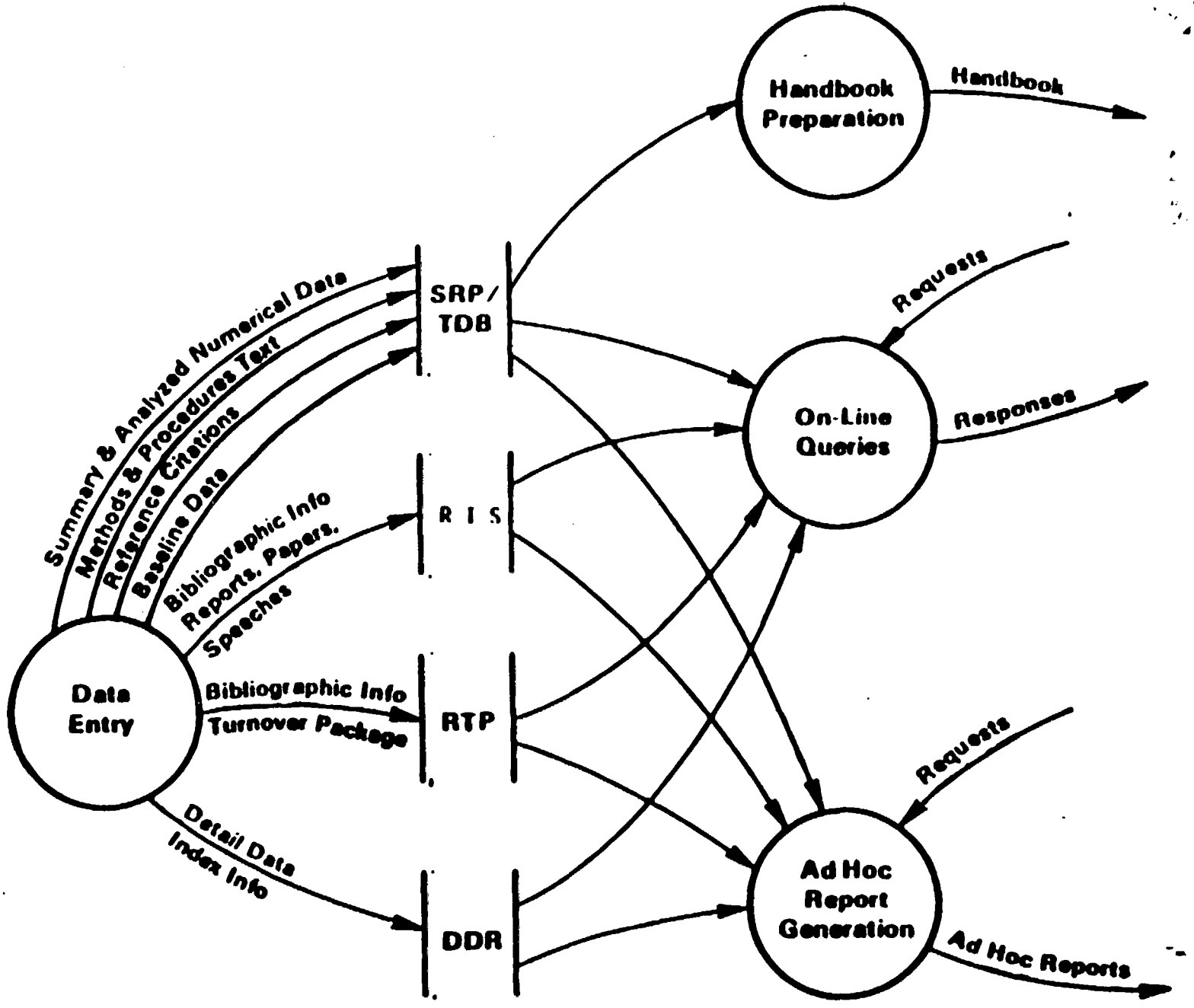


FIGURE 4-1. INFORMATION FLOW