Attachment D.5

Subsidence

Documents

Reviewed

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WP 09-ES.01
Revision 2

WIPP Underground and Surface Surveying Program

Cognizant Department: Engineering

Approved by: J. J. Garcia

WASTE ISOLATION PILOT PLANT
WIPP

ACRONYMS AND ABBREVIATIONS

CCA	Compliance Certification Application
DOE	Department of Energy
FGCS	Federal Geodetic Control Subcommittee
GPS	Global Positioning Survey
K	kilometer
mm	millimeter
NAD 27	North American Datum of 1927
NGS	National Geodetic Survey
PRS	Project Records Services
QA	quality assurance
QAPD	Quality Assurance Program Description
SDD	System Design Description
TRU	Transuranic
TS	Technical Support
WID	Waste Isolation Division
WIPP	Waste Isolation Pilot Plant

1.0 INTRODUCTION

This document defines the Waste Isolation Pilot Plant (WIPP) surveying program and responsibilities currently being carried out by the Waste Isolation Division (WID) Engineering Surveying Group. The group's program plans and functions are designed to provide location and alignment information necessary to establish precise horizontal and vertical control for all aspects of underground and surface configuration. Surveying activities currently consist of, but are not limited to, the following:

- Underground site configuration, control, and update
- Surface site configuration, control, and update
- Operations and engineering support
- Geotechnical ground control support
- Surface subsidence monitoring

These activities are implemented and controlled by this document, Federal Geodetic Control Subcommittee (FGCS) standards, and WP 13-1, WIPP Quality Assurance Program Description.

1.1 Background

The surveying program provides surveying services and information to any section or group within the WID Engineering Department for planning, engineering and/or documentation purposes. The surveying program also provides basic information to other WID sections and departments so that the safe disposal of transuranic (TRU) and mixed waste can be demonstrated both in the short-term (during the operational life of the facility) and in the long-term (following decommissioning), while satisfying all regulations governing permanent isolation of the waste. The program provides construction surveying for WID engineering, planning, and documentation purposes, but does not include construction surveying for contractors. Drivers for this program include the Mine Safety and Health Administration requirements (Title 30 Code of Federal Regulations Part 57, Safety and Health Standards--Underground Metal and Nonmetal Mines); DOE/CAO [U.S. Department of Energy Carlsbad Area Office] 96-2184, Compliance Certification Application (CCA); and the WIPP AU00 System Design Description (SDD). The program also helps ensure that the facility is operated safely and that the data are available to make decisions for managing and performing engineering and operational activities. Each surveying activity is controlled by this surveying program, which describes the general scope of the survey, its methodology, and quality assurance (QA) requirements.

To satisfy the listed regulatory drivers, certain activities and functions are required of the Engineering Surveying Group. These commitments are listed as follows:

- Perform an annual subsidence monitoring survey.
- Publish an annual report of subsidence survey data, including a comparison with prior years data.
- Maintain, replace, and expand the subsidence monument network, as required.
- Maintain state-of-the-art leveling equipment and capability.

1.2 WIPP Surveying History and Accuracy Requirements

Surveying was one of the first activities to take place at the WIPP site. Coordinates for the site were brought in from the National Geodetic Survey (NGS) monument "Rustler." New Mexico State Plane Coordinates North American Datum of 1927 (NAD 27) are used at WIPP for control. In general practice at WIPP, these coordinates are truncated for use as the site coordinate system. To arrive at the site coordinates, 490,000 feet was dropped from the Northing and 660,000 feet was dropped from the Easting of the New Mexico State Plane Coordinates NAD 27. The base point for the WIPP site was the section corner common to Sections 20, 21, 28, and 29 in T.22 S., R.31 E. During 1986, a surveying contractor was retained to resurvey the site to bring in coordinates and transfer them underground. Surveys were run from the NGS monuments "Berry" and "Brininstool," using NAD 27 values. Because the original base point had been lost, a new base point (PT 30) was chosen and new plant coordinates were calculated for all existing points. It is important to remember that plant coordinates are on a rectangular grid while State Plane Coordinates take into account that the earth is a spheroid. It is not possible to make a direct comparison of the two systems for more than one point at a time.

A resurvey of the underground was conducted in 1993. Horizontal locations were traversed, and the true bearings were checked using a gyro-compass. Additionally, a level survey was conducted through 20 benchmarks located throughout the underground. To minimize the effects of salt creep, the horizontal location points are placed in the roof on the center line of the drifts and vertical benchmarks are placed in the drift walls at approximately mid-height of the drift.

The vertical surveying monitoring commitments in the CCA divides the monitoring into three phases: developmental, operational, and post-closure. During the initial developmental phase (in 1977), 314 kilometers of First Order, Class I survey was performed by the NGS. The NGS network was resurveyed in 1981 and the relative movement between Carlsbad and the WIPP site was measured to be about 2 centimeters. The relative motion across the network was down to the east and up to the west.

The 1981 NGS survey also established new survey lines that connected the previous First Order benchmarks through Carlsbad to Second Order survey lines through Eunice and Hobbs. During this survey, benchmarks were placed over the Nash Draw from the north end to the Remuda Basin, over potash mines, the WIPP site, and the San Simon Sink.

Independent of the NGS work, but using the established First Order, Class I NGS benchmarks, an additional 52 benchmarks were installed by surveying companies working under contract to WIPP. The benchmarks were installed in a grid on approximately 1,000-foot centers. This grid covers the WIPP planned repository and extends about 1,000 feet beyond the edge of the planned extent of the waste panels. Second Order, Class II FGCS specifications were used for these benchmarks. This work was completed in 1986.

A Global Positioning Survey (GPS) was conducted in 1994 by the WIPP Site Survey Section in conjunction with a contractor. The GPS was used to check horizontal control and independently verify the Second Order, Class II subsidence survey conducted in 1994. In 1996, the WIPP Site Survey Section, in conjunction with a contractor, performed a First Order, Class I level survey from the Berry Monument, 20 miles east of the WIPP site. The survey included the 52 existing subsidence monuments at the site and traversed back to the Berry Monument.

At the start of the closure phase, it is anticipated that a review of all past subsidence surveys and the adequacy of the existing subsidence stations will be conducted. New subsidence stations, if needed, will be installed to FGCS standards. A survey that achieves First Order, Class I accuracy may then be conducted. Information from this survey will be combined with published information from all previous work to form a baseline database for subsidence information in accordance with the CCA. The CCA states that this post-closure survey is to be repeated in three years. Thence, it is to be repeated every ten years for the next 100 years, or until the DOE determines that further surveys are not required.

The U.S. Department of Commerce is responsible for establishing and maintaining basic control networks for the nation. The Department of Commerce carries this out through the NGS which establishes surveys, then adjusts and publishes the results on horizontal and vertical geodetic control networks. As part of the control program, the FGCS prepares classification and standards for geodetic control surveys. The following tables outline general requirements for horizontal and vertical control.

CLASSIFICATION, STANDARDS OF ACCURACY AND RECOMMENDED USES

Horizontal Control					
Classification	**First Order Class I**	**Second Order Class I**	**Second Order Class II**	**Third Order Class I**	**Third Order Class II**
Relative accuracy between directly connected points	1 part in 100,000	1 part in 50,000	1 part in 20,000	1 part in 10,000	1 part in 5,000
Recommended uses	Primary national network. Metropolitan area surveys. Scientific studies.	Area control which strengthens the national network. Subsidiary metropolitan control.	Area control which contri-butes to, but is supplemental to, the national network.	General control surveys referenced to the national network. Local control surveys.	

Vertical Control					
Classification	**First Order Class I**	**First Order Class II**	**Second Order Class I**	**Second Order Class II**	**Third Order**
Maximum loop misclosure where K is the length of the loop in Kilometers	4mm $\sqrt{K}$	5mm $\sqrt{K}$	6mm $\sqrt{K}$	8mm $\sqrt{K}$	12mm $\sqrt{K}$
Recommended uses	Basic framework of the national network. Regional crustal movement studies. Extensive engineering projects.	Secondary framework of the national network and metropolitan area control. Local crustal movement studies. Large engineering projects. Tidal boundary reference. Support for lower order surveys.		Densification within the national network. Rapid subsidence studies. Local engineering projects. Topographic mapping.	Small scale topographic mapping. Establishing gradients in mountainous areas. Small engineering projects. May or may not be adjusted to the national network.

Horizontal surveys at WIPP are conducted to FGCS accuracy standards for Second Order, Class II surveys. The Second Order, Class II level of accuracy is the standard recommended for the type of surveying performed at WIPP by the FGCS. It was also established as such by the original design basis documents and is carried through into the AU00 SDD. First Order, Class I results are routinely obtained by the WIPP Site Surveying Section. Subsidence surveys are carried out in the same manner as vertical surveys. In subsidence measurements, the error is determined by both the equipment used and the distances between the stations. As defined by the FGCS a First Order, Class I level survey has a maximum loop error of 4mm $\sqrt{K}$ where K is the length of survey loop in Kilometers. A Second Order, Class II level survey has a maximum loop error of 8mm $\sqrt{K}$ or two times the error of a First Order survey. Technological advances in electronic digital levels allow the user to obtain numerical results that far exceed the minimum Second Order, Class II standard.

2.0 ADMINISTRATION

2.1 Organization

The organizational structure of WID is described in WP 13-1. The Engineering Surveying Group reports to the manager of Technical Support (TS). The Underground and Surface Surveying Program is within the cognizance of the AU00 System.

2.2 Responsibilities

The Engineering Surveying Group cognizant engineer and staff are responsible for achieving and maintaining quality in the Engineering Surveying Group.

2.3 Training and Qualifications

Personnel who perform specific tasks associated with surveying, surveying data collection, survey data reduction, and quality control measures are trained and qualified in the application of the specific requirements to complete their tasks. Minimum training for Engineering personnel is identified in WP 09, Engineering Conduct of Operations.

3.0 TECHNICAL PROGRAM DESCRIPTION

The WIPP Underground and Surface Surveying Program is divided into three parts: underground, surface, and subsidence monitoring. Underground and surface surveying covers all surveying performed underground and on the surface to provide location, alignment and elevation information for all departments concerned with surface operations and TRU waste handling. Control points are maintained upon which the location, alignments, and elevations are based. This information is also used for updating existing drawings and surface maps. Subsidence monitoring provides for leveling and horizontal control of all the subsidence monuments within the 16 square miles of the surface properties (WIPP Land Withdrawal Area). These surveys are either conducted by the

Engineering Surveying Group personnel, or by qualified contractor/vendor personnel under the direct supervision of the Engineering Surveying Group. Finally, this plan gives the Engineering Surveying Group the flexibility to provide qualified surveys and survey information to any other internal WID section, provided the request is approved by the manager of TS.

3.1 Underground Surveying Program

The purpose of the Underground Surveying Program is to maintain accurate location information of the underground structures and to provide alignment for new excavations. The Underground Surveying Program ensures continuing confirmation of underground configuration through surveys. These surveys generate data that are used in underground planning, underground extensions and TRU and mixed waste emplacement. Information from the surveys is used to document the existing extent, size, and location of the entries crosscuts, panels, and rooms of the underground. Activities associated with this program include control surveys, level surveys, alignment point installation, grade point installation, laser alignment, and as-found surveys. Other surveying activities are performed as needed.

Underground surveying is the only way to provide information for the construction and precise location of underground structures. Because of the safety constraints inherent in handling and emplacement of TRU and mixed waste in the WIPP underground, state-of-the-art surveying equipment and methods are used. The Underground Surveying Program provides information basic to the design, construction, and operation of the repository.

3.1.1 Methodology

Routine underground surveys are carried out in accordance with common industry practice, and in accordance with standards specified by the FGCS. Other surveys which are in development, or are not routine are performed in accordance with common industry practice, or individual program plans.

a. Routine Surveys

Horizontal Control Surveys - Horizontal Control Surveys are made as the repository is excavated to provide accurate location of existing and planned openings.

Vertical Control Surveys - Vertical Control Surveys are made as the repository is excavated to provide precise elevation and vertical control of existing and planned openings.

Alignment Surveys - Alignment Surveys are performed as required to provide alignment and grade points for mining operations as excavation of the repository proceeds. Alignment Surveys include the setting of laser alignment instruments to coincide with the horizontal control grade points.

Mapping Surveys - Mapping Surveys provide information of the existing location, size, and shape of the underground structures.

Location Surveys - Location Surveys provide precise location information on geotechnical instruments and stationary underground structures.

b. Other Underground Surveying Activities

Other underground surveying activities are performed as required. An example of other surveying activities might include a shaft plumbing survey.

c. Data Processing, Distribution, and Storage

All survey data are collected electronically, downloaded, and processed using approved software programs. Distribution of information is accomplished by electronic files. A hard copy is provided to a customer as required. Storage of survey information is maintained on the Survey Section's computers, and a back-up file resides on the WIPP Intranet. A hard copy of the information is also maintained in the Survey Section files.

3.2 Surface Surveying Program②

The purpose of the Surface Surveying Program is to maintain accurate location information of surface structures and to provide location and topographical information for planning and construction of new surface structures. The Surface Surveying Program ensures continuing confirmation of site configuration through surface surveys. These surveys generate data that is used in site planning and new surface projects. Information from the surveys is used to document the existing extent, size, and location of the site facilities as they exist. Activities associated with this program include control surveys, level surveys, and existing condition surveys. Other surveying activities are performed on an "as needed" basis.

Surface surveying is the only way to provide information of the construction and precise location of facility structures. Because of the safety constraints inherent in handling of TRU and mixed waste at WIPP, state of the art surveying equipment and methods are obtained and used. The Surface Surveying Program provides information basic to the design, construction, and operation of the surface facilities.

3.2.1 Methodology

Surveys performed on a routine basis are carried out in accordance with common industry practice, and in accordance with standards specified by the FGCS. Other surveys which are in development, or are not routine are performed in accordance with common industry practice, or individual program plans.

a. Routine Surveys

Horizontal Control Surveys - Horizontal Control Surveys are made as needed for horizontal control.

Vertical Control Surveys - Vertical Control Surveys are made as needed for vertical control.

Topographic Surveys - Topographic Surveys are performed as required to provide planning and construction information for surface projects.

Mapping Surveys - Mapping Surveys provide information of the existing location, size, and shape of existing surface facilities.

b. Other Surface Surveying Activities

Other surface surveying activities will be performed as required. An example of other surveying activities might include a GPS.

c. Data Processing, Distribution, and Storage

All survey data are collected electronically, downloaded, and processed using approved programs. Distribution of information is accomplished by electronic files. A hard copy is also provided to a customer, if needed. Storage of survey information is maintained on the Survey Section's computers and a backup file resides on the WIPP Intranet. A hard copy of the information is also maintained in the Survey Section's files.

3.3 Subsidence Monitoring Program③

Subsidence is defined as the vertical movement of the land surface anywhere within a defined subsidence basin. Specifically, subsidence monitoring comprises the precise measurement of the relative vertical movement of the land surface which can be in the form of uplift (upwards movement) or subsidence (downwards movement) relative to an assumed fixed reference point. The fixed reference point is assumed to be fixed since it is placed outside the subsidence basin. However, it is also subject to some of the same factors and processes that affect and cause surface movement. Thus, it may also be in motion. The techniques used to monitor subsidence measure the vertical height difference between an array of markers on the surface and is typically performed with a leveling survey. Under normal conditions, one reference benchmark (ideally, one outside the potential subsidence basin) is utilized as the standard and the relative movement of other stations or benchmarks are compared to it in order to detect vertical differential movement over a period of time.

Subsidence can be caused by a number of factors. Potential examples could include mining, hydrocarbon (petroleum) exploration and production, petroleum production-related water injection and disposal, water well drilling and completion, geological deformation, and dissolution. Nash Draw is a major subsidence feature near the WIPP, caused by the dissolution of evaporites in the upper Salado and lower Rustler formations. Near WIPP, localized mine-induced subsidence is associated with areas where pillars were removed during second-pass extraction in potash mines.

Subsidence monitoring of the surface area over the underground excavations is a consequence of several government and WID requirements. The WIPP AU00 SDD states, "The design of the mine will result in no more than one inch surface subsidence within 500 feet of the waste shaft." This is one of the original design parameters to assure protection of the WIPP surface structures. The size of the underground shaft pillar area and the layout of the WIPP mine plan is based on this parameter among others. Calculations to assure this low level of subsidence around the waste shaft were made by the WIPP architects/engineers.

The AU00 SDD document is the driver for the annual subsidence survey around the WIPP waste shaft, which is conducted according to the specifications of a Second Order, Class II Survey as stated by the FGCS. This classification allows for a maximum of about 2/5 inch vertical error per mile of survey. Thus, the maximum survey error is small enough that it will not mask any subsidence that might occur within 500 feet of the waste shaft.

The Subsidence Monitoring Program monitors vertical ground movement over the underground openings at WIPP. Monitoring stations were installed on the surface over the completed and planned underground excavations in a grid with spacing of approximately 1,000 feet. Precise level surveys are conducted annually to determine any surface movement of the subsidence stations.

Subsidence monitoring was selected by the DOE as a basic long-term monitoring tool. The initial subsidence survey is considered as the baseline condition. Because subsidence monitoring is performed annually, it is also useful as an active institutional control (short-term) tool. Subsidence monitoring is nonintrusive by nature and can be related to numerical assessments. Subsidence monitoring can detect substantial and detrimental, or slight and insignificant deviations from expected repository performance by comparing current subsidence values to previous subsidence survey values. Subsidence monitoring can be implemented independent of site utilities, providing useful data for a reasonable cost over a relatively long time period, and it requires minimum maintenance to sustain a high-quality performance level.

Subsidence monitoring provides information on vertical surface movement in mining areas due to creep closure of underground openings. This closure results in a subsidence basin on the surface the extent of which depends on the underground extraction. Establishing permanent stations over the underground openings and periodically traversing through

these stations with precise level surveys can determine the subsidence profile, provided these surveys are continued far enough into the future to allow the subsidence to reach the surface.

The Backfill Engineering Analysis Report (WEC 1994) evaluates the potential for, and predicts subsidence caused by, the mining of the WIPP's shafts, drifts, and waste disposal rooms. These calculations account for a range of emplaced waste volumes, waste densities, and backfill types. Subsidence was also calculated for conditions where no backfill would be used.

This study predicts the maximum subsidence expected, and was performed to specifically estimate subsidence for long-term repository performance monitoring. It does not account for other factors that may influence subsidence such as local petroleum exploration and production, and potash mining.

The Surveying Subsidence Program provides the capability to assess the responses of the surface and underground facility due to surface subsidence.

3.3.1 Methodology

The activities associated with the Subsidence Monitoring Program are designed to:

- Provide time-related spatial information on surface subsidence within an area of 500 feet of the waste shaft during the operational phase of the repository
- Provide time-related spatial information on surface subsidence over the influence area of the underground openings with which subsidence predictions can be compared
- Maintain a database of subsidence data
- Provide an annual written report during the operational phase

The process by which subsidence information is obtained may change with changing technology. Nothing in this plan will limit the adoption of new technology provided the performance of subsidence surveys follow the specifications described in the FGCS specifications and procedures for subsidence leveling surveys.

The following are activities of the Subsidence Monitoring Program:

Subsidence Station Maintenance - Subsidence stations are maintained as needed. Restoration, replacement, and installation of new stations will be performed according to FGCS specifications and procedures for Second Order, Class II Surveys.

Testing - When in use, daily tests are performed on all equipment used to ensure proper operation and calibration.

Subsidence Surveys - Subsidence surveys are performed annually until closure. After closure, in accordance with the CCA, subsidence surveys will be performed on the first and third year, then at ten-year intervals for the next 100 years, or as long as the DOE deems necessary.

Report and Database - A report is generated each year that details the current subsidence survey and summarizes previous year's values. Survey information will be maintained in electronic files in two locations. Backup electronic files of the information are maintained on the WIPP Intranet.

4.0 QUALITY ASSURANCE

The WIPP Underground and Surface Surveying Program is governed by WP 13-1. Steps to ensure quality will be incorporated into the technical processes used for engineering surveying activities, as needed. The TS manager, or assigned designee, is responsible for developing and maintaining this program. Surveying and subsidence surveying at the WIPP performed by qualified contractor/vendor personnel are under the direct supervision of the WID Engineering Surveying Group. Vendor personnel who perform surveying-related work must meet the following minimum standards:

- Five years' experience in field surveying
- Demonstrated proficiency in the use of various precision leveling equipment specified for the monitoring program(s)
- Demonstrated proficiency in the use of various related surveying software specified for the monitoring program(s)
- Demonstrated proficiency in the use of various GPS-related equipment and software

4.1 Survey Equipment Control

Survey equipment processes use sound surveying/scientific principles and appropriate standards. WIPP's QA program and WID Engineering require that tests be performed on all equipment when in use to ensure proper operation and calibration.

Surveying equipment are controlled and calibrated in accordance with WIPP procedures. Results of calibrations, maintenance, and repair will be documented. Calibration records will identify the reference standard and the relationship to national and international standards or nationally-accepted measurement systems. Calibration reports and operability tests are maintained by the WIPP Metrology Laboratory.

The WIPP Metrology Program, WP 10-AD.01, requires, at a minimum of every two years or in accordance with manufacturer's recommendations, that all equipment be given complete maintenance and calibration checks by approved vendor(s) or a qualified laboratory to ensure that the equipment is properly calibrated and/or in proper working condition.

For subsidence measurement equipment, maintenance and calibration are performed by approved vendors in accordance with national standards. Equipment is maintained and calibrated by vendors on the WIPP QA-approved Qualified Supplier's List. The WID QA Department will process and ensure the adequacy of routine maintenance performed by the vendor.

4.2 Procurement

Procurement of equipment is carried out in accordance with the appropriate policies and procedures for Design Class IIIB equipment. Technical requirements and services will be developed and specified in procurement documents. If deemed necessary, these documents will require suppliers to have an adequate QA program to ensure that required characteristics are attained.

4.3 Instructions, Procedures, and Drawings

Quality-affecting activities performed by, or on behalf of, the Surveying Programs are performed in accordance with FGCS standards, WIPP-approved work instructions, and/or WIPP-approved written plans.

4.4 Document Control

The manager of TS identifies the individuals responsible for the preparation, review, and approval of Surveying Engineering controlled documents. Documents generated as a result of the subsidence surveys are reviewed by cognizant technical Engineering personnel to ensure their adequacy and accuracy. Controlled documents are reviewed in accordance with DOE and DOE/WIPP QA/review procedures.

4.5 Control of Purchased Material, Equipment/Services

Measures are taken, in accordance with current WIPP procurement policies and procedures, to ensure that procured items and services conform to specified requirements. These measures will generally include one or more of the following:

- Evaluation of the supplier's capability to provide items or services, in accordance with requirements, including the previous record in providing similar products or services satisfactorily
- Evaluation of objective evidence of conformance, such as supplier submittals
- Examination and testing of items or services upon delivery

If it is determined that additional measures are required to ensure quality in a specific procurement, additional steps may be provided for procurement documents and implemented by Surveying Engineering personnel and/or the QA Department. These additional assurances may include source inspection and audits or surveillances at the supplier's facilities.

4.6 Identification and Control of Items

Measures are used to ensure that only correct and accepted items are used at the WIPP. All items that potentially affect the quality of the Surveying Engineering Programs will be identified and controlled to ensure traceability and prevent the use of incorrect or defective items.

4.7 Software Requirements

Computer program testing activities that affect quality-related activities performed by WID or its suppliers are accomplished in accordance with approved procedures as specified by WP 13-1.

Test requirements and acceptance criteria will be specified, documented, and reviewed and will be based upon applicable design or other pertinent technical documents. Required tests, including verification, hardware integration, and in-use tests, will be controlled.

Testing of software will verify the capability of the computer program to produce valid results for test problems encompassing the range of permitted use defined by the program documentation.

Depending upon the complexity of the computer program being tested, requirements may range from a single test of the completed computer program to a series of tests performed at various stages of computer program development to verify correct translation between stages and proper working of individual modules. This is followed by an overall computer program test.

Regardless of the number of stages of testing performed, verification testing and validation will be of sufficient scope and depth to establish that test requirements are satisfied and that the software produces a valid result for its intended function.

4.8 Handling, Storage, and Shipping

Handling, storage, and shipping of surveying equipment will be coordinated in accordance with the manufacturer's recommendations.

4.9 Control of Nonconforming Conditions/Items

Conditions adverse to quality will be documented and classified with regard to their significance. Corrective actions will be taken accordingly.

Equipment that does not conform to specified requirements will be controlled to prevent its use. Faulty items will be tagged and segregated. Repaired equipment will be subject to the original acceptance inspections and tests prior to use.

4.10 Corrective Action

Conditions adverse to acceptable quality will be documented and reported in accordance with corrective action procedures and corrected as soon as practical. Immediate action will be taken to control work, and its results, performed under conditions adverse to acceptable quality in order to prevent degradation in quality.

The manager of TS, or designee, will investigate any deficiencies in activities.

4.11 Records Management

Identification, preparation, collection, storage, maintenance, disposition, and permanent storage of records will be in accordance with approved WIPP procedures.

Generation of records will accurately reflect completed work and facility conditions while complying with statutory or contractual requirements. Records will be transferred and protected from loss and damage in accordance with WP 15-PR, Records Management Program.

4.12 Audits and Independent Assessment

Planned and periodic assessments will be conducted to measure management item quality and process effectiveness, and to promote improvement. The organization performing independent assessments will have sufficient authority to carry out its responsibilities. Persons conducting technical assessments will be technically qualified and knowledgeable of the items and processes to be assessed.

4.13 Data Reduction and Verification

Computer programs, commercial data processing applications, and manual calculations that collect or manipulate/reduce data will be verified. Verification must be performed before the presentation of final results of their use in subsequent activities. If it becomes necessary to present or use unchecked results, transmittals, and subsequent calculations will be marked "DRAFT" until such time that the results are verified and determined to be correct.

5.0 IMPLEMENTATION MATRIX

5.1 WID Engineering

WID Engineering will be the cognizant technical organization with regard to the implementation of the WIPP Underground and Surface Surveying Program, including subsidence monitoring. As such, WID Engineering is responsible for the performance, methodology, calculations, and other associated activities involving the collection, interpretation, and presentation of required data necessary to implement the program at the WIPP. For surface surveys outside the protected area, Engineering personnel will ensure compliance with the National Environmental Policy Act, if/as applicable, prior to initiating survey activities. WID Engineering is also responsible for the Annual Subsidence Monitoring Survey Report as well as all other necessary documentation. The Annual Subsidence Monitoring Survey Report will be published within each calendar year as a DOE document.

6.0 REFERENCES

Title 30 Code of Federal Regulations Part 57, Safety and Health Standards--Underground Metal and Nonmetal Mines

DOE/CAO, 1996-2184, Compliance Certification Application

WIPP AU00 System Design Description

WP 09, Engineering Conduct of Operations

WP 10-AD.01, Metrology Program

WP 13-1, Quality Assurance Program Description

WP 15-PR, Records Management Program

Backfill Engineering Analysis Report, IT Corporation (1994)

Classification, Standards of Accuracy, and General Specifications of Geodetic Control Surveys, Federal Geodetic Control Committee (now Federal Geodetic Control Subcommittee) [1975] 1980, Reprint

DOE/WIPP 00-2293

WIPP
Subsidence Monument
Leveling Survey
1999

October 1999

CCD 194-E-2000

Waste Isolation Pilot Plant

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List of Acronyms

DOE	Department of Energy
DOY	Day of year
FGCS	Federal Geodetic Control Subcommittee
M&TE	Measurement and Test Equipment
NGS	National Geodetic Survey
WID	Waste Isolation Division
WIPP	Waste Isolation Pilot Plant

References

Classification, Standards of Accuracy, and General Specifications of Geodetic Control Surveys, Federal Geodetic Control Committee (now Federal Geodetic Control Subcommittee), [1975] 1980, Reprint.

Interim FGCS Specifications and Procedures to Incorporate Electronic Digital / Bar-Code Leveling Systems, Federal Geodetic Control Subcommittee, ver. 4.0, dated July 15,1994.

WIPP Subsidence Monument Leveling Surveys 1986-1997, DOE / WIPP 98-2293, June 1998.

WIPP Subsidence Monument Leveling Surveys 1998, DOE / WIPP 99-2293, October 1998.

1. Introduction

Sections 2 through 7 of this report define the result of the 1999 leveling survey through the subsidence monuments at the WIPP site. Approximately 18 miles of leveling was completed through ten vertical control loops. The 1999 survey includes the determination of elevation on each of the 52 existing subsidence monuments and the WIPP baseline survey, and 14 of the National Geodetic Survey's (NGS) vertical control points. Digital leveling techniques were utilized to achieve better than Second Order Class II loop closures as outlined by the Federal Geodetic Control Subcommittee (FGCS). The field observations were completed during September and October of 1999 by personnel from the Waste Isolation Division (WID) Surveying Group, Technical Support Section, Engineering Department.

Finally, Section 8 contains Table 6, which summarizes the elevations for all surveys from 1986 through 1999, inclusive. A detailed listing of the 1986 through 1997 surveys is contained in the report, *WIPP Subsidence Monument Leveling Surveys 1986-1997*, DOE/WIPP 98-2293. A reference to the summary reports for each year after 1997 is listed in the reference section of this document.

2. Equipment

The observations were taken with the WILD NA3003 Electronic Digital Level (WIPP M&TE ID# 0999) manufactured by Leica, and bar coded leveling staffs. The calibration for the NA3003 is valid from May 20, 1998, through May 20, 2000. The data were recorded electronically on the Leica GRM10 REC-Module, which is built into the instrument. In addition to the electronic record, a written field log was maintained to record information that is not stored in the electronic record.

3. Office Processing

Each day the data were downloaded from the GRM10 REC-Module to the survey group computer. The original raw data files were maintained intact, and further processing was performed on a copy of the original raw data file.

Listing of the data, and the adjustment of the loops, was completed with the DIGILEV software (version 10.94d) from Leica Canada. The results, as summarized below, were extracted from the output of the DIGILEV software.

4. Methodology

The weather conditions during the observations of the 1999 survey were generally mild with moderate temperatures and light to moderate breezes.

The elevations for the 1999 survey are computed from the adjusted observations based on the elevation of the subsidence monument, S-37 (3,423.874 feet). S-37 is the WIPP monument that is furthest from the influence of the

underground excavations, and has been held fixed for all of the subsidence leveling surveys since 1993. The condition of the individual monuments was substantially the same as the previous subsidence survey. No points were missing or significantly damaged.

For visual reference, Figure 1 shows a graphic display of the individual loops, the total survey, and the relationship to the underground excavations.

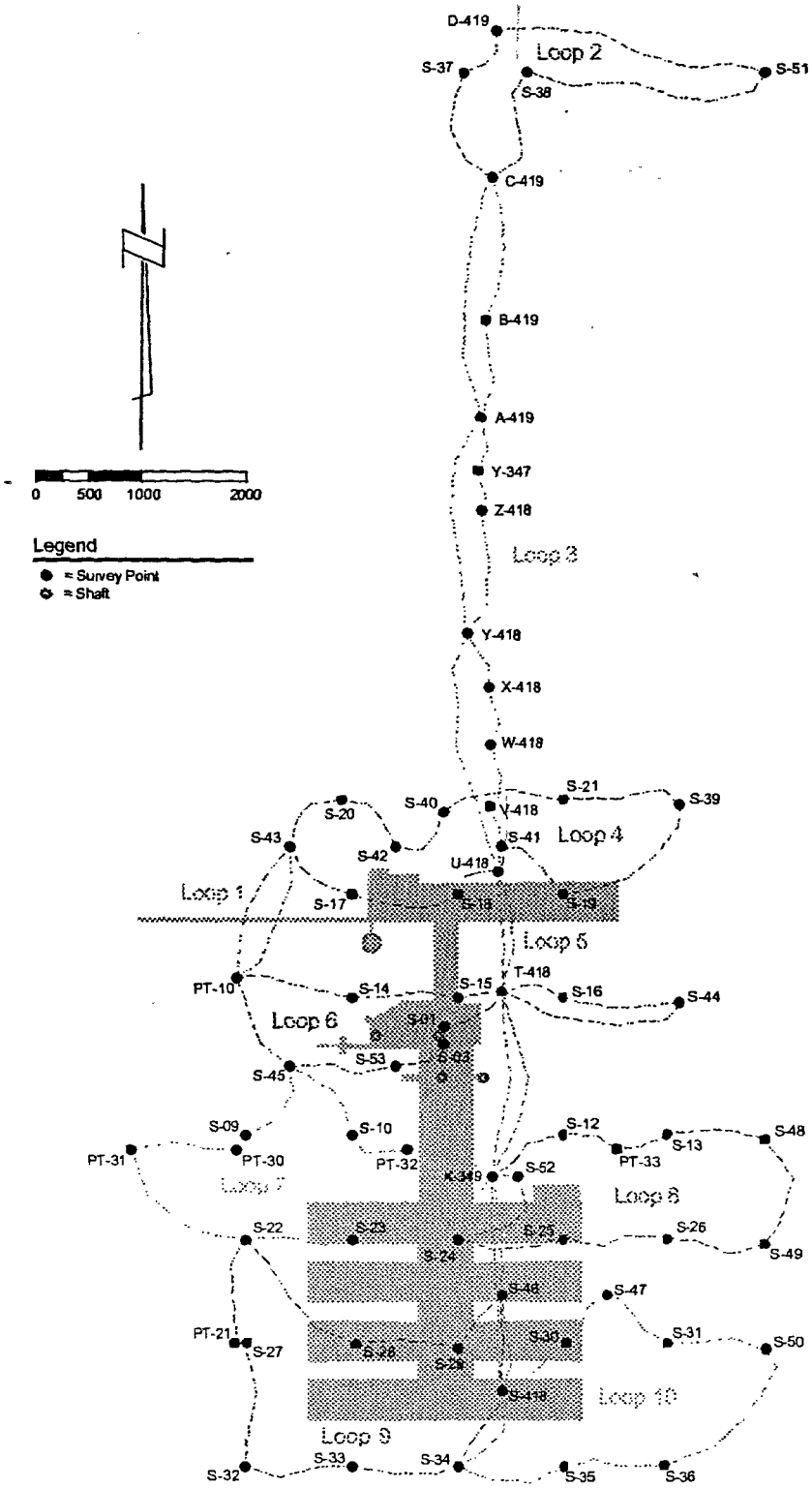

Figure 1. Individual Loops, Total Survey and Underground Excavations

5. General Summary of Results

Table 1 below describes the ten leveling loops that were measured to obtain the elevations of the subsidence monuments. The table contains the start date of the observations, a loop number, and the points that are contained within the loop.

Table 1. Description of 1999 Leveling Loops

Start Date (DOY)	Loop	Points
September 09, 1999 (252)	1	S-43, PT-10, S-43
September 15, 1999 (258)	2	C-419, S-37, D-419, S-51, S-38, C-419
September 09, 1999 (252)	3	C-419, B-419, A-419, Y-347, Z-418, Y-418, X-418, W-418, V-418, S-41, U-418, Y-418, A-419, C-419
October 05, 1999 (278)	4	U-418, S-18, S-17, S-43, S-20, S-42, S-40, S-21, S-39, S-19, S-41, U-418
September 20, 1999 (263)	5	U-418, T-418, K-349, S-46, S-418, K-349, T-418, U-418
October 08, 1999 (281)	6	T-418, S-01, S-03, S-53, S-45, PT-10, S-14, S-15, T-418, S-16, S-44, T-418
October 06, 1999 (279)	7	K-349, S-24, S-23, S-22, PT-31, S-09, PT-30, S-45, S-10, PT-32, K-349
October 04, 1999 (277)	8	K-349, S-52, S-24, S-25, S-26, S-49, S-48, S-13, PT-33, S-12, K-349
October 12, 1999 (285)	9	S-418, S-34, S-33, S-32, S-27, PT-21, S-22, S-28, S-29, S-46, S-418
September 16, 1999 (259)	10	S-418, S-34, S-35, S-36, S-50, S-31, S-47, S-30, S-418

Table 2 summarizes the results of the leveling loops in terms of vertical closure and accuracy. The requirement for Second Order Class II loop closure accuracy was achieved in all cases.

Table 2. Summary of Distance and Accuracy for 1999 Leveling Loops

Loop	Cumulative Distance (ft.)	Vertical Closure (ft.)	Accuracy (ft.√mile)	Allowable Accuracy (ft.√mile)
1	2,957.44	-0.0018	0.002	0.025
2	8,621.29	-0.0019	0.001	0.042
3	13,991.19	-0.0031	0.002	0.054
4	9,338.58	-0.0080	0.006	0.044
5	11,972.87	-0.0046	0.003	0.050
6	10,593.87	-0.0088	0.006	0.047
7	10,107.23	-0.0100	0.007	0.046
8	8,881.41	-0.0065	0.005	0.043
9	10,755.23	-0.0057	0.004	0.047
10	7,937.94	-0.0048	0.004	0.040

5.1 Accuracy Summary by Loop

Table 3 shows a detailed summary of the observations in the leveling loops for the 1999 survey. The information in the table for each loop includes:

Between each benchmark in the loop:

- The distance leveled between benchmarks along the loop.
- The number of instrument setups between each of the benchmarks.
- The difference in elevation from each benchmark to the next.

For each loop as a whole:

- The cumulative, or total, distance of each loop.
- The vertical closure of the loop.
- The accuracy of leveling.
- Allowable accuracy for each loop.

The accuracy of the leveling is given in terms of feet times the square root of the length of the loop in miles. The actual accuracy of leveling is computed in the DIGILEV software, and is based on the actual vertical closure of the loop. The maximum allowable accuracy is based on the allowable accuracy of a loop as stated in the FGCS interim specification for digital leveling. The FGCS specification for Second Order Class II loop closure permits a maximum of 8mm$\sqrt{Km}$ (8mm times the square root of the length of the loop in Km). This converts to 0.033ft.$\sqrt{mile}$ (0.033 feet times the square root of the length of the loop in miles) when stated in feet. All values indicated in this summary are expressed in feet.

Inspection of the following tables shows that in every case the actual accuracy is well below the maximum allowable accuracy for each loop. The column in each table that is labeled "Difference" is the vertical difference from one point to the next. It is important to note that the vertical difference figures have been rounded, and a slight difference may exist in the vertical closure figure from the algebraic sum of the column.

Table 3. Detailed Loop Measurements

Loop 1

From	To	Distance	Setups	Difference
S-43	PT-10	1,484	12	-16.135
PT-10	S-43	1,473	12	16.137
Cumulative Distance:		2,957		
Vertical Closure:				-0.002
Accuracy of Leveling:				0.002
Allowable Accuracy:				0.025

Loop 2

From	To	Distance	Setups	Difference
C-419	S-37	1,145	8	-13.783
S-37	D-419	721	6	-0.627
D-419	S-51	2,735	20	14.483
S-51	S-38	2,697	20	-7.977
S-38	C-419	1,324	10	7.907
Cumulative Distance:		8,621		
Vertical Closure:				-0.002
Accuracy of Leveling:				0.001
Allowable Accuracy:				0.042

Loop 3

From	To	Distance	Setups	Difference
C-419	B-419	1,418	10	12.191
B-419	A-419	1,111	8	4.896
A-419	Y-347	537	4	0.560
Y-347	Z-418	404	4	5.801
Z-418	Y-418	1,210	8	4.012
Y-418	X-418	599	4	-9.117
X-418	W-418	575	4	-6.696
W-418	V-418	611	4	-12.804
V-418	S-41	436	4	-5.600
S-41	U-418	243	2	-4.625
U-418	Y-418	2,380	16	38.843
Y-418	A-419	2,117	14	-10.374
A-419	C-419	2,349	16	-17.084
Cumulative Distance:		13,991		
Vertical Closure:				-0.003
Accuracy of Leveling:				0.002
Allowable Accuracy:				0.054

Loop 4

From	To	Distance	Setups	Difference
U-418	S-18	455	4	-1.410
S-18	S-17	1,102	8	-2.429
S-17	S-43	895	8	1.391
S-43	S-20	675	6	10.538
S-20	S-42	685	6	-6.107
S-42	S-40	569	4	6.191
S-40	S-21	1,182	10	7.515
S-21	S-39	1,132	10	-3.809
S-39	S-19	1,656	14	-11.996
S-19	S-41	744	6	4.757
S-41	U-418	243	2	-4.633
Cumulative Distance:		9,339		
Vertical Closure:				-0.008
Accuracy of Leveling:				0.006
Allowable Accuracy:				0.044

Loop 5

From	To	Distance	Setups	Difference
U-418	T-418	1,228	8	-9.362
T-418	K-349	2,653	16	-12.743
K-349	S-46	1,166	8	-4.303
S-46	S-418	954	6	1.842
S-418	K-349	2,067	12	2.463
K-349	T-418	2,625	18	12.743
T418	U-418	1,281	10	9.363
Cumulative Distance:		11,973		
Vertical Closure:				-0.005
Accuracy of Leveling:				0.003
Allowable Accuracy:				0.050

Loop 6

From	To	Distance	Setups	Difference
T-418	S-01	887	6	-7.300
S-01	S-03	177	2	-0.814
S-03	S-53	526	4	-0.089
S-53	S-45	1,146	8	-8.273
S-45	PT-10	1,175	10	7.252
PT-10	S-14	1,523	12	3.680
S-14	S-15	1,109	10	1.813
S-15	T-418	482	4	3.734
T-418	S-16	600	6	4.365
S-16	S-44	1,168	10	6.818
S-44	T-418	1,802	14	-11.177
Cumulative Distance:		10,594		
Vertical Closure:				-0.009
Accuracy of Leveling:				0.006
Allowable Accuracy:				0.047

Loop 7

From	To	Distance	Setups	Difference
K-349	S-24	956	6	-2.101
S-24	S-23	1,069	8	-6.192
S-23	S-22	1,122	8	-8.143
S-22	PT-31	1,509	12	-2.675
PT-31	S-09	1,123	8	8.952
S-09	PT-30	174	2	-1.240
PT-30	S-45	1,227	10	7.674
S-45	S-10	1,091	10	1.948
S-10	PT-32	598	6	1.931
PT-32	K-349	1,236	10	-0.145
Cumulative Distance:		10,107		
Vertical Closure:				-0.010
Accuracy of Leveling:				0.007
Allowable Accuracy:				0.046

Table 3 continued on next page...

Table 3. Detailed Loop Measurements (continued)

Loop 8

From	To	Distance	Setups	Difference
K-349	S-52	255	2	3.375
S-52	S-24	1,243	8	-5.477
S-24	S-25	1,036	8	5.832
S-25	S-26	1,047	8	11.989
S-26	S-49	1,047	8	12.726
S-49	S-48	1,063	8	0.679
S-48	S-13	1,032	8	-10.930
S-13	PT-33	559	4	-2.478
PT-33	S-12	541	4	-8.230
S-12	K-349	1,058	8	-7.480
Cumulative Distance:		8,881		
Vertical Closure:				-0.006
Accuracy of Leveling:				0.005
Allowable Accuracy:				0.043

Loop 9

From	To	Distance	Setups	Difference
S-418	S-34	1,288	10	-9.651
S-34	S-33	1,020	8	-13.045
S-33	S-32	1,067	8	-5.581
S-32	S-27	1,358	12	13.801
S-27	PT-21	84	2	-3.361
PT-21	S-22	1,607	12	3.861
S-22	S-28	1,668	14	5.594
S-28	S-29	992	10	6.732
S-29	S-46	678	6	-0.190
S-46	S-418	993	8	1.844
Cumulative Distance:		10,755		
Vertical Closure:				-0.006
Accuracy of Leveling:				0.004
Allowable Accuracy:				0.047

Loop 10

From	To	Distance	Setups	Difference
S-418	S-34	1,223	8	-9.651
S-34	S-35	1,042	8	8.453
S-35	S-36	995	8	9.033
S-36	S-50	1,517	12	16.312
S-50	S-31	962	8	-13.598
S-31	S-47	750	6	-3.075
S-47	S-30	607	6	-5.185
S-30	S-418	841	6	-2.283
Cumulative Distance:		7,938		
Vertical Closure:				-0.005
Accuracy of Leveling:				0.004
Allowable Accuracy:				0.040

6. Adjusted Level Loops

Table 4 is a summary of the adjusted elevations for the ten loops measured in 1999. This has been extracted from the output of the DIGILEV software.

Table 4. Adjusted Elevations by Loop

Loop 1	
S-43	3423.825
PT-10	3407.689
S-43	3423.825

Loop 2	
C-419	3437.657
S-37	3423.874
D-419	3423.247
S-51	3437.729
S-38	3429.751
C-419	3437.657

Loop 3	
C-419	3437.657
B-419	3449.848
A-419	3454.744
Y-347	3455.304
Z-418	3461.105
Y-418	3465.117
X-418	3456.000
W-418	3449.304
V-418	3436.500
S-41	3430.900
U-418	3426.275
Y-418	3465.117
A-419	3454.742
C-419	3437.657

Loop 4	
U-418	3426.275
S-18	3424.865
S-17	3422.435
S-43	3423.825
S-20	3434.362
S-42	3428.255
S-40	3434.445
S-21	3441.959
S-39	3438.149
S-19	3426.152
S-41	3430.909
U-418	3426.275

Loop 5	
U-418	3426.275
T-418	3416.913
K-349	3404.169
S-46	3399.866
S-418	3401.707
K-349	3404.170
T-418	3416.912
U-418	3426.275

Loop 6	
T-418	3416.913
S-01	3409.613
S-03	3408.798
S-53	3408.709
S-45	3400.435
PT-10	3407.686
S-14	3411.365
S-15	3413.177
T-418	3416.911
S-16	3421.275
S-44	3428.091
T-418	3416.913

Loop 7	
K-349	3404.169
S-24	3402.067
S-23	3395.873
S-22	3387.729
PT-31	3385.053
S-09	3394.004
PT-30	3392.765
S-45	3400.438
S-10	3402.385
PT-32	3404.315
K-349	3404.169

Loop 8	
K-349	3404.169
S-52	3407.544
S-24	3402.066
S-25	3407.898
S-26	3419.886
S-49	3432.611
S-48	3433.289
S-13	3422.358
PT-33	3419.880
S-12	3411.650
K-349	3404.169

Loop 9	
S-418	3401.707
S-34	3392.056
S-33	3379.011
S-32	3373.429
S-27	3387.229
PT-21	3383.868
S-22	3387.729
S-28	3393.322
S-29	3400.053
S-46	3399.863
S-418	3401.707

Loop 10	
S-418	3401.707
S-34	3392.055
S-35	3400.507
S-36	3409.539
S-50	3425.851
S-31	3412.252
S-47	3409.176
S-30	3403.990
S-418	3401.707

7. Adjusted Elevations (1999)

Table 5 shows the adjusted elevations for the subsidence monuments and the NGS points contained within the 1999 survey. These elevations are normalized to the monument, S-37. All elevations are shown in feet, and are within the WIPP local system.

Table 5. 1999 Adjusted Elevations

Point	Elevation (ft.)	Point	Elevation (ft.)
S-01	3,409.613	S-42	3,428.255
S-03	3,408.798	S-43	3,423.825
S-09	3,394.004	S-44	3,428.091
S-10	3,402.385	S-45	3,400.435
S-12	3,411.650	S-46	3,399.866
S-13	3,422.358	S-47	3,409.176
S-14	3,411.365	S-48	3,433.289
S-15	3,413.177	S-49	3,432.611
S-16	3,421.275	S-50	3,425.851
S-17	3,422.435	S-51	3,437.729
S-18	3,424.865	S-52	3,407.544
S-19	3,426.152	S-53	3,408.709
S-20	3,434.362		
S-21	3,441.959	PT-10	3,407.689
S-22	3,387.729	PT-21	3,383.868
S-23	3,395.873	PT-31	3,385.053
S-24	3,402.067	PT-32	3,404.315
S-25	3,407.898	PT-33	3,419.880
S-26	3,419.886		
S-27	3,387.229	S-418	3,401.707
S-28	3,393.322	T-418	3,416.913
S-29	3,400.053	U-418	3,426.275
S-30	3,403.990	V-418	3,436.500
S-31	3,412.252	W-418	3,449.304
S-32	3,373.429	X-418	3,456.000
S-33	3,379.011	Y-347	3,455.304
S-34	3,392.056	Y-418	3,465.117
S-35	3,400.507	Z-418	3,461.105
S-36	3,409.539	A-419	3,454.744
S-37	3,423.874	B-419	3,449.848
S-38	3,429.751	C-419	3,437.657
S-39	3,438.149	D-419	3,423.247
S-40	3,434.445	K-349	3,404.169
S-41	3,430.900		

8. Comparison of Elevations

Table 6 compares the elevations from all of the subsidence leveling surveys from 1986 through 1999.

Table 6. Comparison of Elevations 1986-1999

	S-01	S-02	S-03	S-09	S-10	S-11	S-12	S-13	S-14
1986	3,409.740	3,408.220	3,408.910	3,394.060	3,402.470	3,406.440	3,411.790		3,411.500
1987	3,409.738	3,408.219	3,408.914	3,394.056	3,402.466	3,406.437	3,411.790	3,422.428	3,411.500
1989	3,409.719	3,411.907	3,408.900	3,394.046	3,402.459	3,406.408	3,411.739	3,422.413	3,411.483
1992	3,409.695	3,411.904	3,408.875	3,394.053	3,402.440	3,406.372	3,411.727	3,422.412	3,411.439
1993	3,409.616	(1) (2)	3,408.797	3,393.969	3,402.365	(3)	3,411.630	3,422.324	3,411.382
1994	3,409.626		3,408.806	3,393.988	3,402.374		3,411.653	3,422.348	3,411.372
1995	3,409.613		3,408.795	3,393.986	3,402.373		3,411.650	3,422.345	3,411.376
1996	3,409.615		3,408.795	3,393.994	3,402.373		3,411.645	3,422.340	3,411.369
1997	3,409.610		3,408.793	3,394.002	3,402.379		3,411.656	3,422.349	3,411.368
1998	3,409.617		3,408.802	3,394.011	3,402.388		3,411.653	3,422.352	3,411.374
1999	3,409.613		3,408.798	3,394.004	3,402.385		3,411.650	3,422.358	3,411.365

Note: (1) The subsidence monument, S-02 was relocated in 1989.
(2) The subsidence monument, S-02, no longer exists after the 1992 survey.
(3) The subsidence monument, S-11, no longer exists after the 1992 survey.

	S-15	S-16	S-17	S-18	S-19	S-20	S-21	S-22	S-23
1986	3,413.290	3,421.380	3,422.520	3,425.010	3,426.240	3,434.460	3,442.030	3,387.790	3,395.910
1987	3,413.291	3,421.378	3,422.519	3,425.010	3,426.235	3,434.464	3,442.030	3,387.786	3,395.914
1989	3,413.291	3,421.341	3,422.482	3,424.974	3,426.217	3,434.452	3,442.005	3,387.795	3,395.970
1992	3,413.263	3,421.331	3,422.469	3,424.964	3,426.223	3,434.364	3,441.956	3,387.788	3,396.028
1993	3,413.185	3,421.256	3,422.404	3,424.859	3,426.136	3,434.332	3,441.919	3,387.701	3,395.853
1994	3,413.188	3,421.261	3,422.402	3,424.852	3,426.134	3,434.339	3,441.932	3,387.732	3,395.886
1995	3,413.189	3,421.261	3,422.418	3,424.864	3,426.143	3,434.342	3,441.936	3,387.727	3,395.877
1996	3,413.182	3,421.263	3,422.419	3,424.860	3,426.138	3,434.345	3,441.935	3,387.727	3,395.885
1997	3,413.178	3,421.268	3,422.431	3,424.864	3,426.141	3,434.346	3,441.937	3,387.738	3,395.889
1998	3,413.184	3,421.271	3,422.436	3,424.869	3,426.150	3,434.355	3,441.946	3,387.744	3,395.887
1999	3,413.177	3,421.275	3,422.435	3,424.865	3,426.152	3,434.362	3,441.959	3,387.729	3,395.873

	S-24	S-25	S-26	S-27	S-28	S-29	S-30	S-31	S-32
1986	3,402.200	3,408.040	3,420.010	3,387.280	3,393.410	3,400.110	3,404.080	3,412.320	3,373.510
1987	3,402.201	3,408.036	3,420.010	3,387.280	3,393.414	3,400.111	3,404.082	3,412.315	3,373.513
1989	3,402.167	3,408.005	3,419.978	3,387.287	3,393.400	3,400.098	3,404.064	3,412.302	3,373.498
1992	3,402.159	3,407.974	3,419.948	3,387.310	3,393.421	3,400.113	3,404.073	3,412.303	3,373.533
1993	3,402.042	3,407.870	3,419.854	3,387.181	3,393.287	3,400.008	3,403.958	3,412.206	3,373.396
1994	3,402.072	3,407.907	3,419.883	3,387.225	3,393.312	3,400.038	3,403.984	3,412.234	3,373.427
1995	3,402.062	3,407.895	3,419.871	3,387.216	3,393.309	3,400.031	3,403.978	3,412.230	3,373.425
1996	3,402.074	3,407.897	3,419.875	3,387.213	3,393.316	3,400.037	3,403.979	3,412.221	3,373.411
1997	3,402.077	3,407.897	3,419.883	3,387.229	3,393.330	3,400.050	3,403.994	3,412.248	3,373.438
1998	3,402.076	3,407.902	3,419.883	3,387.248	3,393.338	3,400.059	3,403.998	3,412.248	3,373.452
1999	3,402.067	3,407.898	3,419.886	3,387.229	3,393.322	3,400.053	3,403.990	3,412.252	3,373.429

Table 6 continued on next page...

Table 6. Comparison of Elevations 1986-1999 (continued)

	S-33	S-34	S-35	S-36	S-37	S-38	S-39	S-40	S-41
1986	3,379.090	3,392.130	3,400.600	3,409.580					
1987	3,379.093	3,392.128	3,400.597	3,409.583					
1989	3,379.073	3,392.137	3,400.583	3,409.584	3,423.888	3,429.736			
1992	3,379.090	3,392.138	3,400.591	3,409.605	3,423.874		3,438.146	3,434.469	3,430.931
1993	3,378.975	3,392.026	3,400.478	3,409.504	3,423.874	3,429.736	3,438.110	3,434.430	3,430.888
1994	3,379.006	3,392.042	3,400.490	3,409.518	3,423.874	3,429.740	3,438.115	3,434.425	3,430.888
1995	3,379.009	3,392.042	3,400.495	3,409.520	3,423.874	3,429.739	3,438.124	3,434.437	3,430.899
1996	3,378.992	3,392.028	3,400.483	3,409.501	3,423.874	3,429.744	3,438.118	3,434.436	3,430.891
1997	3,379.019	3,392.057	3,400.516	3,409.533	3,423.874	3,429.745	3,438.127	3,434.444	3,430.894
1998	3,379.028	3,392.066	3,400.516	3,409.539	3,423.874	3,429.750	3,438.134	3,434.442	3,430.901
1999	3,379.011	3,392.056	3,400.507	3,409.539	3,423.874	3,429.751	3,438.149	3,434.445	3,430.900

	S-42	S-43	S-44	S-45	S-46	S-47	S-48	S-49	S-50
1986									
1987									
1989									
1992	3,428.279	3,423.849	3,428.146	3,400.501	3,399.946	3,409.236	3,433.308	3,432.635	3,425.868
1993	3,428.230	3,423.813	3,428.070	3,400.406	3,399.837	3,409.133	3,433.238	3,432.572	3,425.809
1994	3,428.228	3,423.820	3,428.066	3,400.419	3,399.865	3,409.163	3,433.264	3,432.596	3,425.830
1995	3,428.238	3,423.826	3,428.071	3,400.424	3,399.856	3,409.158	3,433.258	3,432.588	3,425.830
1996	3,428.238	3,423.823	3,428.078	3,400.423	3,399.856	3,409.157	3,433.256	3,432.585	3,425.816
1997	3,428.249	3,423.815	3,428.084	3,400.428	3,399.877	3,409.181	3,433.274	3,432.600	3,425.846
1998	3,428.252	3,423.822	3,428.086	3,400.440	3,399.876	3,409.178	3,433.276	3,432.598	3,425.838
1999	3,428.255	3,423.825	3,428.091	3,400.435	3,399.866	3,409.176	3,433.289	3,432.611	3,425.851

	S-51	S-52	S-53	S-54	PT-10	PT-21	PT-30	PT-31	PT-32
1986									
1987									
1989									
1992	3,437.765	3,407.611	3,408.775	3,411.085	3,407.722		3,392.914	3,385.117	3,404.370
1993	3,437.746	3,407.523	3,408.670	(4)	3,407.664	3,383.821	3,392.823	3,385.027	3,404.296
1994	3,437.749	3,407.542	3,408.709		3,407.672	3,383.868	3,392.843	3,385.051	3,404.311
1995	3,437.746	3,407.542	3,408.702		3,407.671	3,383.862	3,392.844	3,385.050	3,404.322
1996	3,437.729	3,407.536	3,408.704		3,407.669	3,383.858	3,392.852	3,385.053	3,404.312
1997	3,437.725	3,407.544	3,408.702		3,407.675	3,383.874	3,392.857	3,385.063	3,404.321
1998	3,437.724	3,407.549	3,408.714		3,407.687	3,383.887	(5)	3,385.067	3,404.322
1999	3,437.729	3,407.544	3,408.709		3,407.689	3,383.868		3,385.053	3,404.315

Note: (4) The subsidence monument, S-54, no longer exists after the 1992 survey.
(5) The monument, PT-30, has been physically disturbed and was removed from the 1998 survey.

Table 6 continued on next page...

Table 6. Comparison of Elevations 1986-1999 (continued)

	PT-33	S-418	T-418	U-418	V-418	W-418	X-418	Y-347	Y-418
1986									
1987									
1989									
1992	3,419.939								
1993	3,419.853								
1994	3,419.884								
1995	3,419.869								
1996	3,419.865	3,401.696	3,416.902	3,426.267	3,436.481	3,449.276	3,455.969	3,455.274	3,465.080
1997	3,419.873	3,401.708	3,416.906	3,426.272	3,436.487	3,449.282	3,455.976	3,455.281	3,465.091
1998	3,419.879	3,401.715	3,416.915	3,426.279	3,436.497	3,449.292	3,455.987	3,455.291	3,465.101
1999	3,419.880	3,401.707	3,416.913	3,426.275	3,436.500	3,449.304	3,456.000	3,455.304	3,465.117

	Z-418	A-419	B-419	C-419	D-419	K-349			
1986									
1987									
1989									
1992									
1993									
1994									
1995									
1996	3,461.073	3,454.714	3,449.825	3,437.633	3,423.234	3,404.152			
1997	3,461.082	3,454.720	3,449.829	3,437.642	3,423.238	3,404.162			
1998	3,461.091	3,454.730	3,449.835	3,437.648	3,423.242	3,404.173			
1999	3,461.105	3,454.744	3,449.848	3,437.657	3,423.247	3,404.169			

LOOP 1 252a

Digital Leveling Log Sheet (Loop)

Observer: TJK	**Date:** 09 SEPT '99	**DOY:** 252a
Rod 1: LAP	**Level S/N:** 93485	
Rod 2: SMD	**Rod 1:** C	**Rod 2:** D
Loop: LOOP 1 - S43 - PT10 - S43		
Start Time: 10:00	**End Time:** 11:40	
Collimation Check (Y/N) Y.	**Collimation:** C -16.4 A -4.3 S-N	
Weather: (7:50) 70°F ~ 68% 30.18 in 9mph SUNNY. (12:00) 87°F SL. BRZ PART CLOUD.		

#	BS	FS	Comments
1	1943	1	PT-43
2	1	2	
3	2	3	
4	3	4	
5	4	5	
6	5	6	
7	6	7	
8	7	8	
9	8	9	
10	9	10	
11	10	11	TJK 9/9/99
12	11	2010	PT-10 DT ~~RTD~~ RPT
13	2010	12	DT RPT
14	12	13	
15	13	14	
16	14	15	
17	15	16	
18	16	17	
19	17	18	
20	18	19	
21	19	20	
22	20	21	
23	21	22	
24	22	1943	PT-43
			d = -3.0
			D = 2957.4
			GR HT 0.0022

CCB 194-W-2000

```
410001+?......1
110002+00001943 83..11+00000000
110003+00001943 32..01+00046750 331107+00029333 52..07+0006+001
110004+00000001 32..01+00045890 332107+00064389 52..07+0006+001
110005+00000001 573..1+00000860 574..1+00092640 83..01-00003586
110006+00000001 32..01+00065110 331107+00028496 52..07+0005+001
110007+00000002 32..01+00061490 332107+00072861 52..07+0006+002
110008+00000002 573..1+00004480 574..1+00219240 83..01-00007942
110009+00000002 32..01+00062350 331107+00053637 52..07+0006+001
110010+00000003 32..01+00068380 332107+00058747 52..07+0006+001
110011+00000003 573..1-00001550 574..1+00349980 83..01-00007653
110012+00000003 32..01+00069550 331107+00047864 52..07+0007+002
110013+00000004 32..01+00070430 332107+00048591 52..07+0005+002
110014+00000004 573..1-00002420 574..1+00489960 83..01-00007726
110015+00000004 32..01+00072260 331107+00047638 52..07+0008+001
110016+00000005 32..01+00068880 332107+00046575 52..07+0006+001
110017+00000005 573..1+00000960 574..1+00631090 83..01-00007628
110018+00000005 32..01+00067820 331107+00046360 52..07+0006+002
110019+00000006 32..01+00065330 332107+00052981 52..07+0006+001
110020+00000006 573..1+00003450 574..1+00764240 83..01-00008274
110021+00000006 32..01+00064690 331107+00051457 52..07+0006+002
110022+00000007 32..01+00062960 332107+00069123 52..07+0006+001
110023+00000007 573..1+00005180 574..1+00891890 83..01-00010040
110024+00000007 32..01+00062940 331107+00038165 52..07+0006+003
110025+00000008 32..01+00068860 332107+00058548 52..07+0006+002
110026+00000008 573..1-00000740 574..1+01023690 83..01-00012878
110027+00000008 32..01+00059780 331107+00042867 52..07+0007+003
110028+00000009 32..01+00063670 332107+00074690 52..07+0006+002
110029+00000009 573..1-00004630 574..1+01147140 83..01-00016141
110030+00000009 32..01+00057420 331107+00046968 52..07+0006+003
110031+00000010 32..01+00052790 332107+00056102 52..07+0007+001
110032+00000010 573..1+00000000 574..1+01257350 83..01-00017054
110033+00000010 32..01+00067020 331107+00022964 52..07+0007+003
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110072+00000021 573..1-00004720 574..1+02736000 83..01-00007712
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110074+00000022 32..01+00057190 332107+00039409 52..07+0007+003
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110076+00000022 32..01+00045630 331107+00066535 52..07+0002+002
110077+00001943 32..01+00052640 332107+00024421 52..07+0006+003
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9/19/99
TJK T
LAP-SMD ϕ

NO EDITING REQ'D

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110077+00001943 32..01+00052640 332107+00024421 52..07+0006+003
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110078+00001943 573..1-00002970 574..1+02957390 83..01+00000002

DIGILEV Version 10.94d

WILD NA2002/3003 data extracted from file 252a.RAW

POINT NUMBER	BACK SIGHT	FORE SIGHT	INTER.& SET-OUT	SET-OUT DIFF.	MEAS DIST	NR MS	STAND DEV.	HEIGHT OF POINT	DESCRIPTION
1943	******* BEGINNING OF LEVELLING RUN *******							0.0000	
1943	2.93330				46.75	6	0.0001	0.0000	
1		6.43890			45.89	6	0.0001	-3.5056	
1	2.84960				65.11	5	0.0001	-3.5056	
2		7.28610			61.49	6	0.0002	-7.9421	
2	5.36370				62.35	6	0.0001	-7.9421	
3		5.07470			68.38	6	0.0001	-7.6531	
3	4.78640				69.55	7	0.0002	-7.6531	
4		4.85910			70.43	5	0.0002	-7.7258	
4	4.76380				72.26	8	0.0004	-7.7258	
5		4.65750			68.88	6	0.0001	-7.6195	
5	4.63600				67.82	6	0.0002	-7.6195	
6		5.29010			65.33	6	0.0001	-8.2736	
6	5.14570				64.69	6	0.0002	-8.2736	
7		6.91230			62.96	6	0.0001	-10.0402	
7	3.01650				62.94	6	0.0003	-10.0402	
8		5.85480			68.86	6	0.0002	-12.8785	
8	4.28670				59.78	7	0.0003	-12.8785	
9		7.46900			63.67	6	0.0002	-16.1408	
9	4.69680				57.42	6	0.0003	-16.1408	
10		5.61020			52.79	7	0.0001	-17.0542	
10	2.29640				67.82	7	0.0003	-17.0542	
11		4.04980			56.80	6	0.0002	-18.8076	
11	5.79150				52.55	7	0.0002	-18.8076	
	******* Repeated measurements. Previous values ignored. *******								
11	5.62440				44.58	7	0.0002	-18.8076	
2010		2.95190			58.42	5	0.0002	-16.1351	
2010	2.85470				58.62	6	0.0001	-16.1351	
	******* Repeated measurements. Previous values ignored. *******								
2010	2.85470				58.63	5	0.0002	-16.1351	
12		5.95610			55.69	6	0.0002	-19.2365	
12	4.25520				61.82	7	0.0002	-19.2365	
13		2.73660			56.11	6	0.0002	-17.7179	
13	6.41600				63.07	6	0.0003	-17.7179	
14		4.76540			58.47	8	0.0002	-16.0673	
14	8.40260				61.83	7	0.0006	-16.0673	
15		3.59670			71.59	7	0.0002	-11.2614	
15	7.36080				55.43	6	0.0002	-11.2614	
16		3.83520			59.74	6	0.0001	-7.7358	
16	4.86850				63.68	6	0.0002	-7.7358	
17		5.01120			60.35	5	0.0001	-7.8785	
17	4.94250				67.57	6	0.0003	-7.8785	
18		5.11390			59.67	5	0.0002	-8.0499	
18	5.07370				64.42	6	0.0002	-8.0499	
19		4.70360			70.42	6	0.0003	-7.6798	
19	5.11860				65.14	7	0.0001	-7.6798	
20		4.92340			66.10	7	0.0002	-7.4846	
20	4.95930				63.88	6	0.0002	-7.4846	
21		5.18730			68.34	7	0.0003	-7.7126	
21	7.44390				65.94	7	0.0004	-7.7126	
22		3.94090			57.19	7	0.0003	-4.2096	
22	6.65350				45.63	2	0.0002	-4.2096	
1943		2.44210			52.64	6	0.0003	0.0018	
	******* Cumulative distance: 2957.44 feet *******								
	******* BF dist. difference: -2.98 feet *******								
	******* Vertical closure: -0.0018 foot *******								
	******* Accuracy of leveling: 0.002 foot √Mile *******								

DIGILEV Version 10.94d

WILD NA2002/3003 data extracted from file 252a.RAW

POINT NUMBER	CUMUL. DISTANCE	MEASURED ELEVATION	VERTICAL DIFF.	ADJUSTED ELEVATION	
1943	0.00	0.0000	0.0000	0.0000	S-43
1	92.64	-3.5856	-0.0001	-3.5857	
2	219.24	-7.9421	-0.0001	-7.9422	
3	349.97	-7.6531	-0.0002	-7.6533	
4	489.95	-7.7258	-0.0003	-7.7261	
5	631.09	-7.6195	-0.0004	-7.6199	
6	764.24	-8.2736	-0.0005	-8.2741	
7	891.89	-10.0402	-0.0005	-10.0407	
8	1023.69	-12.8785	-0.0006	-12.8791	
9	1147.14	-16.1408	-0.0007	-16.1415	
10	1257.35	-17.0542	-0.0008	-17.0550	
11	1381.17	-18.8076	-0.0008	-18.8084	
2010	1484.09	-16.1351	-0.0009	-16.1360	PT-10
12	1598.41	-19.2365	-0.0010	-19.2375	
13	1716.34	-17.7179	-0.0010	-17.7189	
14	1837.88	-16.0673	-0.0011	-16.0684	
15	1971.30	-11.2614	-0.0012	-11.2626	
16	2086.47	-7.7358	-0.0013	-7.7371	
17	2210.50	-7.8785	-0.0013	-7.8798	
18	2337.74	-8.0499	-0.0014	-8.0513	
19	2472.58	-7.6798	-0.0015	-7.6813	
20	2603.82	-7.4846	-0.0016	-7.4862	
21	2736.04	-7.7126	-0.0017	-7.7143	
22	2859.17	-4.2096	-0.0017	-4.2113	
1943	2957.44	0.0018	-0.0018	0.0000	S-43

n=12
D=1484.09
Δ = -16.1351

n=12
D=~~1359.03~~ 1473.35
Δ = +16.3528

TJK 9/15/99

Attachment D.6

Other

Documents

Reviewed

Table 7-7. Preclosure and Postclosure Monitored Parameters

Monitored Parameter	Preclosure	Postclosure
Culebra groundwater composition	X	X
Culebra change in groundwater flow	X	X
Probability of encountering a Castile brine reservoir	X	X
Drilling rate	X	X
Subsidence measurements	X	X
Waste activity	X	
Creep closure and stresses	X	
Extent of deformation	X	
Initiation of brittle deformation	X	
Displacement of deformation features	X	

WWIS
WIPP Waste Information System
Update

@ 8:30
Dave Speed

CAB 194-3-2 p0

WWIS History

- Development started 1988
- Most recent version started 1994 at INEEL
- Declared operational 1998

WWIS At a Glance

- Custom software application built on Oracle DBMS
- Client-Server architecture
- Meets NQA-2, Sub-section 2.7 req
- Runs on a DEC Alpha 2100 server
- Backup unit online
- Nightly tape backups

What the WWIS Does

- Provides manual and electronic transfer modes for the TRU waste generators to input data on waste streams, waste containers and proposed shipments to WIPP for review
- Verifies data on each waste container for agreement with established limit/edit checks
- Provides on-line query and reporting of waste container and shipment data

WWIS Staff

- 4 Data Administrators
- 1 Database Administrator

- IRM Support for hardware and network services

- Contract Support (Envision) for programming

Control of the WWIS

- Changes to WWIS controlled by WID Configuration Management System
- Changes in software initiated by WWIS Software Modification Request (WSMR) submitted to WWIS Software Configuration Control Board (WSCCB)
- Changes documented through WID Engineering Change Order (ECO) system.

Audits of the WWIS

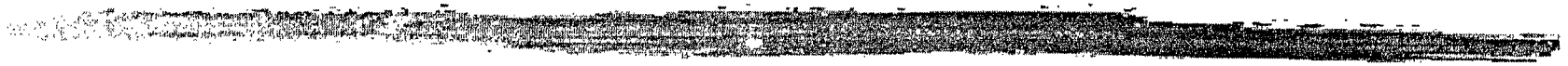
- EPA Audit 9/99
  - No findings
  - Observation addressed
- CTAC Audit 3/00
  - 2 CARs, both addressed 5/00
- WID Surveillance
  - Observations addressed 5/00

Changes Since 1999

- WWIS Document Updates
- Added row, column, and height information
- Included Volume % units on Headspace Gas Concentration Report
- Removed ability to delete emplaced containers/received shipments
- Corrected reported number of emplaced dunnage containers

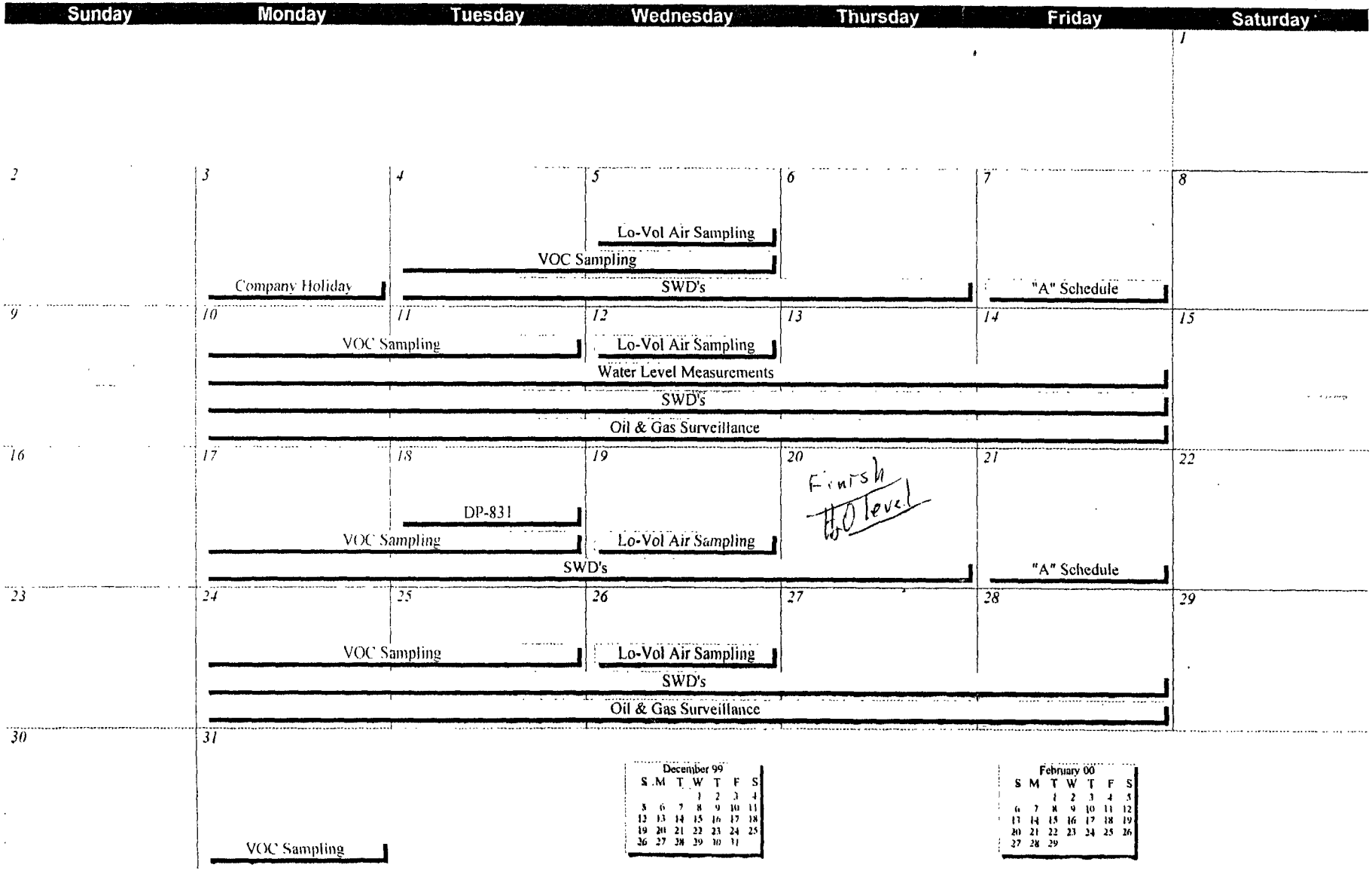
Planned Enhancements

- Barcode reader software update
- Additional reports
- New server hardware
- Upgrade to Oracle 8
- Rewrite User Manuals



January 2000

2000 Environmental Monitoring Sampling Schedule

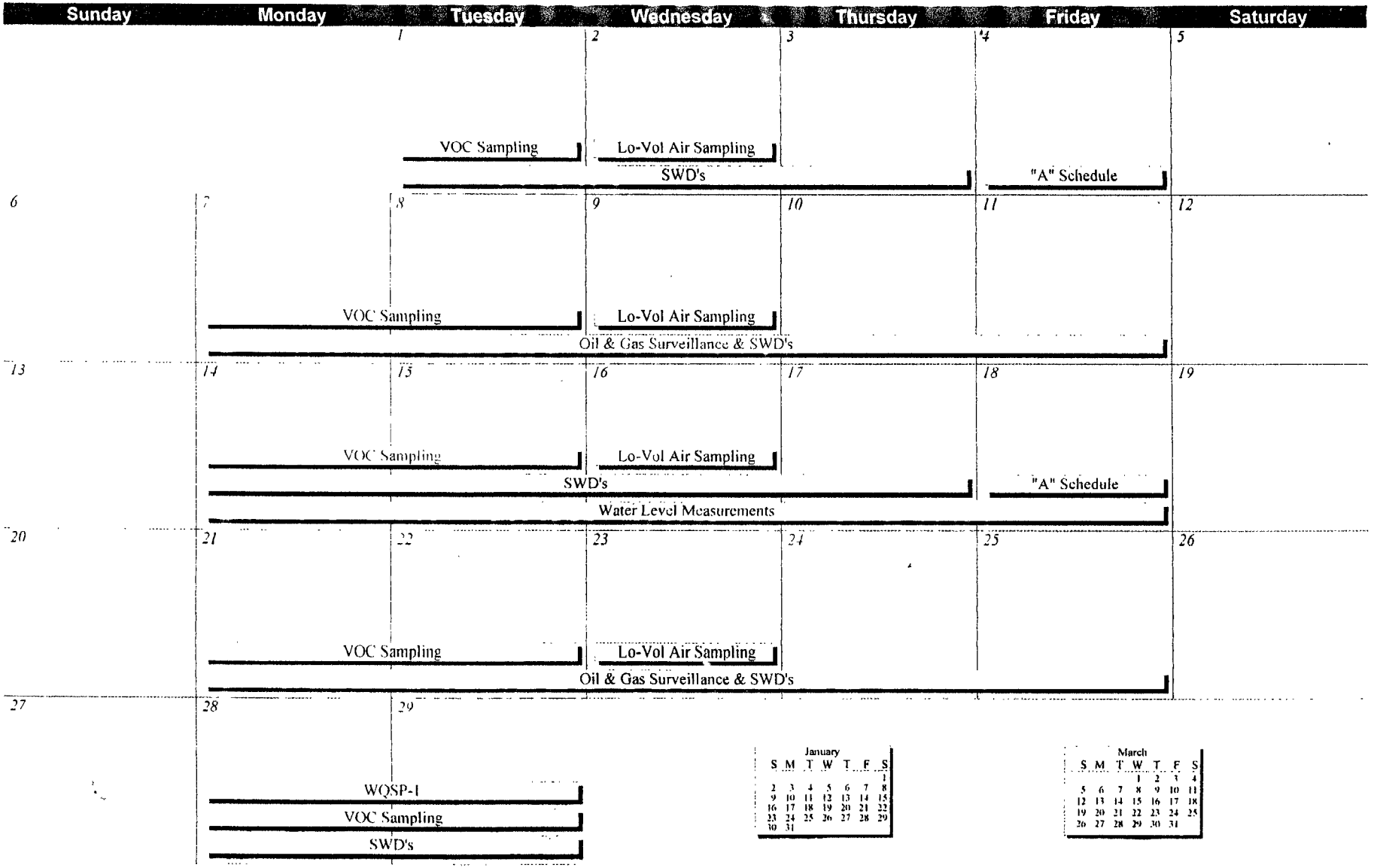


Printed by Instant Calendar on 2/1/2000

COB 194-AA-2000

February 2000

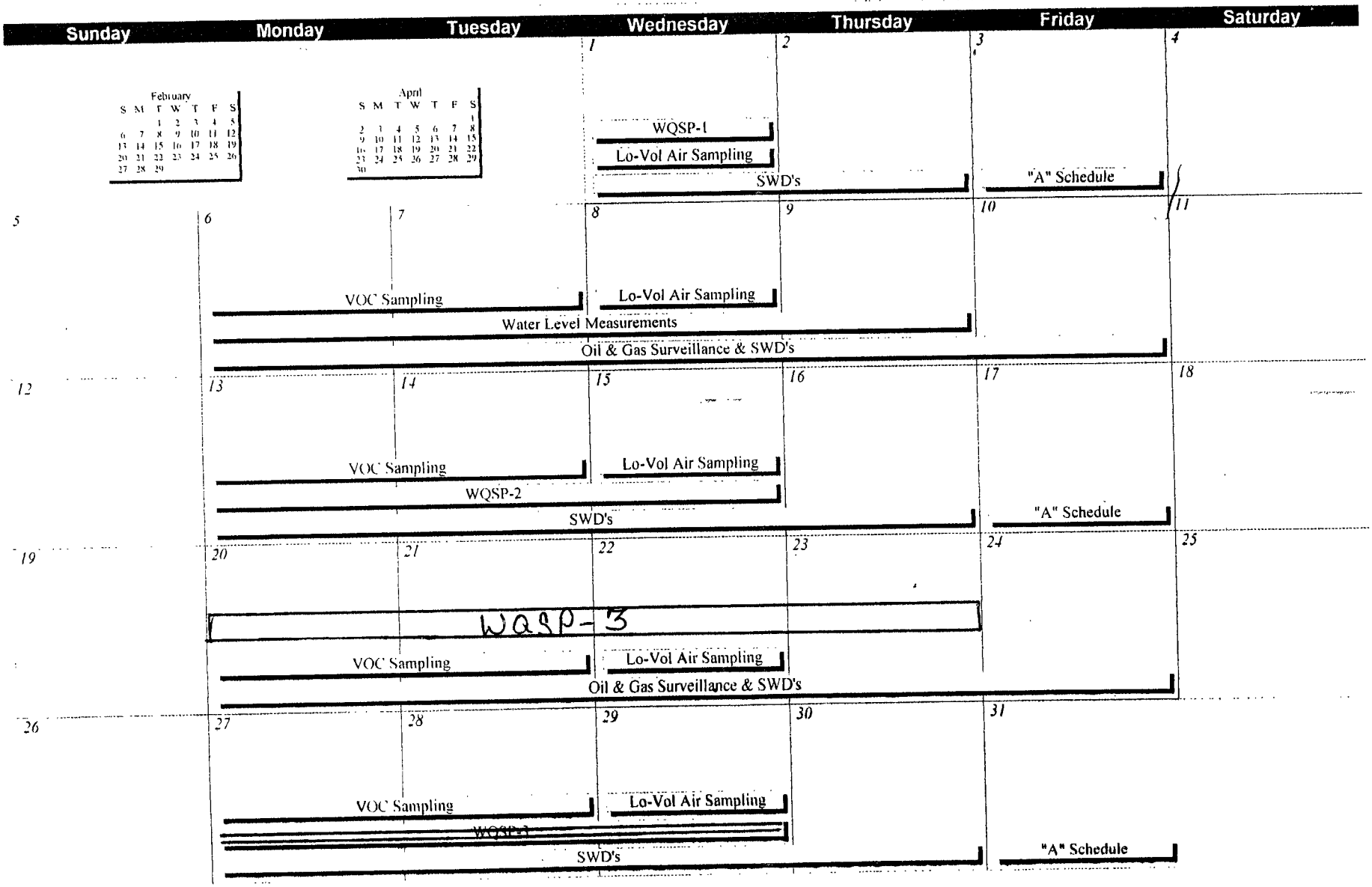
2000 Environmental Monitoring Sampling Schedule



Printed by Instant Calendar on 2/1/2000

March 2000

2000 Environmental Monitoring Sampling Schedule



Printed by Instant Calendar on 2/1/2000

April 2000

2000 Environmental Monitoring Sampling Schedule

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2 Daylight Savings--set ahead 1 hour	3 VOC Sampling	4	5 Lo-Vol Air Sampling	6	7	8
	Oil & Gas Surveillance & SWD's					
9	10 VOC Sampling	11 DP-831	12 Lo-Vol Air Sampling	13	14 "A" Schedule	15
	WQSP-4					
	SWD's					
16	17 VOC Sampling	18	19 Lo-Vol Air Sampling	20	21 Company Holiday	22
	Water Level Measurements					
	Oil & Gas Surveillance & SWD's					
23	24 VOC Sampling	25	26 Lo-Vol Air Sampling	27	28 "A" Schedule	29
	WQSP-5					
	SWD's					
30						

March

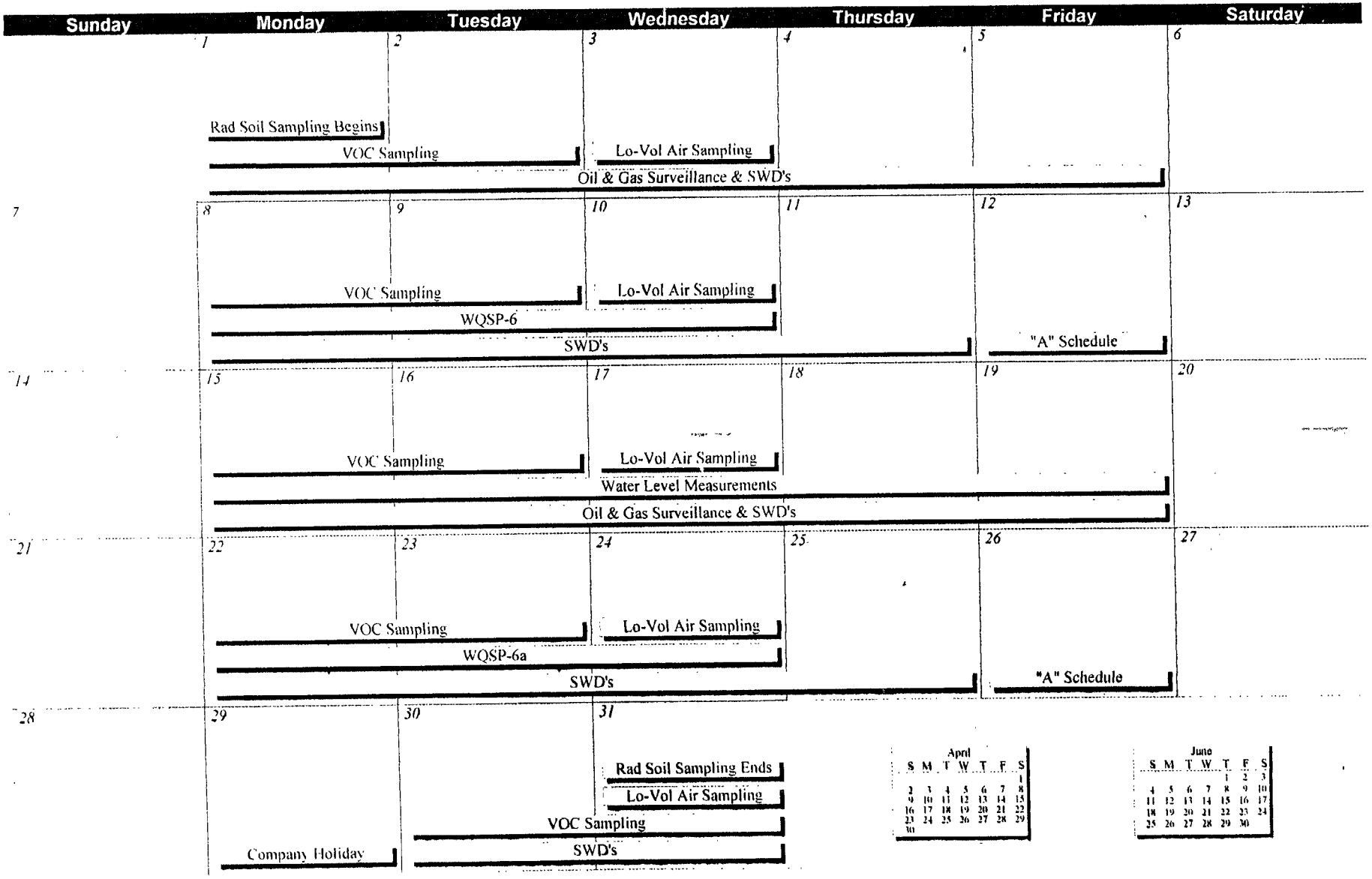
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

May

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

May 2000

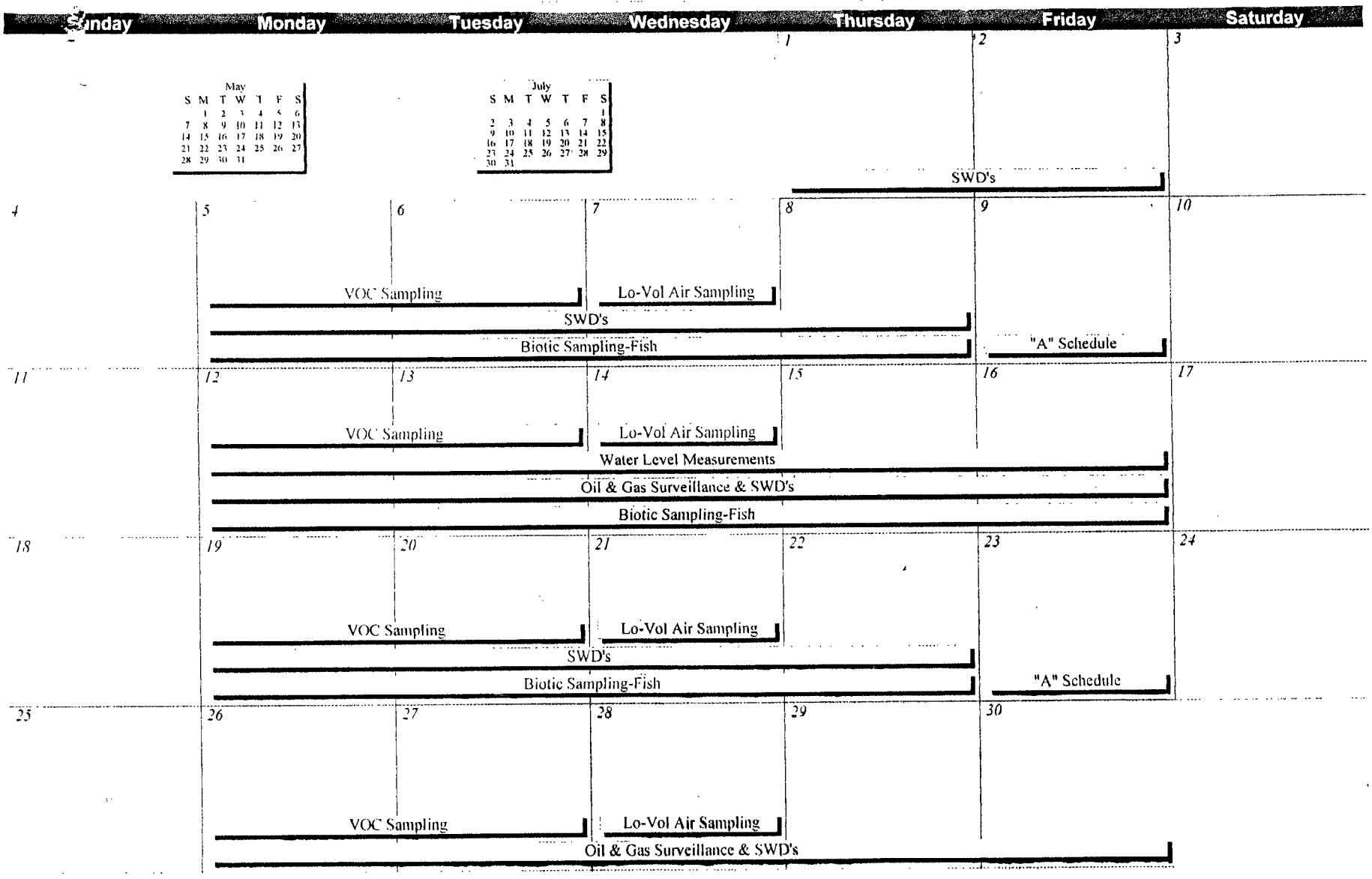
2000 Environmental Monitoring Sampling Schedule



Printed by Instant Calendar on 2/1/2000

June 2000

2000 Environmental Monitoring Sampling Schedule

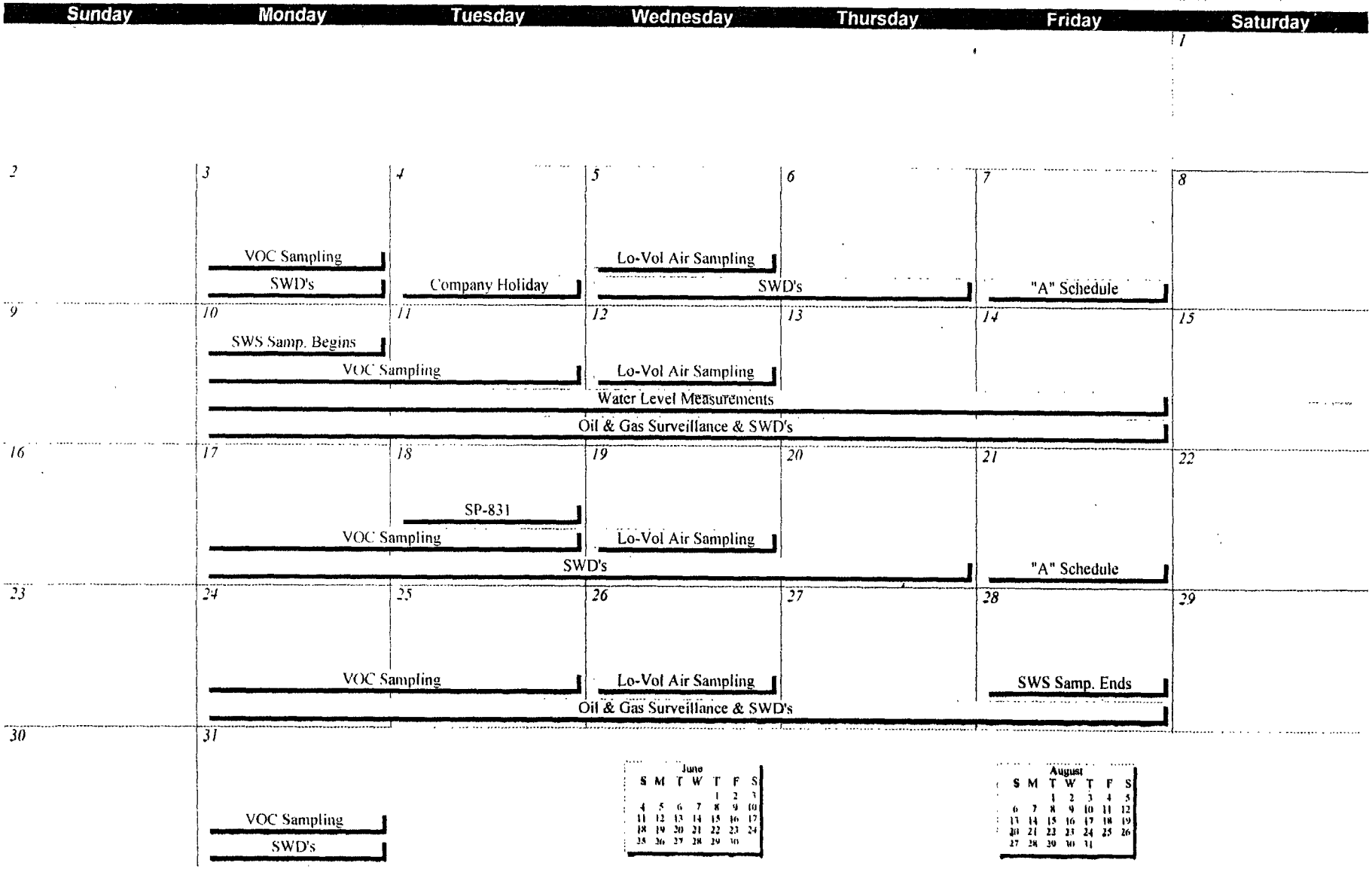


Printed by Instant Calendar on 2/1/2000

CEB 194-AA-2000

July 2000

2000 Environmental Monitoring Sampling Schedule



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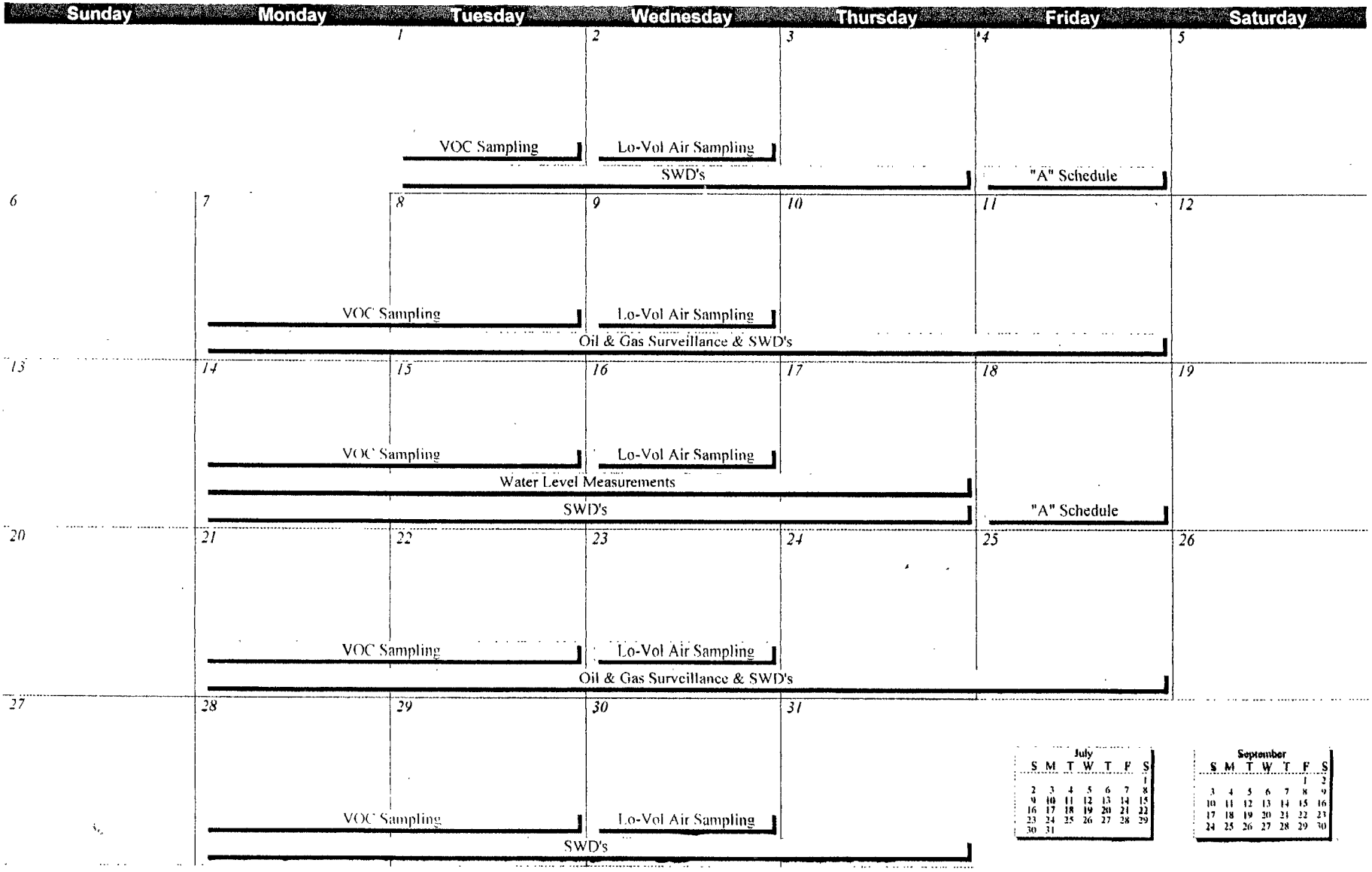
August 2000

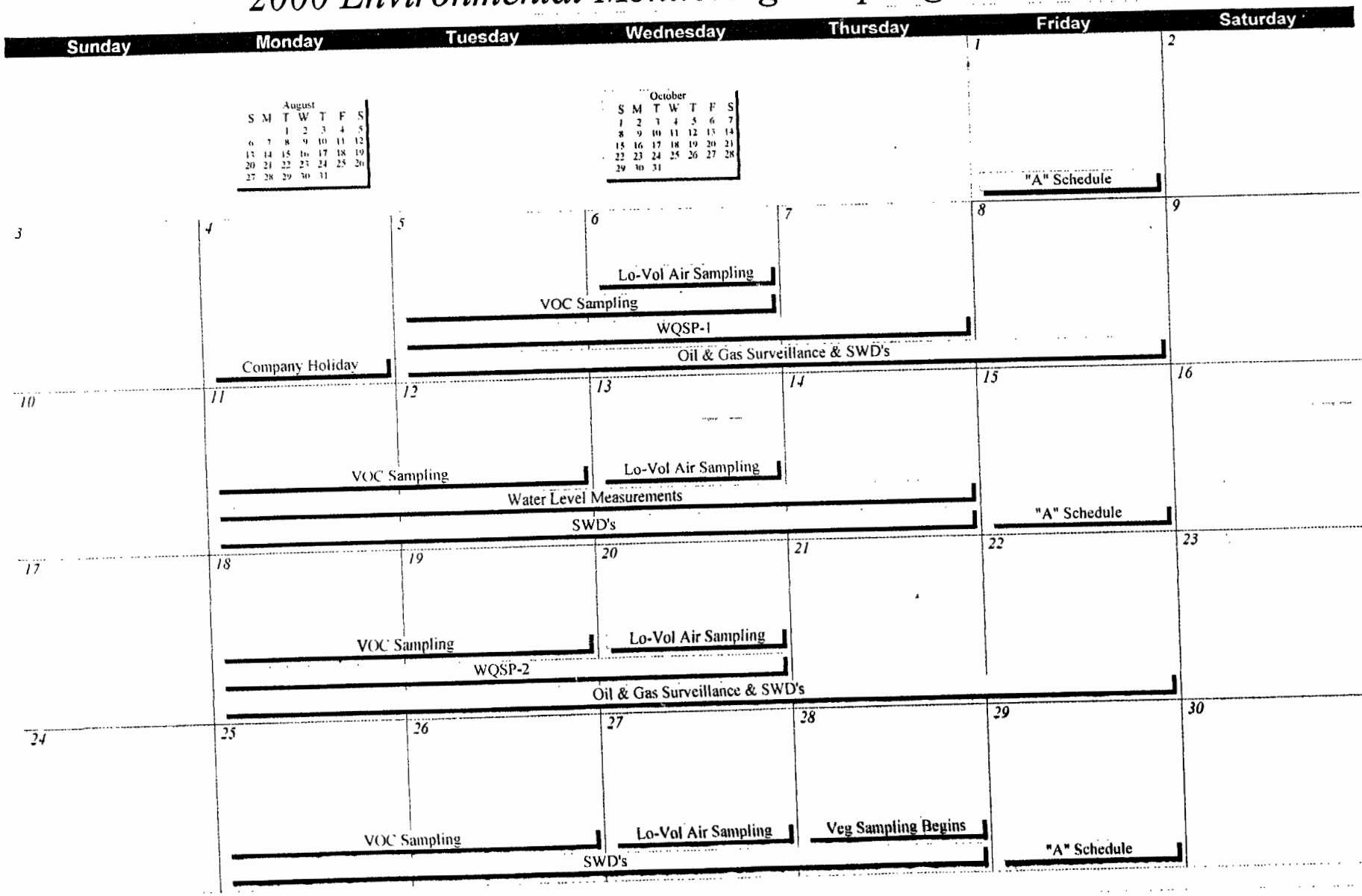
2000 Environmental Monitoring Sampling Schedule



Printed by Instant Calendar on 2/1/2000

September 2000

2000 Environmental Monitoring Sampling Schedule



Printed by Instant Calendar on 2/1/2000

October 2000

2000 Environmental Monitoring Sampling Schedule

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2 VOC Sampling WQSP-3 Oil & Gas Surveillance & SWD's	3	4 Lo-Vol Air Sampling	5	6	7
8	9 VOC Sampling Water Level Measurements SWD's	10 DP-831	11 Lo-Vol Air Sampling	12	13 "A" Schedule	14
15	16 VOC Sampling WQSP-4 Oil & Gas Surveillance & SWD's	17	18 Lo-Vol Air Sampling	19	20	21
22	23 VOC Sampling SWD's	24	25 Lo-Vol Air Sampling	26 Veg Sampling Ends	27 "A" Schedule	28
29 Daylight Savings--set back 1 hour	30 WQSP-5 VOC Sampling SWD's	31				

September

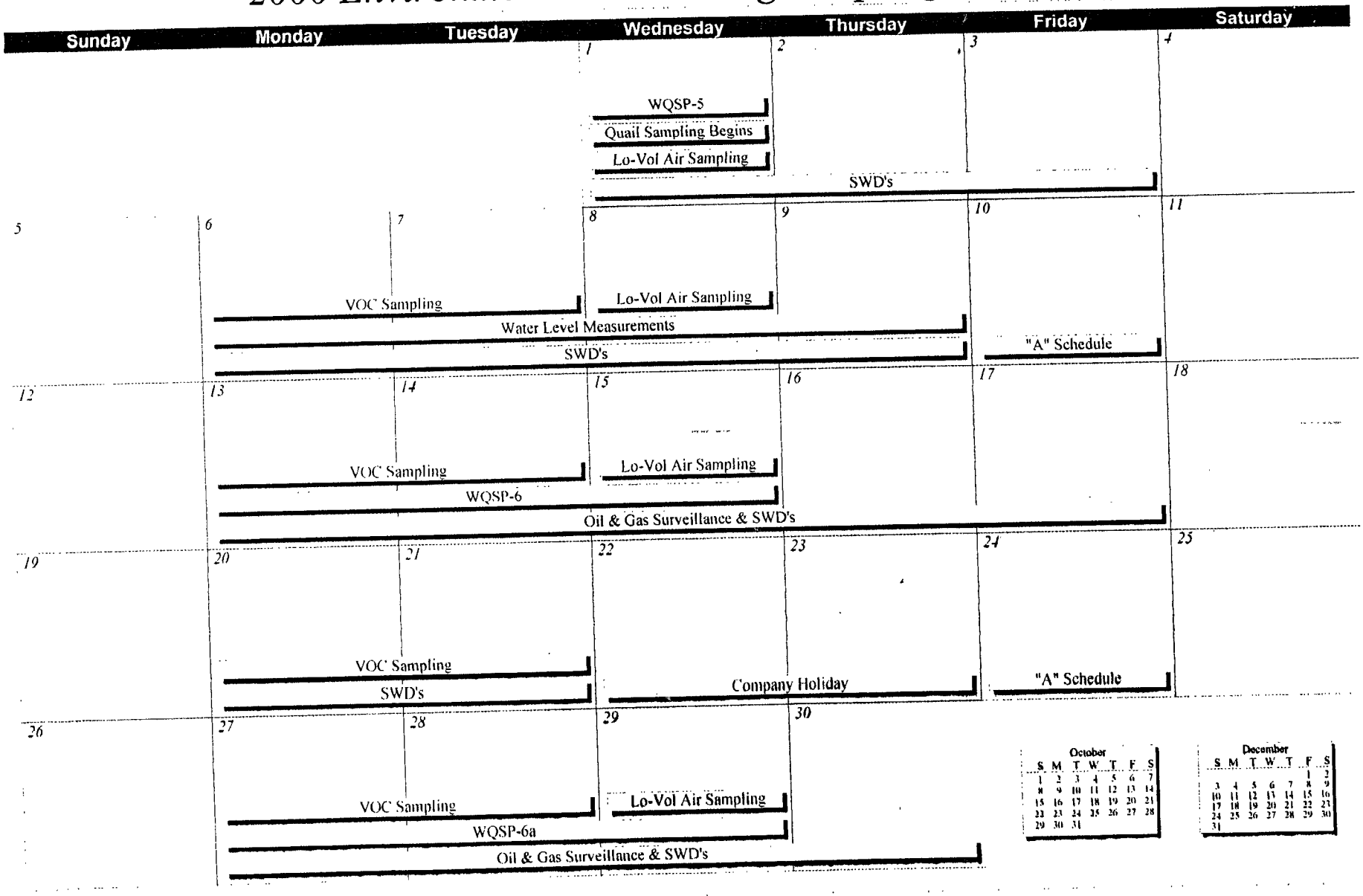
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

November

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

November 2000

2000 Environmental Monitoring Sampling Schedule



Printed by Instant Ca[illegible]dar on 2/1/2000

December 2000

2000 Environmental Monitoring Sampling Schedule

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 Quail Sampling Ends Oil & Gas Surveillance & ..	2
3	4 VOC Sampling SWD's	5	6 Lo-Vol Air Sampling	7	8 "A" Schedule	9
10	11 VOC Sampling Water Level Measurements Oil & Gas Surveillance & SWD's	12	13 Lo-Vol Air Sampling	14	15	16
17	18 VOC Sampling SWD's	19	20 Lo-Vol Air Sampling	21	22 "A" Schedule	23
24	25 Company Holiday	26	27 Lo-Vol Air Sampling VOC Sampling Oil & Gas Surveillance & SWD's	28	29	30
31						

November 00

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

January 01

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

DOCKET NO: A-98-49
Item: II-B3-12C

INSPECTION REPORT

INSPECTION No. EPA-WIPP-6.00-21A (Waste Emplacement)
OF THE
WASTE ISOLATION PILOT PLANT
June 20-22, 2000

U. S. ENVIRONMENTAL PROTECTION AGENCY
Office of Radiation and Indoor Air
Center for Federal Regulation
1200 Pennsylvania Avenue, NW
Washington, DC 20460

August 2000

Table of Contents

1.0 EXECUTIVE SUMMARY

In accordance with 40 CFR 194.21, the U.S. Environmental Protection Agency (EPA or the Agency) conducted an inspection of the U.S. Department of Energy's (DOE) Waste Isolation Pilot Plant (WIPP) near Carlsbad, NM, on June 20-22, 2000. The WIPP is a disposal system for defense-related transuranic (TRU) waste as defined by the WIPP Land Withdrawal Act.[1] EPA certified that the WIPP complies with the Agency's radioactive waste disposal regulations (Subparts B and C of 40 CFR Part 191) on May 18, 1998.

Four DOE transuranic waste sites have shipped waste to the WIPP for disposal. These sites are: Los Alamos National Laboratory (LANL) in New Mexico, Rocky Flats Environmental Technology Site (RFETS) in Colorado, the Hanford Site in Washington, and Idaho National Engineering and Environmental Laboratory (INEEL). The first shipment was received by the facility in March 1999.

We inspected the WIPP to verify that waste is being emplaced in the underground facility in the manner specified in DOE's Compliance Certification Application (CCA) for the WIPP (EPA Air Docket A-93-02, Item II-G-01, and associated documents). The inspection also verified the proper emplacement of backfill material (magnesium oxide) with the waste packages. We found that waste is being emplaced in accordance with commitments made in the CCA, and identified no findings or concerns.

2.0 INSPECTION PURPOSE AND SCOPE

The purpose of this inspection was to determine whether wastes sent to the WIPP since the last inspection (September 1999) were emplaced in the underground facility in the manner specified in DOE's Compliance Certification Application for the WIPP. We performed the inspection under authority of 40 CFR 194.21, which authorizes the Agency to inspect the WIPP during its operational period to verify continued compliance with our WIPP Compliance Criteria and certification decision of May 18, 1998. Emplacement of waste, and backfill in particular, are relevant to compliance because the emplacement method supports models that DOE used in the WIPP performance assessment to understand the potential for transport of radionuclides out of the mined rooms. The WIPP site is operated by Westinghouse Waste Isolation Division (WID), under contract to DOE. The majority of waste related activities onsite are described by or controlled through WID procedures. A list of all WID procedures examined for this inspection is provided in Table A.

---

[1]WIPP Land Withdrawal Act, Public Law 102-579, Section 2(18), as amended by the 1996 WIPP LWA Amendments, Public Law 104-201.

The activities within the scope of this inspection included:

- demonstration of the site's ability to receive, process, and emplace TRU wastes within the repository
- the use of magnesium oxide (MgO) backfill in appropriate amounts to fulfill CCA commitments
- maintenance of relevant waste packaging records, including the electronic WIPP Waste Information System (WWIS).

The inspector observed wastes that had been emplaced in the repository and reviewed records documenting that waste emplacement was conducted in accordance with procedures. To date, the wastes received at the repository are contact-handled (CH) transuranic wastes from LANL, RFETS and INEEL. These wastes are in one of two configurations: Standard Waste Boxes (SWBs) and 55-gallon (208 liter) drums assembled in groups of seven, called a Seven Pack. Both the SWB and Seven Pack have the same "footprint" —that is, they occupy equivalent floor space—and can be stacked in vertical columns as described in this report. There are other waste configurations allowable at WIPP, but they have not been employed to date and are not addressed in this report. A list of wastes emplaced in the repository as of the date of this inspection is provided in Attachment A.

Table A
Listing of WID Procedures Examined During Inspection

- *CH Waste Processing*, Technical Procedure WP 05-WH1011, Revision 8; Effective Date May 30, 2000

- *Specification for Repackaged MgO Backfill*, Waste Isolation Pilot Plant Procedure D-0101, Revision 3, ECO Number 9753; Effective Date April 4, 2000

3.0 PERFORMANCE OF THE INSPECTION

A list of the emplacement inspection participants is provided in Table B.

Table B
Inspection Participants

INSPECTION TEAM MEMBER	POSITION	AFFILIATION
Chuck Byrum	Lead Inspector	EPA
Nick Stone	Inspector	EPA
CAO - WID PERSONNEL	**POSITION**	**AFFILIATION**
George T. Basabilvazo	CAO Compliance Team Leader	DOE/CAO
Mark Polley	CH Waste Handling Manager	Westinghouse WID-Operations
Richard Farrell	Radiation Safety Manager	DOE/CAO
Dave Speed	Lead WWIS Engineer	Westinghouse WID-Operations
Ken Mikus	WWIS Manager	Westinghouse WID-Operations

The inspection took place on June 20-22, 2000, at the WIPP facility, which is located approximately 30 miles south east of Carlsbad, NM. The inspection was part of a combined inspection that also reviewed compliance with 40 CFR 191.03 and 40 CFR 194.42. An opening meeting with CAO and WID personnel was held in the WIPP Operations Building. The afternoon was spent in the underground observing emplaced waste, monitoring devices, and recent Panel 2 excavation. Five drums of waste were identified and their drum numbers noted by the inspector for our confirmation of the effective operation of the WIPP Waste Information System (WWIS). The inspector met with Dave Speed, the lead WWIS engineer, on June 22 to evaluate the WWIS data for the identified drums. Inspectors identified no concerns or findings.

3.1 WASTE EMPLACEMENT and WWIS

The repository is subdivided into panels, each panel consisting of seven (7) rooms. Room 7, where wastes have been emplaced, is shaped like the letter U, and is divided into three (3) disposal cells, S1950, Main Room and S1600. Wastes fill the section of S1600 adjacent to Room 7 and a single row of waste have been emplaced in Room 7 proper.[2]

Wastes are stacked in columns (also called waste stacks) three high in any combination of SWBs and Seven Packs, both having the same "footprint." The inspector did not observe any 85 gallon drum assemblies or Ten Drum Over Packs (TDOPs), both of which have specific

[2] Procedure WP 05-WH1011 identifies the order of waste emplacement in the repository.

requirements regarding their placement in a column.[3] There is no particular order in which SWBs and Seven Packs are stacked; wastes are emplaced as received. A series of 3 columns (9 SWB or Seven Packs total) spans the distance of the disposal cell from left to right with ample space between columns. Space between the repository wall and the waste column is left open at alternating ends, as represented in Table C below. This space is used for magnesium oxide (MgO) placement, resulting in the placement of MgO at alternating ends of each column from left to right. A second row of 3 columns is emplaced parallel to the first, but each column is staggered such that it is located between two columns from the previous row; these two left-to-right rows of three columns each (6 columns or 18 SWBs/Seven Packs) are designated a row and numbered, as shown in Table C below. This results in each waste Seven Pack or SWB having a unique identifier that indicates its location underground according to the row, the column and the position within the column (see Waste Emplacement Report, Attachment B). The inspector observed MgO in various locations around the waste stacks, as described below.

Table C
Schematic of Waste Emplacement in Columns

Column 1		Column 3		Column 5		Combination of 2 Left-Right
	Column 2		Column 4		Column 6	Columns Is a Row

The inspector randomly selected five waste containers emplaced in the repository, and WID personnel read their identification numbers off the drums. The inspector was unable to read them directly because the area adjacent to the emplaced waste was posted as a Radiation Area and access was restricted. The containers selected are identified in Table D below. The records for these containers were closely reviewed, and WID personnel were asked to verify the pertinent milestones for the waste. The specific milestones are listed in Table E and the WWIS documents are attached in Attachment B.

Table D
Randomly Selected Waste Containers Examined During Inspection

Site of Origin	Waste Container Identifier	Container Type
RFETS	RFD 66936	Seven Pack of 55 gallon drums
RFETS	RFD 76390	Seven Pack of 55 gallon drums
RFETS	RFD 83240	Seven Pack of 55 gallon drums
RFETS	RFD 97217	Seven Pack of 55 gallon drums
RFETS	RFD 99298	Seven Pack of 55 gallon drums

Some records were paper, while others were electronic, such as fields in the WIPP Waste

[3] Due in part to their different footprint, TDOPs must be placed on the bottom of a column, and 85 gallon drum assemblies must be placed on the top level of each column.

Information System (WWIS) database. The WWIS is an on-line database system used to record, track, and document the range of activities required for shipping TRU wastes to WIPP. WID personnel stated that the reliance on electronic approvals instead of paper was deliberate and was designed to minimize the use of paper. The inspector examined the following modules:

- Characterization Module, linked to the Waste Container Data Report
- Certification Module, linked to the Acceptance Report or Rejection Report
- Shipping Module, linked to the Shipment Summary Report
- Inventory Module, linked to the Nuclide Report and Waste Emplacement Report.

Mr. Speed produced either paper or electronic records of all modules requested (copies are included in Attachment B). All records contained the required information.

Table E
Milestones for WWIS Documentation
(Example: Container RFD99298)

Date	Milestone	Document
5/24/00	Waste Container Certified	Waste Container Data Report
5/31/00	Waste Shipment Date	Shipment Summary Report
6/1/00	Shipment Receipt Date	Shipment Summary Report
6/15/00	Waste Emplacement Date	Waste Emplacement Report
6/15/00	Waste Location in Underground	Waste Emplacement Report
6/15/00	MgO Emplacement	Attachment 1 of WP 05-WH1011

3.2 MAGNESIUM OXIDE BACKFILL

Magnesium oxide (MgO) is used in the repository as backfill, as specified in DOE's Compliance Application (CCA). WID Procedure D-0101, *Specifications for Prepackaged MgO Backfill*, identifies the amount and specific placement of prepackaged MgO in 2 sizes (super sacks containing a minimum of 4,100 pounds and mini sacks containing a minimum of 27 pounds) for four waste configurations: 85 gallon Over Packs, Ten Drum Over Packs, Seven Packs, and Standard Waste Boxes. WID Technical Procedure WP 05-WH1011, *CH Waste Processing*, details a procedure for MgO placement and the means to document that MgO placement has been accomplished correctly (CH Waste Processing Data Sheet). The inspector observed that MgO had been placed properly in the three rows that were visible from outside the restricted access area. Completed rows have supersacks emplaced on all columns and have 11 mini sacks emplaced between the rib and end waste stacks.

4.0 SUMMARY OF RESULTS

The activities examined during the inspection were found to comply with WID procedures and with the description of waste and backfill emplacement provided in the CCA. We observed no noncompliances or activities that had the potential to compromise waste isolation.

Attachment A
Listing of TRU Wastes Emplaced at WIPP As of June 22, 2000

TRU Waste Generator Site:	Los Alamos National Laboratory
Waste Containers Emplaced:	Standard Waste Boxes (SWBs)
Number Emplaced:	101 SWBs total (707 drum equivalents)
TRU Waste Generator Site:	Idaho National Engineering and Environmental Laboratory
Waste Containers Emplaced:	55 gallon (208 liter) drums in Seven Pack Configuration
Number Emplaced:	126 drums total
TRU Waste Generator Site:	Rocky Flats Environmental Technology Site
Waste Containers Emplaced:	55 gallon (208 liter) drums in Seven Pack Configuration 55 gallon drums with Pipe Overpack Containers (POCs)
Number Emplaced:	909 drums total
Total Drum Equivalent Emplaced:	1764 drums (this includes 22 dunnage drums)

Attachment B
Copies of WWIS Modules Provided By CAO

Waste Isolation Pilot Plant
WWIS

Report	***RP0530 Repository Report***
Filename	
Run by	***CARTML***
Report Date	***06/21/2000 14:47***
Total Pages	***7***

Report Criteria

Module ***RP0530***

Version ***1.0***

Repositor Report

Containers

Container Type	Description	Emplaced	Total
001	55 GAL DRUM	126	138
1	55GAL DRUM	335	433
1	Dunnage: 55GAL DRUM	22	79
2	SWB	101	101
5	55 GALLON PIPE OVERPACK - 12 INCH PIPE OVERPACK	574	574
7	55 GAL DRUM - 1 TRIP	0	11

↑ Hanford test

Containers by Site

Site Id : AE Name : ARGONNE NATIONAL LABORATORY

Site Id : AL Name : AMES LABORATORY

Site Id : AW Name : ARGONNE NATIONAL LABORATORY WE

Site Id : BC Name : BATTELLE COLUMBUS LABORATORY

Site Id : BP Name : BATTELLE - PACIFIC NORTHWEST L

Site Id : BT Name : BETTIS ATOMIC POWER LABORATORY

Site Id : ET Name : ENERGY TECHNOLOGY ENGINEERING

Site Id : HF Name : HANFORD(2)

Site Id : IN Name : IDAHO NATIONAL ENGINEERING LAB

Specific Container Information

Container Type	Description	Container Status	Dunnage	Total Containers
001	55 GAL DRUM	Emplaced Container		126

Container Status Totals

Container Status	Total Containers
Emplaced Container	126

Site Id : IT Name : INHALATION TOXICOLOGY RESEARCH

Site Id : KA Name : KNOLLS ATOMIC POWER LABORATORY

Site Id : LA Name : LOS ALAMOS NATIONAL LABORATORY

Specific Container Information

Container Type	Description	Container Status	Dunnage	Total Containers
2	SWB	Emplaced Container		101

Containers by Site

Site Id : LA Name : LOS ALAMOS NATIONAL LABORATORY

Specific Container Information

Container Type	Description	Container Status	Dunnage	Total Containers
2	SWB	Dunnage	*	1

Container Status Totals

Container Status	Total Containers
Emplaced Container	101

Site Id : LB Name : LAWRENCE BERKELEY LABORATORY

Site Id : LL Name : LAWRENCE LIVERMORE NAT'L LAB

Site Id : MD Name : MOUND PLANT

Site Id : MU Name : UNIVERSITY OF MISSOURI

Site Id : NR Name : NAVAL REACTORS FACILITY

Site Id : NT Name : NEVADA TEST SITE

Site Id : OR Name : OAK RIDGE NATIONAL LABORATORY

Site Id : PA Name : PADUCAH GASEOUS DIFFUSION PLAN

Site Id : PX Name : PANTEX SITE(3)

Site Id : RF Name : ROCKY FLATS

Specific Container Information

Container Type	Description	Container Status	Dunnage	Total Containers
1	55GAL DRUM	Approved Certification		8
1	55GAL DRUM	Approved Shipment		28
1	55GAL DRUM	Emplaced Container		335

10 PALLETS

Repository Report

Containers by Site

Site Id : RF Name : ROCKY FLATS

Specific Container Information

Container Type	Description	Container Status	Dunnage	Total Containers
1	55GAL DRUM	Pending Characterization		51
1	55GAL DRUM	Dunnage - Emplaced	*	22
1	55GAL DRUM	Dunnage	*	49
5	55 GALLON PIPE OVERPACK - 12 INCH PIPE OVERPACK	Emplaced Container		574

Container Status Totals

Container Status	Total Containers
Pending Characterization	51
Approved Certification	8
Approved Shipment	28
Dunnage - Emplaced	22
Emplaced Container	909

Site Id : RL Name : RICHLAND (HANFORD) SITE

Specific Container Information

Container Type	Description	Container Status	Dunnage	Total Containers
001	55 GAL DRUM	Approved Certification		11
001	55 GAL DRUM	Approved Characterization		1
001	55 GAL DRUM	Dunnage	*	2
1	55GAL DRUM	Approved Certification		10
1	55GAL DRUM	PreSubmit Certification		1
1	55GAL DRUM	Dunnage	*	8
7	55 GAL DRUM - 1 TRIP	Approved Certification		11

Containers by Site

Site Id : RL Name : RICHLAND (HANFORD) SITE

Container Status Totals

Container Status	Total Containers
Approved Characterization	1
PreSubmit Certification	1
Approved Certification	32

Site Id : SA Name : SANDIA NATIONAL LABORATORIES -

Site Id : SR Name : SAVANNAH RIVER SITE

Site Id : WI Name : WASTE ISOLATION PILOT PLANT

Material Parameter Totals

Material Parameter	Description	Weight(Kg)
6	CELLULOSICS	21402.05
7	RUBBER	37.83
8	PLASTICS	3018.72

Waste Isolation Pilot Plant
WWIS

Report	*RP0440 Waste Emplacement Report*
Filename	
Run by	*CARTML*
Report Date	*06/21/2000 13:16*
Total Pages	*2*

Selection Criteria

Module	*RP0440*
Version	*1.1*
Start Date	*01/01/1999*
End Date	*06/21/2000*
Container Number	*RFD83240* ✓
Site Id	*%*
Panel	*%*
Room	*%*
Bore Hole	*%*
Building	*%*
Pad	*%*

*** Indicates Dunnage**

Waste Emplacement Report

Panel: 1 **Room: 7** **(Process Code: XO4)**

Container Number	Site Id	Shipment Number	Assembly Id	Emplacement Date	Hazardous Codes	Matrix Code	Container Weight(Kg)	Row	Col	Ht
RFD83240	RF	RF000011	RF000150	05/19/2000		5000	113.4	27	4	B

Waste Isolation Pilot Plant

WWIS

Report	*RP0360 Waste Container Data Report*
Filename	
Run by	*CARTML*
Report Date	*06/21/2000 13:20*
Total Pages	*5*

Selection Criteria

Module	*RP0360*
Version	*1.2*
Container Number	*RFD83240*
Site Id	*%*
Waste Stream	*%*
Data Status Code	*%*

Waste Container Data Report

Waste Container Information

Cntr Num : **RFD83240**
Site Id : **RF - ROCKY FLATS**
Data Status Code : **Container Emplaced at WIPP**
Waste Stream Profile : **RF002.01**
Type Code : **1 - 55GAL DRUM**

WAC Ex. # :
WAC Rev # : **7**
Cert Date : **05/09/2000**
Cert Site : **RF - ROCKY FLATS**

Generator Site : **RF - ROCKY FLATS**
IDC Code : **0824**
Matrix Code : **S5111**
Trucon Code : **RF117A**
Shipping Category : **2001700502**
Pcb Conc(Ppm) : **0**

Decay Heat (Watts) : **1.923E-02**
Decay Heat Uncert (Watts) : **3.806E-03**

Closure Date : **07/06/1994**
Vent Date : **07/06/1994**
Filter Install Date : **07/06/1994**
Filter Model Number : **NF013**
Aspiration Id : **N**
Gas Gen Rate :
Gas Hyd Meth Gen Rate :
Gas Gen Comp Date :
Shipment Num : RF000011
Packaging Num : 132
Assembly Id : RF000150

Handling Code : **CH**
Waste Type Code : **TRU**
Wst Strm Bir Id : **RFTT0824**
Wst Strm Mwir Id : **RF-W109**

Tru Alpha Act (Ci) : **6.135E-01**
Tru Alpha Act Uncert (Ci) : **2.403E-01**
Tru Alpha Act Conc (Ci/g) : **7.729E-06**
Tru Alpha Act Conc Uncert (Ci/g) : **3.028E-06**
Pu239 Eq Act (PE Ci) : **6.405E-01**
Pu239 Fiss Gm Eq (Fge) : **7.120E+00**
Pu239 Fiss Gm Eq Uncert (Fge) : **1.890E+00**

Layers Of Packaging : **4**
Fill Factor (%) : **80**
Liner Type : **1 - PLASTIC DRUM LINER**
Liner Punctured : **Y**

Gross Weight (Kg) : **113.4**
Gross Weight Uncert (Kg) : **4.54**

Alpha Surf Cont (dpm/100cm2) : **16**
BG Surf Cont (dpm/100cm2) : **117**
Bg Dose Rate (mrem/hr) : **1**
Neut Dose Rate (mrem/hr) : **1**
Total Dose Rate (mrem/hr) : **2**

Cntr Disposal Date : **05/19/2000**
Cntr Status Code : **XO4**

Overpack Cntr Num :
Overpack Cntr Type :

Nuclide Information

Radionuclide	Description	Activity(Ci)	Activity Uncert(Ci)	Mass(G)	Mass Uncert(G)	List
PU-238	PLUTONIUM 238	1.891E-02	1.007E-02	1.093E-03	5.820E-04	
PU-239	PLUTONIUM 239	4.453E-01	2.327E-01	7.080E+00	3.700E+00	
PU-240	PLUTONIUM 240	1.034E-01	5.405E-02	4.497E-01	2.350E-01	
PU-241	PLUTONIUM 241	1.493E+00	7.800E-01	1.436E-02	7.500E-03	
PU-242	PLUTONIUM 242	7.547E-06	4.208E-06	1.901E-03	1.060E-03	

Waste Container Data Report

Waste Container Information

Cntr Num : **RFD83240**
Site Id : **RF - ROCKY FLATS**
Data Status Code : **Container Emplaced at WIPP**
Waste Stream Profile : **RF002.01**
Type Code : **1 - 55GAL DRUM**

Nuclide Information

Radionuclide	Description	Activity(Ci)	Activity Uncert(Ci)	Mass(G)	Mass Uncert(G)	List
AM-241	AMERICIUM 241	4.584E-02	2.394E-02	1.321E-02	6.900E-03	

Material Parameters Information

Waste Matl Parm	Description	Weight(Kg)
1	IRON BASE METAL ALLOYS	73.3
13	STEEL CONTAINER MATERIALS - KG	29
14	PLASTIC/LINERS CONTAINER MATERIALS- KG	5
6	CELLULOSICS	2.7
8	PLASTICS	3.6

Assay Methods Information

Radio Assay Method	Description	Assay Date
GRS	GAMMA-RAY SPECTROSCOPY	03/26/1999

Characterization Methods Information

Method Id	Description	Charz Method Date
RTR	REAL-TIME RADIOGRAPHY	04/19/2000

Sample Information

Sample Id : RF041200RIA242
Sample Type : HGHM
Layer No Sampled : 0
Date Sampled : 04/12/2000

Sample Amounts

Analyte	Method	Concentration	Date Analyzed	Detection Method
74-82-8 - METHANE	510.1	.0007 Volume %	04/17/2000	U
1333-74-0 - HYDROGEN	510.1	.0036 Volume %	04/17/2000	U

Sample Id : RF041200ROB107
Sample Type : HGVO
Layer No Sampled : 0
Date Sampled : 04/12/2000

Waste Container Data Report

Waste Container Information

Cntr Num : **RFD83240**
Site Id : **RF - ROCKY FLATS**
Data Status Code : **Container Emplaced at WIPP**
Waste Stream Profile : **RF002.01**
Type Code : **1 - 55GAL DRUM**

Sample Information

Sample Id : RF041200ROB107 | Sample Type : HGVO
Layer No Sampled : 0 | Date Sampled : 04/12/2000

Sample Amounts

Analyte	Method	Concentration	Date Analyzed	Detection Method
71-36-3 - BUTANOL	L-4111	5.100 Ppm	04/25/2000	D,U
108-10-1 - METHYL ISOBUTYL KETONE	L-4111	2.700 Ppm	04/25/2000	D,U
107-06-2 - 1,2-DICHLOROETHANE	L-4111	.300 Ppm	04/25/2000	D,U
100-41-4 - ETHYL BENZENE	L-4111	.300 Ppm	04/25/2000	D,U
67-64-1 - ACETONE	L-4111	1.800 Ppm	04/25/2000	D,U
95-63-6 - 1,2,4-TRIMETHYLBENZENE	L-4111	.300 Ppm	04/25/2000	D,U
95-47-6 - O-XYLENE	L-4111	.300 Ppm	04/25/2000	D,U
79-34-5 - 1,1,2,2-TETRACHLOROETHANE	L-4111	.300 Ppm	04/25/2000	D,U
79-01-6 - TRICHLOROETHYLENE	L-4111	.300 Ppm	04/25/2000	D,U
78-93-3 - METHYL ETHYL KETONE	L-4111	1.800 Ppm	04/25/2000	D,U
76-13-1 - 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	L-4111	.300 Ppm	04/25/2000	D,U
75-35-4 - 1,1-DICHLOROETHYLENE	L-4111	.300 Ppm	04/25/2000	D,U
75-34-3 - 1,1-DICHLOROETHANE	L-4111	.300 Ppm	04/25/2000	D,U
75-25-2 - BROMOFORM	L-4111	.300 Ppm	04/25/2000	D,U
75-15-0 - CARBON DISULFIDE	L-4111	.300 Ppm	04/25/2000	D,U
75-09-2 - METHYLENE CHLORIDE	L-4111	.300 Ppm	04/25/2000	D,U
71-55-6 - 1,1,1-TRICHLOROETHANE	L-4111	.300 Ppm	04/25/2000	D,U
71-43-2 - BENZENE	L-4111	.300 Ppm	04/25/2000	D,U
108-67-8 - 1,3,5-TRIMETHYLBENZENE	L-4111	.300 Ppm	04/25/2000	D,U
67-56-1 - METHANOL	L-4111	9.900 Ppm	04/25/2000	D,U
60-29-7 - ETHYL ETHER	L-4111	.300	04/25/2000	D,U

Waste Container Data Report

Waste Container Information

Cntr Num : **RFD83240**
Site Id : **RF - ROCKY FLATS**
Data Status Code : **Container Emplaced at WIPP**
Waste Stream Profile : **RF002.01**
Type Code : **1 - 55GAL DRUM**

Sample Information

Sample Id : RF041200ROB107
Sample Type : HGVO
Layer No Sampled : 0
Date Sampled : 04/12/2000

Sample Amounts

Analyte	Method	Concentration	Date Analyzed	Detection Method
56-23-5 - CARBON TETRACHLORIDE	L-4111	.300 Ppm	04/25/2000	D,U
156-59-2 - CIS-1,2-DICHLOROETHYLENE	L-4111	.300 Ppm	04/25/2000	D,U
127-18-4 - TETRACHLOROETHYLENE	L-4111	.300 Ppm	04/25/2000	D,U
110-82-7 - CYCLOHEXANE	L-4111	.300 Ppm	04/25/2000	D,U
108383/106423 - M,P-XYLENE	L-4111	.300 Ppm	04/25/2000	D,U
108-90-7 - CHLOROBENZENE	L-4111	.300 Ppm	04/25/2000	D,U
108-88-3 - TOLUENE	L-4111	.700 Ppm	04/25/2000	J,D
67-66-3 - CHLOROFORM	L-4111	.300 Ppm	04/25/2000	D,U

Comment Information

Comment Type	Comments
SAMPLES	HEADSPACE VOC RESULTS ARE QUALIFIED WITH A "Z" FLAG DUE TO LOW RECOVERY OF 2 OF THE 9 COMPOUNDS IN THE HEADSPACE VOC FRS.
GENERAL COMMENTS	ROOT CAUSE INVESTIGATION (NCR 2000-000454) SHOWS HEADSPACE VOC RESULTS WERE UNAFFECTED BY CAUSAL FACTOR RESULTING IN LOW RECOVERY OF 2 OF THE 9 COMPOUNDS IN THE FRS.

Location Information

Panel Number	Room Number	Bore Hole Number	Building Number	Pad Number
1	7			

Waste Isolation Pilot Plant
WWIS

Report	*RP0390 Shipment Summary Report*
Filename	
Run by	*CARTML*
Report Date	*06/21/2000 13:36*
Total Pages	*4*

Report Criteria

Module	*RP0390*
Version	*1.0*
Shipment Number:	*RF000011*

Shipment Summary Report

Shipment/Manifest Number : **RF000011**
Certification Date : **05/10/2000**
Shipment Date : **05/15/2000**
Receipt Date : **05/16/2000**
Site Id : **RF - ROCKY FLATS**

TRUPACT Number : **132**
ICV Closure Date : **05/11/2000**
DOT Description : **RQ, RADIOACTIVE MATERIAL, FISSILE, N.O.S., 7, UN2918**
Dose Rate 1m : **0**
Dose Rate 2m : **0**
Dose Rate Surf : **0**

Assembly	Container Number	Total Dose Rate (mrem/hr)	Hazardous Codes	Radionuclides	Total Activity(TBq)	Weight (kg)
RF000149	**RFDB0082**	**0**			**.000E+00**	**29**
	RFDB0083	**0**			**.000E+00**	**29**
	RFDB0084	**0**			**.000E+00**	**29**
	RFDB0085	**0**			**.000E+00**	**29**
	RFDB0086	**0**			**.000E+00**	**29**
	RFDB0087	**0**			**.000E+00**	**29**
	RFDB0088	**0**			**.000E+00**	**29**
RF000150	**RFD76442**	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**1.503E-02**	**108.86**
	RFD83240	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**7.796E-02**	**113.4**
	RFD89596	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235**	**1.775E-01**	**302.1**
	RFD91792	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**1.800E-02**	**112.04**
	RFD96906	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**1.003E-02**	**102.97**
	RFD99491	**3**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**1.162E-01**	**95.71**
	RFD99815	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**4.369E-02**	**132.9**
			TRUPACT :	AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235	4.584E-01	1170.98

Shipment Summary Report

TRUPACT Number : 133

ICV Closure Date : 05/11/2000

DOT Description : RQ, RADIOACTIVE MATERIAL, FISSILE, N.O.S., 7, UN2918

Dose Rate 1m : 0

Dose Rate 2m : 0

Dose Rate Surf : 0

Assembly	Container Number	Total Dose Rate (mrem/hr)	Hazardous Codes	Radionuclides	Total Activity(TBq)	Weight (kg)
RF000151	RFD91240	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	1.451E-02	74.39
	RFD91672	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	8.177E-02	78.93
	RFD92228	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	8.716E-03	83.92
	RFD92807	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	1.588E-01	68.49
	RFD97414	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	3.268E-03	59.42
	RFD99241	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	2.736E-02	57.15
	RFD99460	15		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	7.267E-02	68.04
RF000152	RFD86888	3		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	3.800E-02	86.64
	RFD88623	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	4.403E-03	93.89
	RFD88984	2		AM-241,CO-60,PU-238,PU-239,PU-240,PU-241,PU-242,U-235	1.436E-02	87.09
	RFD92765	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	1.998E-03	90.27
	RFD96381	21		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	7.234E-02	88.91
	RFD97208	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	2.591E-02	91.63
	RFD97530	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	1.223E-02	84.82

Shipment Summary Report

Assembly	Container Number	Total Dose Rate (mrem/hr)	Hazardous Codes	Radionuclides	Total Activity(TBq)	Weight (kg)
			TRUPACT :	AM-241,CO-60,PU-238,PU-239,PU-240,PU-241,PU-242,U-235	5.363E-01	1113.59
			Shipment :	**AM-241,CO-60,PU-238,PU-239,PU-240,PU-241,PU-242,U-235**	**9.947E-01**	**2284.57**

Attachment 1 - CH Waste Processing Data Sheet

Step No.	DESCRIPTION	INITIAL
	PREREQUISITES	
7.0	TRUPACT-II SERIAL No.: 132	WHE ME
	PERFORMANCE	
2.1	Adequate WHO staff available.	WHE ME
2.2	WHB is configured for Waste Handling Mode.	WHE ME
2.4.19	Activity on smears and RAF is below acceptable limits.	RCT BY
2.4.24	Activity on smears is below acceptable limits.	RCT BY
2.5.4	Activity on smears is below acceptable limits.	RCT BY
2.5.6	Payload inspected for damage.	WH MJC
2.5.16	Payload container numbers concur/do not concur with WWIS.	WH MJC
2.5.19	Activity on smears is below acceptable limits.	RCT BY
3.1	Payload Assemblies inspected for damage (if stored > 1 shift).	WH
3.2	WHB & U/G is configured for Waste Handling Mode.	WHE
4.5	Completed rows have supersacks emplaced on all columns.	WH
4.6	Completed rows have eleven mini sacks between the rib and waste stack.	WH
4.14	Mini sacks attached to payload.	WH
4.17	Completed Attachment 4	WH
4.18	Activity on smears is below acceptable limits.	RCT

Performers, enter printed name, signature, date, and initials:

Printed Name	Signature	Date	Initials
MITCH CARTER		5-16-00	ME
Ben Yturralde		5-16-00	BY
Marvin J. Heiser, Jr		5-16-00	MJC
J.S. Anderson		5-19-00	
TRAVIS M. CLARK		5-19-00	
JOHN GUY		5-19-00	

REMARKS: _____

REVIEW/VALIDATION: TRAVIS M. CLARK | | 5-19-00

WHE: (Print Name) Signature Date

Attachment 4 - Waste Emplacement Report Data Sheet

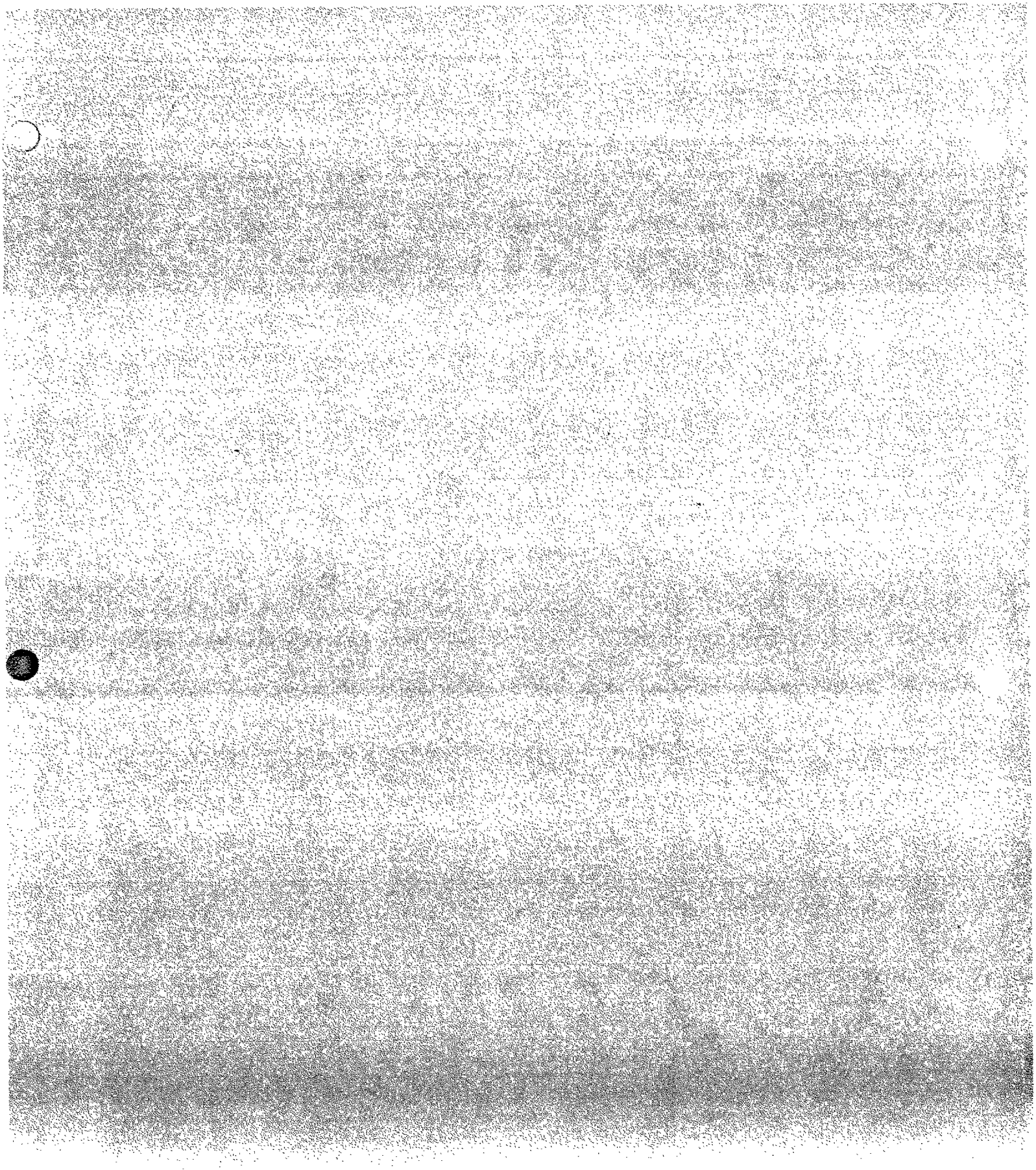
NOT USED
5-19-00

TRUPACT-II Number: 132

Container Number	RFD9,792	
Row Number	27	
Place in the Stack (Circle Location)	Top Middle (Bottom)	Top Middle Bottom
Column (Left to Right)	1 2 3 (4) 5 6	1 2 3 4 5 6
Disposal Cell	S1600 (Main Room) S1950	S1600 Main Room S1950
Disposal Room	1 2 3 4 5 6 (7)	1 2 3 4 5 6 7
Disposal Panel	(1) 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8
Disposal Date	5-19-00	

Remarks: _____

WHE Review/Validation: TRAVIS M. CLARK (Printed Name) _____ (Signature) 5-19-00 (Date)



Waste Isolation Pilot Plant

WWIS

Report	*RP0390 Shipment Summary Report*
Filename	
Run by	*CARTML*
Report Date	*06/21/2000 13:34*
Total Pages	*4*

Report Criteria

Module	*RP0390*
Version	*1.0*
Shipment Number:	*RF000013* ✓

Shipment Summary Report

Shipment/Manifest Number : **RF000013**
Certification Date : **05/18/2000**
Shipment Date : **05/19/2000**
Receipt Date : **05/20/2000**
Site Id : **RF - ROCKY FLATS**

TRUPACT Number : **134**
ICV Closure Date : **05/18/2000**
DOT Description : **RQ, RADIOACTIVE MATERIAL, FISSILE, N.O.S., 7, UN2918**
Dose Rate 1m : **0**
Dose Rate 2m : **0**
Dose Rate Surf : **0**

Assembly	Container Number	Total Dose Rate (mrem/hr)	Hazardous Codes	Radionuclides	Total Activity(TBq)	Weight (kg)
RF000157	RFDB0716	0			.000E+00	29
	RFDB0717	0			.000E+00	29
	RFDB0718	0			.000E+00	29
	RFDB0719	0			.000E+00	29
	RFDB0720	0			.000E+00	29
	RFDB0721	0			.000E+00	29
	RFDB0722	0			.000E+00	29
RF000158	RFD89589	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	4.316E-02	225.89
	RFD96893	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235	5.087E-02	133.81
	RFD97192	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	3.859E-02	123.83
	RFD97217	1		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	3.562E-03	110.22
	RFD97240	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	1.345E-02	114.31
	RFD99846	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	5.234E-02	164.66
	RFD99849	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	2.782E-02	109.32
			TRUPACT :	AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235	2.298E-01	1185.04

Shipment Summary Report

TRUPACT Number : **137**

ICV Closure Date : **05/18/2000**

DOT Description : **RQ, RADIOACTIVE MATERIAL, FISSILE, N.O.S., 7, UN2918**

Dose Rate 1m : **0**

Dose Rate 2m : **0**

Dose Rate Surf : **0**

Assembly	Container Number	Total Dose Rate (mrem/hr)	Hazardous Codes	Radionuclides	Total Activity(TBq)	Weight (kg)
RF000159	**RFD91814**	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**1.371E-02**	**87.54**
	RFD96564	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235**	**5.589E-02**	**74.84**
	RFD96566	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**3.194E-02**	**88**
	RFD97441	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**9.263E-02**	**58.97**
	RFDA4250	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235**	**1.882E-03**	**53.52**
	RFDA4948	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235**	**1.441E-02**	**63.96**
	RFDA4958	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235**	**2.670E-02**	**61.69**
RF000160	**RFD76590**	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**8.937E-03**	**95.26**
	RFD88145	**26**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**8.813E-02**	**88.45**
	RFD88985	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**1.750E-02**	**89.81**
	RFD93079	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**3.911E-02**	**88.45**
	RFD98637	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**3.680E-03**	**97.52**
	RFD98853	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**9.651E-02**	**92.53**
	RFDA1204	**11**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**1.252E-01**	**94.8**
			TRUPACT :	AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235	6.163E-01	1135.34

Shipment :	**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235**	**8.461E-01**	**2320.38**

Waste Isolation Pilot Plant
WWIS

Report	*RP0440 Waste Emplacement Report*
Filename	
Run by	*CARTML*
Report Date	*06/21/2000 13:29*
Total Pages	*2*

Selection Criteria

Module	*RP0440*
Version	*1.1*
Start Date	*01/01/1999*
End Date	*06/21/2000*
Container Number	*RFD97217*
Site Id	*%*
Panel	*%*
Room	*%*
Bore Hole	*%*
Building	*%*
Pad	*%*

*** Indicates Dunnage**

Waste Emplacement Report

Panel: 1 **Room: 7** **(Process Code: XO4)**

Container Number	Site Id	Shipment Number	Assembly Id	Emplacement Date	Hazardous Codes	Matrix Code	Container Weight(Kg)	Row	Col	Ht
RFD97217	RF	RF000013	RF000158	06/15/2000		5000	110.22	28	1	T

Waste Isolation Pilot Plant

WWIS

Report	*RP0360 Waste Container Data Report*
Filename	
Run by	*CARTML*
Report Date	*06/21/2000 13:23*
Total Pages	*5*

Selection Criteria

Module	*RP0360*
Version	*1.2*
Container Number	*RFD97217*
Site Id	*%*
Waste Stream	*%*
Data Status Code	*%*

Waste Container Data Report

Waste Container Information

Cntr Num : **RFD97217**
Site Id : **RF - ROCKY FLATS**
Data Status Code : **Container Emplaced at WIPP**
Waste Stream Profile : **RF002.01**
Type Code : **1 - 55GAL DRUM**

WAC Ex. # :
WAC Rev # : **7**
Cert Date : **05/17/2000**
Cert Site : **RF - ROCKY FLATS**

Generator Site : **RF - ROCKY FLATS**
IDC Code : **0824**
Matrix Code : **S5111**
Trucon Code : **RF117N**
Shipping Category : **2001700481**

Pcb Conc(Ppm) : **0**

Decay Heat (Watts) : **1.039E-03**
Decay Heat Uncert (Watts) : **2.330E-04**

Closure Date : **04/14/1999**
Vent Date : **04/14/1999**
Filter Install Date : **04/14/1999**
Filter Model Number : **NF013**
Aspiration Id : **N**
Gas Gen Rate :
Gas Hyd Meth Gen Rate :
Gas Gen Comp Date :

Shipment Num : RF000013
Packaging Num : 134
Assembly Id : RF000158

Handling Code : **CH**
Waste Type Code : **TRU**

Wst Strm Bir Id : **RFTT0824**
Wst Strm Mwir Id : **RF-W109**

Tru Alpha Act (Ci) : **3.317E-02**
Tru Alpha Act Uncert (Ci) : **1.470E-02**
Tru Alpha Act Conc (Ci/g) : **4.353E-07**
Tru Alpha Act Conc Uncert (Ci/g) : **1.929E-07**
Pu239 Eq Act (PE Ci) : **3.428E-02**
Pu239 Fiss Gm Eq (Fge) : **4.000E-01**
Pu239 Fiss Gm Eq Uncert (Fge) : **1.200E-01**

Layers Of Packaging : **3**
Fill Factor (%) : **65**
Liner Type : **1 - PLASTIC DRUM LINER**
Liner Punctured : **Y**

Gross Weight (Kg) : **110.22**
Gross Weight Uncert (Kg) : **4.54**

Alpha Surf Cont (dpm/100cm2) : **15**
BG Surf Cont (dpm/100cm2) : **108**
Bg Dose Rate (mrem/hr) : **1**
Neut Dose Rate (mrem/hr) : **0**
Total Dose Rate (mrem/hr) : **1**

Cntr Disposal Date : **06/15/2000**
Cntr Status Code : **XO4**

Overpack Cntr Num :
Overpack Cntr Type :

Nuclide Information

Radionuclide	Description	Activity(Ci)	Activity Uncert(Ci)	Mass(G)	Mass Uncert(G)	List
PU-238	PLUTONIUM 238	1.072E-03	9.290E-04	6.199E-05	5.370E-05	
PU-239	PLUTONIUM 239	2.476E-02	1.428E-02	3.937E-01	2.270E-01	
PU-240	PLUTONIUM 240	5.095E-03	3.082E-03	2.215E-02	1.340E-02	
PU-241	PLUTONIUM 241	6.311E-02	7.134E-02	6.068E-04	6.860E-04	
PU-242	PLUTONIUM 242	3.428E-07	2.350E-07	8.635E-05	5.920E-05	

Waste Container Data Report

Waste Container Information

Cntr Num : **RFD97217**
Site Id : **RF - ROCKY FLATS**
Data Status Code : **Container Emplaced at WIPP**
Waste Stream Profile : **RF002.01**
Type Code : **1 - 55GAL DRUM**

Nuclide Information

Radionuclide	Description	Activity(Ci)	Activity Uncert(Ci)	Mass(G)	Mass Uncert(G)	List
AM-241	AMERICIUM 241	2.237E-03	1.360E-03	6.447E-04	3.920E-04	

Material Parameters Information

Waste Matl Parm	Description	Weight(Kg)
14	PLASTIC/LINERS CONTAINER MATERIALS- KG	5
6	CELLULOSICS	2.7
8	PLASTICS	2.8
1	IRON BASE METAL ALLOYS	71
13	STEEL CONTAINER MATERIALS - KG	29

Assay Methods Information

Radio Assay Method	Description	Assay Date
GRS	GAMMA-RAY SPECTROSCOPY	05/03/2000

Characterization Methods Information

Method Id	Description	Charz Method Date
RTR	REAL-TIME RADIOGRAPHY	05/03/2000

Sample Information

Sample Id : RF041900RIA262 Sample Type : HGHM
Layer No Sampled : 0 Date Sampled : 04/19/2000

Sample Amounts

Analyte	Method	Concentration	Date Analyzed	Detection Method
1333-74-0 - HYDROGEN	510.1	.0036 Volume %	04/20/2000	U
74-82-8 - METHANE	510.1	.0007 Volume %	04/20/2000	U

Sample Id : RF041900ROB249 Sample Type : HGVO
Layer No Sampled : 0 Date Sampled : 04/19/2000

Waste Container Data Report

Waste Container Information

Cntr Num : **RFD97217**
Site Id : **RF - ROCKY FLATS**
Data Status Code : **Container Emplaced at WIPP**
Waste Stream Profile : **RF002.01**
Type Code : **1 - 55GAL DRUM**

Sample Information

Sample Id : RF041900ROB249
Layer No Sampled : 0
Sample Type : HGVO
Date Sampled : 04/19/2000

Sample Amounts

Analyte	Method	Concentration	Date Analyzed	Detection Method
76-13-1 - 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	L-4111	.300 Ppm	04/29/2000	D,U
78-93-3 - METHYL ETHYL KETONE	L-4111	1.800 Ppm	04/29/2000	D,U
79-01-6 - TRICHLOROETHYLENE	L-4111	.300 Ppm	04/29/2000	D,U
79-34-5 - 1,1,2,2-TETRACHLOROETHANE	L-4111	.300 Ppm	04/29/2000	D,U
95-47-6 - O-XYLENE	L-4111	.300 Ppm	04/29/2000	D,U
95-63-6 - 1,2,4-TRIMETHYLBENZENE	L-4111	.300 Ppm	04/29/2000	D,U
71-36-3 - BUTANOL	L-4111	5.100 Ppm	04/29/2000	D,U
100-41-4 - ETHYL BENZENE	L-4111	.300 Ppm	04/29/2000	D,U
107-06-2 - 1,2-DICHLOROETHANE	L-4111	.300 Ppm	04/29/2000	D,U
108-10-1 - METHYL ISOBUTYL KETONE	L-4111	2.700 Ppm	04/29/2000	D,U
108-67-8 - 1,3,5-TRIMETHYLBENZENE	L-4111	.300 Ppm	04/29/2000	D,U
108-88-3 - TOLUENE	L-4111	.300 Ppm	04/29/2000	D,U
108-90-7 - CHLOROBENZENE	L-4111	.300 Ppm	04/29/2000	D,U
108383/106423 - M,P-XYLENE	L-4111	.300 Ppm	04/29/2000	D,U
110-82-7 - CYCLOHEXANE	L-4111	.300 Ppm	04/29/2000	D,U
127-18-4 - TETRACHLOROETHYLENE	L-4111	.300 Ppm	04/29/2000	D,U
156-59-2 - CIS-1,2-DICHLOROETHYLENE	L-4111	.300 Ppm	04/29/2000	D,U
75-35-4 - 1,1-DICHLOROETHYLENE	L-4111	.300 Ppm	04/29/2000	D,U
71-43-2 - BENZENE	L-4111	.300 Ppm	04/29/2000	D,U
71-55-6 - 1,1,1-TRICHLOROETHANE	L-4111	.300 Ppm	04/29/2000	D,U
75-09-2 - METHYLENE CHLORIDE	L-4111	.300	04/29/2000	D,U

Waste Container Data Report

Waste Container Information

Cntr Num : **RFD97217**
Site Id : **RF - ROCKY FLATS**
Data Status Code : **Container Emplaced at WIPP**
Waste Stream Profile : **RF002.01**
Type Code : **1 - 55GAL DRUM**

Sample Information

Sample Id : RF041900ROB249
Layer No Sampled : 0
Sample Type : HGVO
Date Sampled : 04/19/2000

Sample Amounts

Analyte	Method	Concentration	Date Analyzed	Detection Method
75-15-0 - CARBON DISULFIDE	L-4111	.300 Ppm	04/29/2000	D,U
75-25-2 - BROMOFORM	L-4111	.300 Ppm	04/29/2000	D,U
75-34-3 - 1,1-DICHLOROETHANE	L-4111	.300 Ppm	04/29/2000	D,U
60-29-7 - ETHYL ETHER	L-4111	.300 Ppm	04/29/2000	D,U
67-56-1 - METHANOL	L-4111	9.900 Ppm	04/29/2000	D,U
67-64-1 - ACETONE	L-4111	1.800 Ppm	04/29/2000	D,U
67-66-3 - CHLOROFORM	L-4111	.300 Ppm	04/29/2000	D,U
56-23-5 - CARBON TETRACHLORIDE	L-4111	.300 Ppm	04/29/2000	D,U

Location Information

Panel Number	Room Number	Bore Hole Number	Building Number	Pad Number
1	7			

Attachment 1 - CH Waste Processing Data Sheet

Step No.	DESCRIPTION	INITIAL
	PREREQUISITES	
7.0	TRUPACT-II SERIAL No.: 134	WHE
	PERFORMANCE	
2.1	Adequate WHO staff available.	WHE
2.2	WHB is configured for Waste Handling Mode.	WHE
2.4.19	Activity on smears and RAF is below acceptable limits.	RCT
2.4.24	Activity on smears is below acceptable limits.	RCT
2.5.4	Activity on smears is below acceptable limits.	RCT
2.5.6	Payload inspected for damage.	WH
2.5.16	Payload container numbers (concur)/do not concur with WWIS.	WH
2.5.19	Activity on smears is below acceptable limits.	RCT
3.1	Payload Assemblies inspected for damage (if stored > 1 shift).	WH
3.2	WHB & U/G is configured for Waste Handling Mode.	WHE
4.5	Completed rows have supersacks emplaced on all columns.	WH
4.6	Completed rows have eleven mini sacks between the rib and waste stack.	WH
4.14	Mini sacks attached to payload.	WH
4.17	Completed Attachment 4	WH
4.18	Activity on smears is below acceptable limits.	RCT

Performers, enter printed name, signature, date, and initials.

Printed Name	Signature	Date	Initials
TRAVIS M. CLARK		5-23-00	
Cindy Anderson	Cindy Anderson	5-24-00	ca
L.B. Cole	L.B. Cole	5-24-00	LBC
MITCH CARTER	Mitch Carter	6-15-00	MC

REMARKS: _____

REVIEW/VALIDATION: TRAVIS M. CLARK | | 6-15-00

WHE: (Print Name) Signature Date

Attachment 4 - Waste Emplacement Report Data Sheet

TRUPACT-II Number: 134

NOT USED
Date 6-15-00

Container Number	RFO 97217	
Row Number	28	
Place in the Stack (Circle Location)	(Top) Middle Bottom	Top Middle Bottom
Column (Left to Right)	(1) 2 3 4 5 6	1 2 3 4 5 6
Disposal Cell	S1600 (Main Room) S1950	S1600 Main Room S1950
Disposal Room	1 2 3 4 5 6 (7)	1 2 3 4 5 6 7
Disposal Panel	(1) 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8
Disposal Date	6-15-00	

Remarks: _____

WHE Review/Validation: TRAVIS M. CLARK (Printed Name) _____ (Signature) 6-15-00 (Date)

Waste Isolation Pilot Plant
WWIS

Report	*RP0390 Shipment Summary Report*
Filename	
Run by	*CARTML*
Report Date	*06/21/2000 13:34*
Total Pages	*4*

Report Criteria

Module	*RP0390*
Version	*1.0*
Shipment Number:	*RF000013* ✓

Shipment Summary Report

Shipment/Manifest Number : **RF000013**
Certification Date : **05/18/2000**
Shipment Date : **05/19/2000**
Receipt Date : **05/20/2000**
Site Id : **RF - ROCKY FLATS**

TRUPACT Number : **134**
ICV Closure Date : **05/18/2000**
DOT Description : **RQ, RADIOACTIVE MATERIAL, FISSILE, N.O.S., 7, UN2918**
Dose Rate 1m : **0**
Dose Rate 2m : **0**
Dose Rate Surf : **0**

Assembly	Container Number	Total Dose Rate (mrem/hr)	Hazardous Codes	Radionuclides	Total Activity(TBq)	Weight (kg)
RF000157	**RFDB0716**	**0**			**.000E+00**	**29**
	RFDB0717	**0**			**.000E+00**	**29**
	RFDB0718	**0**			**.000E+00**	**29**
	RFDB0719	**0**			**.000E+00**	**29**
	RFDB0720	**0**			**.000E+00**	**29**
	RFDB0721	**0**			**.000E+00**	**29**
	RFDB0722	**0**			**.000E+00**	**29**
RF000158	**RFD89589**	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**4.316E-02**	**225.89**
	RFD96893	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235**	**5.087E-02**	**133.81**
	RFD97192	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**3.859E-02**	**123.83**
	RFD97217	**1**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**3.562E-03**	**110.22**
	RFD97240	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**1.345E-02**	**114.31**
	RFD99846	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**5.234E-02**	**164.66**
	RFD99849	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**2.782E-02**	**109.32**
			TRUPACT :	AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235	2.298E-01	1185.04

Shipment Sun ıary Report

TRUPACT Number : **137**

ICV Closure Date : **05/18/2000**

DOT Description : **RQ, RADIOACTIVE MATERIAL, FISSILE, N.O.S., 7, UN2918**

Dose Rate 1m : **0**

Dose Rate 2m : **0**

Dose Rate Surf : **0**

Assembly	Container Number	Total Dose Rate (mrem/hr)	Hazardous Codes	Radionuclides	Total Activity(TBq)	Weight (kg)
RF000159	**RFD91814**	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**1.371E-02**	**87.54**
	RFD96564	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235**	**5.589E-02**	**74.84**
	RFD96566	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**3.194E-02**	**88**
	RFD97441	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**9.263E-02**	**58.97**
	RFDA4250	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235**	**1.882E-03**	**53.52**
	RFDA4948	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235**	**1.441E-02**	**63.96**
	RFDA4958	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235**	**2.670E-02**	**61.69**
RF000160	**RFD76590**	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**8.937E-03**	**95.26**
	RFD88145	**26**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**8.813E-02**	**88.45**
	RFD88985	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**1.750E-02**	**89.81**
	RFD93079	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**3.911E-02**	**88.45**
	RFD98637	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**3.680E-03**	**97.52**
	RFD98853	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**9.651E-02**	**92.53**
	RFDA1204	**11**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**1.252E-01**	**94.8**
			TRUPACT :	AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235	6.163E-01	1135.34

Shipment Summary Report

Shipment :	**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235**	**8.461E-01**	**2320.38**

Waste Isolation Pilot Plant
WWIS

Report	*RP0440*	*Waste Emplacement Report*
Filename		
Run by	*CARTML*	
Report Date	*06/21/2000 13:29*	
Total Pages	*2*	

Selection Criteria

Module	*RP0440*
Version	*1.1*
Start Date	*01/01/1999*
End Date	*06/21/2000*
Container Number	*RFD97217*
Site Id	*%*
Panel	*%*
Room	*%*
Bore Hole	*%*
Building	*%*
Pad	*%*

*** Indicates Dunnage**

Waste Emplacement Report

Panel: 1 **Room: 7** **(Process Code: XO4)**

Container Number	Site Id	Shipment Number	Assembly Id	Emplacement Date	Hazardous Codes	Matrix Code	Container Weight(Kg)	Row	Col	Ht
RFD97217	RF	RF000013	RF000158	06/15/2000		5000	110.22	28	1	T

Waste Isolation Pilot Plant
WWIS

Report	*RP0360 Waste Container Data Report*
Filename	
Run by	*CARTML*
Report Date	*06/21/2000 13:23*
Total Pages	*5*

Selection Criteria

Module	*RP0360*
Version	*1.2*
Container Number	*RFD97217*
Site Id	*%*
Waste Stream	*%*
Data Status Code	*%*

Waste Container Data Report

Waste Container Information

Cntr Num : **RFD97217**
Site Id : **RF - ROCKY FLATS**
Data Status Code : **Container Emplaced at WIPP**
Waste Stream Profile : **RF002.01**
Type Code : **1 - 55GAL DRUM**

WAC Ex. # :
WAC Rev # : **7**
Cert Date : **05/17/2000**
Cert Site : **RF - ROCKY FLATS**

Generator Site : **RF - ROCKY FLATS**
IDC Code : **0824**
Matrix Code : **S5111**
Trucon Code : **RF117N**
Shipping Category : **2001700481**

Pcb Conc(Ppm) : **0**

Decay Heat (Watts) : **1.039E-03**
Decay Heat Uncert (Watts) : **2.330E-04**

Closure Date : **04/14/1999**
Vent Date : **04/14/1999**
Filter Install Date : **04/14/1999**
Filter Model Number : **NF013**
Aspiration Id : **N**
Gas Gen Rate :
Gas Hyd Meth Gen Rate :
Gas Gen Comp Date :

Shipment Num : RF000013
Packaging Num : 134
Assembly Id : RF000158

Overpack Cntr Num :
Overpack Cntr Type :

Handling Code : **CH**
Waste Type Code : **TRU**

Wst Strm Bir Id : **RFTT0824**
Wst Strm Mwir Id : **RF-W109**

Tru Alpha Act (Ci) : **3.317E-02**
Tru Alpha Act Uncert (Ci) : **1.470E-02**
Tru Alpha Act Conc (Ci/g) : **4.353E-07**
Tru Alpha Act Conc Uncert (Ci/g) : **1.929E-07**
Pu239 Eq Act (PE Ci) : **3.428E-02**
Pu239 Fiss Gm Eq (Fge) : **4.000E-01**
Pu239 Fiss Gm Eq Uncert (Fge) : **1.200E-01**

Layers Of Packaging : **3**
Fill Factor (%) : **65**
Liner Type : **1 - PLASTIC DRUM LINER**
Liner Punctured : **Y**

Gross Weight (Kg) : **110.22**
Gross Weight Uncert (Kg) : **4.54**

Alpha Surf Cont (dpm/100cm2) : **15**
BG Surf Cont (dpm/100cm2) : **108**
Bg Dose Rate (mrem/hr) : **1**
Neut Dose Rate (mrem/hr) : **0**
Total Dose Rate (mrem/hr) : **1**

Cntr Disposal Date : **06/15/2000**
Cntr Status Code : **XO4**

Nuclide Information

Radionuclide	Description	Activity(Ci)	Activity Uncert(Ci)	Mass(G)	Mass Uncert(G)	List
PU-238	PLUTONIUM 238	1.072E-03	9.290E-04	6.199E-05	5.370E-05	
PU-239	PLUTONIUM 239	2.476E-02	1.428E-02	3.937E-01	2.270E-01	
PU-240	PLUTONIUM 240	5.095E-03	3.082E-03	2.215E-02	1.340E-02	
PU-241	PLUTONIUM 241	6.311E-02	7.134E-02	6.068E-04	6.860E-04	
PU-242	PLUTONIUM 242	3.428E-07	2.350E-07	8.635E-05	5.920E-05	

Waste Container Data Report

Waste Container Information

Cntr Num : **RFD97217**
Site Id : **RF - ROCKY FLATS**
Data Status Code : **Container Emplaced at WIPP**
Waste Stream Profile : **RF002.01**
Type Code : **1 - 55GAL DRUM**

Nuclide Information

Radionuclide	Description	Activity(Ci)	Activity Uncert(Ci)	Mass(G)	Mass Uncert(G)	List
AM-241	AMERICIUM 241	2.237E-03	1.360E-03	6.447E-04	3.920E-04	

Material Parameters Information

Waste Matl Parm	Description	Weight(Kg)
14	PLASTIC/LINERS CONTAINER MATERIALS- KG	5
6	CELLULOSICS	2.7
8	PLASTICS	2.8
1	IRON BASE METAL ALLOYS	71
13	STEEL CONTAINER MATERIALS - KG	29

Assay Methods Information

Radio Assay Method	Description	Assay Date
GRS	GAMMA-RAY SPECTROSCOPY	05/03/2000

Characterization Methods Information

Method Id	Description	Charz Method Date
RTR	REAL-TIME RADIOGRAPHY	05/03/2000

Sample Information

Sample Id : RF041900RIA262 Sample Type : HGHM
Layer No Sampled : 0 Date Sampled : 04/19/2000

Sample Amounts

Analyte	Method	Concentration	Date Analyzed	Detection Method
1333-74-0 - HYDROGEN	510.1	.0036 Volume %	04/20/2000	U
74-82-8 - METHANE	510.1	.0007 Volume %	04/20/2000	U

Sample Id : RF041900ROB249 Sample Type : HGVO
Layer No Sampled : 0 Date Sampled : 04/19/2000

Waste Container Data Report

Waste Container Information

Cntr Num : **RFD97217**
Site Id : **RF - ROCKY FLATS**
Data Status Code : **Container Emplaced at WIPP**
Waste Stream Profile : **RF002.01**
Type Code : **1 - 55GAL DRUM**

Sample Information

Sample Id : RF041900ROB249
Layer No Sampled : 0
Sample Type : HGVO
Date Sampled : 04/19/2000

Sample Amounts

Analyte	Method	Concentration	Date Analyzed	Detection Method
76-13-1 - 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	L-4111	.300 Ppm	04/29/2000	D,U
78-93-3 - METHYL ETHYL KETONE	L-4111	1.800 Ppm	04/29/2000	D,U
79-01-6 - TRICHLOROETHYLENE	L-4111	.300 Ppm	04/29/2000	D,U
79-34-5 - 1,1,2,2-TETRACHLOROETHANE	L-4111	.300 Ppm	04/29/2000	D,U
95-47-6 - O-XYLENE	L-4111	.300 Ppm	04/29/2000	D,U
95-63-6 - 1,2,4-TRIMETHYLBENZENE	L-4111	.300 Ppm	04/29/2000	D,U
71-36-3 - BUTANOL	L-4111	5.100 Ppm	04/29/2000	D,U
100-41-4 - ETHYL BENZENE	L-4111	.300 Ppm	04/29/2000	D,U
107-06-2 - 1,2-DICHLOROETHANE	L-4111	.300 Ppm	04/29/2000	D,U
108-10-1 - METHYL ISOBUTYL KETONE	L-4111	2.700 Ppm	04/29/2000	D,U
108-67-8 - 1,3,5-TRIMETHYLBENZENE	L-4111	.300 Ppm	04/29/2000	D,U
108-88-3 - TOLUENE	L-4111	.300 Ppm	04/29/2000	D,U
108-90-7 - CHLOROBENZENE	L-4111	.300 Ppm	04/29/2000	D,U
108383/106423 - M,P-XYLENE	L-4111	.300 Ppm	04/29/2000	D,U
110-82-7 - CYCLOHEXANE	L-4111	.300 Ppm	04/29/2000	D,U
127-18-4 - TETRACHLOROETHYLENE	L-4111	.300 Ppm	04/29/2000	D,U
156-59-2 - CIS-1,2-DICHLOROETHYLENE	L-4111	.300 Ppm	04/29/2000	D,U
75-35-4 - 1,1-DICHLOROETHYLENE	L-4111	.300 Ppm	04/29/2000	D,U
71-43-2 - BENZENE	L-4111	.300 Ppm	04/29/2000	D,U
71-55-6 - 1,1,1-TRICHLOROETHANE	L-4111	.300 Ppm	04/29/2000	D,U
75-09-2 - METHYLENE CHLORIDE	L-4111	.300	04/29/2000	D,U

Waste Container Data Report

Waste Container Information

Cntr Num : **RFD97217**
Site Id : **RF - ROCKY FLATS**
Data Status Code : **Container Emplaced at WIPP**
Waste Stream Profile : **RF002.01**
Type Code : **1 - 55GAL DRUM**

Sample Information

Sample Id : RF041900ROB249
Layer No Sampled : 0
Sample Type : HGVO
Date Sampled : 04/19/2000

Sample Amounts

Analyte	Method	Concentration	Date Analyzed	Detection Method
75-15-0 - CARBON DISULFIDE	L-4111	.300 Ppm	04/29/2000	D,U
75-25-2 - BROMOFORM	L-4111	.300 Ppm	04/29/2000	D,U
75-34-3 - 1,1-DICHLOROETHANE	L-4111	.300 Ppm	04/29/2000	D,U
60-29-7 - ETHYL ETHER	L-4111	.300 Ppm	04/29/2000	D,U
67-56-1 - METHANOL	L-4111	9.900 Ppm	04/29/2000	D,U
67-64-1 - ACETONE	L-4111	1.800 Ppm	04/29/2000	D,U
67-66-3 - CHLOROFORM	L-4111	.300 Ppm	04/29/2000	D,U
56-23-5 - CARBON TETRACHLORIDE	L-4111	.300 Ppm	04/29/2000	D,U

Location Information

Panel Number	Room Number	Bore Hole Number	Building Number	Pad Number
1	7			

Attachment 1 - CH Waste Processing Data Sheet

Step No.	DESCRIPTION	INITIAL
	PREREQUISITES	
7.0	TRUPACT-II SERIAL No.: 134	WHE
	PERFORMANCE	
2.1	Adequate WHO staff available.	WHE
2.2	WHB is configured for Waste Handling Mode.	WHE
2.4.19	Activity on smears and RAF is below acceptable limits.	RCT
2.4.24	Activity on smears is below acceptable limits.	RCT
2.5.4	Activity on smears is below acceptable limits.	RCT
2.5.6	Payload inspected for damage.	WH
2.5.16	Payload container numbers concur/do not concur with WWIS.	WH
2.5.19	Activity on smears is below acceptable limits.	RCT
3.1	Payload Assemblies inspected for damage (if stored > 1 shift).	WH
3.2	WHB & U/G is configured for Waste Handling Mode.	WHE
4.5	Completed rows have supersacks emplaced on all columns.	WH
4.6	Completed rows have eleven mini sacks between the rib and waste stack.	WH
4.14	Mini sacks attached to payload.	WH
4.17	Completed Attachment 4	WH
4.18	Activity on smears is below acceptable limits.	RCT

Performers, enter printed name, signature, date, and initials.

Printed Name	Signature	Date	Initials
TRAVIS M. CLARK		5-23-00	
Cindy Anderson	Cindy Anderson	5-24-00	CA
L.B. Cole	L.B. Cole	5-24-00	LBC
MITCH CARTER	Mitch Carter	6-15-00	MC

REMARKS: _____

REVIEW/VALIDATION: TRAVIS M. CLARK | | 6-15-00

WHE: (Print Name) Signature Date

Attachment 4 - Waste Emplacement Report Data Sheet

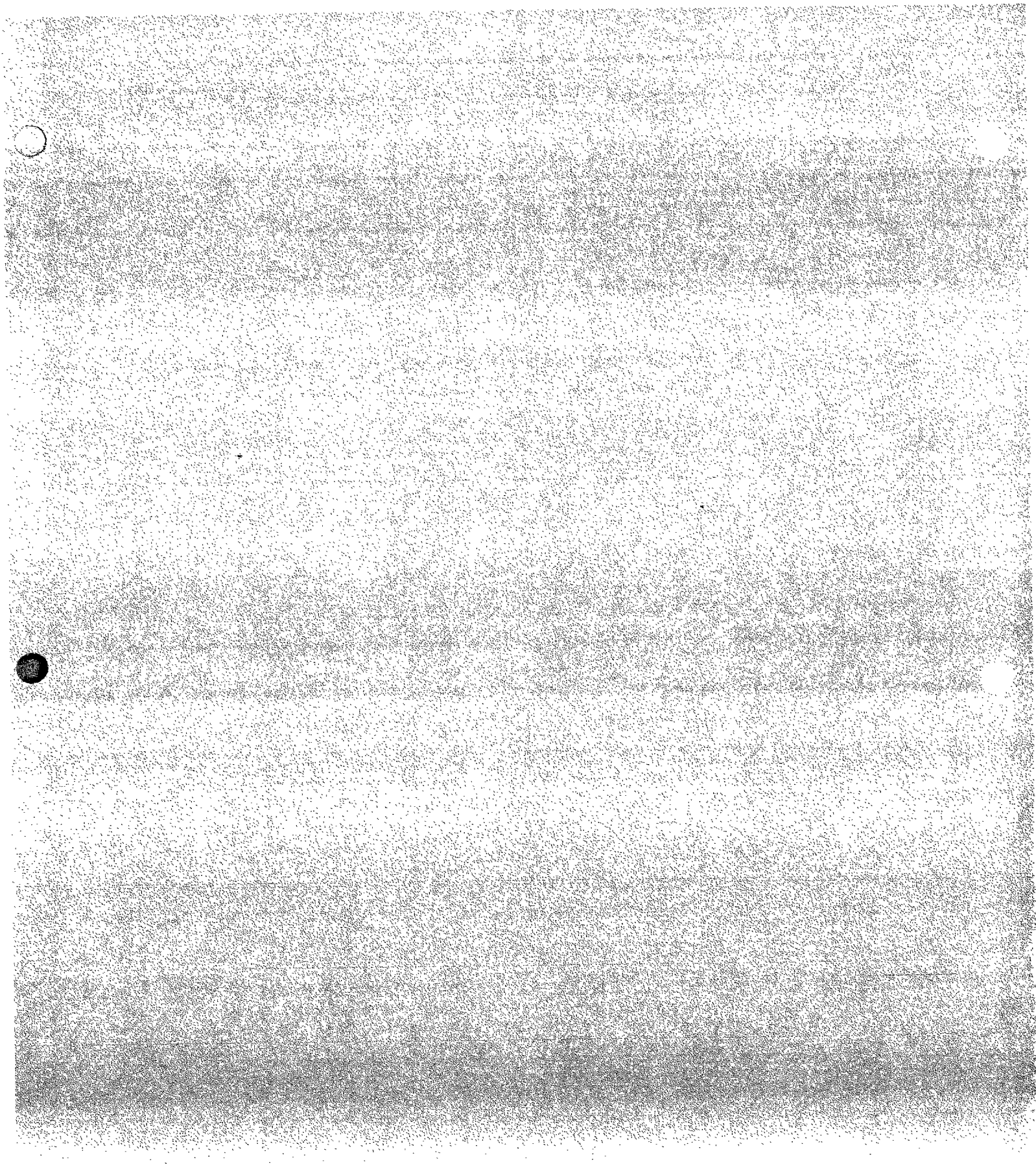
TRUPACT-II Number: 134

NOT USED

Container Number	RFO 97217	
Row Number	28	
Place in the Stack (Circle Location)	(Top) Middle Bottom	Top Middle Bottom
Column (Left to Right)	(1) 2 3 4 5 6	1 2 3 4 5 6
Disposal Cell	S1600 (Main Room) S1950	S1600 Main Room S1950
Disposal Room	1 2 3 4 5 6 (7)	1 2 3 4 5 6 7
Disposal Panel	(1) 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8
Disposal Date	6-15-00	

Remarks: _____

WHE Review/Validation: TRAVIS M. CLARK (Printed Name) _____ (Signature) 6-15-00 (Date)



Waste Isolation Pilot Plant
WWIS

Report	*RP0440 Waste Emplacement Report*
Filename	
Run by	*CARTML*
Report Date	*06/21/2000 13:15*
Total Pages	*2*

Selection Criteria

Module	*RP0440*
Version	*1.1*
Start Date	*01/01/1999*
End Date	*06/21/2000*
Container Number	*RFD99298*
Site Id	*%*
Panel	*%*
Room	*%*
Bore Hole	*%*
Building	*%*
Pad	*%*

*** Indicates Dunnage**

Waste Emplacement Report

Panel: 1 **Room: 7** **(Process Code: XO4)**

Container Number	Site Id	Shipment Number	Assembly Id	Emplacement Date	Hazardous Codes	Matrix Code	Container Weight(Kg)	Row	Col	Ht
RFD99298	RF	RF000014	RF000162	06/15/2000		5000	105.23	27	6	T

Waste Isolation Pilot Plant
WWIS

Report	*RP0360 Waste Container Data Report*
Filename	
Run by	*CARTML*
Report Date	*06/21/2000 13:17*
Total Pages	*5*

Selection Criteria

Module	*RP0360*
Version	*1.2*
Container Number	*RFD99298*
Site Id	*%*
Waste Stream	*%*
Data Status Code	*%*

Waste Container Data Report

Waste Container Information

Cntr Num : **RFD99298**
Site Id : **RF - ROCKY FLATS**
Data Status Code : **Container Emplaced at WIPP**
Waste Stream Profile : **RF002.01**
Type Code : **1 - 55GAL DRUM**

WAC Ex. # :
WAC Rev # : **7**
Cert Date : **05/24/2000** for container
Cert Site : **RF - ROCKY FLATS**

Generator Site : **RF - ROCKY FLATS**
IDC Code : **0824**
Matrix Code : **S5111**
Trucon Code : **RF117A**
Shipping Category : **2001700502**
Pcb Conc(Ppm) : **0**

Decay Heat (Watts) : **8.484E-03**
Decay Heat Uncert (Watts) : **1.505E-03**

Closure Date : **07/06/1999**
Vent Date : **07/06/1999**
Filter Install Date : **07/06/1999**
Filter Model Number : **NF013**
Aspiration Id : **N**
Gas Gen Rate :
Gas Hyd Meth Gen Rate :
Gas Gen Comp Date :

Shipment Num : RF000014
Packaging Num : 125
Assembly Id : RF000162

Handling Code : **CH**
Waste Type Code : **TRU**
Wst Strm Bir Id : **RFTT0824**
Wst Strm Mwir Id : **RF-W109**

Tru Alpha Act (Ci) : **2.704E-01**
Tru Alpha Act Uncert (Ci) : **9.497E-02**
Tru Alpha Act Conc (Ci/g) : **3.797E-06**
Tru Alpha Act Conc Uncert (Ci/g) : **1.334E-06**
Pu239 Eq Act (PE Ci) : **2.798E-01**
Pu239 Fiss Gm Eq (Fge) : **3.110E+00**
Pu239 Fiss Gm Eq Uncert (Fge) : **7.400E-01**

Layers Of Packaging : **4**
Fill Factor (%) : **90**
Liner Type : **1 - PLASTIC DRUM LINER**
Liner Punctured : **Y**

Gross Weight (Kg) : **105.23**
Gross Weight Uncert (Kg) : **4.54**

Alpha Surf Cont (dpm/100cm2) : **14**
BG Surf Cont (dpm/100cm2) : **87**
Bg Dose Rate (mrem/hr) : **1**
Neut Dose Rate (mrem/hr) : **1**
Total Dose Rate (mrem/hr) : **2**

Cntr Disposal Date : **06/15/2000** emplacement date
Cntr Status Code : **XO4**

Overpack Cntr Num :
Overpack Cntr Type :

Nuclide Information

Radionuclide	Description	Activity(Ci)	Activity Uncert(Ci)	Mass(G)	Mass Uncert(G)	List
PU-238	PLUTONIUM 238	7.711E-03	4.602E-03	4.457E-04	2.660E-04	
PU-239	PLUTONIUM 239	1.947E-01	9.183E-02	3.096E+00	1.460E+00	
PU-240	PLUTONIUM 240	4.207E-02	2.019E-02	1.829E-01	8.780E-02	
PU-241	PLUTONIUM 241	5.273E-01	3.474E-01	5.070E-03	3.340E-03	
PU-242	PLUTONIUM 242	3.101E-06	1.663E-06	7.812E-04	4.190E-04	

Waste Container Data Report

Waste Container Information

Cntr Num : **RFD99298**
Site Id : **RF - ROCKY FLATS**
Data Status Code : **Container Emplaced at WIPP**
Waste Stream Profile : **RF002.01**
Type Code : **1 - 55GAL DRUM**

Nuclide Information

Radionuclide	Description	Activity(Ci)	Activity Uncert(Ci)	Mass(G)	Mass Uncert(G)	List
AM-241	AMERICIUM 241	2.587E-02	1.253E-02	7.456E-03	3.610E-03	

Material Parameters Information

Waste Matl Parm	Description	Weight(Kg)
1	IRON BASE METAL ALLOYS	65.8
13	STEEL CONTAINER MATERIALS - KG	29
14	PLASTIC/LINERS CONTAINER MATERIALS- KG	5
6	CELLULOSICS	2.7
8	PLASTICS	3

Assay Methods Information

Radio Assay Method	Description	Assay Date
GRS	GAMMA-RAY SPECTROSCOPY	05/19/2000

Characterization Methods Information

Method Id	Description	Charz Method Date
RTR	REAL-TIME RADIOGRAPHY	05/09/2000

Sample Information

Sample Id : RF041200RIA033
Sample Type : HGHM
Layer No Sampled : 0
Date Sampled : 04/12/2000

Sample Amounts

Analyte	Method	Concentration	Date Analyzed	Detection Method
1333-74-0 - HYDROGEN	510.1	.0018 Volume %	04/17/2000	U
74-82-8 - METHANE	510.1	.0010 Volume %	04/17/2000	U

Sample Id : RF041200ROB179
Sample Type : HGVO
Layer No Sampled : 0
Date Sampled : 04/12/2000

Waste Container Data Report

Waste Container Information

Cntr Num : **RFD99298**
Site Id : **RF - ROCKY FLATS**
Data Status Code : **Container Emplaced at WIPP**
Waste Stream Profile : **RF002.01**
Type Code : **1 - 55GAL DRUM**

Sample Information

Sample Id : RF041200ROB179
Layer No Sampled : 0
Sample Type : HGVO
Date Sampled : 04/12/2000

Sample Amounts

Analyte	Method	Concentration	Date Analyzed	Detection Method
75-34-3 - 1,1-DICHLOROETHANE	L-4111	.300 Ppm	04/26/2000	D,U
75-35-4 - 1,1-DICHLOROETHYLENE	L-4111	.300 Ppm	04/26/2000	D,U
76-13-1 - 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	L-4111	.300 Ppm	04/26/2000	D,U
78-93-3 - METHYL ETHYL KETONE	L-4111	1.800 Ppm	04/26/2000	D,U
79-01-6 - TRICHLOROETHYLENE	L-4111	.300 Ppm	04/26/2000	D,U
79-34-5 - 1,1,2,2-TETRACHLOROETHANE	L-4111	.300 Ppm	04/26/2000	D,U
95-47-6 - O-XYLENE	L-4111	.300 Ppm	04/26/2000	D,U
95-63-6 - 1,2,4-TRIMETHYLBENZENE	L-4111	.300 Ppm	04/26/2000	D,U
75-25-2 - BROMOFORM	L-4111	.300 Ppm	04/26/2000	D,U
107-06-2 - 1,2-DICHLOROETHANE	L-4111	.300 Ppm	04/26/2000	D,U
108-10-1 - METHYL ISOBUTYL KETONE	L-4111	2.700 Ppm	04/26/2000	D,U
108-67-8 - 1,3,5-TRIMETHYLBENZENE	L-4111	.300 Ppm	04/26/2000	D,U
108-88-3 - TOLUENE	L-4111	.600 Ppm	04/26/2000	J,D
108-90-7 - CHLOROBENZENE	L-4111	.300 Ppm	04/26/2000	D,U
108383/106423 - M,P-XYLENE	L-4111	.300 Ppm	04/26/2000	D,U
110-82-7 - CYCLOHEXANE	L-4111	.300 Ppm	04/26/2000	D,U
127-18-4 - TETRACHLOROETHYLENE	L-4111	.300 Ppm	04/26/2000	D,U
156-59-2 - CIS-1,2-DICHLOROETHYLENE	L-4111	.300 Ppm	04/26/2000	D,U
56-23-5 - CARBON TETRACHLORIDE	L-4111	.300 Ppm	04/26/2000	D,U
60-29-7 - ETHYL ETHER	L-4111	.300 Ppm	04/26/2000	D,U
67-56-1 - METHANOL	L-4111	9.900	04/26/2000	D,U

Waste Container Data Report

Waste Container Information

Cntr Num : **RFD99298**
Site Id : **RF - ROCKY FLATS**
Data Status Code : **Container Emplaced at WIPP**
Waste Stream Profile : **RF002.01**
Type Code : **1 - 55GAL DRUM**

Sample Information

Sample Id : RF041200ROB179
Sample Type : HGVO
Layer No Sampled : 0
Date Sampled : 04/12/2000

Sample Amounts

Analyte	Method	Concentration	Date Analyzed	Detection Method
67-64-1 - ACETONE	L-4111	1.800 Ppm	04/26/2000	D,U
67-66-3 - CHLOROFORM	L-4111	.300 Ppm	04/26/2000	D,U
71-36-3 - BUTANOL	L-4111	5.100 Ppm	04/26/2000	D,U
71-43-2 - BENZENE	L-4111	.300 Ppm	04/26/2000	D,U
71-55-6 - 1,1,1-TRICHLOROETHANE	L-4111	.300 Ppm	04/26/2000	D,U
75-09-2 - METHYLENE CHLORIDE	L-4111	.300 Ppm	04/26/2000	D,U
75-15-0 - CARBON DISULFIDE	L-4111	.300 Ppm	04/26/2000	D,U
100-41-4 - ETHYL BENZENE	L-4111	.300 Ppm	04/26/2000	D,U

Comment Information

Comment Type	Comments
SAMPLES	HEADSPACE VOC RESULTS ARE QUALIFIED WITH A "Z" FLAG DUE TO LOW RECOVERY OF 2 OF THE 9 COMPOUNDS IN THE HEADSPACE VOC FRS.
GENERAL COMMENTS	ROOT CAUSE INVESTIGATION (NCR 2000-000454) SHOWS HEADSPACE VOC RESULTS WERE UNAFFECTED BY CAUSAL FACTOR RESULTING IN LOW RECOVERY OF 2 OF THE 9 COMPOUNDS IN THE FRS.

Location Information

Panel Number	Room Number	Bore Hole Number	Building Number	Pad Number
1	7			

Waste Isolation Pilot Plant
WWIS

Report	*RP0390 Shipment Summary Report*
Filename	
Run by	*CARTML*
Report Date	*06/21/2000 13:37*
Total Pages	*4*

Report Criteria

Module	*RP0390*
Version	*1.0*
Shipment Number:	*RF000014*

Shipment Summary Report

Shipment/Manifest Number : **RF000014**
Certification Date : **05/25/2000**
Shipment Date : **05/31/2000**
Receipt Date : **06/01/2000**
Site Id : **RF - ROCKY FLATS**

TRUPACT Number : **125**
ICV Closure Date : **05/30/2000**
DOT Description : **RQ, RADIOACTIVE MATERIAL, FISSILE, N.O.S., 7, UN2918**
Dose Rate 1m : **0**
Dose Rate 2m : **0**
Dose Rate Surf : **0**

Assembly	Container Number	Total Dose Rate (mrem/hr)	Hazardous Codes	Radionuclides	Total Activity(TBq)	Weight (kg)
RF000161	**RFDB0726**	**0**			**.000E+00**	**29**
	RFDB0727	**0**			**.000E+00**	**29**
	RFDB0728	**0**			**.000E+00**	**29**
	RFDB0729	**0**			**.000E+00**	**29**
	RFDB0730	**0**			**.000E+00**	**29**
	RFDB0731	**0**			**.000E+00**	**29**
	RFDB0732	**0**			**.000E+00**	**29**
RF000162	**RFD87886**	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**9.001E-02**	**84.37**
	RFD88779	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235**	**4.858E-02**	**107.96**
	RFD93076	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**4.082E-02**	**87.09**
	RFD96886	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**1.619E-02**	**83.01**
	RFD97211	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**3.277E-02**	**108.86**
	RFD99298	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**2.951E-02**	**105.23**
	RFD99773	**2**		**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242**	**6.429E-03**	**155.58**
			TRUPACT :	AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235	2.643E-01	935.1

Shipment Summary Report

TRUPACT Number : 135

ICV Closure Date : 05/30/2000

DOT Description : RQ, RADIOACTIVE MATERIAL, FISSILE, N.O.S., 7, UN2918

Dose Rate 1m : 0

Dose Rate 2m : 0

Dose Rate Surf : 0

Assembly	Container Number	Total Dose Rate (mrem/hr)	Hazardous Codes	Radionuclides	Total Activity(TBq)	Weight (kg)
RF000163	RFD85368	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	1.724E-02	59.42
	RFD97070	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235	3.509E-03	63.05
	RFD97397	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	8.748E-03	49.9
	RFD97404	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	4.511E-02	63.5
	RFD97944	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	3.326E-03	61.24
	RFDA2319	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	2.858E-02	60.78
	RFDA2332	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	4.896E-02	60.78
RF000164	RFD83112	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	7.133E-02	68.04
	RFD85625	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235	1.476E-02	64.86
	RFD88632	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	1.844E-02	68.04
	RFD89598	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	3.910E-03	67.59
	RFD97431	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	4.022E-02	64.86
	RFD99225	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	1.317E-01	70.31
	RFDA4263	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	9.387E-03	64.86
			TRUPACT :	AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235	4.452E-01	887.23

Shipment :	**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235**	**7.095E-01**	**1822.33**

Attachment 1 - CH Waste Processing Data Sheet

Step No.	DESCRIPTION	INITIAL
	PREREQUISITES	
1.0	TRUPACT-II SERIAL No.: 125	WHE MC
2.0	Shipping documents validated, TRUPACT-II(s) inspected and released for processing	WHE MC
	PERFORMANCE	
2.1	Adequate WHO staff available.	WHE MC
2.2	WHB is configured for Waste Handling Mode.	WHE MC
2.4.17	Activity on smears of OCA lid interior, top of ICV lid, RAF assembly and RAF is below acceptable limits.	RCT GG
2.4.26	Activity on smears of ICV lid interior and top of payload is below acceptable limits.	RCT GG
2.5.9	Activity on smears of payload and payload assembly is below acceptable limits.	RCT GG
2.5.13	Payload inspected for damage.	WH JH
2.5.23	Payload container numbers concur/do not concur with WWIS.	WH JH
2.5.26	Activity on smears of lower areas of payload and ICV interior is below acceptable limits.	RCT GG
3.1	Payload Assemblies inspected for damage (if stored > 1 shift).	WH MC
3.2	WHB & U/G is configured for Waste Handling Mode.	WHE MC
4.5	Completed rows have necessary backfill emplaced.	WHE TMC
4.13	Mini sacks attached to payload.	WH TMC
4.16	Completed Attachment 4	WH TMC
4.17	Activity on smears of TRUPACT-II pallet is below acceptable limits.	RCT CA

Performers, enter printed name, signature, date, and initials:

Printed Name	Signature	Date	Initials
MITCH CARTER	Mitch Carter	6-1-00	MC
Glen Galloway	Glen Galloway	6-1-00	GG
Jack Holleh	Jack Holleh	6-1-00	JH
TRAVIS M. CLARK	TRAVIS M. CLARK	6-15-00	TMC
Cindy Anderson	Cindy Anderson	6-15-00	CA

REMARKS: _____

REVIEW/VALIDATION: TRAVIS M CLARK | TRAVIS M CLARK | 6-15-00

WHE: (Print Name) | Signature | Date

Attachment 4 - Waste Emplacement Report Data Sheet

NOT USED 6-15-00

TRUPACT-II Number: 125

Container Number	RFD87886	
Row Number	27	
Place in the Stack (Circle Location)	(Top) Middle Bottom	Top Middle Bottom
Column (Left to Right)	1 2 3 4 5 (6)	1 2 3 4 5 6
Disposal Cell	S1600 (Main Room) S1950	S1600 Main Room S1950
Disposal Room	1 2 3 4 5 6 (7)	1 2 3 4 5 6 7
Disposal Panel	(1) 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8
Disposal Date	6-15-00	

Remarks: _____

WHE Review/Validation: TRAVIS M. CLARK (Printed Name) _____ (Signature) 6-15-00 (Date)

Waste Isolation Pilot Plant
WWIS

Report	*RP0440 Waste Emplacement Report*
Filename	
Run by	*CARTML*
Report Date	*06/21/2000 13:32*
Total Pages	*2*

Selection Criteria

Module	*RP0440*
Version	*1.1*
Start Date	*01/01/1999*
End Date	*06/21/2000*
Container Number	*RFD66936*
Site Id	*%*
Panel	*%*
Room	*%*
Bore Hole	*%*
Building	*%*
Pad	*%*

*** Indicates Dunnage**

Waste Emplacement Report

Panel: 1 **Room: 7** **(Process Code: XO4)**

Container Number	Site Id	Shipment Number	Assembly Id	Emplacement Date	Hazardous Codes	Matrix Code	Container Weight(Kg)	Row	Col	Ht
RFD66936	RF	RF000002	RF000117	04/12/2000		5000	60.33	24	2	M

Waste Isolation Pilot Plant

WWIS

Report	*RP0360 Waste Container Data Report*
Filename	
Run by	*CARTML*
Report Date	*06/21/2000 13:27*
Total Pages	*5*

Selection Criteria

Module	*RP0360*
Version	*1.2*
Container Number	*RFD66936*
Site Id	*%*
Waste Stream	*%*
Data Status Code	*%*

Waste Container Data Report

Waste Container Information

Cntr Num : **RFD66936**
Site Id : **RF - ROCKY FLATS**
Data Status Code : **Container Emplaced at WIPP**
Waste Stream Profile : **RF002.01**
Type Code : **1 - 55GAL DRUM**

WAC Ex. # :
WAC Rev # : **7**
Cert Date : **03/14/2000**
Cert Site : **RF - ROCKY FLATS**

Generator Site : **RF - ROCKY FLATS**
IDC Code : **0480**
Matrix Code : **S5111**
Trucon Code : **RF117A**
Shipping Category : **2001700502**

Pcb Conc(Ppm) : **0**

Decay Heat (Watts) : **1.511E-03**
Decay Heat Uncert (Watts) : **2.690E-04**

Closure Date : **05/30/1989**
Vent Date : **02/26/1998**
Filter Install Date : **02/26/1998**
Filter Model Number : **NF013**
Aspiration Id : **3**
Gas Gen Rate :
Gas Hyd Meth Gen Rate :
Gas Gen Comp Date :

Shipment Num : RF000002
Packaging Num : 131
Assembly Id : RF000117

Overpack Cntr Num :
Overpack Cntr Type :

Handling Code : **CH**
Waste Type Code : **TRU**
Wst Strm Bir Id : **RFTT0480**
Wst Strm Mwir Id : **RF-W109**

Tru Alpha Act (Ci) : **4.831E-02**
Tru Alpha Act Uncert (Ci) : **1.698E-02**
Tru Alpha Act Conc (Ci/g) : **1.836E-06**
Tru Alpha Act Conc Uncert (Ci/g) : **6.454E-07**
Pu239 Eq Act (PE Ci) : **5.021E-02**
Pu239 Fiss Gm Eq (Fge) : **5.800E-01**
Pu239 Fiss Gm Eq Uncert (Fge) : **1.300E-01**

Layers Of Packaging : **4**
Fill Factor (%) : **30**
Liner Type : **1 - PLASTIC DRUM LINER**
Liner Punctured : **Y**

Gross Weight (Kg) : **60.33**
Gross Weight Uncert (Kg) : **4.54**

Alpha Surf Cont (dpm/100cm2) : **14**
BG Surf Cont (dpm/100cm2) : **93**
Bg Dose Rate (mrem/hr) : **1**
Neut Dose Rate (mrem/hr) : **1**
Total Dose Rate (mrem/hr) : **2**

Cntr Disposal Date : **04/12/2000**
Cntr Status Code : **XO4**

Nuclide Information

Radionuclide	Description	Activity(Ci)	Activity Uncert(Ci)	Mass(G)	Mass Uncert(G)	List
AM-241	AMERICIUM 241	2.773E-03	1.280E-03	7.990E-04	3.690E-04	
PU-238	PLUTONIUM 238	1.088E-03	7.197E-04	6.290E-05	4.160E-05	
PU-239	PLUTONIUM 239	3.617E-02	1.648E-02	5.750E-01	2.620E-01	
PU-240	PLUTONIUM 240	8.280E-03	3.818E-03	3.600E-02	1.660E-02	
PU-241	PLUTONIUM 241	1.039E-01	4.774E-02	9.990E-04	4.590E-04	

Waste Container Data Report

Waste Container Information

Cntr Num : **RFD66936**
Site Id : **RF - ROCKY FLATS**
Data Status Code : **Container Emplaced at WIPP**
Waste Stream Profile : **RF002.01**
Type Code : **1 - 55GAL DRUM**

Nuclide Information

Radionuclide	Description	Activity(Ci)	Activity Uncert(Ci)	Mass(G)	Mass Uncert(G)	List
PU-242	PLUTONIUM 242	5.121E-07	2.628E-07	1.290E-04	6.620E-05	

Material Parameters Information

Waste Matl Parm	Description	Weight(Kg)
1	IRON BASE METAL ALLOYS	21.3
13	STEEL CONTAINER MATERIALS - KG	29
14	PLASTIC/LINERS CONTAINER MATERIALS- KG	5
6	CELLULOSICS	2.7
8	PLASTICS	2.5

Assay Methods Information

Radio Assay Method	Description	Assay Date
GRS	GAMMA-RAY SPECTROSCOPY	05/18/1998

Characterization Methods Information

Method Id	Description	Charz Method Date
RTR	REAL-TIME RADIOGRAPHY	02/15/2000
VISUAL	VISUAL CHARACTERIZATION METHOD	02/23/2000

Sample Information

Sample Id : RF022698RIA074
Sample Type : HGHM
Layer No Sampled : 0
Date Sampled : 02/26/1998

Sample Amounts

Analyte	Method	Concentration	Date Analyzed	Detection Method
1333-74-0 - HYDROGEN	510.1	.0026 Volume %	05/19/1998	U
74-82-8 - METHANE	510.1	.0018 Volume %	05/19/1998	U

Sample Id : RF022200ROB037
Sample Type : HGVO
Layer No Sampled : 0
Date Sampled : 02/22/2000

Waste Container Data Report

Waste Container Information

Cntr Num : **RFD66936**
Site Id : **RF - ROCKY FLATS**
Data Status Code : **Container Emplaced at WIPP**
Waste Stream Profile : **RF002.01**
Type Code : **1 - 55GAL DRUM**

Sample Information

Sample Id : RF022200ROB037
Sample Type : HGVO
Layer No Sampled : 0
Date Sampled : 02/22/2000

Sample Amounts

Analyte	Method	Concentration	Date Analyzed	Detection Method
127-18-4 - TETRACHLOROETHYLENE	L-4111	.300 Ppm	03/02/2000	D,U
156-59-2 - CIS-1,2-DICHLOROETHYLENE	L-4111	.300 Ppm	03/02/2000	D,U
108383/106423 - M,P-XYLENE	L-4111	.300 Ppm	03/02/2000	D,U
60-29-7 - ETHYL ETHER	L-4111	.300 Ppm	03/02/2000	D,U
67-56-1 - METHANOL	L-4111	9.900 Ppm	03/02/2000	D,U
67-64-1 - ACETONE	L-4111	1.800 Ppm	03/02/2000	D,U
67-66-3 - CHLOROFORM	L-4111	.300 Ppm	03/02/2000	D,U
71-36-3 - BUTANOL	L-4111	5.100 Ppm	03/02/2000	D,U
71-43-2 - BENZENE	L-4111	.300 Ppm	03/02/2000	D,U
71-55-6 - 1,1,1-TRICHLOROETHANE	L-4111	.300 Ppm	03/02/2000	D,U
75-09-2 - METHYLENE CHLORIDE	L-4111	.300 Ppm	03/02/2000	D,U
75-15-0 - CARBON DISULFIDE	L-4111	.300 Ppm	03/02/2000	D,U
75-25-2 - BROMOFORM	L-4111	.300 Ppm	03/02/2000	D,U
75-34-3 - 1,1-DICHLOROETHANE	L-4111	.300 Ppm	03/02/2000	D,U
75-35-4 - 1,1-DICHLOROETHYLENE	L-4111	.300 Ppm	03/02/2000	D,U
76-13-1 - 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	L-4111	.300 Ppm	03/02/2000	D,U
78-93-3 - METHYL ETHYL KETONE	L-4111	1.800 Ppm	03/02/2000	D,U
79-01-6 - TRICHLOROETHYLENE	L-4111	.300 Ppm	03/02/2000	D,U
79-34-5 - 1,1,2,2-TETRACHLOROETHANE	L-4111	.300 Ppm	03/02/2000	D,U
95-47-6 - O-XYLENE	L-4111	.300 Ppm	03/02/2000	D,U
56-23-5 - CARBON TETRACHLORIDE	L-4111	.300	03/02/2000	D,U

Waste Container Data Report

Waste Container Information

Cntr Num : **RFD66936**
Site Id : **RF - ROCKY FLATS**
Data Status Code : **Container Emplaced at WIPP**
Waste Stream Profile : **RF002.01**
Type Code : **1 - 55GAL DRUM**

Sample Information

Sample Id : RF022200ROB037 | Sample Type : HGVO
Layer No Sampled : 0 | Date Sampled : 02/22/2000

Sample Amounts

Analyte	Method	Concentration	Date Analyzed	Detection Method
100-41-4 - ETHYL BENZENE	L-4111	.300 Ppm	03/02/2000	D,U
107-06-2 - 1,2-DICHLOROETHANE	L-4111	.300 Ppm	03/02/2000	D,U
108-10-1 - METHYL ISOBUTYL KETONE	L-4111	2.700 Ppm	03/02/2000	D,U
108-88-3 - TOLUENE	L-4111	.300 Ppm	03/02/2000	D,U
108-90-7 - CHLOROBENZENE	L-4111	.300 Ppm	03/02/2000	D,U

Sample Id : RF022200RIA044 | Sample Type : HGHM
Layer No Sampled : 0 | Date Sampled : 02/22/2000

Sample Amounts

Analyte	Method	Concentration	Date Analyzed	Detection Method
1333-74-0 - HYDROGEN	510.1	.0018 Volume %	02/24/2000	U
74-82-8 - METHANE	510.1	.0010 Volume %	02/24/2000	U

Comment Information

Comment Type	Comments
SAMPLES	HOLDING TIMES EXCEEDED FOR INITIAL HYDROGEN/METHANE ANALYSIS DUE TO INSTRUMENT PROBLEMS. REQUIREMENT IS AN ADMINSTRATIVE REQUIREMENT AND DOES NOT AFFECT DATA QUALITY. SEE DISCUSSION IN METHOD 510.1.

Location Information

Panel Number	Room Number	Bore Hole Number	Building Number	Pad Number
1	7			

Waste Isolation Pilot Plant
WWIS

Report	*RP0390 Shipment Summary Report*
Filename	
Run by	*CARTML*
Report Date	*06/21/2000 13:33*
Total Pages	*3*

Report Criteria

Module	*RP0390*
Version	*1.0*
Shipment Number:	*RF000002*

Shipment Summary Report

Shipment/Manifest Number : **RF000002**

Certification Date : **03/15/2000**

Shipment Date : **03/17/2000**

Receipt Date : **03/18/2000**

Site Id : **RF - ROCKY FLATS**

TRUPACT Number : **131**

ICV Closure Date : **03/15/2000**

DOT Description : **RQ, RADIOACTIVE MATERIAL FISSILE, N.O.S.,7, UN2918**

Dose Rate 1m : **0**

Dose Rate 2m : **0**

Dose Rate Surf : **0**

Assembly	Container Number	Total Dose Rate (mrem/hr)	Hazardous Codes	Radionuclides	Total Activity(TBq)	Weight (kg)
RF000117	RFD36606	3		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235	2.212E-02	52.16
	RFD66075	4		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	9.199E-02	66.23
	RFD66936	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	5.632E-03	60.33
	RFD68866	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	1.152E-01	54.89
	RFD80396	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	1.722E-03	64.86
	RFD81075	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	2.139E-03	68.04
	RFD86673	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	9.241E-03	52.16
RF000118	RFD66795	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	8.983E-03	102.97
	RFD68443	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	1.199E-02	96.16
	RFD68450	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	4.437E-03	108.41
	RFD69438	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235	4.885E-03	73.94
	RFD70132	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235	5.403E-04	72.58
	RFD70498	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	3.275E-03	107.5
	RFD72774	2		AM-241,PU-238,PU-239,PU-	1.013E-02	78.47

Shipment Summary Report

Assembly	Container Number	Total Dose Rate (mrem/hr)	Hazardous Codes		Radionuclides	Total Activity(TBq)	Weight (kg)
				TRUPACT :	AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235	2.923E-01	1058.7
				Shipment :	**AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235**	**2.923E-01**	**1058.7**

Attachment 1 - CH Waste Processing Data Sheet

Step No.	DESCRIPTION	INITIAL
	PREREQUISITES	
7.0	TRUPACT-II SERIAL No.: 131	WHE
	PERFORMANCE	
2.1	Adequate WHO staff available.	WHE
2.2	WHB is configured for Waste Handling Mode.	WHE
2.4.19	Activity on smears and RAF is below acceptable limits.	RCT
2.4.24	Activity on smears is below acceptable limits.	RCT
2.5.4	Activity on smears is below acceptable limits.	RCT
2.5.6	Payload inspected for damage.	WH RBV / LBC
2.5.16	Payload container numbers concur/do not concur with WWIS.	WH RBV/LBC
2.5.19	Activity on smears is below acceptable limits.	RCT
3.1	Payload Assemblies inspected for damage (if stored > 1 shift).	WH
3.2	WHB & U/G is configured for Waste Handling Mode.	WHE
4.5	Completed rows have supersacks emplaced on all columns.	WH
4.6	Completed rows have eleven mini sacks between the rib and waste stack.	WH
4.14	Mini sacks attached to payload.	WH RBV/
4.17	Completed Attachment 4	WH RBV/
4.18	Activity on smears is below acceptable limits.	RCT

Performers, enter printed name, signature, date, and initials:

Printed Name	Signature	Date	Initials
Travis M. Clark		3-20-00	
C. Littrell	C. Littrell	3-20-00	CL
R. Valenzuela	R Valenzuela	3-20-00	RBV
L. B Cole	L B Cole	3-20-00	LBC
J. S. Ankeny		4-12-00	
C. Anderson	C Anderson	4-12-00	CA

REMARKS: _____

REVIEW/VALIDATION: Travis M. Clark | | 4-13-00
WHE: (Print Name) Signature Date

Attachment 4 - Waste Emplacement Report Data Sheet

TRUPACT-II Number: 131

Container Number	~~RFD 86673~~ RFD 86673 RBV 4-12-00	RFD 68443
Row Number	24	24
Place in the Stack (Circle Location)	Top (Middle) Bottom	Top Middle (Bottom)
Column (Left to Right)	1 (2) 3 4 5 6	1 (2) 3 4 5 6
Disposal Cell	(S1600) Main Room S1950	(S1600) Main Room S1950
Disposal Room	1 2 3 4 5 6 (7)	1 2 3 4 5 6 (7)
Disposal Panel	(1) 2 3 4 5 6 7 8	(1) 2 3 4 5 6 7 8
Disposal Date	04-12-00	04-12-00

Remarks: _____

WHE Review/Validation: TRAVIS M. CLARK (Printed Name) _____ (Signature) 4-13-00 (Date)

Waste Isolation Pilot Plant
WWIS

Report	*RP0440 Waste Emplacement Report*
Filename	
Run by	*CARTML*
Report Date	*06/21/2000 13:30*
Total Pages	*2*

Selection Criteria

Module	*RP0440*
Version	*1.1*
Start Date	*01/01/1999*
End Date	*06/21/2000*
Container Number	*RFD76390* ✓
Site Id	*%*
Panel	*%*
Room	*%*
Bore Hole	*%*
Building	*%*
Pad	*%*

*** Indicates Dunnage**

Waste Emplacement Report

Panel: 1 **Room: 7** **(Process Code: XO4)**

Container Number	Site Id	Shipment Number	Assembly Id	Emplacement Date	Hazardous Codes	Matrix Code	Container Weight(Kg)	Row	Col	Ht
RFD76390	RF	RF000009	RF000140	05/11/2000		5000	96.16	25	5	B

Waste Isolation Pilot Plant
WWIS

Report	*RP0360 Waste Container Data Report*
Filename	
Run by	*CARTML*
Report Date	*06/21/2000 13:26*
Total Pages	*6*

Selection Criteria

Module	*RP0360*
Version	*1.2*
Container Number	*RFD76390*
Site Id	*%*
Waste Stream	*%*
Data Status Code	*%*

Waste Container Data Report

Waste Container Information

Cntr Num : **RFD76390**
Site Id : **RF - ROCKY FLATS**
Data Status Code : **Container Emplaced at WIPP**
Waste Stream Profile : **RF002.01**
Type Code : **1 - 55GAL DRUM**

WAC Ex. # :
WAC Rev # : **7**
Cert Date : **05/03/2000**
Cert Site : **RF - ROCKY FLATS**

Generator Site : **RF - ROCKY FLATS**
IDC Code : **Q480**
Matrix Code : **S5111**
Trucon Code : **RF117A**
Shipping Category : **2001700502**

Pcb Conc(Ppm) : **0**

Decay Heat (Watts) : **2.088E-02**
Decay Heat Uncert (Watts) : **2.145E-03**

Closure Date : **01/16/1992**
Vent Date : **05/21/1998**
Filter Install Date : **05/21/1998**
Filter Model Number : **NF013**
Aspiration Id : **3**
Gas Gen Rate :
Gas Hyd Meth Gen Rate :
Gas Gen Comp Date :

Shipment Num : RF000009
Packaging Num : 131
Assembly Id : RF000140

Handling Code : **CH**
Waste Type Code : **TRU**

Wst Strm Bir Id : **RFTT0480**
Wst Strm Mwir Id : **RF-W109**

Tru Alpha Act (Ci) : **6.654E-01**
Tru Alpha Act Uncert (Ci) : **1.356E-01**
Tru Alpha Act Conc (Ci/g) : **1.071E-05**
Tru Alpha Act Conc Uncert (Ci/g) : **2.181E-06**
Pu239 Eq Act (PE Ci) : **6.919E-01**
Pu239 Fiss Gm Eq (Fge) : **7.560E+00**
Pu239 Fiss Gm Eq Uncert (Fge) : **1.070E+00**

Layers Of Packaging : **4**
Fill Factor (%) : **70**
Liner Type : **1 - PLASTIC DRUM LINER**
Liner Punctured : **Y**

Gross Weight (Kg) : **96.16**
Gross Weight Uncert (Kg) : **4.54**

Alpha Surf Cont (dpm/100cm2) : **11**
BG Surf Cont (dpm/100cm2) : **89**
Bg Dose Rate (mrem/hr) : **1**
Neut Dose Rate (mrem/hr) : **0**
Total Dose Rate (mrem/hr) : **1**

Cntr Disposal Date : **05/11/2000**
Cntr Status Code : **XO4**

Overpack Cntr Num :
Overpack Cntr Type :

Nuclide Information

Radionuclide	Description	Activity(Ci)	Activity Uncert(Ci)	Mass(G)	Mass Uncert(G)	List
PU-242	PLUTONIUM 242	8.139E-06	7.622E-07	2.050E-03	1.920E-04	
AM-241	AMERICIUM 241	5.899E-02	5.517E-03	1.700E-02	1.590E-03	
PU-241	PLUTONIUM 241	1.498E+00	1.404E-01	1.440E-02	1.350E-03	
PU-238	PLUTONIUM 238	2.457E-02	2.301E-03	1.420E-03	1.330E-04	
PU-239	PLUTONIUM 239	4.730E-01	1.321E-01	7.520E+00	2.100E+00	

Waste Container Data Report

Waste Container Information

Cntr Num : **RFD76390**
Site Id : **RF - ROCKY FLATS**
Data Status Code : **Container Emplaced at WIPP**
Waste Stream Profile : **RF002.01**
Type Code : **1 - 55GAL DRUM**

Nuclide Information

Radionuclide	Description	Activity(Ci)	Activity Uncert(Ci)	Mass(G)	Mass Uncert(G)	List
PU-240	PLUTONIUM 240	1.088E-01	2.990E-02	4.730E-01	1.300E-01	

Material Parameters Information

Waste Matl Parm	Description	Weight(Kg)
1	IRON BASE METAL ALLOYS	56.7
13	STEEL CONTAINER MATERIALS - KG	29
14	PLASTIC/LINERS CONTAINER MATERIALS- KG	5
6	CELLULOSICS	2.7
8	PLASTICS	3

Assay Methods Information

Radio Assay Method	Description	Assay Date
PNGS	PASS. NEUTRON/SEG. GAMMA SCAN	06/08/1998

Characterization Methods Information

Method Id	Description	Charz Method Date
RTR	REAL-TIME RADIOGRAPHY	03/22/2000

Sample Information

Sample Id : RF033000RIA038
Sample Type : HGHM
Layer No Sampled : 0
Date Sampled : 03/30/2000

Sample Amounts

Analyte	Method	Concentration	Date Analyzed	Detection Method
74-82-8 - METHANE	510.1	.0007 Volume %	04/04/2000	U
1333-74-0 - HYDROGEN	510.1	.0036 Volume %	04/04/2000	U

Sample Id : RF033000ROB273
Sample Type : HGVO
Layer No Sampled : 0
Date Sampled : 03/30/2000

Waste Container Data Report

Waste Container Information

Cntr Num : **RFD76390**
Site Id : **RF - ROCKY FLATS**
Data Status Code : **Container Emplaced at WIPP**
Waste Stream Profile : **RF002.01**
Type Code : **1 - 55GAL DRUM**

Sample Information

Sample Id : RF033000ROB273 | Sample Type : HGVO
Layer No Sampled : 0 | Date Sampled : 03/30/2000

Sample Amounts

Analyte	Method	Concentration	Date Analyzed	Detection Method
95-47-6 - O-XYLENE	L-4111	.300 Ppm	04/09/2000	D,U
95-63-6 - 1,2,4-TRIMETHYLBENZENE	L-4111	.300 Ppm	04/09/2000	D,U
75-09-2 - METHYLENE CHLORIDE	L-4111	.300 Ppm	04/09/2000	D,U
71-55-6 - 1,1,1-TRICHLOROETHANE	L-4111	.300 Ppm	04/09/2000	D,U
71-43-2 - BENZENE	L-4111	.300 Ppm	04/09/2000	D,U
71-36-3 - BUTANOL	L-4111	5.100 Ppm	04/09/2000	D,U
67-66-3 - CHLOROFORM	L-4111	.300 Ppm	04/09/2000	D,U
67-64-1 - ACETONE	L-4111	13.600 Ppm	04/09/2000	J,D
67-56-1 - METHANOL	L-4111	69.500 Ppm	04/09/2000	J,D
60-29-7 - ETHYL ETHER	L-4111	.300 Ppm	04/09/2000	D,U
56-23-5 - CARBON TETRACHLORIDE	L-4111	.300 Ppm	04/09/2000	D,U
156-59-2 - CIS-1,2-DICHLOROETHYLENE	L-4111	.300 Ppm	04/09/2000	D,U
127-18-4 - TETRACHLOROETHYLENE	L-4111	.300 Ppm	04/09/2000	D,U
110-82-7 - CYCLOHEXANE	L-4111	.300 Ppm	04/09/2000	D,U
108383/106423 - M,P-XYLENE	L-4111	.300 Ppm	04/09/2000	D,U
108-90-7 - CHLOROBENZENE	L-4111	.300 Ppm	04/09/2000	D,U
108-88-3 - TOLUENE	L-4111	4.800 Ppm	04/09/2000	J,D
108-67-8 - 1,3,5-TRIMETHYLBENZENE	L-4111	.300 Ppm	04/09/2000	D,U
108-10-1 - METHYL ISOBUTYL KETONE	L-4111	2.700 Ppm	04/09/2000	D,U
107-06-2 - 1,2-DICHLOROETHANE	L-4111	.300 Ppm	04/09/2000	D,U
100-41-4 - ETHYL BENZENE	L-4111	.300	04/09/2000	D,U

Waste Container Data Report

Waste Container Information

Cntr Num : **RFD76390**
Site Id : **RF - ROCKY FLATS**
Data Status Code : **Container Emplaced at WIPP**
Waste Stream Profile : **RF002.01**
Type Code : **1 - 55GAL DRUM**

Sample Information

Sample Id : RF033000ROB273 Sample Type : HGVO
Layer No Sampled : 0 Date Sampled : 03/30/2000

Sample Amounts

Analyte	Method	Concentration	Date Analyzed	Detection Method
75-15-0 - CARBON DISULFIDE	L-4111	.300 Ppm	04/09/2000	D,U
79-34-5 - 1,1,2,2-TETRACHLOROETHANE	L-4111	.300 Ppm	04/09/2000	D,U
79-01-6 - TRICHLOROETHYLENE	L-4111	.300 Ppm	04/09/2000	D,U
78-93-3 - METHYL ETHYL KETONE	L-4111	1.800 Ppm	04/09/2000	D,U
76-13-1 - 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	L-4111	.300 Ppm	04/09/2000	D,U
75-35-4 - 1,1-DICHLOROETHYLENE	L-4111	.300 Ppm	04/09/2000	D,U
75-34-3 - 1,1-DICHLOROETHANE	L-4111	.300 Ppm	04/09/2000	D,U
75-25-2 - BROMOFORM	L-4111	.300 Ppm	04/09/2000	D,U

Sample Id : RF052198RIA145 Sample Type : HGHM
Layer No Sampled : 0 Date Sampled : 05/21/1998

Sample Amounts

Analyte	Method	Concentration	Date Analyzed	Detection Method
1333-74-0 - HYDROGEN	510.1	.0088 Volume %	06/17/1998	J
74-82-8 - METHANE	510.1	.0018 Volume %	06/17/1998	U

Comment Information

Comment Type	Comments
SAMPLES	HEADSPACE VOC RESULTS ARE QUALIFIED WITH A "Z" FLAG DUE TO LOW RECOVERY OF 2 OF THE 9 COMPOUNDS IN THE HEADSPACE VOC FRS.
GENERAL COMMENTS	ROOT CAUSE INVESTIGATION (NCR 2000-000454) SHOWS HEADSPACE VOC RESULTS WERE UNAFFECTED BY CAUSAL FACTOR RESULTING IN LOW RECOVERY OF 2 OF THE 9 COMPOUNDS IN THE FRS.

Waste Container Data Report

Waste Container Information

Cntr Num : **RFD76390**
Site Id : **RF - ROCKY FLATS**
Data Status Code : **Container Emplaced at WIPP**
Waste Stream Profile : **RF002.01**
Type Code : **1 - 55GAL DRUM**

Location Information

Panel Number	Room Number	Bore Hole Number	Building Number	Pad Number
1	7			

Waste Isolation Pilot Plant
WWIS

Report	*RP0390 Shipment Summary Report*
Filename	
Run by	*CARTML*
Report Date	*06/21/2000 13:39*
Total Pages	*3*

Report Criteria

Module	*RP0390*
Version	*1.0*
Shipment Number:	*RF000009*

Shipment Summary Report

Shipment/Manifest Number : **RF000009**

Certification Date : **05/04/2000**

Shipment Date : **05/05/2000**

Receipt Date : **05/06/2000**

Site Id : **RF - ROCKY FLATS**

TRUPACT Number : **131**

ICV Closure Date : **05/04/2000**

DOT Description : **RQ, RADIOACTIVE MATERIAL, FISSILE, N.O.S., 7, UN2918**

Dose Rate 1m : **0**

Dose Rate 2m : **0**

Dose Rate Surf : **0**

Assembly	Container Number	Total Dose Rate (mrem/hr)	Hazardous Codes	Radionuclides	Total Activity(TBq)	Weight (kg)
RF000139	RFD84826	1		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	7.106E-03	83.92
	RFD86416	2		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	8.223E-03	72.12
	RFD86931	1		AM-241,NA-22,PU-238,PU-239,PU-240,PU-241,PU-242	5.855E-03	82.55
	RFD98633	1		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	4.173E-03	72.58
	RFD99769	1		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	3.285E-03	84.37
	RFDA1200	1		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	2.253E-02	59.87
	RFDA1208	1		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	1.990E-02	55.34
RF000140	RFD76390	1		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	8.003E-02	96.16
	RFD85402	1		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	7.768E-02	104.78
	RFD86018	1		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	1.112E-02	156.04
	RFD90970	1		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242,U-235	2.262E-02	95.26
	RFD91520	1		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	9.995E-03	199.58
	RFD91854	1		AM-241,PU-238,PU-239,PU-240,PU-241,PU-242	8.186E-03	127.91
	RFD92774	1		AM-241,PU-238,PU-239,PU-	4.689E-03	113.85

Shipment Summary Report

Assembly	Container Number	Total Dose Rate (mrem/hr)	Hazardous Codes	Radionuclides	Total Activity(TBq)	Weight (kg)
			TRUPACT :	AM-241,NA-22,PU-238,PU-239,PU-240,PU-241,PU-242,U-235	2.854E-01	1404.33
			Shipment :	**AM-241,NA-22,PU-238,PU-239,PU-240,PU-241,PU-242,U-235**	**2.854E-01**	**1404.33**

Attachment 1 - CH Waste Processing Data Sheet

Step No.	DESCRIPTION	INITIAL
	PREREQUISITES	
7.0	TRUPACT-II SERIAL No.: 131	WHE MC
	PERFORMANCE	
2.1	Adequate WHO staff available.	WHE MC
2.2	WHB is configured for Waste Handling Mode.	WHE MC
2.4.19	Activity on smears and RAF is below acceptable limits.	RCT amp
2.4.24	Activity on smears is below acceptable limits.	RCT amp
2.5.4	Activity on smears is below acceptable limits.	RCT amp
2.5.6	Payload inspected for damage.	WH RBV/LBC
2.5.16	Payload container numbers concur/do not concur with WWIS.	WH RBV/MC
2.5.19	Activity on smears is below acceptable limits.	RCT amp
3.1	Payload Assemblies inspected for damage (if stored > 1 shift).	WH MJW
3.2	WHB & U/G is configured for Waste Handling Mode.	WHE MC
4.5	Completed rows have supersacks emplaced on all columns.	WH [illegible]
4.6	Completed rows have eleven mini sacks between the rib and waste stack.	WH [illegible]
4.14	Mini sacks attached to payload.	WH [illegible]
4.17	Completed Attachment 4	WH [illegible]
4.18	Activity on smears is below acceptable limits.	RCT GG

Performers, enter printed name, signature, date, and initials:

Printed Name	Signature	Date	Initials
MITCH CARTER	Mitch Carter	5-8-00	MC
Adam M Peña	Adam M Peña	5-8-00	amp
Rudy Valenzuela	Rudy Valenzuela	5-8-00	RBV
L B. Cole	L B. Cole	5-8-00	LBC
MITCH CARTER	Mitch Carter	5-8-00	MC
Marvin J. White, Jr.	Marvin J White Jr	5-11-00	MJW
TRAVIS M. CLARK	[illegible]	5-11-00	[illegible]
Glen Galloway	Glen Galloway	5-11-00	GG

REMARKS: _____

REVIEW/VALIDATION: TRAVIS M. CLARK | [illegible] | 5-11-00
WHE: (Print Name) Signature Date

Attachment 4 - Waste Emplacement Report Data Sheet

TRUPACT-II Number: 131

Container Number	RFD 86931	RFD 91854
Row Number	25	25
Place in the Stack (Circle Location)	Top (Middle) Bottom	Top Middle (Bottom)
Column (Left to Right)	1 2 3 4 (5) 6	1 2 3 4 (5) 6
Disposal Cell	~~S1600~~ Main Room S1950	~~S1600~~ Main Room S1950
Disposal Room	1 2 3 4 5 6 (7)	1 2 3 4 5 6 (7)
Disposal Panel	(1) 2 3 4 5 6 7 8	(1) 2 3 4 5 6 7 8
Disposal Date	5-11-00	5-11-00

Remarks: _____

WHE Review/Validation: Travis M. Clark (Printed Name) _____ 5-11-00 (Signature / Date)

Waste Isolation Pilot Plant
WWIS

Report	***RP0510 Container Approval/Rejection Report***
Filename	
Run by	***SPEEDD***
Report Date	***06/22/2000 08:46***
Total Pages	***12***

Selection Criteria

Module	***RP0510***
Version	***1.1***
Start Date	***06/01/2000***
End Date	***06/22/2000***
Site ID	***%***

Container Approval/Rejection Report

Site ID	Status	Update Date	Container Number	Shipment Num	Approver ID
RF	Rejected Characterization	06/19/2000	RFD70263		RFETS3
		06/16/2000	RFD70263		RFETS3
		06/15/2000	RFD70263		RFETS3
		06/14/2000	RFD98832		MIKUSK
		06/14/2000	RFD71511		MIKUSK
		06/14/2000	RFD70659		MIKUSK
		06/14/2000	RFD70930		MIKUSK
		06/14/2000	RFD66629		MIKUSK
		06/14/2000	RFD70392		MIKUSK
		06/14/2000	RFD70353		MIKUSK
		06/14/2000	RFD70378		MIKUSK
		06/14/2000	RFD70501		MIKUSK
		06/14/2000	RFD70510		MIKUSK
RF	Approved Certification	06/20/2000	RFD78009	RF000016	RFETS2
		06/20/2000	RFD76815	RF000016	RFETS2
		06/20/2000	RFD88731	RF000016	RFETS2
		06/20/2000	RFD91427	RF000016	RFETS2
		06/20/2000	RFD99488	RF000016	RFETS2
		06/20/2000	RFD97104	RF000016	RFETS2
		06/20/2000	RFD96784	RF000016	RFETS2
		06/20/2000	RFD92585	RF000016	RFETS2
		06/20/2000	RFD92230	RF000016	RFETS2
		06/20/2000	RFD92583	RF000016	RFETS2
		06/20/2000	RFD80357	RF000016	RFETS2
		06/20/2000	RFD89187	RF000016	RFETS2
		06/20/2000	RFD89511	RF000016	RFETS2
		06/20/2000	RFD89578	RF000016	RFETS2
		06/20/2000	RFD89603	RF000016	RFETS2
		06/20/2000	RFD91065	RF000016	RFETS2
		06/20/2000	RFD90101	RF000016	RFETS2
		06/20/2000	RFD90534	RF000016	RFETS2
		06/20/2000	RFD95600		STRUMM
		06/20/2000	RFD97094		STRUMM
		06/20/2000	RFDA2316		STRUMM
		06/20/2000	RFD57613	RF000016	RFETS2
		06/20/2000	RFD66324	RF000016	RFETS2
		06/20/2000	RFD70242	RF000016	RFETS2
		06/20/2000	RFD83168	RF000016	RFETS2
		06/20/2000	RFD86930	RF000016	RFETS2
		06/20/2000	RFD91821		STRUMM
		06/20/2000	RFD89016		STRUMM
		06/20/2000	RFD91799	RF000016	RFETS2
		06/20/2000	RFD92928	RF000016	RFETS2
		06/20/2000	RFD97097	RF000016	RFETS2

Container Approval/Rejection Report

Site ID	Status	Update Date	Container Number	Shipment Num	Approver ID
RF	Approved Certification	06/20/2000	RFD91244	RF000016	RFETS2
		06/20/2000	RFD88216	RF000016	RFETS2
		06/19/2000	RFD57613	RF000016	MIKUSK
		06/19/2000	RFD99488	RF000016	MIKUSK
		06/19/2000	RFD91244	RF000016	STRUMM
		06/19/2000	RFD96061		STRUMM
		06/19/2000	RFD96765		STRUMM
		06/19/2000	RFD66324	RF000016	MIKUSK
		06/19/2000	RFD86930	RF000016	MIKUSK
		06/19/2000	RFD80357	RF000016	MIKUSK
		06/19/2000	RFD90534	RF000016	MIKUSK
		06/19/2000	RFD91799	RF000016	STRUMM
		06/19/2000	RFD92230	RF000016	MIKUSK
		06/19/2000	RFD92583	RF000016	MIKUSK
		06/19/2000	RFD92585	RF000016	MIKUSK
		06/19/2000	RFD92928	RF000016	MIKUSK
		06/19/2000	RFD96784	RF000016	MIKUSK
		06/19/2000	RFD97097	RF000016	MIKUSK
		06/19/2000	RFD75279		STRUMM
		06/19/2000	RFD83168	RF000016	MIKUSK
		06/19/2000	RFD89187	RF000016	MIKUSK
		06/19/2000	RFD89511	RF000016	MIKUSK
		06/19/2000	RFD89578	RF000016	MIKUSK
		06/19/2000	RFD89603	RF000016	MIKUSK
		06/19/2000	RFD91065	RF000016	MIKUSK
		06/19/2000	RFD90101	RF000016	MIKUSK
		06/19/2000	RFD97104	RF000016	MIKUSK
		06/19/2000	RFD91427	RF000016	MIKUSK
		06/19/2000	RFD88216	RF000016	MIKUSK
		06/19/2000	RFD88731	RF000016	MIKUSK
		06/19/2000	RFD78009	RF000016	STRUMM
		06/19/2000	RFD76815	RF000016	STRUMM
		06/12/2000	RFD74957	RF000015	RFETS4
		06/12/2000	RFD86974	RF000015	RFETS4
		06/12/2000	RFD99481	RF000015	RFETS4
		06/12/2000	RFD97946	RF000015	RFETS4
		06/12/2000	RFD97775	RF000015	RFETS4
		06/12/2000	RFD96757	RF000015	RFETS4
		06/12/2000	RFD96073	RF000015	RFETS4
		06/12/2000	RFD95795	RF000015	RFETS4
		06/12/2000	RFD93075	RF000015	RFETS4
		06/12/2000	RFD94259	RF000015	RFETS4
		06/12/2000	RFD78508	RF000015	RFETS4
		06/12/2000	RFD81284	RF000015	RFETS4
		06/12/2000	RFD87032	RF000015	RFETS4
		06/12/2000	RFD87755	RF000015	RFETS4

Container Approval/Rejection Report

Site ID	Status	Update Date	Container Number	Shipment Num	Approver ID
RF	Approved Certification	06/12/2000	RFD89416	RF000015	RFETS4
		06/12/2000	RFD90087	RF000015	RFETS4
		06/12/2000	RFD90483	RF000015	RFETS4
		06/12/2000	RFD91239	RF000015	RFETS4
		06/12/2000	RFD72779	RF000015	RFETS4
		06/12/2000	RFD91764	RF000015	RFETS4
		06/12/2000	RFD96569	RF000015	RFETS4
		06/12/2000	RFD97089	RF000015	RFETS4
		06/12/2000	RFD97778	RF000015	RFETS4
		06/12/2000	RFD98639	RF000015	RFETS4
		06/12/2000	RFD86391	RF000015	RFETS4
		06/08/2000	RFD95795	RF000015	STANDID
		06/04/2000	RFD72779	RF000015	SPEEDD
		06/04/2000	RFD70242	RF000016	SPEEDD
		06/04/2000	RFD74957	RF000015	SPEEDD
		06/04/2000	RFD78508	RF000015	SPEEDD
		06/04/2000	RFD91239	RF000015	SPEEDD
		06/04/2000	RFD91764	RF000015	SPEEDD
		06/04/2000	RFD93075	RF000015	SPEEDD
		06/04/2000	RFD94259	RF000015	SPEEDD
		06/04/2000	RFD96073	RF000015	SPEEDD
		06/04/2000	RFD96569	RF000015	SPEEDD
		06/04/2000	RFD96757	RF000015	SPEEDD
		06/04/2000	RFD97089	RF000015	SPEEDD
		06/04/2000	RFD81284	RF000015	SPEEDD
		06/04/2000	RFD87032	RF000015	SPEEDD
		06/04/2000	RFD87755	RF000015	SPEEDD
		06/04/2000	RFD89416	RF000015	SPEEDD
		06/04/2000	RFD90087	RF000015	SPEEDD
		06/04/2000	RFD90483	RF000015	SPEEDD
		06/04/2000	RFD86974	RF000015	SPEEDD
		06/04/2000	RFD99481	RF000015	SPEEDD
		06/04/2000	RFD97946	RF000015	SPEEDD
		06/04/2000	RFD97775	RF000015	SPEEDD
		06/04/2000	RFD97778	RF000015	SPEEDD
		06/04/2000	RFD98639	RF000015	SPEEDD
		06/04/2000	RFD86391	RF000015	SPEEDD
RF	Rejected Certification	06/20/2000	RFD71204		STRUMM
		06/19/2000	RFD78009	RF000016	RFETS2
		06/19/2000	RFD97094		STRUMM
RF	Approved Shipping	06/21/2000	RFD66324	RF000016	RFETS4
		06/21/2000	RFD88216	RF000016	RFETS4

Container Approval/Rejection Report

Site ID	Status	Update Date	Container Number	Shipment Num	Approver ID
RF	Approved Shipping	06/21/2000	RFD91427	RF000016	RFETS4
		06/21/2000	RFD76815	RF000016	RFETS4
		06/21/2000	RFD57613	RF000016	RFETS4
		06/21/2000	RFD83168	RF000016	RFETS4
		06/21/2000	RFD86930	RF000016	RFETS4
		06/21/2000	RFD78009	RF000016	RFETS4
		06/21/2000	RFD80357	RF000016	RFETS4
		06/21/2000	RFD89187	RF000016	RFETS4
		06/21/2000	RFD89511	RF000016	RFETS4
		06/21/2000	RFD89578	RF000016	RFETS4
		06/21/2000	RFD89603	RF000016	RFETS4
		06/21/2000	RFD91065	RF000016	RFETS4
		06/21/2000	RFD90101	RF000016	RFETS4
		06/21/2000	RFD90534	RF000016	RFETS4
		06/21/2000	RFD91799	RF000016	RFETS4
		06/21/2000	RFD92230	RF000016	RFETS4
		06/21/2000	RFD92583	RF000016	RFETS4
		06/21/2000	RFD92585	RF000016	RFETS4
		06/21/2000	RFD92928	RF000016	RFETS4
		06/21/2000	RFD96784	RF000016	RFETS4
		06/21/2000	RFD97097	RF000016	RFETS4
		06/21/2000	RFD97104	RF000016	RFETS4
		06/21/2000	RFD99488	RF000016	RFETS4
		06/21/2000	RFD91244	RF000016	RFETS4
		06/21/2000	RFD70242	RF000016	RFETS4
		06/21/2000	RFD88731	RF000016	RFETS4
		06/20/2000	RFD76815	RF000016	MIKUSK
		06/20/2000	RFD97097	RF000016	MIKUSK
		06/20/2000	RFD97104	RF000016	MIKUSK
		06/20/2000	RFD66324	RF000016	MIKUSK
		06/20/2000	RFD57613	RF000016	MIKUSK
		06/20/2000	RFD83168	RF000016	MIKUSK
		06/20/2000	RFD86930	RF000016	MIKUSK
		06/20/2000	RFD78009	RF000016	MIKUSK
		06/20/2000	RFD91065	RF000016	MIKUSK
		06/20/2000	RFD90101	RF000016	MIKUSK
		06/20/2000	RFD90534	RF000016	MIKUSK
		06/20/2000	RFD91799	RF000016	MIKUSK
		06/20/2000	RFD92230	RF000016	MIKUSK
		06/20/2000	RFD92583	RF000016	MIKUSK
		06/20/2000	RFD92585	RF000016	MIKUSK
		06/20/2000	RFD92928	RF000016	MIKUSK
		06/20/2000	RFD80357	RF000016	MIKUSK
		06/20/2000	RFD89187	RF000016	MIKUSK
		06/20/2000	RFD89511	RF000016	MIKUSK
		06/20/2000	RFD89578	RF000016	MIKUSK

Container Approval/Rejection Report

Site ID	Status	Update Date	Container Number	Shipment Num	Approver ID
RF	Approved Shipping	06/20/2000	RFD89603	RF000016	MIKUSK
		06/20/2000	RFD96784	RF000016	MIKUSK
		06/20/2000	RFD99488	RF000016	MIKUSK
		06/20/2000	RFD91244	RF000016	MIKUSK
		06/20/2000	RFD91427	RF000016	MIKUSK
		06/20/2000	RFD88216	RF000016	MIKUSK
		06/20/2000	RFD70242	RF000016	MIKUSK
		06/20/2000	RFD88731	RF000016	MIKUSK
		06/14/2000	RFD86974	RF000015	RFETS2
		06/14/2000	RFD93075	RF000015	RFETS2
		06/14/2000	RFD94259	RF000015	RFETS2
		06/14/2000	RFD95795	RF000015	RFETS2
		06/14/2000	RFD96073	RF000015	RFETS2
		06/14/2000	RFD96569	RF000015	RFETS2
		06/14/2000	RFD96757	RF000015	RFETS2
		06/14/2000	RFD97089	RF000015	RFETS2
		06/14/2000	RFD97775	RF000015	RFETS2
		06/14/2000	RFD72779	RF000015	RFETS2
		06/14/2000	RFD74957	RF000015	RFETS2
		06/14/2000	RFD78508	RF000015	RFETS2
		06/14/2000	RFD81284	RF000015	RFETS2
		06/14/2000	RFD87032	RF000015	RFETS2
		06/14/2000	RFD87755	RF000015	RFETS2
		06/14/2000	RFD89416	RF000015	RFETS2
		06/14/2000	RFD90087	RF000015	RFETS2
		06/14/2000	RFD90483	RF000015	RFETS2
		06/14/2000	RFD91239	RF000015	RFETS2
		06/14/2000	RFD91764	RF000015	RFETS2
		06/14/2000	RFD97778	RF000015	RFETS2
		06/14/2000	RFD97946	RF000015	RFETS2
		06/14/2000	RFD98639	RF000015	RFETS2
		06/14/2000	RFD99481	RF000015	RFETS2
		06/14/2000	RFD86391	RF000015	RFETS2
		06/12/2000	RFD74957	RF000015	MIKUSK
		06/12/2000	RFD97775	RF000015	MIKUSK
		06/12/2000	RFD97778	RF000015	MIKUSK
		06/12/2000	RFD91239	RF000015	MIKUSK
		06/12/2000	RFD91764	RF000015	MIKUSK
		06/12/2000	RFD93075	RF000015	MIKUSK
		06/12/2000	RFD94259	RF000015	MIKUSK
		06/12/2000	RFD95795	RF000015	MIKUSK
		06/12/2000	RFD96073	RF000015	MIKUSK
		06/12/2000	RFD96569	RF000015	MIKUSK
		06/12/2000	RFD96757	RF000015	MIKUSK
		06/12/2000	RFD72779	RF000015	MIKUSK
		06/12/2000	RFD78508	RF000015	MIKUSK

Container Approval/Rejection Report

Site ID	Status	Update Date	Container Number	Shipment Num	Approver ID
RF	Approved Shipping	06/12/2000	RFD81284	RF000015	MIKUSK
		06/12/2000	RFD87032	RF000015	MIKUSK
		06/12/2000	RFD87755	RF000015	MIKUSK
		06/12/2000	RFD89416	RF000015	MIKUSK
		06/12/2000	RFD90087	RF000015	MIKUSK
		06/12/2000	RFD90483	RF000015	MIKUSK
		06/12/2000	RFD97089	RF000015	MIKUSK
		06/12/2000	RFD97946	RF000015	MIKUSK
		06/12/2000	RFD98639	RF000015	MIKUSK
		06/12/2000	RFD86974	RF000015	MIKUSK
		06/12/2000	RFD99481	RF000015	MIKUSK
		06/12/2000	RFD86391	RF000015	MIKUSK
RL	Approved Characterization	06/02/2000	9401047	RL-00-01	MIKUSK
		06/02/2000	9401047	RL-00-01	HAND4
		06/02/2000	9406605	RL-00-01	MIKUSK
		06/02/2000	9513544	RL-00-01	HAND4
		06/02/2000	9406605	RL-00-01	HAND4
		06/02/2000	9406605	RL-00-01	HAND4
		06/02/2000	9513544	RL-00-01	MIKUSK
		06/02/2000	9513549	RL-00-01	HAND4
		06/02/2000	9513577	RL-00-01	MIKUSK
		06/02/2000	9513549	RL-00-01	MIKUSK
		06/02/2000	RHZ-218-A23003		MIKUSK
		06/02/2000	9513590	RL-00-01	HAND4
		06/02/2000	9513590	RL-00-01	MIKUSK
		06/02/2000	9513590	RL-00-01	HAND4
		06/02/2000	9513587	RL-00-01	HAND4
		06/02/2000	9513587	RL-00-01	HAND4
		06/02/2000	9513587	RL-00-01	HAND4
		06/02/2000	9513587	RL-00-01	MIKUSK
		06/02/2000	9513577	RL-00-01	HAND4
		06/02/2000	9522497	RL-00-01	MIKUSK
		06/02/2000	9522497	RL-00-01	HAND4
		06/02/2000	9522403	RL-00-01	HAND4
		06/02/2000	9522403	RL-00-01	HAND6
		06/02/2000	9522403	RL-00-01	MIKUSK
		06/02/2000	9522304	RL-00-01	MIKUSK
		06/02/2000	9522304	RL-00-01	HAND4
		06/02/2000	9517541	RL-00-01	MIKUSK
		06/02/2000	9522497	RL-00-01	HAND6
		06/02/2000	9517541	RL-00-01	HAND4
		06/02/2000	9517541	RL-00-01	HAND4
		06/02/2000	9517431	RL-00-01	HAND4
		06/02/2000	9517431	RL-00-01	MIKUSK

Container Approval/Rejection Report

Site ID	Status	Update Date	Container Number	Shipment Num	Approver ID
RL	Approved Characterization	06/02/2000	9517413	RL-00-01	MIKUSK
		06/02/2000	9517413	RL-00-01	HAND4
		06/02/2000	9513619	RL-00-01	MIKUSK
		06/02/2000	9513619	RL-00-01	HAND4
		06/02/2000	9513577	RL-00-01	HAND4
		06/02/2000	9513544	RL-00-01	HAND6
RL	Rejected Characterization	06/01/2000	9401047	RL-00-01	MIKUSK
RL	Approved Certification	06/12/2000	9400971	RL-00-01	OFFNERS
		06/12/2000	9400971	RL-00-01	OFFNERS
		06/12/2000	9401047	RL-00-01	OFFNERS
		06/12/2000	9400971	RL-00-01	OFFNERS
		06/12/2000	9401047	RL-00-01	OFFNERS
		06/12/2000	9513577	RL-00-01	OFFNERS
		06/12/2000	9513549	RL-00-01	OFFNERS
		06/12/2000	9513549	RL-00-01	OFFNERS
		06/12/2000	9513549	RL-00-01	OFFNERS
		06/12/2000	9513544	RL-00-01	OFFNERS
		06/12/2000	9513544	RL-00-01	OFFNERS
		06/12/2000	9513544	RL-00-01	OFFNERS
		06/12/2000	9406605	RL-00-01	OFFNERS
		06/12/2000	9513619	RL-00-01	OFFNERS
		06/12/2000	9513619	RL-00-01	OFFNERS
		06/12/2000	9513619	RL-00-01	OFFNERS
		06/12/2000	9513590	RL-00-01	OFFNERS
		06/12/2000	9513590	RL-00-01	OFFNERS
		06/12/2000	9513590	RL-00-01	OFFNERS
		06/12/2000	9513587	RL-00-01	OFFNERS
		06/12/2000	9513587	RL-00-01	OFFNERS
		06/12/2000	9513587	RL-00-01	OFFNERS
		06/12/2000	9513577	RL-00-01	OFFNERS
		06/12/2000	9513577	RL-00-01	OFFNERS
		06/12/2000	9903434	RL-00-01	OFFNERS
		06/12/2000	9903436	RL-00-01	OFFNERS
		06/12/2000	9903436	RL-00-01	OFFNERS
		06/12/2000	9903436	RL-00-01	OFFNERS
		06/12/2000	9517431	RL-00-01	OFFNERS
		06/12/2000	9517413	RL-00-01	OFFNERS
		06/12/2000	9517413	RL-00-01	OFFNERS
		06/12/2000	9517413	RL-00-01	OFFNERS
		06/12/2000	RHZ-213-A21593	RL-00-01	OFFNERS
		06/12/2000	RHZ-213-A21593	RL-00-01	OFFNERS
		06/12/2000	RHZ-213-A21593	RL-00-01	OFFNERS

Container Approval/Rejection Report

Site ID	Status	Update Date	Container Number	Shipment Num	Approver ID
RL	Approved Certification	06/12/2000	RHZ-231-A21750	RL-00-01	OFFNERS
		06/12/2000	RHZ-231-A21750	RL-00-01	OFFNERS
		06/12/2000	RHZ-231-A21750	RL-00-01	OFFNERS
		06/12/2000	RHZ-231-A21753	RL-00-01	OFFNERS
		06/12/2000	RHZ-231-A21753	RL-00-01	OFFNERS
		06/12/2000	RHZ-231-A21753	RL-00-01	OFFNERS
		06/12/2000	RHZ-231-A22579	RL-00-01	OFFNERS
		06/12/2000	RHZ-231-A22579	RL-00-01	OFFNERS
		06/12/2000	RHZ-231-A22579	RL-00-01	OFFNERS
		06/12/2000	9903434	RL-00-01	OFFNERS
		06/12/2000	9903434	RL-00-01	OFFNERS
		06/12/2000	9903405		OFFNERS
		06/12/2000	9903405		OFFNERS
		06/12/2000	9903405		OFFNERS
		06/12/2000	9903402	RL-00-01	OFFNERS
		06/12/2000	9903402	RL-00-01	OFFNERS
		06/12/2000	9903402	RL-00-01	OFFNERS
		06/12/2000	9903381	RL-00-01	OFFNERS
		06/12/2000	9903381	RL-00-01	OFFNERS
		06/12/2000	9903381	RL-00-01	OFFNERS
		06/12/2000	9903322	RL-00-01	OFFNERS
		06/12/2000	9903322	RL-00-01	OFFNERS
		06/12/2000	9903322	RL-00-01	OFFNERS
		06/12/2000	9903316	RL-00-01	OFFNERS
		06/12/2000	9903316	RL-00-01	OFFNERS
		06/12/2000	9903316	RL-00-01	OFFNERS
		06/12/2000	9903293	RL-00-01	OFFNERS
		06/12/2000	9903293	RL-00-01	OFFNERS
		06/12/2000	9903293	RL-00-01	OFFNERS
		06/12/2000	9903256	RL-00-01	OFFNERS
		06/12/2000	9903256	RL-00-01	OFFNERS
		06/12/2000	9903256	RL-00-01	OFFNERS
		06/12/2000	9522497	RL-00-01	OFFNERS
		06/12/2000	9522497	RL-00-01	OFFNERS
		06/12/2000	9522497	RL-00-01	OFFNERS
		06/12/2000	9522403	RL-00-01	OFFNERS
		06/12/2000	9522403	RL-00-01	OFFNERS
		06/12/2000	9522403	RL-00-01	OFFNERS
		06/12/2000	9522304	RL-00-01	OFFNERS
		06/12/2000	9522304	RL-00-01	OFFNERS
		06/12/2000	9522304	RL-00-01	OFFNERS
		06/12/2000	9517541	RL-00-01	OFFNERS
		06/12/2000	9517431	RL-00-01	OFFNERS
		06/12/2000	9903408	RL-00-01	OFFNERS
		06/12/2000	9903408	RL-00-01	OFFNERS
		06/12/2000	9903408	RL-00-01	OFFNERS

Container Approval/Rejection Report

Site ID	Status	Update Date	Container Number	Shipment Num	Approver ID
RL	Approved Certification	06/12/2000	9903419	RL-00-01	OFFNERS
		06/12/2000	9903419	RL-00-01	OFFNERS
		06/12/2000	9903419	RL-00-01	OFFNERS
		06/12/2000	9903437	RL-00-01	OFFNERS
		06/12/2000	9517541	RL-00-01	OFFNERS
		06/12/2000	9517541	RL-00-01	OFFNERS
		06/12/2000	9517431	RL-00-01	OFFNERS
		06/12/2000	9903437	RL-00-01	OFFNERS
		06/12/2000	9903437	RL-00-01	OFFNERS
		06/12/2000	RHZ-212-A22976	RL-00-01	OFFNERS
		06/12/2000	RHZ-212-A22976	RL-00-01	OFFNERS
		06/12/2000	RHZ-212-A22976	RL-00-01	OFFNERS
		06/12/2000	RHZ-213-A21537	RL-00-01	OFFNERS
		06/12/2000	RHZ-213-A21537	RL-00-01	OFFNERS
		06/12/2000	RHZ-213-A21537	RL-00-01	OFFNERS
		06/12/2000	9406605	RL-00-01	OFFNERS
		06/12/2000	9406605	RL-00-01	OFFNERS
		06/12/2000	9401047	RL-00-01	OFFNERS
		06/08/2000	9401047	RL-00-01	MIKUSK
		06/08/2000	9401047	RL-00-01	MIKUSK
		06/08/2000	9406605	RL-00-01	MIKUSK
		06/08/2000	9513544	RL-00-01	MIKUSK
		06/08/2000	9406605	RL-00-01	MIKUSK
		06/08/2000	9517431	RL-00-01	MIKUSK
		06/08/2000	9517413	RL-00-01	MIKUSK
		06/08/2000	9513619	RL-00-01	MIKUSK
		06/08/2000	9513619	RL-00-01	MIKUSK
		06/08/2000	9513590	RL-00-01	MIKUSK
		06/08/2000	9513590	RL-00-01	MIKUSK
		06/08/2000	9513587	RL-00-01	MIKUSK
		06/08/2000	9513587	RL-00-01	MIKUSK
		06/08/2000	9513577	RL-00-01	MIKUSK
		06/08/2000	9522497	RL-00-01	MIKUSK
		06/08/2000	9522403	RL-00-01	MIKUSK
		06/08/2000	9522304	RL-00-01	MIKUSK
		06/08/2000	9522304	RL-00-01	MIKUSK
		06/08/2000	9517541	RL-00-01	MIKUSK
		06/08/2000	9517541	RL-00-01	MIKUSK
		06/08/2000	9903436	RL-00-01	STANDID
		06/08/2000	9517431	RL-00-01	MIKUSK
		06/08/2000	9517413	RL-00-01	MIKUSK
		06/08/2000	9522497	RL-00-01	MIKUSK
		06/08/2000	9522403	RL-00-01	MIKUSK
		06/08/2000	9513577	RL-00-01	MIKUSK
		06/08/2000	9513549	RL-00-01	MIKUSK
		06/08/2000	9513549	RL-00-01	MIKUSK

Container Approval/Rejection Report

Site ID	Status	Update Date	Container Number	Shipment Num	Approver ID
RL	Approved Certification	06/08/2000	9513544	RL-00-01	MIKUSK
		06/07/2000	9400971	RL-00-01	STANDID
		06/07/2000	9401047	RL-00-01	HAND4
		06/07/2000	9406605	RL-00-01	HAND4
		06/07/2000	9513549	RL-00-01	HAND4
		06/07/2000	9517431	RL-00-01	HAND4
		06/07/2000	9903419	RL-00-01	STANDID
		06/07/2000	9903434	RL-00-01	STANDID
		06/07/2000	RHZ-212-A22976	RL-00-01	STANDID
		06/07/2000	RHZ-213-A21537	RL-00-01	STANDID
		06/07/2000	RHZ-213-A21593	RL-00-01	STANDID
		06/07/2000	RHZ-231-A21750	RL-00-01	STANDID
		06/07/2000	RHZ-231-A21753	RL-00-01	STANDID
		06/07/2000	RHZ-231-A22579	RL-00-01	STANDID
		06/07/2000	9903437	RL-00-01	STANDID
		06/07/2000	9517413	RL-00-01	HAND4
		06/07/2000	9903408	RL-00-01	STANDID
		06/07/2000	9513619	RL-00-01	HAND4
		06/07/2000	9903405		STANDID
		06/07/2000	9903402	RL-00-01	STANDID
		06/07/2000	9903381	RL-00-01	STANDID
		06/07/2000	9903322	RL-00-01	STANDID
		06/07/2000	9903316	RL-00-01	STANDID
		06/07/2000	9903293	RL-00-01	STANDID
		06/07/2000	9903256	RL-00-01	STANDID
		06/07/2000	9522497	RL-00-01	HAND4
		06/07/2000	9522403	RL-00-01	HAND4
		06/07/2000	9522304	RL-00-01	HAND4
		06/07/2000	9517541	RL-00-01	HAND4
		06/07/2000	9513590	RL-00-01	HAND4
		06/07/2000	9513587	RL-00-01	HAND4
		06/07/2000	9513577	RL-00-01	HAND4
		06/07/2000	9513544	RL-00-01	HAND4
		06/03/2000	9401047	RL-00-01	SPEEDD
		06/03/2000	9406605	RL-00-01	SPEEDD
		06/03/2000	9517413	RL-00-01	SPEEDD
		06/03/2000	9513619	RL-00-01	SPEEDD
		06/03/2000	9522497	RL-00-01	SPEEDD
		06/03/2000	9522403	RL-00-01	SPEEDD
		06/03/2000	9522304	RL-00-01	SPEEDD
		06/03/2000	9517541	RL-00-01	SPEEDD
		06/03/2000	9517431	RL-00-01	SPEEDD
		06/03/2000	9513590	RL-00-01	SPEEDD
		06/03/2000	9513587	RL-00-01	SPEEDD
		06/03/2000	9513549	RL-00-01	SPEEDD
		06/03/2000	9513577	RL-00-01	SPEEDD

Container Approval/Rejection Report

Site ID	Status	Update Date	Container Number	Shipment Num	Approver ID
RL	Approved Certification	06/03/2000	9513544	RL-00-01	SPEEDD
RL	Rejected Certification	06/03/2000	9513549	RL-00-01	SPEEDD

Attachment C
Inspection Checklist

WIPP Emplacement Inspection Checklist

#	Question	Comments (Objective Evidence)	Results
	Waste Emplacement		
1	Is waste being emplaced in the underground facility in the manner specified in DOE's Compliance Certification Application (CCA)?	Reviewed the WIPP procedures, the WWIS documentation, and Compliance Certification Application. Visually observed the emplaced waste in the underground. Toured the Waste Handling Building where waste is removed from transport vessels and processed into the underground. Interviewed WIPP personnel regarding procedures and activities.	Adequate
2	Are waste stacked in columns three high?	Visually examined Room 7 of Panel 1. Confirmed proper placement of the 7 Pack units visible.	Adequate
3	Are waste emplaced as received?	Confirmed timely placement using WWIS records.	Adequate
4	Are records adequate? Randomly select five waste containers to verify records for waste approval, shipment, and receipt:	Site of Origin / Waste Container Identifier / Container Type RFETS / RFD66936 / 7 Drum Pack RFETS / RFD99298 / 7 Drum Pack RFETS / RFD97217 / 7 Drum Pack RFETS / RFD83240 / 7 Drum Pack RFETS / RFD76390 / 7 Drum Pack	Adequate
5	Verify documentation for the containers listed in item 4 - waste generator site transmittal of waste to WIPP, WIPP approval, shipment certification for transport to WIPP, shipment initiation documentation, shipment received at WIPP records, waste emplace in the underground, and placement of backfill [MgO].	Reviewed the Shipment Summary Report, the Waste Container Data Report, and the CH Waste Processing Data Sheet (Attachment 1 of WP 05-WH1011) for each of the selected drums.	Adequate

WIPP Emplacement Inspection Checklist

#	Question	Comments (Objective Evidence)	Results
	Backfill [MgO] Emplacement		
6	Is DOE properly emplacing backfill material (magnesium oxide [MgO]) with the waste packages?	Visually observed MgO mini sacks in the 7 Packs visible in Room 7 of Panel 1. Also observed MgO super sacks on top of the waste columns. Observed stacks of mini sacks between the outside columns and the Rib walls.	Adequate
7	Are Super Sacks placed on top of waste stacks as described in Volume 1, Section 3.3.3 of the CCA; approximately 4,000 pounds, multi-wall construction with a vapor and moisture barrier?	Observed super sacks placed on top of the waste columns visible to the Inspector. Visually observed the super sacks laid by for future placement. The sacks appeared to be multi-wall construction using fabric that provides a vapor and moisture barrier.	Adequate
8	Are mini sacks attached to each seven-pack waste unit and each standard waste boxes as described?	Observed mini sacks between the outside drums in the 7 Pack units. The sacks were properly placed between the drums and the plastic wrap surrounding the 7 Pack. No standard waste boxes were visible.	Adequate
9	Are mini sacks approximately 25 pounds, approximately 34 inches long, 6 inches in diameter and fabricated of a single layer of polyethylene or other suitable material?	Observed the mini sacks laid by for future placement. The mini sacks appeared to meet the specifications, as stated in D-0101 "Specification for Prepackaged MgO Backfill".	Adequate
10	Are six mini sacks placed in the external voids behind the shrink wrap of each seven-pack before they are positioned on the waste stack?	Reviewed the document WP 05-WH1011 "CH Waste Processing." Reviewed Attachment 1 of this procedure for the five selected drums. Observed the visible areas of the emplaced waste and confirmed proper placement.	Adequate
11	Are six(?) sacks hung from the lift clips on the standard waste boxes?	No standard waste boxes were visible to the Inspector. Procedure WP 05-WH1011 Attachment 2 adequately shows placement of backfill on a standard waste box.	Adequate
12	Are mini sacks stacked on the floor in the space between the waste stack and ribside?	Observed stacks of mini sacks between the outside columns and the rib wall.	Adequate
13	Do the quality control records indicate that the correct number of sacks are placed and that the conditions of the sacks are acceptable?	Reviewed specification D-0101 "Specification for Prepackaged MgO Backfill" and Procedure WP 05-WH1011 "CH Waste Processing Rev 8." Reviewed Attachment 1 of WP 05-WH1011 for each of the selected drums and confirmed sign off by the WIPP personnel responsible for MgO placement.	Adequate

WIPP Emplacement Inspection Checklist

#	Question	Comments (Objective Evidence)	Results
	WIPP Waste Information System (WWIS)		
14	Is DOE maintaining records of waste shipments and emplacement properly?	Reviewed the WWIS reports and WP 05-WH1011 attachments for the five selected drums.	Adequate
15	Do the characterization module, certification module, shipping module, and inventory module adequately record the required information?	Reviewed the characterization module, certification module, shipping module, and inventory module for each of the five drums selected.	Adequate
16	Characterization Module - Review a WWIS Waste Characterization Data Report. Does this report adequately record the Waste Stream Profile Form information?	Observed adequate documentation of the Waste Stream Profile Form data on each of the Waste Characterization Data Reports for the five selected drums.	Adequate
17	Characterization Module - Does the data administrator verify that DOE/CAO has granted certification and transportation authority to the generator/shipper site prior to review of generator/shipper characterization data?	Interviewed Dave Speed and Ken Mikus on data administration. Confirmed that generator characterization data is not reviewed until CAO certifies the site.	Adequate
18	Certification Module - Examine an Acceptance Report and a Rejection Report. Do these adequately record waste information?	Reviewed RP0510 "Container Approval/Rejection Report.	Adequate
19	Is the generator/shipper denied any further write access to certification information after the data passes the limit and edit check and a review by the WWIS data administrator?	Interviewed Dave Speed and Ken Mikus on data administration. Confirmed that the generator can not alter data after the limit and edit check has been performed.	Adequate
20	Shipping Module - Review the Shipment Summary Report. Does the report correctly record the containers shipped?	Reviewed RP0390 Shipment Summary Report for each of the five drums selected. Confirmed the report correctly listed the selected drum.	Adequate
21	Inventory Module - Review the Container Emplacement Report. Does this report adequately record the date of receipt, disposal locations of containers, and the emplacement of MgO?	Reviewed RP0440 Waste Emplacement Report and Attachment 1 of WP 05-WH1011 for each of the five selected drums. Confirmed the correct documentation of the receipt date, disposal locations, and emplacement of MgO.	Adequate
22	Does the WWIS adequately document waste shipment and emplacements information for waste containers selected item 4 above?	Reviewed WWIS documentation for each of the selected drums in Item 4 above. Adequate documentation for waste shipment and emplacement was confirmed.	Adequate