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DOE/WIPP 93-019

Geotechnical Field Data and Analysis Report

Volume II of II

July 1991 - June 1992

Waste Isolation Pilot Plant

This document is issued by Westinghouse Electric Corporation, Waste Isolation Division, as the Management and Operating Contractor for the Department of Energy, Waste Isolation Pilot Plant, Carlsbad, New Mexico, 88221.

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GEOTECHNICAL FIELD DATA AND ANALYSIS REPORT VOLUME II of II

July 1991 - June 1992

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be directed to the U.S. Department of Energy
WIPP Project Office
P.O. Box 3090
Carlsbad, NM 88221**

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Foreword and Acknowledgments

The Geotechnical Field Data and Analysis Report presents the data for the assessments of the geotechnical status of the Waste Isolation Pilot Plant (WIPP). During the period of shaft sinking and construction of the principal underground access and experimental areas, reporting was on a quarterly basis. Since 1987, reporting has been carried out annually because excavation of the waste storage panels will take place more slowly and over an extended period. This report presents the data collected up to June 30, 1992.

This report focuses on the presentation of geotechnical data from the various underground facilities including the shafts, shaft stations, access drifts, test rooms, and waste storage areas. It also describes the techniques used to acquire the data and the performance history of the instruments. Data files are available at nominal cost upon request to the U.S. Department of Energy (DOE) at the following address:

U.S. Department of Energy
WIPP Project Office
P.O. Box 3090
Carlsbad, NM 88221
Attention: Arlen Hunt

The Geotechnical Field Data and Analysis Report is a multiple-author report that was prepared by Westinghouse Waste Isolation Division and its geotechnical subcontractor, IT Corporation, for the U.S. Department of Energy WIPP Project Office, Carlsbad, New Mexico.

GEOTECHNICAL FIELD DATA AND ANALYSIS REPORT

VOLUME II

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1.0 GEOMECHANICAL INSTRUMENTATION SYSTEM

Geomechanical instrumentation is used in the Waste Isolation Pilot Plant facility to monitor the underground openings. Data from the instrumentation are collected, processed, and stored for analysis. The following discussion briefly describes the major components of the Geomechanical Instrumentation System (GIS).

1.1 INSTRUMENTATION DESCRIPTIONS

Instruments installed for measuring the geomechanical response of the shafts and other underground openings include convergence points, convergence meters, borehole extensometers, rockbolt load cells, pressure cells, stressmeters, strain gauges, inclinometers, piezometers, and joint meters. A summary of the geomechanical instrumentation specifications is presented in Table 1-1.

1.2 DATA ACQUISITION

The individual instruments that comprise the GIS are read manually by portable devices or remotely by a surface datalogging computer. Trained technicians acquire data manually, and polling devices acquire data remotely. Remotely read instruments are connected to one of ten dataloggers located underground. Readings are collected by referencing its identifier code. Upon completion of a verification process as described in WIPP procedures, the data is transferred to a database where they are stored. The manual reading devices are taken to the instrument locations underground, and the instruments are read. The data is recorded on the appropriate data sheets and are later entered into database files where they are combined with the remotely acquired readings.

The underground data acquisition system consists of polling devices, a communications network, and the instruments. The polling devices are installed in underground Local Termination Cabinets (LTC). Their function is to query each individual instrument. The polling devices are connected via datalink cables and modems to the surface datalogging computer. Each polling device consists of a remote switching station and readout unit that is connected to the instruments throughout the facility. The surface datalogging computer utilizes datalink cables with modem interfaces to receive the instrument readings from the polling units.

Whether acquired manually or automatically, all GIS data is entered into the database files of the GIS data processing system. The processing system is programmed to enter, perform

reductions, and transfer the instrumentation data to permanent storage files. Utilizing dBase IV software reference, the datalogging programs and the GIS data processing system programs are accessed via a personal computer located on the surface at the WIPP site.

The datalogging computer capabilities allow the GIS operator to remotely access a polling device from either an intermediate mode or a predefined parameters mode. The intermediate mode yields a printout and/or test field of the readings from the polled device. The predefined parameters mode yields a printout and the test file update of the permanent polling file.

The GIS data is entered into the GIS data processing system via a program that accesses the appropriate database files on the computer. Once the data have been entered and verified, the GIS data processing system performs reductions, formats the output to produce text files for data recordings, and transfers to permanent storage files. Additional programming allows access to these permanent storage files for tabular reporting and graphical plotting.

The GIS processing system was updated in February 1990. New hardware was installed to replace the STRIDE 440 computer. All data storage, acquisition, and plotting functions have been transferred to IBM PC DOS format.

1.3 DATA PLOT EXPLANATION

For this reporting period, plots were deleted for those instruments which have not been read in the past four years. Information regarding these deleted plots can be found in previous volumes of the Geotechnical Field Data and Analysis Report.

Data is presented in graphical form for ease of interpretation. Time-based plots are generally used in this report. Data is presented from convergence points, convergence meters, borehole extensometers, rockbolt load cells, pressure cells, stressmeters, strain gauges inclinometers, piezometers, and joint meters.

Closure measurements are taken with convergence points and convergence meters. Relative displacement is calculated by taking measurements from one point to another. The ground displacement, usually into the opening, is monitored over time and plotted as either surface displacement or closure versus time. Borehole extensometers are used to determine the absolute movements of the ground around the openings. With this instrument, rods are placed down a hole and anchored at various depths. The deepest anchor is assumed to be

fixed in undisturbed ground. Displacement of the other anchors are referenced to the deepest anchor, and an absolute displacement is calculated. Typically, the plots will show increasing ground movement nearer the surface of the opening, i.e., the collar of the hole.

Rockbolt load cells are used to determine the ground loading and the effectiveness of rockbolts. Plots consist of load, in kips, versus time for each instrumented bolt.

Earth pressure cells, stressmeters, and strain gauges are used in and around the shaft liners to determine their loads. These are also depicted in time-based plots. Monitoring of these instruments indicates whether there is any stress buildup in the shaft lining systems.

Inclinometers are used to record the relative deflection of boreholes. Plots depict deflection versus depth of the hole. Data from different periods are plotted to indicate movement trends over time.

Piezometers are used to measure the gauge pressure of ground water. They have been installed in the shafts at varying elevations to monitor the hydraulic head acting on the shaft liners. Plots from piezometers are presented as pressure versus time.

Jointmeters are currently installed underground in the S1950 drift and the E0 drift. They are installed perpendicular to a crack and monitor any separation of the crack which may occur over time.

1.4 DATA ERRORS

As described above, all GIS data is processed through a comprehensive database management system. All steps of this process are governed by established procedures. Whether acquired manually or automatically, all GIS data is processed and permanently stored according to approved procedures.

It is apparent from examination of the data points plots that there are occasional anomalous data points. There are several possible reasons why these bad readings occur.

1. The measuring device was misread.
2. Readings were recorded on wrong field data sheets, or the wrong instrument was read.

3. Excessive noise interfered with communication between reading technician and recording technician.
4. The measuring device was not properly calibrated or was operating with low battery charge.
5. The computer-activated polling devices did not function with proper voltage ranges due to other demands by the underground power system.

Sound engineering judgment is used to evaluate and allow for the elimination or correction of these types of data.

1.5 INSTRUMENT LOCATIONS

Maps showing the instrumentation layout in the underground drifts and waste storage areas are shown in Figures 1-1 through 1-4. Detailed views of the instrumentation layouts for the shafts, shaft stations, and SPDV rooms are included in their corresponding sections.

1.6 EXCAVATION SUMMARY

A map indicating excavation sequence and dates is shown in Figures 1-5 through 1-8. Excavation sequence is significant to interpretations of many of the GIS data. Notes have been included on the data plots indicating when an opening was initially excavated. Changes to the opening size, e.g. trimming, or nearby mining will also have an affect on the data and should be considered in any analysis.

GEOMECHANICAL INSTRUMENT SPECIFICATIONS

Instrument Type	Measured	Range	Precision	Accuracy	Method
Borehole Extensometers	Cumulative Deformation	0-2 inches	+/- 0.001 in.	+/- 0.001 in.	Sonic Probe
Convergence Points	Cumulative Deformation	2-50 feet	+/- 0.001 in.	+/- 0.001 in.	Tape Extensometer
Wire Convergence Meters	Cumulative Deformation	0-3 feet	+/- 0.004 in.	+/- 0.032 in.	Rotary Potentiometer
Sonic Probe Convergence Meters	Cumulative Deformation	0-2.5 feet	+/- 0.001 in.	+/- 0.001 in.	Sonic Probe
Embedded Strain Gauges	Cumulative Strain	0-3000 uin./in.	+/- 1uin./in.	+/- 2 uin./in.	Vibrating Wire
Spot-Welded Strain Gauges	Cumulative Strain	0-2500 uin./in.	+/- 1 uin./in.	+/- 2 uin./in.	Vibrating Wire
Stressmeters	Stress	10000 psi	+/- 15 psi	+/- 15 psi	Vibrating Wire
Inclinometers	Cumulative Deflection	0-30 degrees	+/- 0.001 in./ft.	+/- 0.003 in./ft.	Accelerometer
Rockbolt Load Cells	Load	0-50 tons	+/- 40 lbs.	+/- 40 lbs.	Strain Gauge
Earth Pressure Cells	Lithostatic Pressure	0-10 psi	+/- 0.05 psi	+/- 0.05 psi	Vibrating Wire
Piezometers	Fluid Pressure	0-500 psi	+/- 0.5 psi	+/- 0.5 psi	Vibrating Wire
Joint Meters	Cumulative Deformation	0-4 inches	+/- 0.002 in.	+/- 0.002 in.	Vibrating Wire

TABLE 1-1
Geomechanical Instrumentation

NOTES

1 ALL COORDINATES BASED ON DISTANCE FROM SALT HANDLING SHAFT E

EXPLANATION

GE = EXTENSOMETER
TC = TEMPORARY CONVERGENCE POINT
RS = WALL SHORTENING POINT

FIGURE 1-1
Drifts Instrumentation
Sheet 1 of 4

NOTES

1. ALL COORDINATES BASED ON DISTANCE FROM SALT HANDLING SHAFT

FIGURE 1-2

Drifts Instrumentation

Sheet 2 of 4

NOTES:
 1. ALL COORDINATES BASED ON DISTANCE FROM SALT HANDLING SHAFT C

FIGURE 1-3
 Drifts Instrumentation
 Sheet 3 of 4

NOTES:

1. ALL COORDINATES BASED ON DISTANCE FROM SALT HANDLING SH
2. INSTRUMENTATION IN ROOMS A1, A2, A3, B AND PART OF D ARE NOT INCLUDED IN THIS REPORT.

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LEGEND

RC - RADIAL CONVERGENCE POINT

N
SEC

FIGURE 1-5
Excavation Summary
Sheet 1 of 4

FIGURE 1-6
 Excavation Summary
 Sheet 2 of 4

FIGURE 1-7
Excavation Summary
Sheet 3 of 4

NOTES

1. EXCAVATION SUMMARY FOR ROOMS A1, A2, A3, AND B ARE NOT PRESENTED.

DATES INDICATE EXCAVATION, PILOT CUT

FIGURE 1-8
Excavation Summary
Sheet 4 of 4

2.0 SHAFTS AND KEYS

2.1 SALT HANDLING SHAFT

2.1.1 INTRODUCTION

The first construction activity undertaken during the Site and Preliminary Design Validation (SPDV) work was the excavation of the Exploratory Shaft, next designated the Construction and Salt Handling (C&SH) Shaft, currently designated the Salt Handling Shaft, Figure 2-1. The shaft was drilled during a four-month period from July 4 to October 23, 1981. Geologic mapping was conducted from March through May, 1982 (DOE, 1983). The generalized stratigraphy of the Salt Handling Shaft is presented in Figure 2-2.

2.1.2 MODIFICATIONS TO EXCAVATIONS

No modifications have been made to the shaft during this reporting period. Shaft inspections are conducted by mining operations personnel on a weekly basis. The condition of the shaft is satisfactory.

2.1.3 INSTRUMENTATION

The Salt Handling Shaft was equipped with geomechanical instrumentation in April and July 1982. The instrumentation configuration is presented in Figures 2-3 and 2-4. Table 2-1 is the Salt Handling Shaft instrument summary. Graphic presentation of the instrumentation data is included in Figures 2-5 through 2-22.

The geomechanical instrumentation in the lined portion of the Salt Handling Shaft has performed poorly since its second year of operation. Shaft instrumentation components have been damaged, some repeatedly, by construction related activities, including salt handling (hoisting) and movement of construction materials. Falling objects and rainfall accumulations have caused several failures to junction boxes, termination cabinets, cables, and convergence points. Damage to the electronic devices in LTC 1, which contained the automatic polling device for the lined section of this shaft, has resulted in some loss of instrumentation data.

EXTENSOMETERS

Nine multi-position borehole extensometers were installed in the Salt Handling Shaft from July 6 through 8, 1982. These instruments were arranged in arrays at levels 1073', 1564', and 2057'. Figure 2-3. Readings were taken manually until the extensometers were connected to the datalogging computer in October 1982. The orientation diagram on each

plot shows anchor depths measured from the surface of the shaft wall.

CONVERGENCE POINTS

Nine sets of convergence points were installed in the Salt Handling Shaft from July 7 through 17, 1982. Two additional sets were installed on October 8, 1982. These instruments were arranged in arrays at levels 296', 454', 584', 730', 814', 940', 1073', 1275', 1564', 1815', and 2057', Figure 2-3. The convergence points are no longer read due to lack of access, to obstruction, and/or safety concerns. No data from these instruments are included.

PIEZOMETERS

Twelve piezometers were installed in the lined section of the Salt Handling Shaft from July 10 through 17, 1982. Piezometer arrays were installed at levels 580', 620', 691', 726', 802', and 850', as shown in Figures 2-3 and 2-4. All piezometers are located in the Rustler Formation; those at level 850' are essentially at the Rustler-Salado Formation contact. The piezometer arrays at levels 620' and 726' are located, respectively, at the water-bearing Magenta and Culebra Dolomite Members.

EARTH PRESSURE CELLS

Four earth pressure cells were installed in the lined key section of the Salt Handling Shaft on April 5, 1982. They were installed as an array at level 860', as presented Figure 2-4. These instruments function to measure the horizontal stress between the concrete key and the Salado Formation as the creep effects load the key structure.

STRAIN GAUGES

Twenty-four embedment and sixteen spot welded strain gauges were installed in the lined key section of the Salt Handling Shaft on April 16, 1982. They were installed as two arrays at levels 856' and 862', Figure 2-4. These instruments were installed to measure the concrete key strain due to loading as the Salado Formation creeps.

Salt Handling Shaft Instrument Summary

EXTENSOMETERS

Fieldtag	Level (Feet)	Date of Initial Reading	Date of Last Reading	Collar Displacement Relative to Deepest Anchor (Inches)	Comments
37X GE-00204	1564	07-Jul-82	19-Dec-89	0.338	
37X GE-00205	1564	07-Jul-82	19-Dec-89	0.751	INSTRUMENT MALFUNCTION
37X GE-00206	1564	07-Jul-82	19-Dec-89	0.352	
37X GE-00207	2057	06-Jul-82	21-Jun-91	1.050	
37X GE-00209	2057	06-Jul-82	24-Jun-92	0.525	

PIEZOMETERS

Fieldtag	Level (Feet)	Date of Initial Reading	Date of Last Reading	Last Pressure Reading (psi)	Comments
37X PE-00201	580	14-Jul-82	27-Nov-91	87.4	
37X PE-00202	580	14-Jul-82	27-Nov-91	88.0	
37X PE-00203	620	13-Jul-82	27-Nov-91	80.8	
37X PE-00204	620	13-Jul-82	27-Nov-91	76.6	
37X PE-00205	691	11-Jul-82	27-Nov-91	68.1	
37X PE-00206	691	12-Jul-82	27-Nov-91	65.6	
37X PE-00207	726	12-Jul-82	27-Nov-91	101.8	
37X PE-00208	726	17-Jul-82	27-Nov-91	101.7	
37X PE-00209	802	17-Jul-82	27-Nov-91	134.2	
37X PE-00210	802	10-Jul-82	27-Nov-91	132.3	
37X PE-00211	850	10-Jul-82	27-Nov-91	138.2	
37X PE-00212	850	10-Jul-82	27-Nov-91	137.4	

SHAFT KEY EARTH PRESSURE CELLS

Fieldtag	Level (Feet)	Date of Initial Reading	Date of Last Reading	Last Pressure Reading (psi)	Comments
37X WE-00201	860	16-Apr-82	27-Nov-91	-16.8	
37X WE-00202	860	16-Apr-82	27-Nov-91	-23.3	
37X WE-00203	860	16-Apr-82	27-Nov-91	-31.1	

SHAFT KEY SPOT WELDED STRAIN GAGES

Fieldtag	Level (Feet)	Date of Initial Reading	Date of Last Reading	Last Pressure Reading (microstrain)	Comments
37X ZE-00201	856.3	16-Apr-82	03-Mar-92	712	
37X ZE-00202	856.3	16-Apr-82	24-Jan-92	345	
37X ZE-00206	856.3	16-Apr-82	24-Jan-92	475	
37X ZE-00219	862.4	16-Apr-82	27-Nov-91	1715	
37X ZE-00220	862.4	16-Apr-82	27-Nov-91	769	
37X ZE-00221	862.4	16-Apr-82	27-Nov-91	533	
37X ZE-00223	862.4	16-Apr-82	27-Nov-91	319	

TABLE 2-1
Salt Handling Shaft
Instrument Summary
Sheet 1 of 2

Salt Handling Shaft Instrument Summary

SHAFT KEY EMBEDMENT STRAIN GAGES		Date of Initial Reading	Date of Last Reading	Last Pressure Reading (microstrain)	Comments
Fieldtag	Level (Feet)				
37X ZE-00209	856.3	16-Apr-82	27-Nov-91	-627	
37X ZE-00210	856.3	16-Apr-82	27-Nov-91	814	
37X ZE-00211	856.3	16-Apr-82	27-Nov-91	262	
37X ZE-00212	856.3	16-Apr-82	27-Nov-91	-737	
37X ZE-00213	856.3	16-Apr-82	27-Nov-91	110	
37X ZE-00214	856.3	16-Apr-82	27-Nov-91	-133	
37X ZE-00215	856.3	16-Apr-82	27-Nov-91	-55	
37X ZE-00216	856.3	16-Apr-82	27-Nov-91	362	
37X ZE-00235	856.3	16-Apr-82	27-Nov-91	-513	
37X ZE-00236	856.3	16-Apr-82	27-Nov-91	25	
37X ZE-00237	856.3	16-Apr-82	27-Nov-91	-107	
37X ZE-00238	856.3	16-Apr-82	27-Nov-91	297	
37X ZE-00225	862.4	16-Apr-82	27-Nov-91	310	
37X ZE-00226	862.4	16-Apr-82	27-Nov-91	8	
37X ZE-00227	862.4	16-Apr-82	27-Nov-91	462	
37X ZE-00228	862.4	16-Apr-82	27-Nov-91	18	
37X ZE-00229	862.4	16-Apr-82	27-Nov-91	659	
37X ZE-00230	862.4	16-Apr-82	27-Nov-91	487	
37X ZE-00231	862.4	16-Apr-82	27-Nov-91	685	
37X ZE-00232	862.4	16-Apr-82	27-Nov-91	677	
37X ZE-00239	862.4	16-Apr-82	27-Nov-91	-406	
37X ZE-00240	862.4	16-Apr-82	27-Nov-91	605	
37X ZE-00241	862.4	16-Apr-82	27-Nov-91	405	
37X ZE-00242	862.4	16-Apr-82	27-Nov-91	306	

TABLE 2-1
Salt Handling Shaft
Instrument Summary
Sheet 2 of 2

SALT HANDLING SHAFT

EXPLANATION

SAND AND SANDSTONE		HALITE	
MUDSTONE AND SILTSTONE		DOLOMITE	
ANHYDRITE		CONCRETE	

NOTES

1. ALL ROCKS BELOW DOCKUM GROUP ARE PERMIAN IN AGE
2. ALL LEVELS ARE MEASURED FROM COLLAR AT 3410 FEET MSL
3. MB=MARKER BED

GG849

FIGURE 2-2
Generalized Salt Handling Shaft
Stratigraphy

SALT HANDLING SHAFT

NOT TO SCALE

NOTES

1. RC'S AT EACH LEVEL CONSIST OF FOUR POINTS
2. THE TERM "LEVEL" IS AN APPROXIMATE DEPTH FROM THE TOP OF THE SHAFT BURTON AT ELEVATION OF 3410.0 FT MSL
3. ELEVATIONS AND LEVELS ARE SHOWN IN UNITS OF FEET
4. PIEZOMETER AREA ORIENTED AT N 30W AND S 30E

LEGEND

- (PE) PIEZOMETER
 - (RC) RADIAL CONVERGENCE POINTS
 - (GE) EXTENSOMETER
- GG653

FIGURE 2-3
Salt Handling Shaft Instrumentation
(Without Shaft Key)

**FIGURE 2-4
Salt Handling Shaft Key Instrumentation**

FIGURE 2-7
 EXTENSOMETER 37X GE-00206
 SALT HANDLING SHAFT-LEVEL 1564'/S15W

1. EXCAVATION DATE: 03/18/81

FIGURE 2-9
EXTENSOMETER 37X GE-00209
SALT HAULING SHAFT-LEVEL 2057'/S45N

NOTES:
1. EXCAVATION DATE: 10/11/81

NOTES:
1. STEEL LINER WAS INSTALLED IN NOVEMBER
AND DECEMBER 1981.

FIGURE 2-10
PIEZOMETERS
SALT HANDLING SHAFT-LEVEL 590'
FORTY-NINER MEMBER

NOTES:
1. STEEL LINER WAS INSTALLED IN NOVEMBER
AND DECEMBER 1981.

FIGURE 2-11
PIEZOMETERS
SALT HANDLING SHAFT-LEVEL 630'
HARBITA TROPHIC MEMBER

NOTES:
 1. STEEL LINER WAS INSTALLED IN NOVEMBER
 AND DECEMBER 1981.

FIGURE 2-12
 PIEZOMETERS
 SALT HANDLING SHAFT-LEVEL 691'
 TAMPION MEMBER

FIGURE 2-13
PIEZOMETERS
SALT HANDLING SHAFT-LEVEL 725'
CULEBRA DOLOMITE MEMBER

NOTES:
1. STEEL LINER WAS INSTALLED IN NOVEMBER
AND DECEMBER 1981.

NOTES:
1. STEEL LINER WAS INSTALLED IN NOVEMBER
AND DECEMBER 1981.

FIGURE 2-14
PIEZOMETERS
SALT HANDLING SHAFT-LEVEL 802'
UNJAIRED LOWER MEMBER

NOTES:
1. CONCRETE FOR KEY WAS PLACED IN 4/82.

NOTES:
1. CONCRETE FOR KEY WAS PLACED IN 4/82.
2. PIEZOMETER 37XHE-00204 HAS LAST READ
AUGUST 1987.

FIGURE 2-17
SPOT WELDED STRAIN GAGES
SALT HANDLING SHAFT-LEVEL 856.3'
FET

NOTES:
1. CONCRETE FOR FET WAS PLACED IN 4/82.
2. STRAIN GAGES NOT SHOWN ON PLOT HAVE
DIALECTICED AND HAVE NOT BEEN READ
FOR FOUR OR MORE YEARS.

FIGURE 2-18
SPOT WELDED STRAIN GAGES
SALT HANDLING SHAFT-LEVEL 862.4'
FET

NOTES:
1. CONCRETE FOR KEY WAS PLACED IN 4/82.

FIGURE 2-19
EMBEDMENT STRAIN GAGES
SALT HANDLING SHAFT-LEVEL 856.3'
KEY

FIGURE 2-20
EMBEDMENT STRAIN GAGES
SALT HANDLING SHAFT-LEVEL 856.3'
KEY

NOTES:
1. CONCRETE FOR KEY WAS PLACED IN 4/82.

NOTES:
1. CONCRETE FOR FEY WAS PLACED IN 4/82.

FIGURE 2-21
EMBEDMENT STRAIN GAGES
SALT HANDLING SHAFT-LEVEL 862.4'
FEY

2.2 WASTE SHAFT

2.2.1 INTRODUCTION

During construction activity undertaken as part of the SPDV work a six foot diameter ventilation shaft was excavated from December 1981 through February 1982 to allow a two-shaft underground air circulation scheme to function. This shaft was later enlarged and lined to its present 20 to 23 foot diameter from October 11, 1983 through June 11, 1984 and renamed the Waste Shaft. Comprehensive geologic mapping was conducted during shaft enlargement from December 9, 1983 through June 5, 1984 (Holt and Powers, 1984). The generalized stratigraphy of the waste shaft is presented in Figure 2-23.

2.2.2 MODIFICATIONS TO EXCAVATIONS

No modifications have been made to the shaft during this reporting period. Shaft inspections are conducted by mining operations personnel on a weekly basis. The condition of the shaft is satisfactory.

2.2.3 INSTRUMENTATION

The Waste Shaft was equipped with geomechanical instrumentation from August 27 through September 10, 1984. The instrumentation configuration is presented in Figures 2-24 and 2-25. Table 2-2 is the Waste Shaft instrument summary. Graphic presentation of the instrumentation data is included in Figures 2-26 through 2-41.

All geomechanical instrumentation in this shaft except for the convergence points is connected to LTC-15, which was installed at the facility level to avoid the damage and accessibility problems that could be expected in the shaft. Since December 15, 1984, LTC-15 has been connected to the datalogging computer. An inspection of this shaft on June 16, 1985, indicated visible damage to the wiring for two piezometers and one earth pressure cell. During preliminary hoist installation work, all junction boxes in the lined section of this shaft were found to interfere with the conveyance counterweight, and they were removed in August 1986. Wiring damage may also have caused a loss of data from three borehole extensometers in the unlined section of this shaft. Repair and reinstallation work on the damaged instruments and components was completed prior to June 30, 1988.

EXTENSOMETERS

Nine multi-position borehole extensometers were installed in the Waste Shaft from August 31 through September 5, 1984. These instruments were arranged in arrays at levels 1071', 1566', and 2059' as shown in Figure 2-24. Initial readings were taken manually, and subsequent readings were taken by the datalogging computer. The orientation diagram on each plot shows anchor depth measured from the surface of the shaft wall.

CONVERGENCE POINTS

Three sets of convergence points were installed in the Waste Shaft from April through June 1984. These instruments were arranged in arrays at levels 1071', 1566', and 2059' as presented in Figure 2-24. The convergence points are no longer read due to lack of access, to obstruction, and/or safety concerns. No data from these instruments are included.

PIEZOMETERS

Twelve piezometers were installed in the lined section of the Waste Shaft on September 7 and 8, 1984. Piezometer arrays were installed at levels 532', 611', 669', 717', 758', and 845' as shown in Figures 2-24 and 2-25. All piezometers are located in the Rustler Formation; those at level 845' are essentially at the Rustler-Salado Formation contact. The piezometer arrays at levels 611' and 717' are located, respectively, at the water-bearing Magenta and Culebra Dolomite Members.

EARTH PRESSURE CELLS

Four earth pressure cells were installed in the lined key section of the Waste Shaft during shaft key concrete emplacement from March 23 through April 3, 1984. These were installed as an array at level 866' as shown on Figure 2-25. These instruments function to measure the horizontal stress between the concrete key and the Salado Formation as the creep effects load the key structure.

Waste Shaft Instrument Summary

EXTENSOMETERS

Fieldtag	Level (Feet)	Date of Initial Reading	Date of Last Reading	Collar Displacement Relative Deepest Anchor (Inches)	Comments
31X GE-00201	1071	05-Sep-84	24-Jun-92	0.189	INSTRUMENT FAILED
31X GE-00202	1071	05-Sep-84	14-Nov-89	0.139	
31X GE-00203	1071	05-Sep-84	25-Mar-92	0.145	
31X GE-00204	1566	01-Sep-84	24-Jun-92	0.458	
31X GE-00205	1566	02-Sep-84	24-Jun-92	0.379	
31X GE-00206	1566	02-Sep-84	24-Jun-92	0.452	
31X GE-00207	2059	30-Aug-84	24-Jun-92	1.066	
31X GE-00208	2059	31-Aug-84	24-Jun-92	1.024	
31X GE-00209	2059	10-Sep-84	24-Jun-92	1.131	

PIEZOMETERS

Fieldtag	Level (Feet)	Date of Initial Reading	Date of Last Reading	Last Pressure Reading (psi)	Comments
31X PE-00201	532	08-Sep-84	24-Jun-92	0.7	
31X PE-00202	532	08-Sep-84	24-Jun-92	-2.2	
31X PE-00203	611	08-Sep-84	24-Jun-92	70.2	
31X PE-00204	611	08-Sep-84	24-Jun-92	29.0	
31X PE-00205	669	08-Sep-84	24-Jun-92	-0.5	
31X PE-00206	669	08-Sep-84	24-Jun-92	-0.7	
31X PE-00207	717	08-Sep-84	24-Jun-92	1.3	
31X PE-00208	717	08-Sep-84	24-Jun-92	120.0	
31X PE-00209	758	07-Sep-84	24-Jun-92	7.4	
31X PE-00210	758	07-Sep-84	24-Jun-92	3.0	
31X PE-00211	845	07-Sep-84	24-Jun-92	103.3	
31X PE-00212	845	07-Sep-84	24-Jun-92	117.4	

SHAFT KEY EARTH PRESSURE

Fieldtag	Level (Feet)	Date of Initial Reading	Date of Last Reading	Last Pressure Reading (psi)	Comments
31X WE-00201	866	28-Mar-84	27-Nov-91	113.1	INSTRUMENT FAILED
31X WE-00202	866	28-Mar-84	24-Jun-92	113.0	
31X WE-00203	866	28-Mar-84	24-Jun-92	149.0	
31X WE-00204	866	28-Mar-84	24-Jun-92	127.9	

TABLE 2-2
Waste Shaft
Instrument Summary

WASTE SHAFT

LEGEND

SAND AND SANDSTONE		HALITE	
MUDSTONE AND SILTSTONE		DOLOMITE	
ANHYDRITE		CONCRETE	

NOTES

1. ALL ROCKS BELOW DOCKUM GROUP ARE PERMAN IN AGE
2. ALL LEVELS ARE MEASURED FROM COLLAR AT 3409 FEET MSL
3. MB-MARKER BED

FIGURE 2-24
Waste Shaft Instrumentation
(Without Shaft Key)

PRESSURE CELL ORIENTATION
AT ELEV. 2543 FT (LEVEL 866 FT)

TOP OF KEY
ELEV. 2575 (LEVEL 834)
ELEV. 2564 (LEVEL 845)

ELEV. 2543 (LEVEL 866)

ELEV. 2509 (LEVEL 900)

SHAFT KEY PROFILE

NOT TO SCALE

LEGEND

PRESSURE CELL

PIEZOMETER

NOTES

1. THE TERM "LEVEL" IS AN APPROXIMATE DEPTH FROM THE SHAFT COLLAR AT ELEVATION 3409 FT MSL.
2. PRESSURE CELLS LOCATED AT CONCRETE-ROCK INTERFACE.

FIGURE 2-25

Waste Shaft Key Instrumentation

FIGURE 2-26
 EXTENSOMETER 31X GE-00201
 WASTE SHAFT-LEVEL 1071' / 11-15H

NOTES:
 1. EXCAVATION DATE: APRIL 1984.

FIGURE 2-29
 EXTENSOMETER 31X GE-00204
 WASTE SHAFT LEVEL 1566' / 145W

NOTES:
 1. EVALUATION DATE: MAY 1984.

FIGURE 2-33
EXTENSOMETER 31X GE-00208
WASTE SHAFT-LEVEL 2059' /1175E

NOTES:
1. EXCAVATION DATE: JUNE 1984.

NOTES:
1. EXCAVATION DATE: FEBRUARY, 1984.

FIGURE 2-36
PIEZOMETERS
WASTE SHAFT--LEVEL 611'
MADEIRA DOLOMITE MEMBER

NOTES:

1. EXCAVATION DATE : FEBRUARY, 1984.
2. NO RECORDED PRESSURE

FIGURE 2-37
PIEZOMETERS
WASTE SHAFT-LEVEL 669'
TAMARISK MEMBER

NOTES:
1. EXCAVATION DATE: FEBRUARY, 1984.

FIGURE 2-38
PIEZOMETERS
WASTE SHAFT-LEVEL 717
CULEBPA DOLomite MEMBER

NOTES:
1. EXCAVATION DATE: MARCH 1984.

FIGURE 2-39
PIEZOMETERS
WASTE SHAFT-LEVEL 758'
UNJAMMED LOWER MEMBER

FIGURE 2-41
EARTH PRESSURE CELLS
WASTE SHAFT-LEVEL 866
PEY

NOTES:
1. EXCAVATION DATE: MARCH 1984.

2.3 EXHAUST SHAFT

2.3.1 INTRODUCTION

The Exhaust Shaft was excavated from September 22, 1983 through November 29, 1984 and established a dedicated route for exhaust air from the underground facility to the surface through the Exhaust Filter Building. Comprehensive geologic mapping was conducted from July 16, 1984 through January 18, 1985 (Holt and Powers, 1986). The generalized Exhaust shaft stratigraphy is presented in Figure 2-42.

2.3.2 MODIFICATIONS TO EXCAVATIONS

No modifications have been made to the shaft during this reporting period. The Exhaust Shaft was inspected in detail from January 27 through January 30, 1987, following several months of grouting work. Due to increased seepage into the shaft, inspections of inflows at the key/rock salt interface were conducted during February and March of 1987. This shaft is no longer accessible for inspection because of the lack of a hoisting system.

2.3.3 INSTRUMENTATION

The Exhaust Shaft was equipped with geomechanical instrumentation in two stages. Earth pressure cells were installed behind the liner key during November 1984 and piezometers and extensometers were installed during November and December 1985. The instrumentation configuration is presented in Figures 2-43 and 2-44. Table 2-3 provides a summary of the Exhaust Shaft instrumentation and graphic presentation of the instrumentation data is presented in Figures 2-45 through 2-61.

All geomechanical instrumentation in this shaft is connected to LTC-16, which was installed at the facility level to avoid the damage and accessibility problems encountered in the shaft. Since March 5, 1986, LTC-16 has been connected to the datalogging computer. During shaft grouting work in October 1986, cables to one piezometer were damaged and the instrument was removed for repair. In January 1987, the repaired instrument was reinstalled during a geotechnical inspection that followed the grouting work. In early 1988, the array of borehole extensometers at level 2066' began yielding anomalous data. No repairs have been made to the borehole extensometers because of inaccessibility into the shaft.

EXTENSOMETERS

Nine multi-position borehole extensometers were installed in the Exhaust Shaft from November 5 through November 7, 1985. These extensometers were arranged in arrays at levels 1078', 1574' and 2066' as shown in Figure 2-43. Readings have been taken by the

datalogging computer. The orientation diagram on each plot show anchor depths measured from the surface of the shaft wall.

PIEZOMETERS

Twenty-one piezometers were installed in the lined section of the Exhaust Shaft from November 1 through November 3, 1985. Piezometer arrays were installed at levels 544', 615', 673', 721', 768', 850', and 887' as shown in Figures 2-43 and 2-44. The upper six arrays are located in the Rustler Formation with the array at level 850' essentially at the Rustler-Salado Formation contact. The piezometer arrays at levels 615' and 721' are located, respectively, at the water-bearing Magenta and Culebra Dolomite Members. The lowest, seventh array is located in the shaft key below the key's lower chemical seal ring. The Exhaust Shaft key was emplaced with chemical seal rings and the piezometers located in this area are intended to monitor the performance of the seals. Telltale drains are also used to indicate leakage of the seals.

EARTH PRESSURE CELLS

Four earth pressure cells were installed in the lined key section of the Exhaust Shaft during shaft key concrete emplacement. The cells were installed as an array at level 874' as shown on Figure 2-44. These instruments function to measure the horizontal stress between the concrete key and the Salado Formation as the creep effects load the key structure. Earth pressure cells 35X WE-00203 and 35X WE-00204 have not been read since April 1987 and are considered to be nonfunctional. The anomalous readings from 35X WE-00202 indicates that it also may be failing.

Exhaust Shaft Instrument Summary

EXTENSOMETERS

Fieldtag	Level (Feet)	Date of Initial Reading	Date of Last Reading	Collar Displacement Relative to Deepest Anchor (Inches)	Comments
35X GE-00201	1078	21-Dec-85	07-Mar-91	0 030	
35X GE-00202	1078	21-Dec-85	07-Mar-91	0 021	
35X GE-00203	1078	21-Dec-85	07-Mar-91	0 020	
35X GE-00204	1574	21-Dec-85	07-Mar-91	0 158	
35X GE-00205	1574	21-Dec-85	07-Mar-91	0 151	
35X GE-00206	1574	21-Dec-85	07-Mar-91	0 140	
35X GE-00207	2066	21-Dec-85	28-Jan-88	0 358	EQUIPMENT MALFUNCTION
35X GE-00208	2066	21-Dec-85	31-May-88	0 368	EQUIPMENT MALFUNCTION
35X GE-00209	2066	21-Dec-85	28-Jan-88	0 313	EQUIPMENT MALFUNCTION

PIEZOMETERS

Fieldtag	Level (Feet)	Date of Initial Reading	Date of Last Reading	Last Pressure Reading (psi)	Comments
35X PE-00201	544	01-Nov-85	07-Mar-91	-3.7	
35X PE-00202	544	01-Nov-85	07-Mar-91	-1.9	
35X PE-00203	544	01-Nov-85	07-Mar-91	-2.7	
35X PE-00204	615	01-Nov-85	07-Mar-91	111.4	
35X PE-00205	615	17-Dec-85	07-Mar-91	124.3	
35X PE-00206	615	01-Nov-85	07-Mar-91	109.7	
35X PE-00207	673	03-Nov-85	07-Mar-91	-3.5	
35X PE-00208	673	03-Nov-85	07-Mar-91	7.5	
35X PE-00209	673	03-Nov-85	07-Mar-91	-3.2	
35X PE-00210	721	03-Nov-85	07-Mar-91	110.7	
35X PE-00211	721	03-Nov-85	07-Mar-91	104.7	
35X PE-00212	721	03-Nov-85	07-Mar-91	108.9	
35X PE-00213	768	03-Nov-85	07-Mar-91	25.1	
35X PE-00214	768	03-Nov-85	07-Mar-91	9.1	
35X PE-00215	768	03-Nov-85	07-Mar-91	4.4	
35X PE-00216	850	03-Nov-85	07-Mar-91	122.3	
35X PE-00217	850	03-Nov-85	07-Mar-91	116.1	
35X PE-00218	850	03-Nov-85	07-Mar-91	104.7	
35X PE-00219	887	03-Nov-85	07-Mar-91	51.4	
35X PE-00220	887	03-Nov-85	07-Mar-91	34.1	
35X PE-00221	887	03-Nov-85	07-Mar-91	25.5	

SHAFT KEY EARTH PRESSURE CELLS

Fieldtag	Level (Feet)	Date of Initial Reading	Date of Last Reading	Last Pressure Reading (psi)	Comments
35X WE-00201	874	20-Nov-84	07-Mar-91	45.9	
35X WE-00202	874	20-Nov-84	07-Mar-91	49.3	

TABLE 2-3
Exhaust Shaft
Instrument Summary

EXHAUST SHAFT

LEGEND

SAND AND SANDSTONE		HALITE	
MUDSTONE AND SILTSTONE		DOLOMITE	
ANHYDRITE		CONCRETE	

NOTES

1. ALL ROCKS BELOW DOCKUM GROUP ARE PERMIAN IN AGE
2. ALL LEVELS ARE MEASURED FROM COLLAR AT 3409 FEET MSL
3. MB=MARKER BED

GG650.2

GG655

FIGURE 2-43
Exhaust Shaft Instrumentation
(Without Shaft Key)

VOLUME II

GG655

PRESSURE CELL ORIENTATION
AT ELEV. 2535 FT (LEVEL 874 FT)

TOP OF KEY
ELEV. 2565 (LEVEL 844)
ELEV. 2559 (LEVEL 850)
ELEV. 2535 (LEVEL 874)
ELEV. 2522 (LEVEL 887)
ELEV. 2502 (LEVEL 907)

SHAFT KEY PROFILE

NOT TO SCALE

LEGEND

- WE PRESSURE CELL
- PE PIEZOMETER

NOTES

1. THE TERM "LEVEL" IS AN APPROXIMATE DEPTH FROM THE SHAFT COLLAR AT ELEVATION 3409 FT MSL.
2. PRESSURE CELLS LOCATED AT CONCRETE-ROCK INTERFACE AND ORIENTED AT AZIMUTHS OF 0°, 90°, 180°, AND 270°.
3. PIEZOMETERS ARE ORIENTED AT AZIMUTHS OF 75°, 195°, AND 315°.

FIGURE 2-44
Exhaust Shaft Key Instrumentation

NOTES:

1. EXCAVATION DATE: DECEMBER 1984.

FIGURE 2-46
EXTENSOMETER 35X GE-00202
EXHAUST SHAFT-LEVEL 1078' /11454

NOTES:
 1. EXCAVATION DATE: DECEMBER 1984.

FIGURE 2-48
 EXTENSOMETER 35X GE-00204
 EXHAUST SHAFT T-LEVEL 1574' / 1175E

NOTES:
 1. EXCAVATION DATE: DECEMBER 1984.

FIGURE 2-50
 EXTENSOMETER 35X GE-00206
 EXHAUST SHAFT-LEVEL 1574' / S15W

NOTES:
 1. EXCAVATION DATE: OCTOBER 1984.

FIGURE 2-54
 PIEZOMETERS
 EXHAUST SHAFT-LEVEL 544'
 BASE OF DEVEY LAKE PEDRENS

FIGURE 2-55
PIEZOMETERS
EXHAUST SHAFT-LEVEL 615'
MAGENTA DOLOMITE MEMBER

NOTES:
1. EXCAVATION DATE: OCTOBER 1984.

FIGURE 2-56
PIEZOMETERS
EXHAUST SHAFT T-LEVEL 673'
TAMAPIISK MEMBER

NOTES:
1. EXCAVATION DATE: OCTOBER 1984.

NOTES:
1. EXCAVATION DATE: OCTOBER 1984.

FIGURE 2-57
PIEZOMETERS
EXHAUST SHAFT-LEVEL 721'
CULLEBA LIDOLITE MEMBER

NOTES:
 1. EXCAVATION DATE: NOVEMBER 1984.

FIGURE 2-58
 PIEZOMETERS
 EXHAUST SHAFT-LEVEL 758'
 UNTHAWED LOWER MEMBER

NOTES:
1. EXCAVATION DATE: NOVEMBER 1984.

FIGURE 2-59
PIEZOMETERS
EXHAUST SHAFT-LEVEL 850'
PUSTLER-SALADO CONTACT

NOTES:
1. EXCAVATION DATE: NOVEMBER 1984.

FIGURE 2-60
PIEZOMETERS
EXHAUST SHAFT T-LEVEL 887'
BELOW LOWER CHEMICAL SEAL

NOTES:

1. EXCAVATION DATE: NOVEMBER 1984.
2. 35X WE-00203 & 35X WE-00204 WERE LAST READ APRIL 23, 1987.

FIGURE 2-61
EARTH PRESSURE CELLS
EXHAUST SHAFT-LEVEL 874'

2.4 REFERENCES

Holt, R.M. and Powers, D.W., 1984, Geotechnical Activities in the Waste Handling Shaft, U.S. Department of Energy Report WSTD-TME 038, Waste Isolation Pilot Plant, Carlsbad, New Mexico.

Holt, R.M. and Powers D.W., 1986, Geotechnical Activities in Exhaust Shaft, DOE-WIPP-86-008, Waste Isolation Pilot Plant, Carlsbad, New Mexico.

Cementation West, Inc., 1983, WIPP Shaft and Station Survey, Waste Isolation Pilot Plant, Carlsbad, New Mexico.

U.S. Department of Energy, 1983, Quarterly Geotechnical Field Data Report, WIPP-DOE-163, Waste Isolation Pilot Plant, Carlsbad, New Mexico

U.S. Department. of Energy, 1983, Results of Site Validation, Waste Isolation Pilot Plant (WIPP) Project, Southeastern New Mexico: U.S. Department of Energy Report TME 3177, Waste Isolation Pilot Plant, Carlsbad, New Mexico.

3.0 SHAFT STATIONS

3.1 SALT HANDLING SHAFT STATION

3.1.1 INTRODUCTION

The Salt Handling Shaft Station, Figure 3-1, was excavated first by drilling and blasting, then by continuous miner to approximately 35 feet wide, 17 feet high, and 130 feet long. The shaft extends approximately 140 feet below the facility level to accommodate the salt handling equipment and act as a sump to collect any water that might enter the shaft. A generalized cross section of the station is shown in Figure 3-2.

3.1.2 MODIFICATIONS TO EXCAVATIONS

Modifications made during this reporting period include routine trimming and maintenance activities.

3.1.3 INSTRUMENTATION

Geomechanical instrumentation was installed in the Salt Handling Shaft station from June 1982 through February 1983, with subsequent reinstallation of extensometers and convergence points as necessary. No new instrument arrays were installed in the Salt Handling Shaft station during this reporting period. Figure 3-3 details the instrument locations in the Salt Handling Shaft station before the roof was removed. Most of the instruments were either removed, or readings were suspended prior to the mining of the back. Figure 3-4 details the instrument locations after the roof was cut down. Table 3-1 presents a summary of the Salt Handling Shaft station instruments. Graphic presentation of the instrumentation data is included in Figures 3-5 through 3-13.

EXTENSOMETERS

No new extensometers were installed during this reporting period. Currently there are two functioning extensometers in the Salt Handling Shaft station which are located in the roof at S30 and S65.

CONVERGENCE POINTS

During this reporting period, convergence points were reinstalled at N39 which were mined out during the last reporting period by trimming activities in the area. No new convergence point arrays were installed during this reporting period. Currently four convergence point arrays are monitored at N39, S18, S30, S65, and W12.

ROCKBOLT LOAD CELLS

The six rockbolt load cells installed in the Salt Handling Shaft station were functional since their installation without additional maintenance or repairs, until they were removed in August 1987, prior to taking down the back. Currently, there are no rockbolt load cells in the Salt Handling Shaft station.

Salt Handling Shaft Station Instrument Summary

EXTENSOMETERS

Fieldtag	Location	Date of Initial Reading	Date of Last Reading	Collar Displacement Relative to Deepest Anchor (Inches)	Comments
51X-GE-00227	SH SHAFT-N35/ROOF	05-Oct-82	30-Jan-89	7.695	DISCONNECTED
51X-GE-00283	SH SHAFT-S30/ROOF	20-Sep-88	12-Mar-92	2.160	INSTRUMENT MINED OUT
51X-GE-00284	SH SHAFT-S65/ROOF	09-Sep-88	12-Mar-92	1.665	

CONVERGENCE POINTS

Fieldtag	Location	Date of Initial Reading	Date of Last Reading	Change From Initial (Inches)	Comments
E0-N39 A-C	SH SHAFT-N39	16-Nov-82	28-Jan-85	7.261	MINED OUT-REPLACED BY E0-N39-2 A-C
E0-N39 B-D	"	16-Nov-82	15-Nov-90	12.533	MINED OUT-REPLACED BY E0-N39-2 B-D
E0-N39-2 A-C	"	27-Feb-85	02-Aug-91	12.396	MINED OUT-REPLACED BY E0-N39-3 A-C
E0-N39-2 B-D	"	07-Nov-91	19-Jun-92	0.684	
E0-N39-3 A-C	"	07-Nov-91	19-Jun-92	1.064	
E0-W12 A-C	SH SHAFT-W12	03-Feb-83	26-Mar-84	1.498	MINED OUT-REPLACED BY E0-W12-2 A-C
E0-W12-2 A-C	"	23-Apr-84	28-Jan-85	0.931	MINED OUT-REPLACED BY E0-W12-3 A-C
E0-W12-3 A-C	"	27-Feb-85	31-Aug-87	2.701	MINED OUT-REPLACED BY E0-W12-4 A-C
E0-W12-4 A-C	"	13-Sep-88	24-Jun-92	2.924	
E0-S18 A-E	SH SHAFT-S18	03-Feb-83	23-May-83	1.354	MINED OUT-REPLACED BY E0-S18-2 A-E
E0-S18 B-D	"	03-Feb-83	28-Jan-85	7.940	MINED OUT-REPLACED BY E0-S18-2 B-D
E0-S18 C-G	"	03-Feb-83	22-Apr-85	4.575	MINED OUT-REPLACED BY E0-S18-2 C-G
E0-S18 F-H	"	03-Feb-83	28-Jan-85	3.825	MINED OUT-REPLACED BY E0-S18-2 F-H
E0-S18-2 A-E	"	17-Aug-83	31-Aug-87	6.993	MINED OUT-REPLACED BY E0-S18-3 A-E
E0-S18-2 B-D	"	27-Feb-85	31-Aug-87	6.346	MINED OUT-REPLACED BY E0-S18-3 B-D
E0-S18-2 C-G	"	17-Aug-83	28-Jan-85	4.964	MINED OUT-REPLACED BY E0-S18-3 C-G
E0-S18-2 F-H	"	27-Feb-85	31-Aug-87	3.617	MINED OUT-REPLACED BY E0-S18-3 F-G
E0-S18-3 A-E	"	27-Feb-85	22-Apr-85	0.394	MINED OUT-REPLACED BY E0-S18-4 A-E
E0-S18-3 B-D	"	12-Sep-88	24-Jun-92	6.316	
E0-S18-3 C-G	"	12-Sep-88	15-Nov-90	3.187	
E0-S18-3 F-H	"	12-Sep-88	24-Jun-92	4.072	
E0-S18-4 A-E	"	27-Oct-86	31-Aug-87	1.522	MINED OUT-REPLACED BY E0-S18-5 A-E
E0-S18-5 A-E	"	12-Sep-88	24-Jun-92	5.844	
E0-S30 A-C	SH SHAFT-S30	31-Dec-82	28-Jan-85	8.706	MINED OUT-REPLACED BY E0-S30-2 A-C
E0-S30 B-D	"	02-Jul-82	15-Nov-90	17.379	
E0-S30-2 A-C	"	26-Feb-85	31-Aug-87	6.793	MINED OUT-REPLACED BY E0-S30-3 A-C
E0-S30-3 A-C	"	12-Sep-88	22-Jan-92	5.766	MINED OUT-REPLACED BY E0-S30-4 A-C
E0-S30-4 A-C	"	25-Mar-92	24-Jun-92	0.461	
E0-S65 A-C	SH SHAFT-S65	03-Feb-83	31-Aug-87	18.231	MINED OUT-REPLACED BY E0-S65-2 A-C
E0-S65-2 A-C	"	08-Jun-89	24-Jun-92	4.076	

TABLE 3-1
Salt Handling Shaft Station
Instrument Summary

FIGURE 3-1
Reference Location
Shaft Stations

VOLUME II

WIP14-2

FIGURE 3-2
Generalized Salt Handling Shaft
Station Stratigraphy

VOLUME II

GG621.2

FIGURE 3-3
Salt Handling Shaft Station Instrumentation
Before Back Excavation

VOLUME II

GG656.1

VOLUME II

FIGURE 3-4
Salt Handling Shaft Station Instrumentation
After Back Excavation

NOTES:
 1. EXCAVATION DATE: MAY 1982.
 2. INSTRUMENT DISCONNECTED IN 02/89.

NOTES:
1. EXCAVATION DATE: MAY 18, 1982.

FIGURE 3-9
CONVERGENCE POINTS
SALT HANDLING SHAFT STATION W12
ROOF-TO-FLOOR

NOTES:
1. EXCAVATION DATE: MAY 18, 1982.

FIGURE 3-11
CONVERGENCE POINTS
SALT HANDLING SHAFT STATION-S18
ALL CHORDS

NOTES:
1. EXCAVATION DATE: MAY 18, 1982.

3.2 WASTE SHAFT STATION

3.2.1 INTRODUCTION

The Waste Shaft station, Figure 3-1, was initially excavated with a continuous miner as a ventilation connection to a six foot diameter exhaust shaft. In 1984, the shaft station was enlarged to a height of 15 to 19 feet high, 20 to 30 feet wide, and approximately 150 feet long. In 1987, the station was trimmed, and concrete was installed on the floor. In February 1991, a portion of the concrete slab was removed. The portion of the concrete slab removed was approximately 53 feet long, 23 feet wide and 18 inches thick. A generalized cross section of the station is shown in Figure 3-14.

3.2.2 MODIFICATIONS TO EXCAVATIONS

During this reporting period, a yielding cable support system was installed on the east brow of the waste shaft.

3.2.3 INSTRUMENTATION

Figure 3-15 details the instrument locations in the Waste Shaft station before enlargement of the station, and Figure 3-16 details the locations after enlargement. Table 3-2 is a summary of the instrument data. Graphic presentation of the instrumentation data is included in Figures 3-17 through 3-25.

EXTENSOMETERS

No new extensometers were installed during this reporting period. Currently there are three functioning extensometers in the Waste Shaft Station which are located in the roof at E35, E140, and W30.

CONVERGENCE POINTS

No new convergence points were installed in the Waste Shaft station during this reporting period. Currently, convergence points are monitored at E30 and E90.

ROCKBOLT LOAD CELLS

Twelve rockbolt load cells were installed in the brow of the waste shaft. The rockbolt load cells will be used to monitor the load on the rockbolts installed in the brow as part of the cable support system and will also aid in determining when detensioning of the cables is required. Data for these load cells are not included in this report.

Six rockbolt load cells were installed in February 1988, after trimming in the station was completed. Monitoring of the six rockbolt load cells continue.

Waste Shaft Station Instrument Summary

EXTENSOMETERS

Fieldtag	Location	Date of Initial Reading	Date of Last Reading	Collar Displacement Relative to Deepest Anchor (Inches)	Comments
51X-GE-00266	WASTE SHAFT-W30/ROOF	24-Oct-84	30-Apr-92	3.891	
51X-GE-00277	S400 DRIFT-E35/ROOF	29-Nov-88	25-Jun-92	2.779	
51X-GE-00278	S400 DRIFT-E90/ROOF	29-Nov-88	28-Apr-89	0.215	
51X-GE-00279	S400 DRIFT-E140/ROOF	29-Nov-88	25-Jun-92	2.638	
51X-GE-00280	S400 DRIFT-E35/FLOOR	29-Nov-88	28-Aug-89	0.628	DISCONNECTED FOR CONCRETE REMOVAL
51X-GE-00281	S400 DRIFT-E90/FLOOR	29-Nov-88	05-Jun-89	0.404	
51X-GE-00282	S400 DRIFT-E140/FLOOR	29-Nov-88	22-May-90	1.383	

CONVERGENCE POINTS

Fieldtag	Location	Date of Initial Reading	Date of Last Reading	Change From Initial (Inches)	Comments
S400-E30 J-F	WASTE SHAFT-E30	18-Jan-88	26-Jan-88	0.014	MINED OUT-REPLACED BY S400-E30-2:J-F
S400-E30 C-H	"	18-Jan-88	08-Feb-88	0.073	MINED OUT-REPLACED BY S400-E30-2:C-H
S400-E30-2 J-F	"	20-Feb-88	13-Nov-90	6.581	
S400-E30-2 C-H	"	20-Feb-88	10-Jun-92	5.303	
S400-E30-2 A-E	"	16-Mar-88	13-Nov-90	7.241	
S400-E30-2 B-D	"	16-Mar-88	06-Dec-88	0.298	
S400-E30-2 I-G	"	16-Mar-88	10-Jun-92	4.566	
S400-E90 A-E	WASTE SHAFT-E90	20-Jan-88	25-Jan-88	0.020	MINED OUT-REPLACED BY S400-E90-2:A-E
S400-E90 C-G	"	18-Jan-88	08-Feb-88	0.191	MINED OUT-REPLACED BY S400-E90-2:C-G
S400-E90 B-D	"	09-Mar-88	10-Jun-92	6.863	
S400-E90 H-F	"	09-Mar-88	10-Jun-92	8.637	
S400-E90-2 A-E	"	20-Feb-88	10-Jun-92	9.583	
S400-E90-2 C-G	"	20-Feb-88	10-Jun-92	6.126	

ROCKBOLT LOAD CELLS

Fieldtag	Location	Date of Initial Reading	Date of Last Reading	Load (kips)	Comments
51X-WG-00206	WASTE SHAFT-E41 NORTH	19-Feb-88	10-Jun-92	2.442	
51X-WG-00209	WASTE SHAFT-E41 CENTER	19-Feb-88	10-Jun-92	11.028	
51X-WG-00210	WASTE SHAFT-E41 SOUTH	19-Feb-88	10-Jun-92	9.030	
51X-WG-00211	WASTE SHAFT-E73	19-Feb-88	10-Jun-92	10.536	
51X-WG-00212	WASTE SHAFT-E122	19-Feb-88	10-Jun-92	13.358	
51X-WG-00213	S400/E140 INTERSECTION	19-Feb-88	10-Jun-92	16.367	

TABLE 3-2
Waste Shaft Station
Instrument Summary

FIGURE 3-14
Generalized Waste Shaft
Station Stratigraphy

VOLUME II

GG657.1

FIGURE 3-15
Waste Shaft
Station Instrumentation
Before Trimming

VOLUME II

FIGURE 3-16
Waste Shaft Station Instrumentation
After Trimming

FIGURE 3-17
 EXTENSOMETER 51X GE-00268
 WASTE SHAFT STATION-W30
 ROOF

NOTES:
 1. EXCAVATION DATE: NOVEMBER 6, 1982.

NOTES:
 1. EXCAVATION DATE: NOVEMBER 6, 1982.

FIGURE 3-18
 EXTENSOMETER 51X GE-00277
 WASTE SHAFT STATION-E35
 ROOF

NOTES:
 1. EXCAVATION DATE: NOVEMBER 20, 1982.
 2. DISCONNECTED IN APRIL 1989.

FIGURE 3-19
 EXTENSOMETER 51X GE-00278
 WASTE SHAFT STATION-E90
 POOF

FIGURE 3-21
 EXTENSOMETER 51X GE-00280
 WASTE SHAFT STATION-E35
 FLOOR

NOTES:
 1. EXCAVATION DATE: NOVEMBER 6, 1982

NOTES:
 1. EXCAVATION DATE: NOVEMBER 20, 1982.

FIGURE 3-22
 EXTENSOMETER 51X GE-00281
 WASTE SHAFT STATION-E90
 FLOOR

NOTES:
 1. EXCAVATION DATE: NOVEMBER 18, 1982.

FIGURE 3-23
 EXTENSOMETER 51X GE-00282
 WASTE SHAFT STATION-E140
 FLOOR

NOTES:
1. EXCAVATION DATE: NOVEMBER 20, 1982.

FIGURE 3-24
CONVERGENCE POINTS
WASTE SHAFT STATION-E30
ALL CHORDS

FIGURE 3-25
CONVERGENCE POINTS
WASTE SHAFT STATION-E90
ALL CHORDS

NOTES:
1. EXCAVATION DATE: NOVEMBER 20, 1982.

4.0 ACCESS DRIFTS

4.1 INTRODUCTION

WIPP access drifts, shown in Figure 4-1, were essentially completed before this reporting period. Pilot drifts were excavated beginning in October 1982.

4.2 MODIFICATIONS TO EXCAVATIONS

Modifications to excavations during this period include the completion of the widening of E140 drift north. During this reporting period mining started in the E300 drift north. Floor milling and rib scaling at various locations throughout the underground was also performed.

In E140 drift between S1300 and S1600 intersections, a large portion of the back along the west rib was trimmed and a roof support system consisting of wire mesh and ten foot rockbolts was installed.

In addition, during this period the old conference room located at N460 was mined out and bulkheads were installed to provide access from E0 to E140 drift via N460.

4.3 INSTRUMENTATION

Geotechnical instrumentation was installed in the access drifts beginning in October 1982 and has closely followed excavation. Figures 1-1 through 1-4 show the locations of borehole extensometers and radial convergence points in the drifts. Table 4-1 is a summary of the instrumentation. Data is presented in Figures 4-2 through 4-154.

EXTENSOMETERS

No new extensometers were installed during this reporting period.

CONVERGENCE POINTS

At the end of the last reporting period, convergence points were installed at approximately sixty locations throughout the access drifts. Because the instruments were installed at the end of the last reporting period, there was insufficient data to be reported but, is now included in this report. The new areas of installations include intersections and a minimum of one convergence point array between intersections.

New areas of installation during this reporting period include two arrays of convergence points in E140 drifts between S-1300 and S-1600 intersections to monitor convergence in area of the roof support system.

JOINT METERS

Eight joint meters were installed in the access drifts during this reporting period. Four meters were installed on the roof at the E0-N150 overcast and the other four were installed at the S1950 overcast.

Access Drifts Instrument Summary

EXTENSOMETERS		Date of Initial Reading	Date of Last Reading	Collar Displacement Relative to Deepest Anchor (Inches)	Comments
Fieldtag	Location				
51X GE-00222	E140 DRIFT-N1266/E RIB	28-Feb-83	02-Nov-89	2.593	MINED OUT
51X GE-00285	E140 DRIFT-N1266/E RIB	25-May-90	29-Apr-92	1.785	
51X GE-00223	E0 DRIFT-N626/W RIB	05-Feb-83	31-May-89	3.596	MINED OUT
51X GE-00224	E0 DRIFT-N626/E RIB	04-Feb-83	02-Apr-90	4.423	DAMAGED DURING SCALING ACTIVITIES
51X GE-00225	E140 DRIFT-N1266/W RIB	28-Feb-83	02-Nov-89	-0.750	MINED OUT
51X GE-00287	E140 DRIFT-N1266/W RIB	24-May-90	29-Apr-92	1.212	
51X GE-00229	E140 DRIFT-N240/W RIB	22-Feb-83	10-Oct-89	2.820	MINED OUT
51X GE-00233	E0 DRIFT-N1266/ROOF	13-Feb-83	30-Apr-92	10.903	
51X GE-00234	E0 DRIFT-N626/ROOF	05-Feb-83	30-Apr-92	10.373	
51X GE-00235	E140 DRIFT-N624/ROOF	24-Feb-83	02-Nov-89	0.846	MINED OUT
51X GE-00236	E140 DRIFT-N1266/ROOF	28-Feb-83	02-Nov-89	4.011	MINED OUT
51X GE-00286	E140 DRIFT-N1266/ROOF	30-May-90	29-Apr-92	2.597	
51X GE-00241	N1100 DRIFT-TR 2/ROOF	11-Mar-83	01-May-92	7.420	
51X GE-00242	N1100 DRIFT-TR 2/FLOOR	20-Apr-83	28-Apr-89	3.862	NO READING
51X GE-00243	E0 DRIFT-N1100/ROOF	10-Feb-83	30-Apr-92	9.850	EQUIP. MALFUNCTION (ANCHOR C FAILURE)
51X GE-00249	E140 DRIFT-S3080/ROOF	24-Jan-83	30-May-89	4.033	NO READING (NOT ACCESSIBLE)
51X GE-00250	E140 DRIFT-S3045/FLOOR	17-Feb-83	30-May-89	2.067	NO READING (NOT ACCESSIBLE)
51X GE-00255	E140 DRIFT-N240/ROOF	17-Dec-82	02-Nov-89	4.011	MINED OUT
51X GE-00259	N1420 DRIFT-TR 1/ROOF	15-Mar-84	01-May-92	9.352	
51X GE-00260	N1420 DRIFT-TR 1/FLOOR	14-Mar-84	01-May-92	5.535	
51X GE-00261	N1420 DRIFT-TR 2/ROOF	14-Mar-84	01-May-92	8.368	
51X GE-00262	N1420 DRIFT-TR 2/FLOOR	13-Mar-84	12-Mar-92	6.687	
51X GE-00263	E300 DRIFT-S400/ROOF	11-Sep-84	07-Mar-89	2.376	NO READING
51X GE-00264	E300 DRIFT-S1000/ROOF	07-Sep-84	05-Nov-90	2.851	
51X GE-00265	S700 DRIFT-E220/ROOF	06-Sep-84	29-Apr-92	5.128	
51X GE-00272	E140 DRIFT-S1950/ROOF	29-Nov-88	12-May-92	3.071	
51X GE-00273	E140 DRIFT-S1800/ROOF	29-Nov-88	25-Jun-92	3.277	
51X GE-00274	E140 DRIFT-S1300/ROOF	29-Nov-88	25-Jun-92	2.613	
51X GE-00275	E140 DRIFT-S1000/ROOF	29-Nov-88	28-Aug-89	0.668	NO READING
51X GE-00276	E140 DRIFT-S700/ROOF	29-Nov-88	22-May-90	0.879	
CONVERGENCE POINTS		Date of Initial Reading	Date of Last Reading	Change From Initial (Inches)	Comments
Fieldtag	Location				
W170-S2180 A-C	W170 DRIFT-S2180	23-May-91	23-Jun-92	0.947	
W170-S2060 A-C	W170 DRIFT-S2060	23-May-91	23-Jun-92	0.947	
W170-S2060 B-D	"	23-May-91	23-Jun-92	0.947	
W170-S1950 A-C	W170 DRIFT-S1950	23-May-91	23-Jun-92	0.876	
W170-S1779 A-C	W170 DRIFT-S1779	23-May-91	23-Jun-92	1.086	
W170-S1779 B-D	"	23-May-91	23-Jun-92	0.919	
W170-S1600 A-C	W170 DRIFT-S1600	23-May-91	23-Jun-92	0.922	
W170-S1445 A-C	W170 DRIFT-S1445	23-May-91	23-Jun-92	0.802	
W170-S1445 B-D	"	23-May-91	23-Jun-92	0.764	
W170-S1300 A-C	W170 DRIFT-S1300	23-May-91	23-Aug-91	0.440	MINED OUT-REPLACED BY W170-S1300-2 A-C
W170-S1300-2 A-C	"	05-Nov-91	23-Jun-92	0.745	
W170-S1150 A-E	W170 DRIFT-S1150	23-Aug-84	23-Jun-92	8.741	
W170-S1150 B-D	"	23-Aug-84	23-Jun-92	6.238	
W170-S1150 C-G	"	23-Aug-84	23-Jun-92	9.171	
W170-S1150 H-F	"	12-Sep-84	23-Jun-92	5.325	
W170-S1000 A-C	W170 DRIFT-S1000	21-Aug-84	23-Jun-92	10.346	
W170-S850 A-E	W170 DRIFT-S850	20-Aug-84	27-Aug-84	0.278	MINED OUT-REPLACED BY W170-S850-2 A-E
W170-S850 B-D	"	20-Aug-84	27-Aug-84	0.207	MINED OUT-REPLACED BY W170-S850-2 B-D
W170-S850 C-G	"	20-Aug-84	21-Aug-84	0.060	MINED OUT-REPLACED BY W170-S850-2 C-G
W170-S850 H-F	"	12-Sep-84	12-Sep-84	0.000	MINED OUT-REPLACED BY W170-S850-2 H-F
W170-S850-2 A-E	"	27-Aug-84	29-Oct-91	8.880	MINED OUT-REPLACED BY W170-S850-3 A-E
W170-S850-2 B-D	"	27-Aug-84	29-Oct-91	4.710	MINED OUT-REPLACED BY W170-S850-3 B-D
W170-S850-2 C-G	"	26-Aug-84	23-Jun-92	8.198	
W170-S850-2 H-F	"	12-Sep-84	29-Oct-91	4.622	MINED OUT-REPLACED BY W170-S850-3 H-F
W170-S850-3 A-E	"	14-Feb-92	23-Jun-92	0.352	
W170-S850-3 B-D	"	14-Feb-92	23-Jun-92	0.194	

*Insufficient data - data not used

TABLE 4-1
Access Drifts
Instrument Summary
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Access Drifts Instrument Summary

CONVERGENCE POINTS		Date of Initial Reading	Date of Last Reading	Change From Initial (Inches)	Comments
Fieldtag	Location				
W170-S850-3 H-F	W170 DRIFT-S850	14-Feb-92	23-Jun-92	0.183	
W170-S700 A-C	W170-S700 DRIFTS INTERSEC.	16-Aug-84	23-Jun-92	8.681	
W170-S560 A-C	W170 DRIFT-S560	15-May-91	29-Oct-91	0.346	MINED OUT-REPLACED BY W170-S560-2 A-C
W170-S560 B-D	"	15-May-91	23-Jun-92	0.838	
W170-S560-2 A-C	"	14-Feb-92	23-Jun-92	0.256	
W170-S400 A-C	W170 DRIFT-S400	15-May-91	23-Jun-92	0.895	
W170-S232 A-C	W170 DRIFT-S232	23-May-91	23-Jun-92	0.663	
W170-S232 B-D	"	23-May-91	23-Jun-92	0.721	
W170-S5 A-C	W170 DRIFT-S5	28-Jul-87	23-Jun-92	3.539	
W170-S5 B-D	"	28-Jul-87	23-Jun-92	3.972	
W170-S90 A-C	W170 DRIFT-S90	17-May-91	23-Jun-92	0.825	
W170-N150 A-C	W170 DRIFT-N150	17-May-91	23-Jun-92	0.632	
N300-W170 A-C	N300 DRIFT-W170	17-May-91	22-Jun-92	2.011	
N300-W170 B-D	"	17-May-91	22-Jun-92	1.383	
W30-S120 A-C	W30 DRIFT-S120	29-Jul-87	23-Jun-92	5.307	
W30-S400 A-C	W30 DRIFT-S400	07-Jun-89	23-Jun-92	3.517	
CORE-W10 A-C	CORE STORAGE ROOM	08-Jun-89	24-Jun-92	5.179	
CORE-W101 A-C	"	08-Jun-89	24-Jun-92	5.407	
CORE-W117 A-C	"	08-Jun-89	24-Jun-92	5.063	
CORE-W133 A-C	"	07-Jun-89	24-Jun-92	4.419	
CORE-W20 A-C	"	08-Jun-89	24-Jun-92	4.248	
CORE-W30 A-C	"	08-Jun-89	24-Jun-92	4.459	
CORE-W51 A-C	"	08-Jun-89	24-Jun-92	4.995	
CORE-W62 A-C	"	08-Jun-89	24-Jun-92	5.211	
CORE-W73 A-C	"	08-Jun-89	24-Jun-92	5.231	
W30-S2180 A-C	W30 DRIFT-S2180	23-May-91	23-Jun-92	1.350	
W30-S2067 A-C	W30 DRIFT-S2067	23-May-91	23-Jun-92	0.838	
W30-S2067 B-D	"	23-May-91	23-Jun-92	0.984	
W30-S1950 A-C	W30 DRIFT-S1950	23-May-91	23-Jun-92	1.150	
W30-S1775 A-C	W30 DRIFT-S1775	23-May-91	23-Jun-92	0.701	
W30-S1775 B-D	"	23-May-91	23-Jun-92	0.834	
W30-S1600 A-C	W30 DRIFT-S1600	23-May-91	23-Jun-92	1.220	
W30-S1453 A-C	W30 DRIFT-S1453	23-May-91	23-Jun-92	0.923	
W30-S1453 B-D	"	23-May-91	23-Jun-92	0.973	
W30-S1300 A-C	W30 DRIFT-S1300	23-May-91	23-Jun-92	1.374	
W30-S1000 A-C	W30-S1000 DRIFTS INTERSEC	21-Aug-84	05-Jun-90	12.588	MINED OUT-REPLACED BY W30-S1000-2 A-C
W30-S1000-2 A-C	"	03-Dec-90	23-Jun-92	2.125	
W30-S850 A-E	W30 DRIFT-S850	17-Aug-84	16-Jul-90	6.753	MINED OUT-REPLACED BY W30-S850-2 A-E
W30-S850 B-D	"	17-Aug-84	05-Jun-90	4.582	
W30-S850 C-G	"	17-Aug-84	29-Jun-92	8.799	MINED OUT-REPLACED BY W30-S850-2 B-D
W30-S850 H-F	"	24-Aug-84	29-Jun-92	5.856	
W30-S850-2 A-E	"	03-Dec-90	29-Jun-92	1.162	
W30-S850-2 B-D	"	03-Dec-90	29-Jun-92	0.794	
W30-S700 A-C	W30-S700 DRIFTS INTERSEC	15-Aug-84	23-Jun-92	13.435	
W30-S500 A-C	W30 DRIFT-S500	08-Aug-84	23-Jun-92	10.099	
W30-S500 B-D	"	08-Aug-84	23-Jun-92	9.458	
W30-S250 A-C	W30 DRIFT-S250	16-Nov-82	14-Jan-84	2.682	MINED OUT-REPLACED BY W30-S250-2 A-C
W30-S250 B-D	"	05-Nov-82	14-Jan-84	2.948	
W30-S250-2 A-C	"	28-Sep-84	30-Mar-90	6.830	MINED OUT-REPLACED BY W30-S250-3 A-C
W30-S250-2 B-D	"	28-Sep-84	06-Sep-90	6.921	
W30-S250-3 A-C	"	03-Dec-90	23-Jun-92	1.414	MINED OUT-REPLACED BY W30-S250-3 B-D
W30-S250-3 B-D	"	07-Nov-91	23-Jun-92	0.530	
E0-N80 A-C	E0 DRIFT-N80	18-Jun-91	19-Jun-92	1.604	
E0-N140 A-C	E0 DRIFT-N140	29-Oct-82	25-Jan-83	1.725	MINED OUT-REPLACED BY E0-N140-2 A-C
E0-N140-2 A-C	"	23-May-83	12-Dec-83	0.878	
E0-N140-3 A-C	"	24-Mar-84	02-Apr-84	0.042	MINED OUT-REPLACED BY E0-N140-4 A-C
E0-N140-4 A-C	"	17-May-91	19-Jun-92	1.292	
E0-N160 A-C	E0 DRIFT-N160	17-May-91	19-Jun-92	1.296	
E0-N200 A-C	E0 DRIFT-N200	17-May-91	19-Jun-92	1.748	
E0-N290 A-C	E0 DRIFT-N290	23-May-83	18-Nov-83	1.253	MINED OUT-REPLACED BY E0-N290-2 A-C

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Access Drifts
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Access Drifts Instrument Summary

CONVERGENCE POINTS		Date of Initial Reading	Date of Last Reading	Change From Initial (Inches)	Comments
Fieldtag	Location				
E0-N290-2 A-C	E0 DRIFT-N290	22-Nov-83	07-Jan-85	3.067	MINED OUT-REPLACED BY E0-N290-3 A-C
E0-N290-3 A-C	"	22-Feb-85	19-Jun-92	14.910	
E0-N460 A-C	E0-N460 DRIFTS INTERSEC	20-Jun-91	19-Jun-92	2.430	
E0-N626 A-C	E0 DRIFT-N626	07-Feb-83	21-Nov-83	3.382	MINED OUT-REPLACED BY E0-N626-2 A-C
E0-N626 B-D	"	07-Feb-83	12-Dec-83	2.982	MINED OUT-REPLACED BY E0-N626-2 B-D
E0-N626-2 A-C	"	23-Nov-83	07-Jan-85	3.319	MINED OUT-REPLACED BY E0-N626-3 A-C
E0-N626-2 B-D	"	23-Nov-83	31-May-89	7.135	MINED OUT
E0-N626-3 A-C	"	22-Feb-85	19-Jun-92	14.543	
E0-N780 A-C	E0 DRIFT-N780	01-Aug-91	19-Jun-92	1.665	
E0-N940 A-C	E0 DRIFT-N940	09-Feb-83	12-Dec-83	4.085	MINED OUT-REPLACED BY E0-N940-2 A-C
E0-N940 B-D	"	09-Feb-83	16-Jan-84	3.649	MINED OUT-REPLACED BY E0-N940-2 B-D
E0-N940-2 A-C	"	26-Dec-83	07-Jan-85	3.249	MINED OUT-REPLACED BY E0-N940-3 A-C
E0-N940-2 B-D	"	26-Dec-83	11-Sep-90	159.512	MINED OUT-LAST READING ERRONEOUS
E0-N940-3 A-C	"	22-Feb-85	19-Jun-92	14.995	
E0-N1110 A-C	E0 DRIFT-N1110 INTERSEC	15-Feb-83	12-Dec-83	4.011	MINED OUT-REPLACED BY E0-N1110-2 A-C
E0-N1110-2 A-C	"	29-Dec-83	07-Jan-85	3.080	MINED OUT-REPLACED BY E0-N1110-3 A-C
E0-N1110-3 A-C	"	04-Mar-85	19-Jun-92	11.667	
E0-N1266 A-C	E0 DRIFT-N1266	23-May-83	12-Dec-83	1.562	MINED OUT-REPLACED BY E0-N1266-2 A-C
E0-N1266 B-D	"	14-Feb-83	23-Jan-84	3.818	MINED OUT-REPLACED BY E0-N1266-2 B-D
E0-N1266-2 A-C	"	03-Jan-84	07-Jan-85	3.130	MINED OUT-REPLACED BY E0-N1266-3 A-C
E0-N1266-2 B-D	"	03-Jan-84	07-Jan-85	2.291	MINED OUT-REPLACED BY E0-N1266-3 B-D
E0-N1266-3 A-C	"	16-Jan-85	19-Jun-92	13.192	
E0-N1266-3 B-D	"	16-Jan-85	04-Mar-92	8.148	MINED OUT-REPLACED BY E0-N1266-4 B-D
E0-N1266-4 B-D	"	01-May-92	19-Jun-92	0.150	
E140-S90 A-C	E140-S90 DRIFTS INTERSEC	19-Jun-91	19-Jun-91	0.000	MINED OUT-REPLACED BY E140-S90-2 A-C *
E140-S90-2 A-C	"	04-Nov-91	23-Jun-92	0.674	
E140-S262 A-C	E140 DRIFT-S262	19-Jun-91	23-Jun-92	1.550	
E140-S262 B-D	"	19-Jun-91	29-Apr-92	0.950	MINED OUT-REPLACED BY E140-S262-2 B-D
E140-S262-2 B-D	"	29-Jun-92			NEWLY INSTALLED
E140-S400 A-C	E140-S400 DRIFTS INTERSEC	26-Nov-83	21-Oct-83	1.936	MINED OUT-REPLACED BY E140-S400-2 A-C
E140-S400-2 A-C	"	16-Nov-83	09-Apr-84	0.801	MINED OUT-REPLACED BY E140-S400-3 A-C
E140-S400-3 A-C	"	05-Jun-84	26-Aug-85	4.402	MINED OUT-REPLACED BY E140-S400-4 A-C
E140-S400-4 A-C	"	16-Mar-88	14-Jun-88	0.412	MINED OUT-REPLACED BY E140-S400-5 A-C
E140-S400-5 A-C	"	06-Dec-88	10-Jun-92	8.410	
E140-S460 A-C	E140 DRIFT-S460	15-Jun-84	23-Nov-87	7.402	MINED OUT-REPLACED BY E140-S460-2 A-C
E140-S460 B-D	"	15-Jun-84	23-Nov-87	5.944	MINED OUT-REPLACED BY E140-S460-2 B-D
E140-S460-2 A-C	"	09-Mar-88	16-Mar-88	0.053	MINED OUT-REPLACED BY E140-S460-3 A-C
E140-S460-2 B-D	"	09-Mar-88	23-Jun-92	5.696	
E140-S460-3 A-C	"	06-Dec-88	23-Jun-92	7.426	
E140-S550 A-C	E140 DRIFT-S550	15-Dec-82	09-Apr-84	2.842	MINED OUT-REPLACED BY E140-S550-2 A-C
E140-S550 B-D	"	15-Dec-82	03-Jul-84	3.703	MINED OUT-REPLACED BY E140-S550-2 B-D
E140-S550-2 A-C	"	06-Jun-84	04-Aug-86	5.530	MINED OUT-REPLACED BY E140-S550-3 A-C
E140-S550-2 B-D	"	06-Jun-84	04-Aug-86	4.926	MINED OUT-REPLACED BY E140-S550-3 B-D
E140-S550-3 A-C	"	01-Mar-88	23-Jun-92	7.660	
E140-S550-3 B-D	"	01-Mar-88	16-Mar-88	0.013	MINED OUT-REPLACED BY E140-S550-4 B-D
E140-S550-4 B-D	"	16-Mar-88	23-Jun-92	5.995	
E140-S700 A-D	E140-S700 DRIFTS INTERSEC	27-Feb-88	15-Mar-88	0.108	MINED OUT-REPLACED BY E140-S700-2 B-D
E140-S700 B-C	"	27-Feb-88	31-Mar-88	0.132	MINED OUT-REPLACED BY E140-S700-2 B-C
E140-S700 E-F	"	27-Feb-88	15-Mar-88	0.050	MINED OUT-REPLACED BY E140-S700-2 E-F
E140-S700-2 A-D	"	06-Dec-88	23-Jun-92	5.061	
E140-S700-2 B-C	"	06-Dec-88	23-Jun-92	4.884	
E140-S700-2 E-F	"	06-Dec-88	23-Jun-92	3.508	
E140-S850 A-C	E140-S850	15-Dec-82	09-Apr-84	3.052	MINED OUT-REPLACED BY E140-S850-2 A-C
E140-S850 B-D	"	15-Dec-82	30-Jul-84	3.509	MINED OUT-REPLACED BY E140-S850-2 B-D
E140-S850-2 A-C	"	07-Jun-84	23-Nov-87	6.733	MINED OUT-REPLACED BY E140-S850-3 A-C
E140-S850-2 B-D	"	07-Jun-84	23-Nov-87	5.443	MINED OUT-REPLACED BY E140-S850-3 B-D
E140-S850-3 A-C	"	01-Mar-88	07-Mar-88	0.068	MINED OUT-REPLACED BY E140-S850-4 A-C
E140-S850-3 B-D	"	01-Mar-88	23-Jun-92	5.226	
E140-S850-4 A-C	"	16-Mar-88	13-Jun-88	0.715	MINED OUT-REPLACED BY E140-S850-5 A-C
E140-S850-5 A-C	"	06-Dec-88	23-Jun-92	6.353	
E140-S1000 A-C	E1400-S1000 DRIFT INTERSEC	01-Mar-88	23-Jun-92	7.299	

*Insufficient data - data not used

TABLE 4-1
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Access Drifts Instrument Summary

CONVERGENCE POINTS		Date of Initial Reading	Date of Last Reading	Change From Initial (inches)	Comments
Fieldtag	Location				
E140-S1150 A-C	E140 DRIFT-S1150	14-Jun-84	23-Nov-87	7.452	MINED OUT-REPLACED BY E140-S1150-2 A-C
E140-S1150 B-D	"	14-Jun-84	23-Nov-87	6.014	MINED OUT-REPLACED BY E140-S1150-2 B-D
E140-S1150-2 A-C	"	26-Dec-87	23-Jun-92	10.980	
E140-S1150-2 B-D	"	06-Jan-88	23-Jun-92	6.198	
E140-S1246 A-C	E140 DRIFT-S1246	29-Dec-82	08-Jun-84	3.194	MINED OUT-REPLACED BY E140-S1246-2 A-C
E140-S1246 B-D	"	15-Dec-82	30-Jul-84	5.131	MINED OUT-REPLACED BY E140-S1246-2 B-D
E140-S1246-2 A-C	"	11-Jun-84	23-Nov-87	8.204	MINED OUT-REPLACED BY E140-S1246-3 A-C
E140-S1246-2 B-D	"	11-Jun-84	23-Nov-87	6.371	MINED OUT-REPLACED BY E140-S1246-3 B-D
E140-S1246-3 A-C	"	01-Mar-88	23-Jun-92	9.078	
E140-S1246-3 B-D	"	01-Mar-88	23-Jun-92	5.739	
E140-S1300 A-C	E140-S1300 DRIFTS INTERSEC	01-Mar-88	23-Jun-92	7.666	
E140-S1375 A-E	E140 DRIFT-S1375	15-Apr-92	29-Jun-92	0.458	
E140-S1375 B-D	"	15-Apr-92	29-Jun-92	0.294	
E140-S1375 C-G	"	15-Apr-92	29-Jun-92	0.277	
E140-S1375 H-F	"	15-Apr-92	29-Jun-92	0.457	
E140-S1450 A-E	E140 DRIFT-S1450	12-Jan-83	05-Jun-84	2.983	MINED OUT-REPLACED BY E140-S1450-2 A-E
E140-S1450 C-G	"	12-Jan-83	30-Jul-84	3.229	MINED OUT-REPLACED BY E140-S1450-2 C-G
E140-S1450 H-F	"	09-Mar-88	29-Jun-92	4.210	
E140-S1450-2 A-E	"	18-Jun-84	23-Nov-87	8.368	MINED OUT-REPLACED BY E140-S1450-3 A-E
E140-S1450-2 C-G	"	18-Jun-84	23-Nov-87	6.372	MINED OUT-REPLACED BY E140-S1450-3 C-G
E140-S1450-2 B-D	"	16-Mar-88	29-Jun-92	4.348	
E140-S1450-3 A-E	"	01-Mar-88	13-Jun-88	0.887	MINED OUT-REPLACED BY E140-S1450-4 A-E
E140-S1450-3 C-G	"	01-Mar-88	18-Mar-91	4.794	MINED OUT-REPLACED BY E140-S1450-4 C-G
E140-S1450-4 A-E	"	13-Sep-88	29-Jun-92	10.301	
E140-S1450-4 C-G	"	10-Jun-91	29-Jun-92	1.361	
E140-S1525 A-E	E140 DRIFT-S1525	14-Apr-92	29-Jun-92	0.632	
E140-S1525 B-D	"	14-Apr-92	29-Jun-92	0.188	
E140-S1525 C-G	"	14-Apr-92	29-Jun-92	0.267	
E140-S1525 H-F	"	14-Apr-92	29-Jun-92	0.331	
E140-S1600 A-C	E140-S1600 DRIFTS INTERSEC	01-Mar-88	13-Jun-88	0.750	MINED OUT-REPLACED BY E140-S1600-2 A-C
E140-S1600-2 A-C	"	06-Dec-88	23-Jun-92	6.814	
E140-S1879 A-C	E140 DRIFT-S1879	02-Jan-83	26-Oct-85	6.061	MINED OUT-REPLACED BY E140-S1879-2 A-C
E140-S1879 B-D	"	31-Dec-82	26-Oct-85	4.429	MINED OUT-REPLACED BY E140-S1879-2 B-D
E140-S1879-2 A-C	"	06-Jan-88	23-Jun-92	13.184	
E140-S1879-2 B-D	"	06-Jan-88	23-Jun-92	7.016	
E140-S1950 A-C	E140-S1950 DRIFTS INTERSEC	01-Mar-88	13-Jun-88	1.449	MINED OUT-REPLACED BY E140-S1950-2 A-C
E140-S1950-2 A-C	"	06-Dec-88	23-Jun-92	6.919	
E140-S2180 A-C	E140 DRIFT-S2180	01-Aug-91	23-Jun-92	1.244	
E140-S2350 A-C	E140 DRIFT-S2350	17-Jan-83	31-May-89	8.882	NOT ACCESSIBLE
E140-S2350 B-D	"	17-Jan-83	31-May-89	6.891	NOT ACCESSIBLE
E140-S2350-RS	"	17-Jan-83	31-May-89	1.800	NOT ACCESSIBLE
E140-S2625 A-C	E140 DRIFT-S2625	17-Jan-83	30-May-89	8.499	NOT ACCESSIBLE
E140-S2625 B-D	"	17-Jan-83	30-May-89	6.701	NOT ACCESSIBLE
E140-S2625-RS	"	12-Jan-83	30-May-89	1.623	NOT ACCESSIBLE
E140-S2950 A-C	E140 DRIFT-S2950	29-Jan-83	30-May-89	8.137	NOT ACCESSIBLE
E140-S2950 B-D	"	29-Jan-83	30-May-89	6.380	NOT ACCESSIBLE
E140-S3250 A-C	E140 DRIFT-S3250	03-Feb-83	30-May-89	7.971	NOT ACCESSIBLE
E140-S3250 B-D	"	03-Feb-83	30-May-89	5.576	NOT ACCESSIBLE
E140-S3614 A-C	E140 DRIFT-S3614	29-Jan-83	30-May-89	8.084	NOT ACCESSIBLE
E140-S3614 B-D	"	29-Jan-83	30-May-89	6.733	NOT ACCESSIBLE
E140-S3639 A-C	E140 DRIFT-S3639	29-Jan-83	30-May-89	7.143	NOT ACCESSIBLE
E140-S3639 B-D	"	29-Jan-83	30-May-89	5.534	NOT ACCESSIBLE
E140-S3664 A-C	E140 DRIFT-S3664	12-Feb-83	30-May-89	3.259	NOT ACCESSIBLE
E140-S3664 B-D	"	29-Jan-83	30-May-89	2.556	NOT ACCESSIBLE
E140-N5 A-C	E140 DRIFT-N5	29-Nov-82	02-Apr-84	3.355	MINED OUT-REPLACED BY E140-N5-2 A-C
E140-N5 B-D	"	29-Nov-82	02-Apr-84	2.494	MINED OUT-REPLACED BY E140-N5-2 B-D
E140-N5-2 A-C	"	24-May-84	10-Jun-91	10.380	MINED OUT-REPLACED BY E140-N5-3 A-C
E140-N5-2 B-D	"	24-May-84	23-Jun-92	9.198	
E140-N5-3 A-C	"	03-Nov-91	23-Jun-92	0.784	
E140-N150 A-C	E140 DRIFT-N150	07-Nov-91	23-Jun-92	1.053	
E140-N240 A-C	E140 DRIFT-N240	09-Dec-82	12-Feb-83	0.346	MINED OUT-REPLACED BY E140-N240-2 A-C

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CONVERGENCE POINTS		Date of Initial Reading	Date of Last Reading	Change From Initial (Inches)	Comments
Fieldtag	Location				
E140-N240 B-D	E140 DRIFT-N240	09-Dec-82	12-Feb-83	0.312	MINED OUT-REPLACED BY E140-N240-2 B-D
E140-N240-2 A-C	"	22-Feb-83	14-Nov-89	7.052	MINED OUT
E140-N240-2 B-D	"	22-Feb-83	14-Nov-89	5.942	MINED OUT
E140-N300 A-C	E140 DRIFT-N300	11-Nov-91	23-Jun-92	1.857	
E140-N300 B-D	"	11-Nov-91	23-Jun-92	1.265	
E140-N460 A-C	E140 DRIFT-N460	07-Nov-91	23-Jun-92	1.969	
E140-N626 A-C	E140 DRIFT-N626	24-Feb-83	14-Nov-89	6.725	MINED OUT-REPLACED BY E140-N626-2 A-C
E140-N626 B-D	"	24-Feb-83	14-Nov-89	6.159	MINED OUT-REPLACED BY E140-N626-2 B-D
E140-N626-2 A-C	"	19-Jun-91	23-Jun-92	3.391	
E140-N626-2 B-D	"	19-Jun-91	23-Jun-92	2.289	
E140-N780 A-C	E140 DRIFT-N780 INTERSEC.	19-Jun-91	23-Jun-92	4.862	
E140-N952 A-C	E140 DRIFT-N952	19-Jun-91	23-Jun-92	3.191	
E140-N952 B-D	"	19-Jun-91	23-Jun-92	1.726	
E140-N1266 A-C	E140 DRIFT-N1266	26-Feb-83	14-Nov-89	6.740	MINED OUT-REPLACED BY E140-N1266-2 A-C
E140-N1266 B-D	"	26-Feb-83	14-Nov-89	6.529	MINED OUT-REPLACED BY E140-N1266-2 B-D
E140-N1266-2 A-C	"	04-Dec-90	23-Jun-92	4.475	
E140-N1266-2 B-D	"	04-Dec-90	26-Oct-91	1.586	MINED OUT-REPLACED BY E140-N1266-3 B-D
E140-N1266-3 B-D	"	12-Mar-92	23-Jun-92	0.458	
E300-S2180 A-C	E300 DRIFT-S2180	01-Aug-91	23-Jun-92	0.446	
E300-S1300 A-C	E300 DRIFT-S1300	30-Jul-91	22-Jun-92	0.661	
E300-S1150 A-E	E300 DRIFT-S1150	26-Jul-84	06-Sep-89	5.403	MINED OUT-REPLACED BY E300-S1150-2 A-E
E300-S1150 B-D	"	26-Jul-84	06-Sep-89	3.987	MINED OUT-REPLACED BY E300-S1150-2 B-D
E300-S1150 C-G	"	26-Jul-84	22-Jun-92	7.998	
E300-S1150 H-F	"	31-Jul-84	06-Sep-89	3.562	MINED OUT-REPLACED BY E300-S1150-2 H-F
E300-S1150-2 A-E	"	10-Oct-89	21-Nov-89	0.087	MINED OUT-REPLACED BY E300-S1150-3 A-E
E300-S1150-2 B-D	"	10-Oct-89	21-Nov-89	0.072	MINED OUT-REPLACED BY E300-S1150-3 B-D
E300-S1150-2 H-F	"	10-Oct-89	21-Nov-89	0.058	MINED OUT-REPLACED BY E300-S1150-3 H-F
E300-S1150-3 A-E	"	15-Feb-90	22-Jun-92	1.423	
E300-S1150-3 B-D	"	15-Feb-90	22-Jun-92	0.977	
E300-S1150-3 H-F	"	15-Feb-90	22-Jun-92	0.908	
E300-S1000 A-C	E300-S1000 DRIFTS INTERSEC.	25-Jul-84	22-Jun-92	8.855	
E300-S850 A-E	E300 DRIFT-S850	25-Jul-84	22-Jun-92	6.572	
E300-S850 B-D	"	25-Jul-84	22-Jun-92	4.894	
E300-S850 C-G	"	25-Jul-84	22-Jun-92	7.146	
E300-S850 H-F	"	31-Jul-84	22-Jun-92	4.261	
E300-S700 A-C	S700-E300 DRIFTS INTERSEC.	24-Jul-84	22-Jun-92	8.129	
E300-S250 A-C	E300 DRIFT-S250	19-Jun-91	22-Jun-92	0.652	
E300-S250 B-D	"	19-Jun-91	22-Jun-92	0.639	
E300-S90 A-C	E300-S90 DRIFTS INTERSEC.	19-Jun-91	22-Jun-92	0.531	
S90-W100 A-C	S90 DRIFT-W100	26-Jul-87	23-Jun-92	3.301	
S90-W100 B-D	"	26-Jul-87	23-Jun-92	3.335	
S90-W400 A-C	S90 DRIFT-W400	03-Dec-87	24-Jun-92	4.918	
S90-W400 B-D	"	03-Dec-87	24-Jun-92	4.802	
S90-W590 A-C	S90 DRIFT-W590	17-May-91	24-Jun-92	0.814	
S90-W590 B-D	"	17-May-91	24-Jun-92	0.794	
S90-W620 A-C	S90 DRIFT-W620	17-May-91	24-Jun-92	1.695	
S90-W770 A-C	S90 DRIFT-W770	17-May-91	24-Jun-92	1.206	
S90-W770 B-D	"	17-May-91	24-Jun-92	1.187	
S90-W920 A-C	S90 DRIFT-W920	17-May-91	24-Jun-92	1.847	
S700-E205 B-D	S700 DRIFT-E205	23-Jul-84	23-Jun-92	12.192	
S1000-W98 A-C	S1000 DRIFT-W98	23-May-91	23-Jun-92	1.770	
S1000-W98 B-D	"	23-May-91	23-Jun-92	1.221	
S1000-E58 A-C	S1000 DRIFT-E58	23-May-91	23-Jun-92	1.270	
S1000-E58 B-D	"	23-May-91	23-Jun-92	1.025	
S1300-W100 A-C	S1300 DRIFT-W100	26-May-91	23-Jun-92	1.781	
S1300-E24 A-C	S1300 DRIFT-E24	23-May-91	23-Jun-92	1.297	
N140-E90 A-C	N140 DRIFT-E90	29-Jul-87	23-Jun-92	3.519	
N140-E90 B-D	"	29-Jul-87	23-Jun-92	3.495	
N140-W50 B-D	N140 DRIFT-W50	31-Jul-87	23-Jun-92	5.990	
N215-W620 A-C	N215 DRIFT-W620 AIS STATION	17-May-91	22-Jun-92	1.678	
N215-W500 A-C	N215 DRIFT-W500	17-May-91	22-Jun-92	1.801	

TABLE 4-1
Access Drifts
Instrument Summary
Sheet 5 of 7

Access Drifts Instrument Summary

CONVERGENCE POINTS		Date of Initial Reading	Date of Last Reading	Change From Initial (Inches)	Comments
Fieldtag	Location				
N215-W500 B-D	N215 DRIFT-W500	17-May-91	22-Jun-92	1.280	
N460-E70 A-C	N460 DRIFT-E70	11-Nov-91	23-Jun-92	1.408	
N460-E70 B-D	"	11-Nov-91	23-Jun-92	1.092	
N1110-E80 A-C	N1100 DRIFT-E80	15-Feb-83	07-Mar-83	0.730	MINED OUT-REPLACED BY N1110-E80-2-A-C
N1110-E80 B-D	"	15-Feb-83	07-Mar-83	0.694	MINED OUT-REPLACED BY N1110-E80-2-B-D
N1110-E80-2 A-C	"	23-May-83	12-Dec-83	0.756	MINED OUT-REPLACED BY N1110-E80-3 A-C
N1110-E80-2 B-D	"	23-May-83	06-Feb-84	1.381	MINED OUT-REPLACED BY N1110-E80-3 B-D
N1110-E80-3 A-C	"	12-Jan-84	23-Jun-92	8.496	
N1110-E80-3 B-D	"	12-Jan-84	29-Apr-92	8.185	
N1110-E140 A-C	N1100-E140 DRIFTS INTERSEC	18-Jun-91	19-Jun-92	2.091	
TR1-N1110 A-C	N1100 DRIFT-TR 1 INTERSEC	04-Mar-91	19-Jun-92	2.150	
TR2-N1110 A-C	N1100 DRIFT-TR 2 INTERSEC	26-Apr-83	18-Apr-84	3.872	MINED OUT-REPLACED BY TR2-N1110-2 A-C
TR2-N1110-2 A-C	"	19-Apr-84	19-Jun-92	16.403	
TR3-N1110 A-C	N1100 DRIFT-TR 3 INTERSEC	04-Mar-91	19-Jun-92	1.883	
TR4-N1110 A-C	N1100 DRIFT-TR 4 INTERSEC	04-Mar-91	19-Jun-92	1.831	
N1110-W783 A-C	N1100 DRIFT-W783	04-May-84	09-Dec-85	2.661	MINED OUT-REPLACED BY N1110-W783-2-A-C
N1110-W783 B-D	"	04-May-84	09-Dec-85	2.336	MINED OUT-REPLACED BY N1110-W783-2-B-D
N1110-W783-2 A-C	"	04-Feb-86	19-Jun-92	6.189	
N1110-W783-2 B-D	"	04-Feb-86	19-Jun-92	4.732	
N1110-W951 A-C	N1100 DRIFT-W951	13-Jun-84	09-Dec-85	2.106	MINED OUT-REPLACED BY N1110-W951-2-A-C
N1110-W951 B-D	"	13-Jun-84	09-Dec-85	1.854	MINED OUT-REPLACED BY N1110-W951-2-B-D
N1110-W951-2 A-C	"	04-Feb-86	19-Jun-92	5.425	
N1110-W951-2 B-D	"	04-Feb-86	19-Jun-92	4.299	
N1110-W1159 A-C	N1100 DRIFT-W1159	13-Jun-84	09-Dec-85	2.874	MINED OUT-REPLACED BY N1110-W1159-2-A-C
N1110-W1159 B-D	"	13-Jun-84	29-Oct-84	1.693	MINED OUT-REPLACED BY N1110-W1159-2-B-D
N1110-W1159-2 A-C	"	04-Feb-86	19-Jun-92	6.322	
N1110-W1159-2 B-D	"	04-Feb-86	19-Jun-92	4.649	
N1110-W1347 A-C	N1100 DRIFT-W1347	20-Jun-84	09-Dec-85	2.275	MINED OUT-REPLACED BY N1110-W1347-2-A-C
N1110-W1347 B-D	"	20-Jun-84	09-Dec-85	2.115	MINED OUT-REPLACED BY N1110-W1347-2-B-D
N1110-W1347-2 A-C	"	04-Feb-86	19-Jun-92	6.159	
N1110-W1347-2 B-D	"	04-Feb-86	19-Jun-92	4.808	
N1420-E0 A-C	N1420-E0 DRIFTS INTERSEC	20-Jun-91	19-Jun-92	1.358	
N1420-W232 A-C	N1420 DRIFT-TR1 INTERSEC	07-Apr-84	19-Jun-92	21.995	
N1420-W258 A-E	N1420 DRIFT-W258	07-Apr-84	19-Jun-92	12.567	
N1420-W258 B-D	"	07-Apr-84	19-Jun-92	7.983	
N1420-W258 C-G	"	07-Apr-84	27-Nov-89	9.466	MINED OUT-REPLACED BY N1420-W258-2 C-G
N1420-W258-2 C-G	"	03-Dec-90	19-Jun-92	1.970	
N1420-W258 H-F	"	07-Apr-84	19-Jun-92	7.549	
N1420-W365 A-C	N1420 DRIFT-TR 2 INTERSEC	07-Apr-84	19-Jun-92	22.919	
N1420-W391 A-E	N1420 DRIFT-W391	07-Apr-84	19-Jun-92	12.558	
N1420-W391 B-D	"	07-Apr-84	19-Jun-92	8.446	
N1420-W391 C-G	"	07-Apr-84	05-Jun-89	9.186	MINED OUT-REPLACED BY N1420-W391-2 C-G
N1420-W391 H-F	"	07-Apr-84	19-Jun-92	7.747	
N1420-W391-2 C-G	"	03-Dec-90	19-Jun-92	1.936	
TR3-N1420 A-C	N1420 DRIFT-TR 3 INTERSEC	04-Mar-91	19-Jun-92	2.306	
TR4-N1420 A-C	N1420 DRIFT-TR 4 INTERSEC	04-Mar-91	19-Jun-92	2.744	
N1455-W232 B-D	ROOM L1	24-Apr-84	12-Sep-89	5.595	INSTRUMENT BLOCKED BY BUILDING
N1455-W232 C-G	"	24-Apr-84	12-Sep-89	8.906	INSTRUMENT BLOCKED BY BUILDING
N1455-W232 H-F	"	24-Apr-84	19-Jun-92	8.016	
N1455-W365 A-E	ROOM L2	30-Apr-84	19-Jun-92	17.274	
N1455-W365 C-G	"	30-Apr-84	19-Jun-92	12.453	
N1455-W365 H-F	"	30-Apr-84	19-Jun-92	8.311	
N1455-W365 B-D	"	30-Apr-84	04-Sep-84	1.101	BLOCKED BY SHED

TABLE 4-1
Access Drifts
Instrument Summary
Sheet 6 of 7

Access Drifts Instrument Summary

JOINT METERS		Date of Initial Reading	Date of Last Reading	Change From Initial (Inches)	Comments
Fieldtag	Location				
51X CG-02703	S1950-E300 OVERCAST-NE	29-Jul-91	29-Jun-92	0.074	
51X CG-02706	S1950-E300 OVERCAST-SW	29-Jul-91	29-Jun-92	0.123	
51X CG-02707	S1950-E300 OVERCAST-NW	29-Jul-91	29-Jun-92	0.133	
51X CG-02708	S1950-E300 OVERCAST-SE	29-Jul-91	29-Jun-92	0.079	
51X CG-02705	E0-N150 OVERCAST-NW	30-Jul-91	29-Jun-92	0.019	
51X CG-02709	E0-N150 OVERCAST-SW	30-Jul-91	29-Jun-92	0.115	
51X CG-02710	E0-N150 OVERCAST-SE	30-Jul-91	29-Jun-92	0.052	
51X CG-02712	E0-N150 OVERCAST-NE	31-Jul-91	29-Jun-92	0.047	

TABLE 4-1
Access Drifts
Instrument Summary
Sheet 7 of 7

FIGURE 4-1
Reference Location
Access Drifts

VOLUME II

WIP14-3

NOTES:

1. EXCAVATION DATE: FEBRUARY 25, 1983.
2. ENLARGED FROM 8X14 IN JANUARY 1990.
3. CURRENT DRIFT DIMENSIONS ARE 14X25.
4. INSTRUMENT MINED OUT.

FIGURE 4-2
 EXTENSOMETER 51X GE-00222
 E140 DRIFT-N1266
 EAST RIB

NOTES:

1. EXCAVATION DATE: FEBRUARY 25, 1983.
2. ENLARGED FROM 8X14 IN JANUARY 1990.
3. CURRENT DRIFT DIMENSIONS ARE 14X30.
4. INSTRUMENT MILED OUT.

FIGURE 4-6
 EXTENSOMETER 51X GE-00225
 E140 DRIFT-N1266
 WEST RIB

NOTES:

1. EXCAVATION DATE: FEBRUARY 25, 1983.
2. DRIFT ENLARGED JANUARY 1990.
3. REPLACED 51X GE-00225.

FIGURE 4-8
 EXTENSOMETER 51X GE-00229
 E140 DRIFT-N240
 WEST RIB

NOTES:
 1. EXCAVATION DATE: NOVEMBER 28, 1982.
 2. INSTRUMENT MINED OUT

NOTES:
1. EXCAVATION DATE: FEBRUARY 12, 1983.

FIGURE 4-9
EXTENSOMETER 51X GE-00233
EO DRIFT-N1266
ROOF

NOTES:
1. EXCAVATION DATE: FEBRUARY 4, 1983

FIGURE 4-10
EXTENSOMETER 51X GE-00234
E0 DRIFT-N626
ROOF

FIGURE 4-14
 EXTENSOMETER 51X GE-00241
 N1100 DRIFT-TEST ROOM 2 INTERSECTION
 ROOF

NOTES:
 1. EXCAVATION DATE: MARCH 9, 1983.

NOTES:
 1. EXCAVATION DATE: MARCH 9, 1983.

FIGURE 4-15
 EXTENSOMETER 51X GE-00242
 N1100 DRIFT-TEST ROOM 2 INTERSECTION
 FLOOR

NOTES:

1. EXCAVATION DATE: JANUARY 20, 1983.

FIGURE 4-17
 EXTENSOMETER 51X GE-00249
 E140 DRIFT-S3080
 ROOF

FIGURE 4-19
EXTENSOMETER 51X GE-00255
E140 DRIFT-11240
ROOF

NOTES:

1. EXCAVATION DATE: NOVEMBER 28, 1982.
2. INSTRUMENT NITIED OUT

FIGURE 4-20
EXTENSOMETER 51X GE-00259
N1420 DRIFT-SPDV ROOM 1 INTERSECTION
R00F

ENCAVATION DATE: MARCH 1, 1983.

NOTES:
1. EXCAVATION DATE: MARCH 1, 1983.

NOTES:
1. EXCAVATION DATE: MARCH 2, 1983.

NOTES:
 1. EXCAVATION DATE: MARCH 2, 1983.

NOTES:
1. EXCAVATION DATE: JULY 18, 1984.

NOTES:
 1. EXCAVATION DATE: JANUARY 2, 1983.

NOTES:
 1. EXCAVATION DATE: DECEMBER 20, 1982.

FIGURE 4-29
 EXTENSOMETER 51X GE-00274
 E140 DRIFT-S1300
 ROOF

NOTES:
 1. EXCAVATION DATE: DECEMBER 15, 1982.

FIGURE 4-30
 EXTENSOMETER 51X GE-00275
 E140 DRIFT-S1000
 ROOF

NOTES:
 1. EXCAVATION DATE: DECEMBER 11, 1982.

FIGURE 4-31
 EXTENSOMETER 51X GE-00276
 E140 DRIFT-S700
 ROOF

NOTES:
 1. EXCAVATION DATE: DECEMBER 6, 1982.

NOTES:
1. EXCAVATION DATE: AUGUST 2, 1988.

NOTES:
1. EXCAVATION DATE: DECEMBER 8, 1985.

FIGURE 4-34
CONVERGENCE POINTS
HI 70 DRIFT-S1950
ROOF-TO-FL OOR

FIGURE 4-36
CONVERGENCE POINTS
1170 DEF1-51600
ROOF-FLOOR

FIGURE 4-37
CONVERGENCE POINTS
W170 DRIFT-S1445
ALL CHORDS

FIGURE 4-43
CONVERGENCE POINTS
WI 70 DRIFT-S560
ALL CHORDS

INDEX:
1. EXCAVATION DATE: AUGUST 12, 1994.

NOTES:
1. EXCAVATION DATE: AUGUST 2, 1984.

NOTES:
1. EXCAVATION DATE: JULY 30, 1984.

FIGURE 4-50
CONVERGENCE POINTS
W30 DRIFT-S120
ROOF-T0-FLOOR

NOTES:
1. EXCAVATION DATE: OCTOBER 30, 1982.

NOTES:
1. EXCAVATION DATE: OCTOBER 31, 1982.

NOTES:

1. EXCAVATION DATE: FEBRUARY 14, 1986.

FIGURE 4-56
CONVERGENCE POINTS
W30 DRIFT-S1775
ALL CHORDS

NOTES:
1. EXCAVATION DATE: AUGUST 8, 1984.

FIGURE 4-66
CONVERGENCE POINTS
EO DRIFT-III-40
ROOF-10-FLOOR

NOTES:
1. EXCAVATION DATE: OCTOBER 17, 1982.

FIGURE 4-68
CONVERGENCE POINTS
EO DRIFT-11200
ROOF-10-FLOOR

NOTES:
1. EXCAVATION DATE: DECEMBER 2, 1982

FIGURE 4-69
CONVERGENCE POINTS
E0 DRIFT-N290
ROOF-TO-FLOOR

NOTES:
1. EXCAVATION DATE: DECEMBER 1, 1982.

FIGURE 4-71
CONVERGENCE POINTS
E0 DRIFT-N626
ALL CHORDS

NOTES:
1. EXCAVATION DATE: FEBRUARY 4, 1983.

FIGURE 4-72
CONVERGENCE POINTS
E0 DRIFT-N780
ROOF-TO-FLOOR

NOTES:
1. EXCAVATION DATE: FEBRUARY 5, 1983.

FIGURE 4-74
CONVERGENCE POINTS
E0-H1100 DRIFTS INTERSECTION
ROOF-10-FLOOR

NOTES:
1. EXCAVATION DATE: FEBRUARY 9, 1983.

FIGURE 4-75
CONVERGENCE POINTS
E0 DRIFT-N1266
ALL CHORDS

NOTES:
1. EXCAVATION DATE: FEBRUARY 12, 1983.

FIGURE 4-81
CONVERGENCE POINTS
E140 DRIFT-S700
ALL CHORDS

NOTES:
1. EXCAVATION DATE: DECEMBER 6, 1982.

NOTES:
1. EXCAVATION DATE: DECEMBER 13, 1982.

FIGURE 4-84
CONVERGENCE POINTS
E140 DRIFT-S1150
ALL CHORDS

NOTES:
1. EXCAVATION DATE: DECEMBER 15, 1982.

FIGURE 4-85
CONVERGENCE POINTS
E140 DRIFT-S1246
ALL CHORDS

NOTES:
1. EXCAVATION DATE: DECEMBER 15, 1982.

NOTES:
1. EXCAVATION DATE: DECEMBER 17, 1982

FIGURE 4-87
CONVERGENCE POINTS
E140 DRIFT-S1375
ALL CHORDS

NOTES:
1. EXCAVATION DATE: DECEMBER 19, 1982

FIGURE 4-89
CONVERGENCE POINTS
E140 DRIFT-S1525
ALL CHORDS

NOTES:
1. EXCAVATION DATE: DECEMBER 20, 1982.

FIGURE 4-90
CONVERGENCE POINTS
E140-S1500 DRIFTS INTERSECTION
ROOF-10-FLOOR

NOTES:

1. EXCAVATION DATE: DECEMBER 23, 1982.

FIGURE 4-91
CONVERGENCE POINTS
E140 DRIFT-S1879
ALL CHORDS

NOTES:
1. EXCAVATION DATE: DECEMBER 24, 1982.

NOTES:
1. EXCAVATION DATE: JANUARY 5, 1983.

FIGURE 4-93
CONVERGENCE POINTS
E140 DRIFT-S2180
ROOF-TO-FLOOR

NOTES:

1. EXCAVATION DATE: JANUARY 9, 1983.
2. INACCESSIBLE.

FIGURE 4-94
CONVERGENCE POINTS
E140 DRIFT-S2350
ALL CHORDS

NOTES:
1. EXCAVATION DATE: NOVEMBER 25, 1982.

NOTES:
1. EXCAVATION DATE: FEBRUARY 20, 1983.

FIGURE 4-105
CONVERGENCE POINTS
E140 DRIFT-N460
ROOF-TO-FLOOR

NOTES:

- EXCAVATION DATE: FEBRUARY 24, 1983.

FIGURE 4-108
CONVERGENCE POINTS
E140 DRIFT-N952
ALL CHORDS

FIGURE 4-109
CONVERGENCE POINTS
E140 DRIFT-N1266
ALL CHORDS

- NOTES:
1. EXCAVATION DATE: FEBRUARY 25, 1983.
 2. ENLARGED FROM 8X14 IN JANUARY 1990.
 3. CURRENT DRIFT DIMENSIONS ARE 14X25.

NOTES:
1. EXCAVATION DATE: JULY 18, 1984.

NOTES:
1. EXCAVATION DATE: JULY 16, 1984.

FIGURE 4-114
CONVERGENCE POINTS
E300 DRIFT-S850
ALL CHORDS

NOTES:
1. EXCAVATION DATE: MAY 31, 1984.

FIGURE 4-117
CONVERGENCE POINTS
E300-S90 DRIFTS INTERSECTION
ROOF-TO-FLOOR

NOTES:
1. EXCAVATION DATE: SEPTEMBER 19, 1985.

NOTES:
 1. EXCAVATION DATE: JULY 1, 1985.

NOTES:
1. EXCAVATION DATE: OCTOBER 15, 1987.

NOTES:
1. EXCAVATION DATE: JANUARY 4, 1988.

FIGURE 4-121
CONVERGENCE POINTS
S90 DRIFT-W620
ROOF-TO-FLOOR

NOTES:
1. EXCAVATION DATE: JULY 8, 1984.

FIGURE 4-129
CONVERGENCE POINTS
11140 DRIFT-E90
ALL CHORDS

NOTES:
1. EXCAVATION DATE: NOVEMBER 10, 1982.

NOTES:
1. EXCAVATION DATE: JULY 27, 1984.

NOTES:
1. EXCAVATION DATE: DECEMBER 31, 1987.

FIGURE 4-135
CONVERGENCE POINTS
N1100-E140 DRIFTS INTERSECTION
ROOF-TO-FLOOR

NOTES:
1. EXCAVATION DATE: FEBRUARY 24, 1983.

NOTES:
1. EXCAVATION DATE: MARCH 3, 1983.

FIGURE 4-136
CONVERGENCE POINTS
N1100 DRIFT-SPDV ROOM 1 INTERSECTION
ROOF-TO-FLOOR

NOTES:
1. EXCAVATION DATE: MARCH 9, 1983.

FIGURE 4-137
CONVERGENCE POINTS
N1100 DRIFT-SPDV ROOM 2 INTERSECTION
ROOF-TO-FLOOR

FIGURE 4-138
CONVERGENCE POINTS
N1100 DRIFT-SPDV ROOM 3 INTERSECTION
ROOF-TO-FLOOR

NOTES:
1. EXCAVATION DATE: MARCH 22, 1983.

FIGURE 4-139
CONVERGENCE POINTS
N1100 DRIFT-SPDV ROOM 4 INTERSECTION
ROOF-TO-FLOOR

NOTES:
1. EXCAVATION DATE: APRIL 24, 1983.

NOTES:
1. EXCAVATION DATE: FEBRUARY 15, 1983.

NOTES:
1. EXCAVATION DATE: MARCH 1, 1983.

NOTES:
1. EXCAVATION DATE: MARCH 1, 1983.

NOTES:
1. EXCAVATION DATE: MARCH 2, 1983.

FIGURE 4-147
CONVERGENCE POINTS
N1420 DRIFT-SPDV ROOM 2 INTERSECTION
ROOF-10-FLOOR

FIGURE 4-148
CONVERGENCE POINTS
N1420 DRIFT-W391
ALL CHORDS

NOTES:
1. EXCAVATION DATE: MARCH 2, 1983.

NOTES:
1. EXCAVATION DATE: MARCH 7, 1984.

FIGURE 4-149
CONVERGENCE POINTS
N1420 DRIFT-SPDV ROOM 3 INTERSECTION
ROOF-TO-FLOOR

NOTES:
1. EXCAVATION DATE: MARCH 6, 1984.

FIGURE 4-150
CONVERGENCE POINTS
N1420 DRIFT-SPDV ROOM 4 INTERSECTION
ROOF-TO-FLOOR

NOTES:

1. EXCAVATION DATE: MARCH 31, 1985.

FIGURE 4-153
JOINT METERS
S1950-E300 DRIFT OVERCAST

5.0 SPDV ROOMS AND NONRADIOACTIVE EXPERIMENTAL AREA

5.1 INTRODUCTION

The Site and Preliminary Design Validation Rooms (Rooms 1, 2, 3, and 4), located in the northwest section of the underground facility and shown in Figure 5-1, were excavated in March and April, 1983. The rooms are 33 feet wide, 13 feet high, and 300 feet long. They are separated by 100 foot wide pillars. A geologic cross section of the rooms is shown in Figure 5-2.

Sandia National Laboratories conducts nonradioactive experiments in the experimental area, located in the northeast section of the underground facility. These experimental rooms are 18 feet wide, 18 feet high, and 306 feet long. In the experimental area, only data from the convergence points located in the drifts outside the experimental rooms are included in this report.

5.2 MODIFICATIONS TO EXCAVATIONS

Modifications made during this reporting period include routine trimming and maintenance activities.

5.3 INSTRUMENTATION

Geotechnical instrumentation was installed in the SPDV rooms in March and April 1983. Instrument location for SPDV Rooms 1, 2, 3, and 4 and the waste experimental area, respectively, are shown in Figure 5-3 through 5-6 and 1-4. Table 5-1 contains a summary of the instrumentation located in the SPDV rooms and experimental area. Data is presented in Figures 5-7 through 5-71, except for the instrument location figures mentioned above.

EXTENSOMETERS

No new extensometers were installed in the SPDV room and Experimental Areas during this reporting period.

CONVERGENCE POINTS

No new convergence points were installed in the SPDV room and Experimental Areas during this reporting period. Convergence point readings at substation 2A were discontinued due to the nearby high voltage cable which prevents data from being collected safely.

The convergence points located in SPDV Rooms 1, 2, and 3 remain inaccessible.

INCLINOMETERS

Six vertical and 16 horizontal inclinometer holes were drilled in the SPDV rooms in 1983. All inclinometers are inaccessible except those located in SPDV Room 4, which have malfunctioned.

CONVERGENCE METERS

The convergence meter, 51X GE-00201 located in SPDV Room 2 has reached its maximum length of travel and is no longer read.

Monitoring continues of all twelve wire convergence meters in SPDV Room 2.

STRESS METERS

The two stress meters located in SPDV Room 2 are inaccessible and no longer functioning. No new data is available.

SPDV Rooms and Nonradioactive Experimental Area Instrument Summary

EXTENSOMETERS

Fieldtag	Location	Date of Initial Reading	Date of Last Reading	Collar Displacement Relative to Deepest Anchor (Inches)	Comments
51X GE-00217	SPDV ROOM 1/E RIB	13-Apr-83	12-Jul-80	5.100	INSTRUMENT MALFUNCTION
51X GE-00218	SPDV ROOM 1/ROOF	14-Apr-83	28-Feb-89	11.777	INSTRUMENT MALFUNCTION
51X GE-00219	SPDV ROOM 1/W RIB	15-Apr-83	24-Jun-91	7.505	
51X GE-00269	SPDV ROOM 1/FLOOR	21-Jan-86	24-Apr-90	4.874	INSTRUMENT MALFUNCTION
51X GE-00213	SPDV ROOM 2/E RIB	17-Mar-83	28-Apr-89	6.373	ANCHOR SLIPPAGE LIKELY (NO READING)
51X GE-00214	SPDV ROOM 2/ROOF	22-Mar-83	28-Apr-89	8.650	ANCHOR SLIPPAGE LIKELY (NO READING)
51X GE-00215	SPDV ROOM 2/W RIB	22-Mar-83	29-Dec-88	6.339	INSTRUMENT MALFUNCTION
51X GE-00216	SPDV ROOM 2/FLOOR	28-Mar-83	26-Dec-85	3.306	RODS BROKEN-REPLACED BY 51X GE-00270
51X GE-00270	SPDV ROOM 2/FLOOR	21-Jan-86	28-Feb-89	4.186	ANCHOR SLIPPAGE LIKELY
51X GE-00211	SPDV ROOM 3/E RIB	06-Apr-83	28-Apr-89	6.332	NOT ACCESSIBLE
51X GE-00212	SPDV ROOM 3/ROOF	07-Apr-83	28-Apr-89	9.487	NOT ACCESSIBLE
51X GE-00210	SPDV ROOM 3/FLOOR	07-Apr-83	03-Feb-84	2.879	EQUIP. MALF. REPLACED BY 51X GE-00271
51X GE-00271	SPDV ROOM 3/FLOOR	27-Jan-86	30-Jun-88	1.758	EQUIPMENT MALFUNCTION
51X GE-00206	SPDV ROOM 4/E RIB	28-Apr-83	27-Feb-92	6.895	
51X GE-00207	SPDV ROOM 4/ROOF	28-Apr-83	03-Oct-91	9.162	
51X GE-00208	SPDV ROOM 4/W RIB	29-Apr-83	17-Oct-91	5.265	
51X GE-00209	SPDV ROOM 4/FLOOR	29-Apr-83	27-Feb-92	7.208	

CONVERGENCE POINTS

Fieldtag	Location	Date of Initial Reading	Date of Last Reading	Change From Initial (Inches)	Comments
TR1 B-D	SPDV ROOM 1/MIDPOINT	20-Apr-83	21-Jun-89	14.085	NOT ACCESSIBLE
IG215-216-RS	SPDV ROOM 1/E RIB	27-Apr-83	13-Mar-89	3.496	NOT ACCESSIBLE
TR1-2 A-C	SPDV ROOM 1/MIDPOINT	06-Sep-88	23-Aug-89	2.748	NOT ACCESSIBLE
TR1-2 B-I	"	18-Jan-89	22-May-89	0.977	EXPERIMENTAL POINTS-DATA NOT INCLUDED
TR1-2 B-J	"	18-Jan-89	22-May-89	0.105	"
TR1-2 D-G	"	18-Jan-89	22-May-89	0.545	"
TR1-2 E-F	"	06-Sep-88	23-Aug-89	3.853	NOT ACCESSIBLE
TR1-2 G-H	"	18-Jan-89	22-May-89	-0.010	EXPERIMENTAL POINTS-DATA NOT INCLUDED
TR1-2 H-I	"	18-Jan-89	03-Apr-89	-0.096	"
TR1-2 I-J	"	18-Jan-89	22-May-89	0.288	"
TR2 B-D	SPDV ROOM 2/MIDPOINT	23-Mar-83	31-Mar-83	0.675	MINED OUT-REPLACED BY TR:B-D-2
TR2-2 B-D	"	12-Jul-83	03-Oct-89	10.913	NOT ACCESSIBLE
IG211-212-RS	SPDV ROOM 2/E RIB	05-Apr-83	13-Mar-89	3.327	"
IG213-214-RS	SPDV ROOM 2/W RIB	05-Apr-83	13-Mar-89	2.440	"
IG211-213-TC	SPDV ROOM 2/1' BELOW ROOF	28-Nov-83	03-Mar-89	5.270	"
IG212-214-TC	SPDV ROOM 2/1' ABOVE FLOOR	28-Nov-83	07-Dec-88	6.408	"
TR2-3 A-C	"	28-Nov-88	03-Apr-89	0.806	"
TR2-3 B-I	"	23-Jan-89	03-Oct-89	0.819	EXPERIMENTAL POINTS-DATA NOT INCLUDED
TR2-3 B-J	"	23-Jan-89	03-Oct-89	0.196	"
TR2-3 D-G	"	23-Jan-89	03-Oct-89	1.281	"
TR2-3 D-K	"	23-Jan-89	03-Oct-89	0.184	"
TR2-3 E-F	"	28-Nov-88	03-Apr-89	0.796	NOT ACCESSIBLE
TR2-3 G-H	"	19-Jan-89	03-Oct-89	0.075	EXPERIMENTAL POINTS-DATA NOT INCLUDED
TR2-3 G-K	"	19-Jan-89	03-Oct-89	0.456	"
TR2-3 H-I	"	19-Jan-89	03-Oct-89	-0.058	"
TR2-3 I-J	"	19-Jan-89	03-Oct-89	0.180	"
TR2-N1137 A-D	SPDV ROOM 2/N1137	05-Dec-88	24-Aug-89	1.859	NOT ACCESSIBLE
TR2-N1137 B-C	"	05-Dec-88	03-Oct-89	1.419	"
TR2-N1137 E-F	"	05-Dec-88	03-Oct-89	2.193	"
TR2-N1137 G-H	"	14-Feb-89	03-Oct-89	1.057	"
TR2-N1175 A-D	SPDV ROOM 2/N1175	05-Dec-88	25-Aug-89	1.951	"
TR2-N1175 B-C	"	05-Dec-88	25-Aug-89	1.353	"
TR2-N1175 E-F	"	05-Dec-88	25-Aug-89	2.228	"
TR2-N1175 G-H	"	19-Jan-89	03-Oct-89	-0.058	EXPERIMENTAL POINTS-DATA NOT INCLUDED

TABLE 5-1
SPDV Rooms and Nonradioactive
Experimental Area Instrument Summary
Sheet 1 of 4

SPDV Room and Nonradioactive Experimental Area Instrument Summary

CONVERGENCE POINTS		Date of Initial Reading	Date of Last Reading	Change From Initial (Inches)	Comments
Fieldtag	Location				
TR2-N1175 G-K	SPDV ROOM 2/N1175	19-Jan-89	03-Oct-89	0.310	EXPERIMENTAL POINTS-DATA NOT INCLUDED
TR2-N1175 G-M	"	20-Feb-89	03-Oct-89	0.904	"
TR2-N1175 H-I	"	19-Jan-89	03-Oct-89	-0.074	"
TR2-N1175 I-J	"	19-Jan-89	03-Oct-89	0.236	"
TR2-N1175 I-L	"	20-Feb-89	03-Oct-89	0.772	"
TR2-N1175 J-L	"	20-Feb-89	03-Oct-89	0.178	"
TR2-N1175 K-M	"	20-Feb-89	03-Oct-89	0.170	"
TR2-N1175 L-M	"	14-Feb-89	03-Oct-89	1.074	NOT ACCESSIBLE
TR2-N1212 A-D	SPDV ROOM 2/N1212	05-Dec-88	25-Aug-89	2.050	"
TR2-N1212 B-C	"	05-Dec-88	03-Oct-89	1.889	"
TR2-N1212 E-F	"	05-Dec-88	03-Oct-89	2.708	"
TR2-N1212 G-H	"	14-Feb-89	03-Oct-89	1.080	"
TR2-N1287 A-D	SPDV ROOM 2/N1287	29-Nov-88	23-Aug-89	2.115	"
TR2-N1287 B-C	"	29-Nov-88	23-Aug-89	1.485	"
TR2-N1287 E-F	"	29-Nov-88	23-Aug-89	2.552	"
TR2-N1287 G-H	"	14-Feb-89	23-Aug-89	1.042	"
TR2-N1325 A-D	SPDV ROOM 2/N1325	29-Nov-88	23-Aug-89	2.194	"
TR2-N1325 B-C	"	29-Nov-88	23-Aug-89	1.373	"
TR2-N1325 E-F	"	29-Nov-88	23-Aug-89	2.804	"
TR2-N1325 G-K	"	19-Jan-89	03-Oct-89	0.536	EXPERIMENTAL POINTS-DATA NOT INCLUDED
TR2-N1325 G-H	"	19-Jan-89	03-Oct-89	0.062	"
TR2-N1325 G-M	"	20-Feb-89	03-Oct-89	1.409	"
TR2-N1325 H-I	"	19-Jan-89	03-Oct-89	-0.138	"
TR2-N1325 I-J	"	19-Jan-89	03-Oct-89	0.152	"
TR2-N1325 I-L	"	20-Feb-89	03-Oct-89	0.785	"
TR2-N1325 J-L	"	20-Feb-89	03-Oct-89	0.177	"
TR2-N1325 K-M	"	20-Feb-89	03-Oct-89	0.213	"
TR2-N1325 L-M	"	14-Feb-89	03-Oct-89	1.217	NOT ACCESSIBLE
TR2-N1362 A-D	SPDV ROOM 2/N1362	29-Nov-88	23-Aug-89	2.097	"
TR2-N1362 B-C	"	29-Nov-88	03-Oct-89	1.695	"
TR2-N1362 E-F	"	29-Nov-88	03-Oct-89	2.622	"
TR2-N1362 G-H	"	14-Feb-89	03-Oct-89	1.231	"
TR3 B-D	SPDV ROOM 3	07-Apr-83	07-Jun-92	16.372	"
IG219-220-RS	SPDV ROOM 3/E RIB	12-Apr-83	26-Jan-90	3.450	"
IG221-219-TC	SPDV ROOM 3/1' BELOW ROOF	28-Nov-83	26-Jan-90	6.725	"
IG221-222-RS	SPDV ROOM 3/W RIB	12-Apr-83	26-Jan-90	3.802	"
IG222-220-TC	SPDV ROOM 3/1' ABOVE FLOOR	28-Nov-83	13-Mar-89	7.092	"
TR4 A-E	SPDV ROOM 4/MIDPOINT	06-May-83	19-Jun-92	24.716	"
TR4 C-G	"	06-May-83	12-Jun-91	12.781	MINED OUT-REPLACED BY TR4-2 C-G
TR4-2 C-G	"	03-Nov-91	19-Jun-92	0.762	"
TR4 B-D	MIDPOINT	11-Apr-89	19-Jun-92	7.540	"
TR4 H-F	"	11-Apr-89	19-Jun-92	7.639	"
IG223-224-RS	SPDV ROOM 4/E RIB	10-May-83	26-Jan-90	3.407	IMPROPER EQUIPMENT ACCESS
IG225-226-RS	SPDV ROOM 4/W RIB	10-May-83	26-Jan-90	1.649	"
TR4-N1175 A-E	SPDV ROOM 4/N1175	13-Apr-89	19-Jun-92	6.691	"
TR4-N1175 B-D	"	13-Apr-89	19-Jun-92	7.100	"
TR4-N1175 C-G	"	13-Apr-89	02-Aug-91	2.977	MINED OUT-REPLACED BY TR4-N1175-2 C-G
TR4-N1175 F-H	"	13-Apr-89	19-Jun-92	5.099	"
TR4-N1175-2 C-G	"	03-Nov-91	19-Jun-92	0.762	"
TR4-N1325 A-E	SPDV ROOM 4/N1325	12-Apr-89	19-Jun-92	7.146	"
TR4-N1325 B-D	"	12-Apr-89	19-Jun-92	7.804	"
TR4-N1325 C-G	"	12-Apr-89	19-Jun-92	4.885	"
TR4-N1325 F-H	"	12-Apr-89	19-Jun-92	5.493	"
E300-N1175 A-E	E300 DRIFT-N1175	08-Aug-90	19-Jun-92	6.475	"
E300-N1175 B-D	"	08-Aug-90	19-Jun-92	6.223	"
E300-N1175 H-F	"	08-Aug-90	19-Jun-92	4.019	"
E300-N1175 C-G	"	08-Aug-90	19-Jun-92	4.091	"
E300-N1253 A-D	E300 DRIFT-N1253	08-Aug-90	19-Jun-92	6.669	"
E300-N1253 B-C	"	08-Aug-90	19-Jun-92	5.349	"

TABLE 5-1
SPDV Rooms and Nonradioactive
Experimental Area Instrument Summary
Sheet 2 of 4

SPDV Room and Nonradioactive Experimental Area Instrument Summary

CONVERGENCE POINTS		Date of Initial Reading	Date of Last Reading	Change From Initial (Inches)	Comments
Fieldtag	Location				
E300-N1253 F-E	E300 DRIFT-N1253	08-Aug-90	19-Jun-92	5.194	
E300-N1325 A-E	E300 DRIFT-N1325	09-Aug-90	19-Jun-92	6.090	
E300-N1325 B-D	"	09-Aug-90	19-Jun-92	3.464	
E300-N1325 C-G	"	09-Aug-90	19-Jun-92	3.333	
E300-N1325 H-F	"	09-Aug-90	19-Jun-92	3.855	
N1110-E319 A-C	N1100 DRIFT-E319	30-Jan-84	05-Jun-89	6.435	MINED OUT-REPLACED BY N1110-E319-2-A-C
N1110-E319 B-D	"	30-Jan-84	05-Jun-89	5.070	MINED OUT-INTERSECTION
N1110-E319-2 A-C	"	10-Aug-90	19-Jun-92	5.218	
N1110-E846 A-C	N1110 DRIFT-E846	16-Jan-85	19-Jun-92	6.351	
N1110-E846 B-D	"	16-Jan-85	19-Jun-92	5.150	
N1110-E1135 A-C	N1110 DRIFT-E1135	23-Feb-84	16-Oct-84	2.752	MINED OUT-REPLACED BY N1110-E1135-2-A-C
N1110-E1135 B-D	"	23-Feb-84	19-Jun-92	7.036	
N1110-E1135-2 A-C	"	10-Dec-84	19-Jun-92	6.470	
N1110-E1582 A-C	N1110 DRIFT-E1582	09-Mar-84	19-Jun-92	8.759	
N1110-E1582 B-D	"	09-Mar-84	19-Jun-92	6.379	
N1420-E140 A-C	N1420-E140 DRIFTS INTER.	15-May-91	19-Jun-92	1.838	
N1420-E304 A-C	N1420 DRIFT-E304	30-Jan-84	09-Mar-89	6.527	MINED OUT-REPLACED BY N1420-E304-2-A-C
N1420-E304 B-D	"	30-Jan-84	09-Mar-89	5.600	MINED OUT-INTERSECTION
N1420-E304-2 A-C	"	10-Aug-90	29-Apr-92	3.481	MINED OUT-REPLACED BY N1420-E304-3-A-C
N1420-E304-3 A-C	"	29-Jun-92			NEWLY INSTALLED
N1420-E716 A-C	N1420 DRIFT-E716	15-Feb-84	19-Jun-92	11.555	
N1420-E716 B-D	"	15-Feb-84	19-Jun-92	8.211	
N1420-E1106 A-C	N1420 DRIFT-E1106	28-Feb-84	19-Jun-92	13.318	
N1420-E1106 B-D	"	28-Feb-84	19-Jun-92	8.805	
N1420-E1547 A-C	N1420 DRIFT-E1547	13-Mar-84	19-Jun-92	14.742	
N1420-E1547 B-D	"	13-Mar-84	19-Jun-92	9.073	
SUBSTAT2 A-C	SUBSTATION 2A	29-Mar-84	04-Mar-92	7.752	DISCONNECTED DUE TO SAFETY CONCERNS
SUBSTAT2 B-D	"	29-Mar-84	19-Jun-92	6.807	

INCLINOMETERS		Date of Initial Reading	Date of Last Reading	Collar Displacement (Inches)	Comments
Fieldtag	Location				
51X IG-00211	ROOM 2-E RIB/1' FROM ROOF	05-Apr-83	30-Jun-89	2.00	NOT ACCESSIBLE
51X IG-00213	ROOM 2-W RIB/1' FROM ROOF	05-Apr-83	30-Jun-89	1.77	"
51X IG-00214	ROOM 2-W RIB/1' FROM FLOOR	05-Apr-83	30-Jun-89	0.78	"
51X IG-00220	ROOM 3-E RIB/1' FROM FLOOR	12-Apr-83	30-Jun-89	1.01	"
51X IG-00221	ROOM 3-W RIB/1' FROM ROOF	12-Apr-83	30-Jun-89	1.09	"
51X IG-00223	ROOM 4-E RIB/1' FROM ROOF	10-May-83	30-Jun-89	1.89	"
51X IG-00225	ROOM 4-W RIB/1' FROM ROOF	10-May-83	30-Jun-89	1.86	"

CONVERGENCE METERS		Date of Initial Reading	Date of Last Reading	Change From Initial (Inches)	Comments
Fieldtag	Location				
51X CE-00202	ROOM 1/CENTERLINE	20-Apr-83	10-Sep-90	24.725	NO LONGER FUNCTIONING
51X CE-00201	ROOM 2/CENTERLINE	29-Mar-83	22-Jan-91	23.494	

STRESS METERS		Date of Initial Reading	Date of Last Reading	Change From Initial (psi)	Comments
Fieldtag	Location				
51X NG-00255	ROOM 2/W RIB-FLOOR	10-May-84	17-Mar-89	683.1	NOT ACCESSIBLE
51X NG-00256	ROOM 2/CENTER FLOOR	10-May-84	17-Mar-89	467.4	"

TABLE 5-1
SPDV Rooms and Nonradioactive
Experimental Area Instrument Summary
Sheet 3 of 4

SPDV Room and Nonradioactive Experimental Area Instrument Summary

WIRE CONVERGENCE METERS		Date of Initial Reading	Date of Last Reading	Change From Initial (Inches)	Comments
Fieldtag	Location				
51X CW-00001	ROOM 1/175' N OF N1100	11-Aug-89	04-Feb-91	14.062	DESTROYED BY ROCKFALL (02/91)
51X CW-00002	ROOM 1/182.5' N OF N1100	11-Aug-89	04-Feb-91	14.548	DESTROYED BY ROCKFALL (02/91)
51X CW-00003	ROOM 1/195' N OF N1100	11-Aug-89	04-Feb-91	10.691	DESTROYED BY ROCKFALL (02/91)
51X CW-00004	ROOM 1/207.5' N OF N1100	11-Aug-89	04-Feb-91	6.508	DESTROYED BY ROCKFALL (02/91)
51X CW-00005	ROOM 2/37.5' N OF N1100	22-Sep-89	29-Jun-92	7.093	
51X CW-00006	ROOM 2/75' N OF N1100 E RIB	25-Aug-89	29-Jun-92	7.133	
51X CW-00007	ROOM 2/75' N OF N1100	25-Aug-89	29-Jun-92	9.476	
51X CW-00008	ROOM 2/75' N OF N1100 W RIB	25-Aug-89	29-Jun-92	11.370	
51X CW-00009	ROOM 2/112.5' N OF N1100	25-Aug-89	29-Jun-92	9.411	
51X CW-00010	ROOM 2/150' N OF N1100 E RIB	22-Sep-89	29-Jun-92	6.876	
51X CW-00011	ROOM 2/150' N OF N1100 W RIB	24-Aug-89	29-Jun-92	10.128	
51X CW-00012	ROOM 2/187.5' N OF N1100	24-Aug-89	29-Jun-92	8.620	
51X CW-00013	ROOM 2/225' N OF N1100 E RIB	24-Aug-89	29-Jun-92	5.130	
51X CW-00014	ROOM 2/225' N OF N1100	24-Aug-89	29-Jun-92	8.399	
51X CW-00015	ROOM 2/225' N OF N1100 W RIB	24-Aug-89	29-Jun-92	11.823	
51X CW-00016	ROOM 2/262.5' N OF N1100	24-Aug-89	29-Jun-92	7.774	

TABLE 5-1
SPDV Rooms and Nonradioactive
Experimental Area Instrument Summary
Sheet 4 of 4

VOLUME II

WIP14-4

FIGURE 5-1
Reference Locations
SPDV Rooms and Nonradioactive
Experimental Area

CROSS SECTIONS VIEW

D TOWARD NORTH

FIGURE 5-2
Geologic Cross Section in SPDV Rooms

GFDAR

FIGURE 5-3
SPDV Room 1 Instrumentation

GFDAR

FIGURE 5-4
SPDV Room 2 Instrumentation

VOLUME II

GG617

GFDAR

FIGURE 5-5
SPDV Room 3 Instrumentation

VOLUME II

GG618

FIGURE 5-6
SPDV Room 4 Instrumentation

NOTES:
 1. EXCAVATION DATE: APRIL 4, 1983.
 2. INSTRUMENT MALFUNCTION.

FIGURE 5-7
 EXTENSOMETER SIX GE-00217
 SPDV ROOM 1-CENTER
 EAST RIB

FIGURE 5-8
 EXTENSOMETER 51X GE-00218
 SPDV ROOM 1-CENTER
 ROOF

NOTES:
 1. EXCAVATION DATE: APRIL 4, 1983.
 2. INSTRUMENT HALF-FUNCTION.

NOTES:
1. EXCAVATION DATE: APRIL 4, 1983.

NOTES:
1. EXCAVATION DATE: MARCH 10, 1983.
2. ANCHOR SLIPPAGE LIKELY (NO READING).

FIGURE 5-11
EXTENSOMETER 51X GE-00213
SPDV ROOM 2-CENTER
EAST RIB

NOTES:
 1. EXCAVATION DATE: MARCH 10, 1983.
 2. INSTRUMENT MALFUNCTION

FIGURE 5-13
 EXTENSOMETER 51X GE-00215
 SPDV ROOM 2-CENTER
 WEST RIB

NOTES:
1. EXCAVATION DATE: MARCH 25, 1983.

FIGURE 5-16
EXTENSOMETER 51X GE-00211
SPDV ROOM 3-CENTER
EAST RIB

NOTES:
1. EXCAVATION DATE: MARCH 25, 1983.

FIGURE 5-17
EXTENSOMETER 51X GE-00212
SPDV ROOM 3-CENTER
ROOF

FIGURE 5-18
EXTENSOMETER 51X GE-00210
SPDV ROOM 3-CENTER
FLOOR

- NOTES:
1. EXCAVATION DATE: MARCH 25, 1983.
 2. INSTRUMENT HAS PERMANENTLY FAILED.
 3. REPLACED BY 51X GE-00271.

NOTES:
1. EXCAVATION DATE: APRIL 16, 1983.

FIGURE 5-20
EXTENSOMETER 51X GE-00206
SPDV ROOM 4-CENTER
EAST RIB

NOTES:
1. EXCAVATION DATE: APRIL 15, 1983.

FIGURE 5-21
EXTENSOMETER 51X GE-00207
SPDV ROOM 4-CENTER
ROOF

NOTES:
1. EXCAVATION DATE: APRIL 16, 1983.

FIGURE 5-22
EXTENSOMETER 51X GE-00208
SPDV ROOM 4-CENTER
WEST RIB

NOTES:
1. EXCAVATION DATE: APRIL 16, 1983.

FIGURE 5-23
EXTENSOMETER 51X GE-00209
SPDV ROOM 4-CENTER
FLOOR

FIGURE 5-24
CONVERGENCE POINTS
SPDV ROOM 1-CENTER
ALL CHORDS

- NOTES:
1. EXCAVATION DATE: APRIL 4, 1983.
 2. INSTRUMENT NO LONGER ACCESSIBLE.

FIGURE 5-27
 CONVERGENCE POINTS
 SPDV ROOM 2-CENTER
 QUARTER-SPAN CHORDS

NOTES:
 1. EXCAVATION DATE: MARCH 10, 1983.
 2. INSTRUMENT NO LONGER ACCESSIBLE.

NOTES:

1. EXCAVATION DATE: MARCH 9, 1983.
2. INSTRUMENT NO LONGER ACCESSIBLE.

NOTES:
1. EXCAVATION DATE: MARCH 25, 1983.

FIGURE 5-34
CONVERGENCE POINTS
SPDV ROOM 3-CENTER
ALL CHORDS

FIGURE 5-35
CONVERGENCE POINTS
SPDV ROOM 4-CENTER
ALL CHORDS

NOTES:
1. EXCAVATION DATE: APRIL 16, 1983.

FIGURE 5-39
CONVERGENCE POINTS
E300 DRIFT-N1175
ALL CHORDS

NOTES:
1. EXCAVATION DATE: AUGUST 1989.

FIGURE 5-41
CONVERGENCE POINTS
E300 DRIFT-N1325
ALL CHORDS

NOTES:
1. EXCAVATION DATE: AUGUST 1989.

NOTES:
1. EXCAVATION DATE: JANUARY 28, 1984.

FIGURE 5-49
CONVERGENCE POINTS
N1420 DRIFT-E1106
ALL CHORDS

NOTES:
1. EXCAVATION DATE: FEBRUARY 25, 1984.

GFDAR

FIGURE 5-52
Inclinometer 51X IG-00211
SPDV Room 2
East Wall

GFDAR

FIGURE 5-53
Inclinometer 51X IG-00213
SPDV Room 2
West Wall

GFDAR

FIGURE 5-54
Inclinometer 51X IG-00214
SPDV Room 2
West Wall

GFDAR

FIGURE 5-55
Inclinometer 51X IG-00220
SPDV Room 3
East Wall

GFDAR

— 11-11-83
 - - - 11-20-84
 - . - . 06-30-86
 . . . 03-04-87
 - - - 06-20-88
 - - - 06-30-89

Initial Reading
 Taken 04-12-83
 IG221

GFDAR

GFDAR

FIGURE 5-58
Inclinometer 51X IG-00225
SPDV Room 4
West Wall

NOTES:

1. EXCAVATION DATE: TEST ROOM 1 CENTER
APRIL 4, 1983. TEST ROOM 2 CENTER
MARCH 10, 1983.
2. CE-00202 (ROOM 1), CE-00201 (ROOM 2)

FIGURE 5-59
CONVERGENCE METERS
SPDV ROOMS 1 & 2
CENTERPOINTS

NOTES:

1. EXCAVATION DATE: MARCH 10, 1983.
2. 252 AND 254 REMOVED.
3. 255 AND 256 NO LONGER ACCESSIBLE.

FIGURE 5-60
STRESSMETERS
SPDV ROOM 2-N1260-W365
FLOOR-MB139

- NOTES:
1. INSTALLED: 08/11/89
 2. DESTROYED BY ROCKFALL ON 02/04/91.

FIGURE 5-67
WIRE CONVERGENCE METER
SPDV ROOM 2-112.5' NORTH OF N1100 DRIFT
ROOF-TO-FLOOR - CENTER

NOTES:
1. INSTALLED. 08/25/89

FIGURE 5-58
WIPE CONVERGENCE METER
SPDV ROOM 2-150 NORTH OF N1100 DRIFT
ROOF-TO-FLOOR - ALL CHORDS

NOTES:
 1. 51X-CN-00010 INSTALLED: 09/22/89
 2. 51X-CN-00011 INSTALLED: 08/24/89

NOTES:
1. INSTALLED: 08/24/89

NOTES:
1. INSTALLED: 08/24/89

6.0 WASTE STORAGE AREA

6.1 INTRODUCTION

Panel 1 of the waste storage area, illustrated in Figure 6-1, was excavated in two stages. The panel entry in S1950 drift, Room 1, and parts of Rooms 2 and 3 were excavated during the second half of 1986 and the first three months of 1987. Mining resumed in January 1988, and the panel excavation was completed to final dimensions in June 1988.

The storage rooms in Panel 1 were excavated to dimensions slightly more stringent than called for by the design specification. The design specifies rooms 33 feet wide by 13 feet high, with a tolerance of -0, +1 foot. Rooms were mined to lengths of 300 feet and are separated by 100 foot wide pillars. An excavation summary for Panel 1 is shown in Figure 1-6 and 1-7.

6.2 MODIFICATIONS TO EXCAVATIONS

No new mining activities were initiated in the Waste Storage Area during the reporting period.

6.3 INSTRUMENTATION

Installation of convergence points immediately followed the completion of each mining pass. Multipoint borehole extensometers were installed after completion of the final room trimming and drilling of the boreholes. Table 6-1 is a summary of the instrument data. Data are presented in Figures 6-2 through 6-94.

EXTENSOMETERS

The data for three new extensometers which were installed at the end of the last reporting period, have been included. The extensometers were installed June 6, 1991 in the roof of Room 1, Panel 1 down centerline of the room.

A total of sixteen rib extensometers and the three new roof extensometers are installed in the panel. Sudden increases and decreases indicated on the plots are a result of a change in data collection methods. Due to the large amount of activity in Room 1, Panel 1, the remote data acquisition was on several occasions terminated and manual data collection initiated. This process caused sudden jumps to occur in the data. A few successful attempts were made to adjust readings between remote and manual data collection methods.

CONVERGENCE POINTS

All four test alcove entries remain inaccessible and no new data is available.

Five new convergence points arrays were installed in Room 1, Panel 1 at S1639, S1681, S1758, S1841, and S1884.

Convergence points were initially installed in the pilot drifts which were mined from April 1986 through April 1987. The points were replaced after each trim pass.

CONVERGENCE METERS

Monitoring of four convergence meters in Room 6 continued this reporting period. The convergence meters were placed at the midpoints of Room 6 to monitor horizontal and vertical closure of the room.

ROCKBOLT LOAD CELLS

During this reporting period 286 rockbolt load cells were installed in Room 1 to monitor the yielding roof support system which was installed in November and December of 1991. See Volume 1 of this report for a description, methodology, and purpose of the yielding roof support system installed in Room 1, Panel 1.

The load cells are read remotely and used to monitor the load on the rockbolts. In addition, the load cells aid in determining when detensioning of the bolts is required.

Waste Storage Area Instrument Summary

EXTENSOMETERS

Fieldtag	Location	Date of Initial Reading	Date of Last Reading	Collar Displacement Relative to Deepest Anchor (Inches)	Comments
51X-GE-01001	ROOM 1, PANEL 1/E RIB	14-Dec-88	25-Jun-92	2.782	
51X-GE-01002	ROOM 1, PANEL 1/W RIB	14-Dec-88	25-Jun-92	2.513	
51X-GE-01017	ROOM 1, PANEL 1/ROOF	06-Jun-91	25-Jun-92	0.716	
51X-GE-01018	ROOM 1, PANEL 1/ROOF	06-Jun-91	25-Jun-92	0.793	
51X-GE-01019	ROOM 1, PANEL 1/ROOF	06-Jun-91	25-Jun-92	0.818	
51X-GE-01003	ROOM 2, PANEL 1/E RIB	14-Dec-88	25-Jun-92	2.773	
51X-GE-01004	ROOM 2, PANEL 1/W RIB	14-Dec-88	25-Jun-92	2.125	
51X-GE-01005	ROOM 3, PANEL 1/E RIB	14-Dec-88	25-Jun-92	3.165	
51X-GE-01006	ROOM 3, PANEL 1/W RIB	14-Dec-88	25-Jun-92	2.595	
51X-GE-01007	ROOM 4, PANEL 1/E RIB	14-Dec-88	21-Jun-91	2.264	
51X-GE-01008	ROOM 4, PANEL 1/W RIB	14-Dec-88	25-Jun-92	2.958	
51X-GE-01009	ROOM 5, PANEL 1/E RIB	14-Dec-88	25-Jun-92	2.861	
51X-GE-01010	ROOM 5, PANEL 1/W RIB	14-Dec-88	16-Jun-92	2.957	
51X-GE-01011	ROOM 6, PANEL 1/E RIB	14-Dec-88	25-Jun-92	2.693	
51X-GE-01012	ROOM 6, PANEL 1/W RIB	14-Dec-88	25-Jun-92	2.091	
51X-GE-01013	ROOM 7, PANEL 1/E RIB	14-Dec-88	27-Apr-92	1.954	
51X-GE-01014	ROOM 7, PANEL 1/W RIB	14-Dec-88	27-Apr-92	2.406	
51X-GE-01015	S1950-E856/S RIB	14-Dec-88	27-Apr-92	2.186	
51X-GE-01016	S1950-E856/N RIB	14-Dec-88	25-Jun-92	2.179	

CONVERGENCE POINTS

Fieldtag	Location	Date of Initial Reading	Date of Last Reading	Change From Initial (Inches)	Comments
S1600-E311 A-C	S1600 DRIFT-E311	11-Apr-86	06-Sep-89	5.447	MINED OUT-REPLACED BY S1600-E311-2:A-C
S1600-E311 B-D	"	11-Apr-86	05-Nov-90	5.994	MINED OUT-REPLACED BY S1600-E311-2:B-D
S1600-E311-2 A-C	"	10-Oct-89	22-Jun-92	2.083	
S1600-E311-2 B-D	"	27-Mar-91	22-Jun-92	0.895	
S1600-E332 A-C	S1600 DRIFT-E332	16-Apr-86	08-Sep-89	4.346	MINED OUT-REPLACED BY S1600-E332-2:A-C
S1600-E332 B-D	"	16-Apr-86	22-Jun-92	7.870	
S1600-E332-2 A-C	"	10-Oct-89	05-Dec-90	0.081	MINED OUT-REPLACED BY S1600-E332-3:A-C
S1600-E332-3 A-C	"	13-Mar-90	22-Jun-92	1.538	
S1600-E357 A-C	S1600 DRIFT-E357	16-Apr-86	06-Sep-89	4.462	MINED OUT-REPLACED BY S1600-E357-2:A-C
S1600-E357 B-D	"	16-Apr-86	22-Jun-92	8.747	
S1600-E357-2 A-C	"	10-Oct-89	22-Jun-92	2.105	
S1600-E382 A-C	S1600 DRIFT-E382	17-Apr-86	08-Sep-89	5.380	MINED OUT-REPLACED BY S1600-E382-2:A-C
S1600-E382 B-D	"	17-Apr-86	22-Jun-92	8.364	
S1600-E382-2 A-C	"	10-Oct-89	22-Jun-92	2.213	
S1600-E407 A-G	S1600 DRIFT-E407	18-Apr-86	08-Sep-89	5.442	MINED OUT-REPLACED BY S1600-E407-2:A-G
S1600-E407 F-B	"	18-Apr-86	06-Sep-89	4.303	MINED OUT-REPLACED BY S1600-E407-2:B-F
S1600-E407 C-K	"	18-Apr-86	22-Jun-92	9.207	
S1600-E407 D-J	"	18-Apr-86	22-Jun-92	8.995	
S1600-E407 E-I	"	18-Apr-86	22-Jun-92	8.602	
S1600-E407 H-L	"	18-Apr-86	08-Sep-89	5.065	MINED OUT-REPLACED BY S1600-E407-2:L-H
S1600-E407-2 A-G	"	10-Oct-89	22-Jun-92	2.317	
S1600-E407-2 B-F	"	10-Oct-89	22-Jun-92	2.063	
S1600-E407-2 L-H	"	10-Oct-89	22-Jun-92	2.305	
S1600-E432 A-C	S1600 DRIFT-E432	24-Apr-86	06-Sep-89	6.759	MINED OUT-REPLACED BY S1600-E432-2:A-C
S1600-E432 B-D	"	24-Apr-86	22-Jun-92	9.138	
S1600-E432-2 A-C	"	10-Oct-89	22-Jun-92	2.560	
S1600-E457 A-C	S1600 DRIFT-E457	25-Apr-86	06-Sep-89	6.079	MINED OUT-REPLACED BY S1600-E457-2:A-C
S1600-E457 B-D	"	25-Apr-86	22-Jun-92	9.123	
S1600-E457-2 A-C	"	10-Oct-89	22-Jun-92	2.538	
S1600-E482 A-C	S1600 DRIFT-E482	28-Apr-86	01-Nov-90	-9.437	MINED OUT-REPLACED BY S1600-E482-2:A-C
S1600-E482 B-D	"	28-Apr-86	22-Jun-92	10.411	
S1600-E482-2 A-C	"	10-Oct-89	22-Jun-92	2.667	
S1600-E507 A-C	S1600 DRIFT-E507	29-Apr-86	12-Apr-88	5.789	MINED OUT-REPLACED BY S1600-E507-2:A-C
S1600-E507-2 A-C	"	03-Dec-90	22-Jun-92	1.907	

TABLE 6-1
Waste Storage Area
Instrument Summary
Sheet 1 of 7

Waste Storage Area Instrument Summary

CONVERGENCE POINTS		Date of Initial Reading	Date of Last Reading	Change From Initial (Inches)	Comments
Fieldtag	Location				
S1600-E520 A-C	S1600 DRIFT-E520	11-Jun-86	06-Jan-87	2.840	MINED OUT-REPLACED BY S1600-E520-2 A-C
S1600-E520-2 A-C	"	20-Mar-87	01-Jun-88	2.898	MINED OUT-REPLACED BY S1600-E520-3 A-C
S1600-E520-3 A-C	"	20-Jun-88	22-Jun-92	10.971	
S1600-E586 A-C	S1600 DRIFT-E586	18-Mar-87	31-May-88	3.384	MINED OUT-REPLACED BY S1600-E586-2 A-C
S1600-E586 B-D	"	18-Mar-87	21-Apr-88	2.074	MINED OUT-REPLACED BY S1600-E586-2 B-D
S1600-E586-2 A-C	"	20-Jun-88	22-Jun-92	12.628	
S1600-E586-2 B-D	"	03-May-88	31-May-88	0.545	MINED OUT-REPLACED BY S1600-E586-3 B-D
S1600-E586-3 B-D	"	08-Jun-88	09-Jun-88	0.020	MINED OUT-REPLACED BY S1600-E586-4 B-D
S1600-E586-4 B-D	"	20-Jun-88	22-Jun-92	7.742	
S1600-E660 A-C	S1600 DRIFT-E660	15-May-91	22-Jun-92	2.721	
S1600-E790 A-C	S1600 DRIFT-E790	15-May-91	22-Jun-92	2.899	
S1600-E920 A-C	S1600 DRIFT-E920	22-Apr-87	16-May-88	7.423	MINED OUT-REPLACED BY S1600-E920-2 A-C
S1600-E920-2 A-C	"	23-May-88	08-Jun-88	0.436	MINED OUT-REPLACED BY S1600-E920-3 A-C
S1600-E920-3 A-C	"	20-Jun-88	24-Jun-88	0.129	MINED OUT-REPLACED BY S1600-E920-4 A-C
S1600-E920-4 A-C	"	29-Jun-88	22-Jun-92	16.070	
S1600-E986 A-C	S1600 DRIFT-E986	21-Apr-88	16-May-88	2.193	MINED OUT-REPLACED BY S1600-E986-2 A-C
S1600-E986 B-D	"	21-Apr-88	25-Apr-88	0.095	MINED OUT-REPLACED BY S1600-E986-2 B-D*
S1600-E986-2 A-C	"	31-May-88	08-Jun-88	0.206	MINED OUT-REPLACED BY S1600-E986-3 A-C
S1600-E986-2 B-D	"	09-May-88	22-Jun-92	10.389	
S1600-E986-3 A-C	"	20-Jun-88	22-Jun-88	0.128	MINED OUT-REPLACED BY S1600-E986-4 A-C
S1600-E986-4 A-C	"	06-Jul-88	22-Jun-92	12.504	
S1600-E1050 A-C	S1600 DRIFT-E1050	15-May-91	22-Jun-92	2.461	
S1600-E1190 A-C	S1600 DRIFT-E1190	15-May-91	22-Jun-92	2.544	
S1600-E1250 A-F	S1600 DRIFT-E1250	04-Mar-88	12-May-88	4.637	MINED OUT-REPLACED BY S1600-E1250-2 A-F
S1600-E1250 B-E	"	04-Mar-88	13-May-88	4.415	MINED OUT-REPLACED BY S1600-E1250-2 B-E
S1600-E1250 C-H	"	04-Mar-88	31-Mar-88	1.698	MINED OUT-REPLACED BY S1600-E1250-2 C-H
S1600-E1250 D-G	"	04-Mar-88	31-Mar-88	1.570	MINED OUT-REPLACED BY S1600-E1250-2 D-G
S1600-E1250-2 A-F	"	25-May-88	27-May-88	0.062	MINED OUT-REPLACED BY S1600-E1250-3 A-F*
S1600-E1250-2 B-E	"	25-May-88	27-May-88	0.053	MINED OUT-REPLACED BY S1600-E1250-3 B-E*
S1600-E1250-2 C-H	"	20-Apr-88	22-Jun-92	10.059	
S1600-E1250-2 D-G	"	20-Apr-88	22-Jun-92	10.400	
S1600-E1250-3 A-F	"	03-Jun-88	22-Jun-92	10.744	
S1600-E1250-3 B-E	"	03-Jun-88	22-Jun-92	12.434	
S1600-E1320 A-C	S1600 DRIFT-E1320	14-Apr-88	11-May-88	0.850	MINED OUT-REPLACED BY S1600-E1320-2 A-C
S1600-E1320-2 A-C	"	25-May-88	27-May-88	0.059	MINED OUT-REPLACED BY S1600-E1320-3 A-C*
S1600-E1320-3 A-C	"	03-Jun-88	22-Jun-92	10.075	
S1950-E113 A-C	S1950 DRIFT-E113	23-May-91	30-Apr-92	0.561	
S1950-E281 A-C	S1950 DRIFT-E281	23-May-91	22-Jun-92	1.210	
S1950-E284 A-C	S1950 DRIFT-E284	23-May-91	22-Jun-92	1.221	
S1950-E311 A-C	S1950 DRIFT-E311	01-May-86	23-Nov-87	4.201	MINED OUT-REPLACED BY S1950-E311-2 A-C
S1950-E311 B-D	"	01-May-86	23-Nov-87	3.589	MINED OUT-REPLACED BY S1950-E311-2 B-D
S1950-E311-2 A-C	"	02-Dec-87	22-Jun-92	7.892	
S1950-E311-2 B-D	"	02-Dec-87	22-Jun-92	5.781	
S1950-E332 A-C	S1950 DRIFT-E332	02-May-86	23-Nov-87	4.124	MINED OUT-REPLACED BY S1950-E332-2 A-C
S1950-E332 B-D	"	02-May-86	23-Nov-87	4.125	MINED OUT-REPLACED BY S1950-E332-2 B-D
S1950-E332-2 A-C	"	08-Dec-87	22-Jun-92	7.710	
S1950-E332-2 B-D	"	08-Dec-87	22-Jun-92	6.272	
S1950-E357 A-C	S1950 DRIFT-E357	05-May-86	23-Nov-87	4.612	MINED OUT-REPLACED BY S1950-E357-2 A-C
S1950-E357 B-D	"	05-May-86	23-Nov-87	4.451	MINED OUT-REPLACED BY S1950-E357-2 B-D
S1950-E357-2 A-C	"	08-Dec-87	22-Jun-92	8.129	
S1950-E357-2 B-D	"	08-Dec-87	22-Jun-92	6.202	
S1950-E382 A-C	S1950 DRIFT-E382	06-May-86	23-Nov-87	5.161	MINED OUT-REPLACED BY S1950-E382-2 A-C
S1950-E382 B-D	"	06-May-86	23-Nov-87	4.757	MINED OUT-REPLACED BY S1950-E382-2 B-D
S1950-E382-2 A-C	"	08-Dec-87	22-Jun-92	5.863	
S1950-E382-2 B-D	"	08-Dec-87	22-Jun-92	6.443	
S1950-E407 A-G	S1950 DRIFT-E407	14-May-86	23-Nov-87	4.705	MINED OUT-REPLACED BY S1950-E407-2 A-G
S1950-E407 F-B	"	14-May-86	23-Nov-87	4.081	MINED OUT-REPLACED BY S1950-E407-2 B-F
S1950-E407 H-L	"	14-May-86	23-Nov-87	4.527	MINED OUT-REPLACED BY S1950-E407-2 H-L
S1950-E407-2 A-G	"	04-Dec-87	22-Jun-92	8.329	

* Insufficient data-data not included

Waste Storage Area Instrument Summary

CONVERGENCE POINTS		Date of Initial Reading	Date of Last Reading	Change From Initial (Inches)	Comments
Fieldtag	Location				
S1950-E407-2 B-F	S1950 DRIFT-E407	04-Dec-87	22-Jun-92	6.692	
S1950-E407-2 H-L	"	04-Dec-87	22-Jun-92	8.111	
S1950-E407 K-C	"	14-May-86	23-Nov-87	4.307	MINED OUT-REPLACED BY S1950-E407-2 C-K
S1950-E407 D-J	"	14-May-86	23-Nov-87	4.480	MINED OUT-REPLACED BY S1950-E407-2 D-J
S1950-E407 E-I	"	14-May-86	23-Nov-87	4.189	MINED OUT-REPLACED BY S1950-E407-2 E-I
S1950-E407-2 C-K	"	04-Dec-87	22-Jun-92	6.008	
S1950-E407-2 D-J	"	04-Dec-87	22-Jun-92	6.785	
S1950-E407-2 E-I	"	04-Dec-87	22-Jun-92	5.993	
S1950-E432 A-C	S1950 DRIFT-E432	15-May-86	23-Nov-87	4.982	MINED OUT-REPLACED BY S1950-E432-2 A-C
S1950-E432 B-D	"	15-May-86	23-Nov-87	4.582	MINED OUT-REPLACED BY S1950-E432-2 B-D
S1950-E432-2 A-C	"	08-Dec-87	22-Jun-92	8.227	
S1950-E432-2 B-D	"	08-Dec-87	22-Jun-92	8.828	
S1950-E457 A-C	S1950 DRIFT-E457	16-May-86	23-Nov-87	5.408	MINED OUT-REPLACED BY S1950-E457-2 A-C
S1950-E457 B-D	"	16-May-86	23-Nov-87	5.087	MINED OUT-REPLACED BY S1950-E457-2 B-D
S1950-E457-2 A-C	"	08-Dec-87	22-Jun-92	8.946	
S1950-E457-2 B-D	"	08-Dec-87	22-Jun-92	7.263	
S1950-E482 A-C	S1950 DRIFT-E482	17-May-86	23-Nov-87	5.888	MINED OUT-REPLACED BY S1950-E482-2 A-C
S1950-E482 B-D	"	17-May-86	23-Nov-87	5.596	MINED OUT-REPLACED BY S1950-E482-2 B-D
S1950-E482-2 A-C	"	09-Dec-87	25-Jan-88	0.616	MINED OUT-REPLACED BY S1950-E482-3 A-C
S1950-E482-2 B-D	"	08-Dec-87	22-Jun-92	7.993	
S1950-E482-3 A-C	"	09-Mar-88	09-Mar-88	0.000	MINED OUT-REPLACED BY S1950-E482-4 A-C*
S1950-E482-4 A-C	"	05-Dec-88	22-Jun-92	6.099	
S1950-E503 A-C	S1950 DRIFT-E503	19-May-86	23-Nov-87	6.701	MINED OUT-REPLACED BY S1950-E503-2 A-C
S1950-E503-2 A-C	"	01-Mar-88	13-Jun-88	1.345	MINED OUT-REPLACED BY S1950-E503-3 A-C
S1950-E503-3 A-C	"	05-Dec-88	22-Jun-92	7.454	
S1950-E523 A-C	S1950 DRIFT-E523	29-May-86	23-Nov-87	7.193	MINED OUT-REPLACED BY S1950-E523-2 A-C
S1950-E523-2 A-C	"	09-Dec-87	28-Dec-87	0.290	MINED OUT-REPLACED BY S1950-E523-3 A-C
S1950-E523-3 A-C	"	01-Mar-88	22-Jun-92	12.682	
S1950-E586 A-C	S1950 DRIFT-E586	11-Jun-86	01-Jul-86	0.796	MINED OUT-REPLACED BY S1950-E586-2 A-C
S1950-E586 B-D	"	11-Jun-86	01-Jul-86	0.859	MINED OUT-REPLACED BY S1950-E586-2 B-D
S1950-E586-2 A-C	"	22-Apr-88	09-Jun-88	0.805	MINED OUT-REPLACED BY S1950-E586-3 A-C
S1950-E586-2 B-D	"	22-Apr-88	22-Jun-92	7.640	
S1950-E586-3 A-C	"	20-Jun-88	20-Jun-88	0.000	MINED OUT-REPLACED BY S1950-E586-4 A-C*
S1950-E586-4 A-C	"	29-Jun-88	22-Jun-92	10.745	
S1950-E660 A-C	S1950 DRIFT-E660	15-May-91	22-Jun-92	2.268	
S1950-E790 A-C	S1950 DRIFT-E790	15-May-91	22-Jun-92	2.381	
S1950-E920 A-C	S1950 DRIFT-E920	01-Jul-88	01-Jul-88	0.000	MINED OUT-REPLACED BY S1950-E920-2 A-C*
S1950-E920 B-D	"	01-Jul-88	01-Jul-88	0.000	MINED OUT*
S1950-E920-2 A-C	"	17-Mar-88	16-Jun-88	4.324	MINED OUT-REPLACED BY S1950-E920-3 A-C
S1950-E920-3 A-C	"	01-Jul-88	22-Jun-92	12.654	
S1950-E986 A-C	S1950 DRIFT-E986	21-Apr-88	16-Jun-88	1.437	MINED OUT-REPLACED BY S1950-E986-2 A-C
S1950-E986 B-D	"	11-May-88	29-Jun-88	0.959	MINED OUT
S1950-E986-2 A-C	"	06-Jul-88	22-Jun-92	12.104	
S1950-1050 A-C	S1950 DRIFT-E1050	15-May-91	22-Jun-92	2.718	
S1950-E1190 A-C	S1950 DRIFT-E1190	15-May-91	22-Jun-92	2.693	
S1950-E1250 A-C	S1950 DRIFT-E1250	30-Oct-86	01-Jun-88	6.869	MINED OUT-REPLACED BY S1950-E1250-2 A-C
S1950-E1250 E-F	"	21-Jan-88	01-Jun-88	1.443	MINED OUT-REPLACED BY S1950-E1250-2 E-F
S1950-E1250 F-J	"	30-Oct-86	23-Mar-88	3.149	MINED OUT-REPLACED BY S1950-E1250-2 B-D
S1950-E1250-2 A-C	"	08-Jun-88	21-Jun-88	0.311	MINED OUT-REPLACED BY S1950-E1250-3 A-C
S1950-E1250-2 B-D	"	21-Apr-88	29-Apr-88	0.204	MINED OUT-REPLACED BY S1950-E1250-3 B-D
S1950-E1250-2 E-F	"	08-Jun-88	21-Jun-88	0.310	MINED OUT-NOT REPLACED
S1950-E1250-3 A-C	"	29-Jun-88	22-Jun-92	11.843	
S1950-E1250-3 B-D	"	09-May-88	22-Jun-92	8.409	
S1950-E1320 A-C	S1950 DRIFT-E1320	14-Apr-88	25-May-88	1.207	MINED OUT-REPLACED BY S1950-E1320-2 A-C
S1950-E1320-2 A-C	"	03-Jun-88	21-Jun-88	0.408	MINED OUT-REPLACED BY S1950-E1320-3 A-C
S1950-E1320-3 A-C	"	25-Jun-88	22-Jun-92	9.326	
E520-S1639 A-C	E520 DRIFT-S1639	11-Jun-91	29-Jun-92	2.037	
E520-S1639 B-C	ROOM 1 PANEL 1	11-Jun-91	29-Jun-92	2.166	
E520-S1639 F-E	"	11-Jun-91	29-Jun-92	1.470	

* insufficient data-data not included

TABLE 6-1
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Instrument Summary
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CONVERGENCE POINTS

Fieldtag	Location	Date of Initial Reading	Date of Last Reading	Change From Initial (Inches)	Comments
E520-S1681 A-E	E520 DRIFT-S1681	11-Jun-91	29-Jun-92	2.770	
E520-S1681 B-D	ROOM 1, PANEL 1	11-Jun-91	29-Jun-92	2.913	
E520-S1681 H-F	"	11-Jun-91	29-Jun-92	1.998	
E520-S1681 C-G	"	11-Jun-91	29-Jun-92	1.491	
E520-S1688 A-C	E520 DRIFT-S1688	25-Jan-88	19-Feb-88	0.332	MINED OUT-REPLACED BY E520-S1688-2-A-C
E520-S1688-2 A-C	ROOM 1, PANEL 1	03-Mar-88	06-Sep-89	7.454	MINED OUT-REPLACED BY E520-S1688-3-A-C
E520-S1688-3 A-C	"	13-Mar-90	18-Mar-91	3.571	MINED OUT-REPLACED BY E520-S1688-4 A-C
E520-S1717 B-D	E520 DRIFT-S1717	06-Jun-91	29-Jun-92	3.720	
E520-S1717 C-G	ROOM 1, PANEL 1	25-Jan-88	29-Jun-92	9.723	
E520-S1717 H-F	"	06-Jun-91	29-Jun-92	2.342	
E520-S1717-4 A-E	"	27-Mar-91	29-Jun-92	4.041	
E520-S1758 A-E	E520 DRIFT-S1758	11-Jun-91	29-Jun-92	3.482	
E520-S1758 B-D	ROOM 1, PANEL 1	11-Jun-91	29-Jun-92	3.958	
E520-S1758 H-F	"	11-Jun-91	29-Jun-92	2.498	
E520-S1758 C-G	"	11-Jun-91	29-Jun-92	1.609	
E520-S1775 A-C	E520 DRIFT-S1775 (S1802)	02-Jun-88	28-Dec-87	10.630	MINED OUT-REPLACED BY E520-S1775-2 A-C
E520-S1775-2 A-C	ROOM 1, PANEL 1	09-Feb-88	11-Apr-88	0.929	MINED OUT-REPLACED BY E520-S1775-3 A-C
E520-S1775-3 A-C	"	14-Apr-88	06-Sep-89	6.439	MINED OUT-REPLACED BY E520-S1775-4 A-C
E520-S1775-4 A-C	"	25-Jan-90	18-Mar-91	3.942	MINED OUT-REPLACED BY E520-S1802-5 A-E
E520-S1802 B-D	"	11-Jun-91	29-Jun-92	3.685	
E520-S1802 H-F	"	11-Jun-91	29-Jun-92	2.335	
E520-S1775 B-D	"	02-Jun-88	28-Jul-86	1.027	MINED OUT-REPLACED BY E520-S1775-2 B-D
E520-S1775-2 B-D	"	23-Mar-87	28-Dec-87	1.692	MINED OUT-REPLACED BY E520-S1802-3 B-D
E520-S1802-3 C-G	"	04-Feb-88	29-Jun-92	9.532	
E520-S1802-5 A-E	"	27-Mar-91	23-Sep-91	1.745	MINED OUT-REPLACED BY E520-S1802-6 A-E
E520-S1802-6 A-E	"	24-Sep-91	29-Jun-92	2.221	
E520-S1841 A-E	E520 DRIFT-S1841	11-Jun-91	29-Jun-92	2.974	
E520-S1841 B-D	ROOM 1, PANEL 1	11-Jun-91	29-Jun-92	2.297	
E520-S1841 C-G	"	11-Jun-91	29-Jun-92	1.605	
E520-S1841 H-F	"	11-Jun-91	29-Jun-92	3.179	
E520-S1853 A-C	E520 DRIFT-S1853	03-Dec-90	29-Jun-92	4.293	
E520-S1853 B-D	ROOM 1, PANEL 1	03-Dec-90	18-Mar-91	0.366	BLOCKED BY SHED
E520-S1862 A-C	E520 DRIFT-S1862	09-Feb-88	12-Apr-88	0.792	MINED OUT-REPLACED BY E520-S1862-2 A-C
E520-S1862 B-D	ROOM 1, PANEL 1	25-Jan-88	25-Jan-90	7.898	BLOCKED-REPLACED BY E520-S1853 B-D
E520-S1862-2 A-C	"	14-Apr-88	06-Sep-89	4.590	MINED OUT-REPLACED BY E520-S1862-3 A-C
E520-S1862-3 A-C	"	25-Jan-90	25-Jan-90	0.000	BLOCKED-REPLACED BY E520-S1853 A-C
E520-S1884 A-E	E520 DRIFT-S1884	30-May-91	29-Jun-92	2.531	
E520-S1884 B-D	ROOM 1, PANEL 1	30-May-91	29-Jun-92	2.861	
E520-S1884 C-G	"	30-May-91	29-Jun-92	1.484	
E520-S1884 H-F	"	30-May-91	29-Jun-92	1.737	
E660-S1775 A-C	E660 DRIFT-S1775	18-Mar-87	11-Mar-88	2.796	MINED OUT-REPLACED BY E660-S1775-2 A-C
E660-S1775 B-D	ROOM 2, PANEL 1	18-Mar-87	26-Feb-88	1.574	MINED OUT-REPLACED BY E660-S1775-2 B-D
E660-S1775-2 A-C	"	17-Mar-88	20-Apr-88	1.349	MINED OUT-REPLACED BY E660-S1775-3 A-C
E660-S1775-2 B-D	"	01-Mar-88	02-Mar-88	0.071	MINED OUT-REPLACED BY E660-S1775-3 B-D
E660-S1775-3 A-C	"	09-May-88	20-May-88	0.328	MINED OUT-REPLACED BY E660-S1775-4 A-C
E660-S1775-3 B-D	"	02-Mar-88	11-Mar-88	0.346	MINED OUT-REPLACED BY E660-S1775-4 B-D
E660-S1775-4 A-C	"	23-May-88	31-Oct-89	6.462	MINED OUT-REPLACED BY E660-S1775-5 A-C
E660-S1775-4 B-D	"	14-Mar-88	25-Apr-88	1.541	MINED OUT-REPLACED BY E660-S1775-5 B-D
E660-S1775-5 A-C	"	25-Jan-90	22-Jun-92	6.546	
E660-S1775-5 B-D	"	09-May-88	22-Jun-92	8.631	
E790-S1775 A-C	E790 DRIFT-S1775	22-Apr-87	29-Apr-88	6.190	MINED OUT-REPLACED BY E790-S1775-2 A-C
E790-S1775 B-D	ROOM 3, PANEL 1	22-Apr-87	19-Mar-88	1.804	MINED OUT-REPLACED BY E790-S1775-2 B-D
E790-S1775-2 A-C	"	11-May-88	09-Jun-88	0.924	MINED OUT-REPLACED BY E790-S1775-3 A-C
E790-S1775-2 B-D	"	21-Mar-88	25-Mar-88	0.490	MINED OUT-REPLACED BY E790-S1775-3 B-D
E790-S1775-3 A-C	"	21-Jun-88	22-Jun-92	12.783	
E790-S1775-3 B-D	"	21-Apr-88	09-May-88	0.583	MINED OUT-REPLACED BY E790-S1775-4 B-D
E790-S1775-4 B-D	"	23-May-88	25-Oct-91	8.083	
E790-S1775-5 B-D	"	14-Feb-92	22-Jun-92	0.564	

TABLE 6-1
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Waste Storage Area Instrument Summary

CONVERGENCE POINTS

Fieldtag	Location	Date of Initial Reading	Date of Last Reading	Change From Initial (Inches)	Comments
E920-S1775 A-F	E920 DRIFT-S1775	04-Feb-88	17-Mar-88	1.766	MINED OUT-REPLACED BY E920-S1775-2 A-F
E920-S1775 B-E	ROOM 4, PANEL 1	04-Feb-88	14-Apr-88	4.049	MINED OUT-REPLACED BY E920-S1775-2 B-E
E920-S1775-2 A-F	"	23-Mar-88	14-Apr-88	1.115	MINED OUT-REPLACED BY E920-S1775-3 A-F
E920-S1775-2 B-E	"	03-May-88	09-Jun-88	0.808	MINED OUT-REPLACED BY E920-S1775-3 B-E
E920-S1775-3 A-F	"	03-May-88	09-Jun-88	0.880	MINED OUT-REPLACED BY E920-S1775-4 A-F
E920-S1775-3 B-E	"	20-Jun-88	24-Jun-88	0.201	MINED OUT-REPLACED BY E920-S1775-4 B-E
E920-S1775-4 A-F	"	20-Jun-88	24-Jun-88	0.126	MINED OUT-REPLACED BY E920-S1775-5 A-F
E920-S1775-4 B-E	"	01-Jul-88	22-Jun-92	10.176	
E920-S1775-5 A-F	"	01-Jul-88	22-Jun-92	12.113	
E920-S1775 C-H	"	04-Feb-88	07-Feb-88	0.405	MINED OUT-REPLACED BY E920-S1775-2 C-H
E920-S1775 D-G	"	04-Feb-88	07-Feb-88	0.326	MINED OUT-REPLACED BY E920-S1775-2 D-G
E920-S1775-2 C-H	"	08-Feb-88	17-Mar-88	1.189	MINED OUT-REPLACED BY E920-S1775-3 C-H
E920-S1775-2 D-G	"	08-Feb-88	17-Mar-88	1.105	MINED OUT-REPLACED BY E920-S1775-3 D-G
E920-S1775-3 C-H	"	03-May-88	10-Jun-91	8.080	MINED OUT-REPLACED BY E920-S1775-4 C-H
E920-S1775-3 D-G	"	03-May-88	10-Jun-91	7.994	MINED OUT-REPLACED BY E920-S1775-4 D-G
E920-S1775-4 C-H	"	03-Nov-91	22-Jun-92	0.921	
E920-S1775-4 D-G	"	03-Nov-91	22-Jun-92	0.916	
E1050-S1775 A-F	E1050 DRIFT-S1775	13-Feb-88	25-Apr-88	4.499	MINED OUT-REPLACED BY E1050-S1775-2 A-F
E1050-S1775 B-E	ROOM 5, PANEL 1	13-Feb-88	25-Apr-88	4.324	MINED OUT-REPLACED BY E1050-S1775-2 B-E
E1050-S1775-2 A-F	"	03-May-88	18-May-88	0.481	MINED OUT-REPLACED BY E1050-S1775-3 A-F
E1050-S1775-2 B-E	"	03-May-88	18-May-88	0.507	MINED OUT-REPLACED BY E1050-S1775-3 B-E
E1050-S1775-3 A-F	"	23-May-88	15-Jun-88	0.648	MINED OUT-REPLACED BY E1050-S1775-4 A-F
E1050-S1775-3 B-E	"	23-May-88	15-Jun-88	0.745	MINED OUT-REPLACED BY E1050-S1775-4 B-E
E1050-S1775-4 A-F	"	20-Jun-88	22-Jun-92	10.789	
E1050-S1775-4 B-E	"	20-Jun-88	22-Jun-92	12.637	
E1050-S1775 C-H	"	13-Feb-88	22-Mar-88	1.744	MINED OUT-REPLACED BY E1050-S1775-2 C-H
E1050-S1775 D-G	"	13-Feb-88	22-Mar-88	1.706	MINED OUT-REPLACED BY E1050-S1775-2 D-G
E1050-S1775-2 C-H	"	24-Mar-88	25-Apr-88	1.414	MINED OUT-REPLACED BY E1050-S1775-3 C-H
E1050-S1775-2 D-G	"	24-Mar-88	25-Apr-88	1.382	MINED OUT-REPLACED BY E1050-S1775-3 D-G
E1050-S1775-3 C-H	"	03-May-88	31-Jul-91	8.218	MINED OUT-REPLACED BY E1050-S1775-4 C-H
E1050-S1775-3 D-G	"	03-May-88	31-Jul-91	8.072	MINED OUT-REPLACED BY E1050-S1775-4 D-G
E1050-S1775-4 C-H	"	07-Nov-91	22-Jun-92	0.875	
E1050-S1775-4 D-G	"	07-Nov-91	22-Jun-92	0.865	
E1190-S1775 A-F	E1190 DRIFT-S1775	26-Feb-88	26-Feb-88	0.000	MINED OUT-REPLACED BY E1190-S1775-2 A-F*
E1190-S1775 B-E	ROOM 6, PANEL 1	26-Feb-88	03-May-88	2.942	MINED OUT-REPLACED BY E1190-S1775-2 B-E
E1190-S1775-2 A-F	"	29-Feb-88	03-May-88	1.841	MINED OUT-REPLACED BY E1190-S1775-3 A-F
E1190-S1775-2 B-E	"	18-May-88	06-Jun-88	1.402	MINED OUT-REPLACED BY E1190-S1775-3 B-E
E1190-S1775-3 A-F	"	18-May-88	06-Jun-88	1.066	MINED OUT-REPLACED BY E1190-S1775-4 A-F
E1190-S1775-3 B-E	"	14-Jul-88	22-Jun-92	11.593	
E1190-S1775-4 A-F	"	14-Jul-88	22-Jun-92	12.702	
E1190-S1775 C-H	"	26-Feb-88	29-Feb-88	0.928	MINED OUT-REPLACED BY E1190-S1775-2 C-H
E1190-S1775 D-G	"	26-Feb-88	29-Feb-88	1.010	MINED OUT-REPLACED BY E1190-S1775-2 D-G
E1190-S1775-2 C-H	"	01-Mar-88	03-May-88	1.947	MINED OUT-REPLACED BY E1190-S1775-3 C-H
E1190-S1775-2 D-G	"	01-Mar-88	03-May-88	1.929	MINED OUT-REPLACED BY E1190-S1775-3 D-G
E1190-S1775-3 C-H	"	23-May-88	22-Jun-92	9.083	
E1190-S1775-3 D-G	"	18-May-88	22-Jun-92	9.259	
E1320-S1688 A-F	E1320 DRIFT-S1688	15-Mar-88	23-May-88	3.929	MINED OUT-REPLACED BY E1320-S1688-2 A-F
E1320-S1688 B-E	ROOM 7, PANEL 1	15-Mar-88	23-May-88	3.588	MINED OUT-REPLACED BY E1320-S1688-2 B-E
E1320-S1688 C-H	"	30-Mar-88	23-May-88	1.831	MINED OUT-REPLACED BY E1320-S1688-2 C-H
E1320-S1688 D-G	"	30-Mar-88	23-May-88	2.479	MINED OUT-REPLACED BY E1320-S1688-2 D-G
E1320-S1688-2 A-F	"	08-Jun-88	22-Jun-92	13.137	
E1320-S1688-2 B-E	"	08-Jun-88	22-Jun-92	11.951	
E1320-S1688-2 C-H	"	08-Jun-88	13-Jan-92	6.966	MINED OUT-REPLACED BY E1320-S1688-3 C-H
E1320-S1688-2 D-G	"	08-Jun-88	13-Jan-92	7.267	MINED OUT-REPLACED BY E1320-S1688-3 D-G
E1320-S1688-3 C-H	"	14-Feb-92	22-Jun-92	0.432	
E1320-S1688-3 D-G	"	14-Feb-92	22-Jun-92	0.441	
E1320-S1775 A-F	E1320 DRIFT-S1775	12-Mar-88	23-May-88	4.774	MINED OUT-REPLACED BY E1320-S1775-2 A-F
E1320-S1775 B-E	ROOM 7, PANEL 1	12-Mar-88	23-May-88	4.387	MINED OUT-REPLACED BY E1320-S1775-2 B-E

* insufficient data-data not included

TABLE 6-1
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Waste Storage Area Instrument Summary

CONVERGENCE POINTS

Fieldtag	Location	Date of Initial Reading	Date of Last Reading	Change From Initial (Inches)	Comments
E1320-S1775-2 A-F	E1320 DRIFT-S1775	08-Jun-88	22-Jun-92	13.042	
E1320-S1775-2 B-E	ROOM 7, PANEL 1	08-Jun-88	22-Jun-92	11.181	
E1320-S1775 C-H	"	12-Mar-88	14-Mar-88	0.228	MINED OUT-REPLACED BY E1320-S1775-2 C-H
E1320-S1775 D-G	"	12-Mar-88	14-Mar-88	0.255	MINED OUT-REPLACED BY E1320-S1775-2 D-G
E1320-S1775-2 C-H	"	15-Mar-88	21-Mar-88	0.400	MINED OUT-REPLACED BY E1320-S1775-3 C-H
E1320-S1775-2 D-G	"	15-Mar-88	21-Mar-88	0.375	MINED OUT-REPLACED BY E1320-S1775-3 D-G
E1320-S1775-3 C-H	"	22-Mar-88	01-Jun-88	2.729	MINED OUT-REPLACED BY E1320-S1775-4 C-H
E1320-S1775-3 D-G	"	22-Mar-88	01-Jun-88	2.736	MINED OUT-REPLACED BY E1320-S1775-4 D-G
E1320-S1775-4 C-H	"	08-Jun-88	13-Jan-92	7.087	MINED OUT-REPLACED BY E1320-S1775-5 C-H
E1320-S1775-4 D-G	"	08-Jun-88	13-Jan-92	7.230	MINED OUT-REPLACED BY E1320-S1775-5 D-G
E1320-S1775-5 C-H	"	12-Mar-92	22-Jun-92	0.385	
E1320-S1775-5 D-G	"	12-Mar-92	22-Jun-92	0.380	
E1320-S1862 A-F	E1320 DRIFT-S1862	12-Mar-88	25-May-88	4.487	MINED OUT-REPLACED BY E1320-S1862-2 A-F
E1320-S1862 B-E	ROOM 7, PANEL 1	10-Mar-88	10-Mar-88	0.000	MINED OUT-REPLACED BY E1320-S1862-2 B-E*
E1320-S1862-2 A-F	"	03-Jun-88	22-Jun-92	13.116	
E1320-S1862-2 B-E	"	12-Mar-88	25-May-88	4.190	MINED OUT-REPLACED BY E1320-S1862-3 B-E
E1320-S1862-3 B-E	"	03-Jun-88	22-Jun-92	11.685	
E1320-S1862 C-H	"	10-Mar-88	14-Mar-88	0.600	MINED OUT-REPLACED BY E1320-S1862-2 C-H
E1320-S1862 D-G	"	10-Mar-88	14-Mar-88	0.557	MINED OUT-REPLACED BY E1320-S1862-2 D-G
E1320-S1862-2 C-H	"	15-Mar-88	20-Mar-88	0.282	MINED OUT-REPLACED BY E1320-S1862-3 C-H
E1320-S1862-2 D-G	"	15-Mar-88	20-Mar-88	0.257	MINED OUT-REPLACED BY E1320-S1862-3 D-G
E1320-S1862-3 C-H	"	22-Mar-88	20-May-88	1.896	MINED OUT-REPLACED BY E1320-S1862-4 C-H
E1320-S1862-3 D-G	"	22-Mar-88	20-May-88	1.714	MINED OUT-REPLACED BY E1320-S1862-4 D-G
E1320-S1862-4 C-H	"	03-Jun-88	22-Jun-92	7.027	
E1320-S1862-4 D-G	"	03-Jun-88	22-Jun-92	7.049	
TA1-N125 A-G	TEST ALCOVE 1-S1475	21-Sep-89	04-Jun-90	-0.187	NOT ACCESSIBLE
TA1-N125 B-F	"	21-Sep-89	04-Jun-90	0.818	"
TA1-N125 C-K	"	21-Sep-89	04-Jun-90	0.926	"
TA1-N125 D-J	"	21-Sep-89	04-Jun-90	0.915	"
TA1-N125 L-H	"	21-Sep-89	04-Jun-90	0.802	"
TA1-N112 A-C	TEST ALCOVE 1-S1488	21-Sep-89	04-Jun-90	0.907	"
TA1-N112 B-D	"	21-Sep-89	04-Jun-90	0.999	"
TA2-N125 A-G	TEST ALCOVE 2-S1475	21-Sep-89	04-Jun-90	0.803	"
TA2-N125 B-F	"	21-Sep-89	04-Jun-90	0.772	"
TA2-N125 C-K	"	21-Sep-89	04-Jun-90	0.885	"
TA2-N125 D-J	"	21-Sep-89	04-Jun-90	0.972	"
TA2-N125 L-H	"	21-Sep-89	04-Jun-90	-0.351	"
TA2-N112 A-C	TEST ALCOVE 2-S1488	21-Sep-89	04-Jun-90	0.845	"
TA2-N112 B-D	"	21-Sep-89	04-Jun-90	1.066	"
TA3-N125 A-G	TEST ALCOVE 3-S1475	21-Sep-89	04-Jun-90	0.807	"
TA3-N125 B-F	"	21-Sep-89	04-Jun-90	0.753	"
TA3-N125 C-K	"	21-Sep-89	04-Jun-90	0.866	"
TA3-N125 D-J	"	21-Sep-89	04-Jun-90	0.828	"
TA3-N125 L-H	"	21-Sep-89	04-Jun-90	0.707	"
TA3-N112 A-C	TEST ALCOVE 3-S1488	21-Sep-89	04-Jun-90	0.814	"
TA3-N112 B-D	"	21-Sep-89	04-Jun-90	1.012	"
TA4-N125 A-G	TEST ALCOVE 4-S1475	21-Sep-89	04-Jun-90	0.883	"
TA4-N125 B-F	"	21-Sep-89	04-Jun-90	0.847	"
TA4-N125 C-K	"	21-Sep-89	04-Jun-90	0.932	"
TA4-N125 D-J	"	21-Sep-89	04-Jun-90	0.889	"
TA4-N125 L-H	"	21-Sep-89	04-Jun-90	0.825	"
TA4-N112 A-C	TEST ALCOVE 4-S1488	21-Sep-89	04-Jun-90	0.913	"
TA4-N112 B-D	"	21-Sep-89	04-Jun-90	0.896	"

* Insufficient data-data not included

TABLE 6-1
Waste Storage Area
Instrument Summary
Sheet 6 of 7

Waste Storage Area Instrument Summary

CONVERGENCE METERS		Date of Initial Reading	Date of Last Reading	Change From Initial (Inches)	Comments
Fieldtag	Location				
51X-CW-01021	ROOM 6/MIDPOINT VERT	20-Jan-89	24-Jun-92	10.004	
51X-CW-01022	"	20-Jan-89	24-Jun-92	9.998	
51X-CW-01023	ROOM 6/MIDPOINT HORZ	20-Jan-89	24-Jun-92	7.027	
51X-CW-01024	"	20-Jan-89	24-Jun-92	8.788	
51X-CW-01025	ROOM 4/LONGITUDINAL	20-Jan-89	28-Apr-89	0.382	INSTRUMENT REMOVED

TABLE 6-1
Waste Storage Area
Instrument Summary
Sheet 7 of 7

FIGURE 6-1
Reference Location
Waste Storage Area

VOLUME II

WIP14-5

FIGURE 6-6
EXTENSOMETER 51X GE-01019
ROOM 1, PANEL 1/NORTH END
ROOF

NOTES:
1. EXCAVATION DATE: JUNE 2, 1986.

FIGURE 6-7
EXTENSOMETER 51X GE-01003
ROOM 2, PANEL 1
EAST RIB

NOTES:
1. EXCAVATION DATE: JANUARY 23, 1987.

NOTES:
1. EXCAVATION DATE: JANUARY 23, 1987.

NOTES:
1. EXCAVATION DATE: FEBRUARY 19, 1987

FIGURE 6-10
EXTENSOMETER 51X GE-01006
ROOM 3, PANEL 1
WEST RIB

NOTES:
1. EXCAVATION DATE: FEBRUARY 19, 1987.

NOTES:
1. EXCAVATION DATE: FEBRUARY 4, 1988.

FIGURE 6-15
EXTENSOMETER 51X GE-01011
ROOM 6, PANEL 1
EAST RIB

NOTES:
1. EXCAVATION DATE: FEBRUARY 26, 1988.

FIGURE 6-16
EXTENSOMETER 51X GE-01012
ROOM 6, PANEL 1
WEST RIB

NOTES:
1. EXCAVATION DATE: FEBRUARY 26, 1988.

NOTES:
1. EXCAVATION DATE: JULIE 19, 1986.

FIGURE 6-20
EXTENSOMETER 51X GE-01016
S1950 DRIFT-E856
NORTH P1B

NOTES:
1. EXCAVATION DATE: JUNE 19, 1985.

NOTES:
1. EXCAVATION DATE: APRIL 16, 1985.

FIGURE 6-23
CONVERGENCE POINTS
S1600 DRIFT-E357
ALL CHOPUS

NOTES:
1. EXCAVATION DATE: APRIL 17, 1986.

FIGURE 6-27
CONVERGENCE POINTS
S1600 DIFT-E457
ALL CHORDS

NOTES:
1. EXCAVATION DATE: APRIL 25, 1985.

FIGURE 6-31
CONVERGENCE POINTS
S1600 DRIFT-E586
ALL CHORDS

FIGURE 6-31 EXCAVATION DATE: JANUARY 14, 1985.

NOTES:
1. EXCAVATION DATE: FEBRUARY 3, 1987.

FIGURE 6-33
CONVERGENCE POINTS
S1600 DRIFT-E790
ALL CHORDS

NOTES:
1. EXCAVATION DATE: MARCH 10, 1987.

FIGURE 6-34
CONVERGENCE POINTS
S1600-E920 DRIFTS INTERSECTION
ALL CHORDS

FIGURE 6-37
CONVERGENCE POINTS
S1600 DRIFT-E1190
ALL CHORDS

NOTES:
1. EXCAVATION DATE: APRIL 4, 1987.

FIGURE 6-38
CONVERGENCE POINTS
S1600 DRIFT-E1250
ALL CHORDS

NOTES:
1. EXCAVATION DATE: MARCH 4, 1988.

FIGURE 6-40
CONVERGENCE POINTS
S1950 DRIFT-E113
ROOF-T0-FLOOR

NOTES:
1. EXCAVATION DATE: JANUARY 30, 1986.

NOTES:
1. EXCAVATION DATE: APRIL 30, 1986.

NOTES:
1. EXCAVATION DATE: MAY 2, 1986.

FIGURE 6-45
CONVERGENCE POINTS
S1950 DRIFT-E357
ALL CHORDS

NOTES:
1. EXCAVATION DATE: MAY 13, 1986.

FIGURE 6-47
CONVERGENCE POINTS
S1950 DRIFT-E407
ROOF-TO-FLOOR

NOTES:
1. EXCAVATION DATE: MAY 13, 1986.

FIGURE 6-48
CONVERGENCE POINTS
S1950 DRIFT-E407
RIB-TO-RIB

NOTES:
1. EXCAVATION DATE: MAY 15, 1986.

NOTES:
1. EXCAVATION DATE: MAY 16, 1986.

NOTES:
1. EXCAVATION DATE: MAY 20, 1986.

FIGURE 6-54
CONVERGENCE POINTS
S1950 DRIFT-E586
ALL CHORDS

NOTES:
1. EXCAVATION DATE: JUNE 10, 1986.

NOTES:
1. EXCAVATION DATE: JUNE 17, 1986.

FIGURE 6-57
CONVERGENCE POINTS
S1950-E920 DRIFTS INTERSECTION
ROOF-TO-FLOOR

NOTES:
1. EXCAVATION DATE: JULY 1, 1986.

NOTES:
1. EXCAVATION DATE: JULY 3, 1986.

FIGURE 6-58
CONVERGENCE POINTS
S1950 DRIFT-E986
ALL CHORDS

FIGURE 6-60
CONVERGENCE POINTS
S1950 DRIFT-E1190
ROOF-TO-FLOOR

NOTES:
1. EXCAVATION DATE: OCTOBER 13, 1986.

NOTES:
1. EXCAVATION DATE: OCTOBER 20, 1986.

NOTES:
 1. EXCAVATION DATE: OCTOBER 29, 1986.

NOTES:
1. EXCAVATION DATE: AUGUST 6, 1986.

FIGURE 6-63
CONVERGENCE POINTS
E520 DRIFT-S1639 ROOM 1, PANEL 1
ALL CHORDS

NOTES:
1. EXCAVATION DATE: JUNE 4, 1986.

FIGURE 6-64
CONVERGENCE POINTS
E520 DRIFT-S1681 ROOM 1, PANEL 1
ALL CHORDS

NOTES:
1. EXCAVATION DATE: MAY 23, 1986.

FIGURE 6-69
CONVERGENCE POINTS
E520 DRIFT-S1841 ROOM 1, PANEL 1
ALL CHORDS

NOTES:
1. EXCAVATION DATE: MAY 22, 1986.

FIGURE 6-72
CONVERGENCE POINTS
E520 DRIFT-S1884 ROOM 1, PANEL 1
ALL CHORDS

NOTES:
1. EXCAVATION DATE: FEBRUARY 19, 1987.

NOTES:
1. EXCAVATION DATE: FEBRUARY 4, 1988.

FIGURE 6-75
CONVERGENCE POINTS
E920 DRIFT-S1775 ROOM 4, PANEL 1-CENTER
ROOF-TO-FLOOR

FIGURE 6-77
CONVERGENCE POINTS
E1050 DRIFT-S1775 ROOM 5, PANEL 1-CENTER
ROOF-10-FL00R

NOTES:
1. EXCAVATION DATE: FEBRUARY 12, 1988.

FIGURE 6-78
CONVERGENCE POINTS
E1050 DRIFT-S1775 ROOM 5, PANEL 1-CENTER
RIB-TO-RIB

NOTES:
1. EXCAVATION DATE: FEBRUARY 12, 1988.

FIGURE 6-79
CONVERGENCE POINTS
E1190 DRIFT-S1775 ROOM 6, PANEL 1-CENTER
ROOF-TO-FLOOR

NOTES:
1. EXCAVATION DATE: FEBRUARY 26, 1988.

FIGURE 6-80
CONVERGENCE POINTS
E1190 DRIFT-S1775 ROOM 6. PANEL 1-CENTER
RIB-TO-RIB

NOTES:
1. EXCAVATION DATE: FEBRUARY 26, 1988.

FIGURE 6-82
CONVERGENCE POINTS
E1320 DRIFT-S1775 ROOM 7, PANEL 1-CENTER
ROOF-TO-FLOOR

NOTES:
1. EXCAVATION DATE: MARCH 10, 1988.

NOTES:
1. EXCAVATION DATE: MARCH 8, 1988.

END

**DATE
FILMED**

11/29/93